The New Economics of Jurisdictional Competition: Devolutionary Federalism in a Second-Best World

William W. Bratton  
*University of Pennsylvania, wbratton@law.upenn.edu*

Joseph A. McCahery  
*Tilburg University, j.a.mccahery@uvt.nl*

---

Follow this and additional works at: [http://scholarship.law.upenn.edu/faculty_scholarship](http://scholarship.law.upenn.edu/faculty_scholarship)

Part of the Business Law, Public Responsibility, and Ethics Commons, Commercial Law Commons, Economic Policy Commons, Economic Theory Commons, Entrepreneurial and Small Business Operations Commons, Jurisdiction Commons, Jurisprudence Commons, Law and Economics Commons, Legal History, Theory and Process Commons, and the Philosophy Commons

---

Recommended Citation

[http://scholarship.law.upenn.edu/faculty_scholarship/849](http://scholarship.law.upenn.edu/faculty_scholarship/849)

---

This Article is brought to you for free and open access by Penn Law: Legal Scholarship Repository. It has been accepted for inclusion in Faculty Scholarship by an authorized administrator of Penn Law: Legal Scholarship Repository. For more information, please contact PennlawIR@law.upenn.edu.
ARTICLES

The New Economics of Jurisdictional Competition: Devolutionary Federalism in a Second-Best World

WILLIAM W. BRATTON* AND JOSEPH A. MCCAHERY**

TABLE OF CONTENTS

INTRODUCTION ................................................................. 203

I. THE JURISDICTIONAL COMPETITION PARADIGM ...................... 207
   A. THE TIEBOUT MODEL AND ITS TRANSITION TO LEGAL FEDERALISM . 207
      1. The Tiebout Model .............................................. 207
      2. Extension to Regulation ....................................... 209
      3. Restatement as Legal Federalism’s Race-to-the-Top ............ 211
      4. Ties to Related Devolutionary Theories—Public Choice and Social Choice ................................................. 213
   B. THE DEBATE IN LEGAL FEDERALISM: THE RACE-TO-THE-TOP VERSUS THE RACE-TO-THE-BOTTOM .................................. 217

II. THE TIEBOUT MODEL’S EXTRAORDINARY DEMANDS ..................... 219
   A. THE PRACTICAL PROBLEM: BUNDLING, PRICING, AND OPTIMAL NUMBERS ................................................................. 222
   B. THE THEORETICAL PROBLEM: NONEQUILIBRIUM AND UNSTABLE EQUILIBRIUM .............................................................. 225
      1. Statement of the Problem ........................................ 225
         a. Nonequilibrium .................................................. 225
         b. Unstable Equilibrium ......................................... 227
      2. Implications ...................................................... 230

* Professor of Law and Governor Woodrow Wilson Scholar, Rutgers School of Law-Newark and Visiting Professor of Law, Leiden University.
** Lecturer in Law, Faculty of Law, Tilburg University. We thank David Carlson, Neil Duxbury, Duncan Kennedy, Brian Langille, Ira Lupu, Gregory Mark, David Millon, Larry Mitchell, Anthony Ogus, Andrew Reeve, Joel Trachtman, and Geoffrey Underhill for their comments on earlier drafts of this article, along with the participants in workshops at the George Washington, Maryland, and Rutgers law schools, Warwick Business School and in the following conferences: Harvard Law School Graduate Program Conference on New Approaches to International Law, University of Manchester School of Business Conference on European Regulation, and Philosophy and Public Affairs Seminar at the University of Warwick. Thanks also to our research assistants Lucian Gerritsen, Kristen Roberts, and Andrew White.
C. ADDITIONAL FRICTIONS INHIBITING THE TIEBOUT MECHANISM:
EXTERNALITIES, MOBILITY, AND INFORMATION ........................................ 231
   1. Externalities and Spillovers ......................................................... 231
   2. Mobility ....................................................................................... 233
   3. Information .................................................................................. 234
D. THE PROBLEM OF ENTREPRENEURIAL INCENTIVES ................................. 235
   1. The Entrepreneurial State and the Problems of Observation and Verification ......................................................... 236
   2. The Conventional State as Entrepreneur .......................................... 237
E. EMPIRICAL TESTS OF THE TIEBOUT MECHANISM .................................... 239
   1. Capitalization Studies ................................................................. 240
   2. Other Studies .............................................................................. 241

III. JURISDICTIONAL COMPETITION IN A SECOND-BEST WORLD: THE NEW ECONOMICS .......................................................... 243

A. TAX COMPETITION MODELS ............................................................... 244
   1. Basic Model ................................................................................ 245
   2. Evaluation .................................................................................... 249
      a. *Unstable Equilibrium* .............................................................. 249
      b. *Externalities, Information, and Mobility* ................................. 250
      c. *Entrepreneurial Incentives* ...................................................... 251
   3. Neo-Tieboutian Tax Models ............................................................ 251
B. ASYMMETRIC INFORMATION MODELS OF LOCAL PUBLIC GOODS PRODUCTION .......................................................... 254
   1. Information Revelation by Local Government Agents in a Tiebout Context ................................................................. 254
   2. Yardstick Competition .................................................................. 256

C. SUMMARY .......................................................................................... 259

IV. IMPLICATIONS FOR LEGAL FEDERALISM .............................................. 260

A. A SUITABILITY STANDARD FOR CLAIMS OF COMPETITIVE BENEFIT .......................................................... 260
   1. Implications for Legal Federalism's Devolutionary Presumption ....... 260
INTRODUCTION

Our federalism has entered a devolutionary phase. We see this in the political rhetoric of federal deregulation, in recent legislative initiatives, such as the 1996 welfare reform act, and in academic discussions. Under the emerging majority view, relative regulatory advantage within the federal system lies with state and local government. This reverses a conventional wisdom favoring federal solutions that dates back to the New Deal. The devolutionary shift results from the confluence of many patterns of thought and action—political, social, legal, and economic. This article focuses on the point where the last two factors, law and economics, come together to articulate a theory of legal federalism derived from the economic theory of jurisdictional competition.

Legal federalism looks to the economic theory of jurisdictional competition to provide decisive support for devolutionary initiatives. This economic theory has been understood in legal contexts to yield two general assertions, which in turn give rise to three powerful normative implications for federalism. The two assertions are said to be these: (1) competitive forces shape a wide range of

1. See Steven D. Gold, Issues Raised by the New Federalism, 49 Nati’l Tax J. 273, 273-77 (1996); Peter H. Schuck, Introduction: Some Reflections on the Federalism Debate, 14 Yale J. on Reg. 1, 5-9 (1996). The term “devolutionary” is used in contrast to the term “deregulatory,” although there is an area of overlapping meaning. A devolutionary initiative contemplates federal withdrawal from a regulatory field in favor of exclusive occupation by state and local governments. Such an initiative is deregulatory at the federal level; it need not be deregulatory at the state and local level.

2. See, e.g., CONTRACT WITH AMERICA (Ed Gilliespie & Bob Schellhas eds., 1994).


outcomes at state and local levels because public goods and regulations figure significantly in the locational decisions of factors of production, citizens, and capital (hereinafter referred to as “factors of production”); and (2) this competition produces a market that aligns regulatory outcomes with citizen preferences in a first-best equilibrium and thereby provides an “empirical answer” to important policy questions, because it permits only public goods and regulations for which citizens willingly pay to survive in the long run. The normative implications for legal and political theory that result from the economics, thus characterized, include the following: (1) jurisdictional competition will discipline government producers for the benefit of taxpaying citizens; (2) the central government should be viewed as a cartel because just as collaboration among competing producers reduces price competition and incentives to innovate, so too does the removal of regulatory subject matter to a central government reduce the number of potential competitors and dilute entrepreneurial incentives; and (3) federal intervention, whether by congressional legislation or judicial decree, inhibits the operation of the market and therefore proves at best unnecessary and at worst produces dead weight anticompetitive costs. At the bottom line, a strong presumption favors locating regulatory authority with junior (that is, state and local) levels of government.


8. See Weingast, supra note 5, at 5. A jurisdiction, accordingly, will regulate only if the political benefits of the regulation are worth the costs imposed by exiting actors. See id. at 6.


10. See Vicki Been, “Exit” as a Constraint on Land Use Exactions: Rethinking the Unconstitutional Conditions Doctrine, 91 COLUM. L. REV. 473, 511 (1991) (arguing against federal constitutional scrutiny of municipal land use decisions and concluding that, given regulatory competition, those who would constrain municipal power have the “burden to explain” why market forces do not provide adequate discipline).
This article shows that this legal restatement of the economics materially mischaracterizes the theory actually articulated in economic literature. The restatement relies on an early generation of economic models, the robustness of which long has been questioned by advanced opinion in the field of public economics. These questions have caused the economists to modify their analysis of competitive behavior among governments. Although these modified models continue to emphasize the advantages of state and local regulation, they relocate formal economic analysis in a second-best world. There concrete conclusions about the economic benefits of decentralization must be delayed pending solution of a long list of problems, including unstable equilibrium, pervasive cost externalization, information asymmetry, and regulatory capture. Analysis of these problems proceeds on a level of complexity that precludes global efficiency pronouncements about the location of regulatory advantage within the federal system. In an all-or-nothing debate between centralization and devolution, this subsequent generation of models supports neither side. Since this approach is new to legal federalism, it is herein referred to as the new economics of jurisdictional competition.

The new economics withdraws support from legal federalism's general assertion that devolution of regulatory authority to the state and local level leads to competitive efficiency. Instead it assists evaluation of the strengths and weaknesses of particular regulatory initiatives, whether centralizing or devolutionary. Although the new economics does not preclude reference to the benefits of jurisdictional competition in policy debates, it does reallocate the burden of showing these benefits to the proponent of a competitive, junior-level solution. To meet the burden, such a proponent must establish: (1) the presence of conditions conducive to competition, because devolution alone does not assure that competition determines the terms of regulation; and (2) a chain of causation connecting the competitive lawmaking process and the regulatory outcome to the satisfaction of citizen preferences, because regulatory competition alone, if and when it occurs, does not ensure this result. The proponent’s argument should begin with a statement of particular competitive pressures. It should then establish how the pressures affect the alignment of interest-group politics as well as other factors that influence regulatory outcomes in the competing jurisdictions. Finally, the proponent should show how the politics thus described lead to the desired regulatory outcome.

These complex lessons concerning the economic properties of state and local regulation have not yet been assimilated into legal federalism. This deficient economic learning creates a risk of distorted regulatory outcomes, especially at a time when economics is routinely invoked to support new devolutionary initiatives. This article begins the needed remedial work.11

11. Two recent articles also draw on the new economics of jurisdictional competition, avoiding the practice of viewing jurisdictional competition as an all-or-nothing proposition. See Robert Howse & Michael J. Trebilcock, The Fair Trade-Free Trade Debate: Trade, Labor, and the Environment, 16
A section by section analysis follows. Part I situates jurisdictional competition theory in the larger contexts of legal federalism and public choice theory. This discussion begins with the classic Tiebout model of public goods provision,\textsuperscript{12} describes its expansion into a model of regulatory competition in legal contexts, and then fixes the Tiebout model's place in public choice theory. This analysis shows that jurisdictional competition theory's special attractions are its supposed ability to achieve a first-best equilibrium outcome and to cure state and local regulatory capture problems.\textsuperscript{13} Part I then describes the structure and posture of legal federalism's debate between race-to-the-top and race-to-the-bottom views of jurisdictional competition, and concludes that neither view offers a useful approach for projecting the economic results of devolution.

Part II examines the Tiebout model's theoretical shortcomings. This discussion shows that public economics has never managed to derive a stable equilibrium model of competing jurisdictions that meaningfully describes the real world (or any reasonably approximate hypothetical substitute). Theoretically speaking, this is a devastating result for jurisdictional competition's advocates in legal contexts. It leaves them to commend a bizarre sort of federalism in which central government must intervene to stabilize a dysfunctional, unpredictable market. The discussion further shows that, even absent this market stabilization activity, such a central authority would be fully occupied devising mechanisms to ameliorate frictions that inhibit the Tiebout model's operation—limited information, externalities, and the costs of mobility. Finally, Part II highlights the hollowness of the model's assumption that government actors have incentives to act entrepreneurially. Because it lacks a credible description of a lawmaker's incentives, the model fails to provide a mechanism that beneficially disciplines government and eliminates public choice problems.

Part III introduces the new generation of formal models of jurisdictional competition to the legal literature. These models redeploy the theory in a second-best world, sapping the strength from the efficiency claims routinely made in legal federalism. The new models show that externalities—universally accepted as a legitimate ground for federal intervention under the model—are implicated in most state and local decisions to tax and provide public goods. As a result, the job of qualifying a devolutionary initiative on productive grounds becomes much more difficult. The new economics also searches for mecha-
nisms that ameliorate the old model’s deficiencies, addressing problems that the old model assumed away, such as information asymmetry and regulatory capture at the state and local level. Ironically, politics and voting, purportedly irrelevant under the old model, come back into the picture as a more plausible model is cobbled together piece by piece.

Part IV articulates the new economics’ implications for legal federalism. This discussion recommends a five-step suitability standard for legal applications of the theory, and the retirement of the shopworn and misleading concepts of a race-to-the-top and a race-to-the-bottom. Part IV also extends the lessons of the economic models, which for the most part concern local public goods production, to a range of regulatory competition situations. This discussion offers a typology showing that the old model applies with greater robustness in certain regulatory competition situations than it does with local public goods production, but that in other situations, its problems continue.

I. The Jurisdictional Competition Paradigm

A. The Tiebout Model and Its Transition to Legal Federalism

1. The Tiebout Model

Charles Tiebout’s economic theory of jurisdictional competition addresses the production of public goods,14 that is, the actual goods and services produced by government for which citizens willingly pay, such as national defense, police and fire protection, roads and sewers, and public education. According to the “Samuelson condition,” public goods are allocated efficiently when the sum of a citizen’s marginal rate of substitution of income for the good equals the marginal cost of an additional unit of the good.15 The Samuelson condition, however, is not easily met. With private goods, market competition exerts downward pressure on producers’ marginal costs, and market prices provide concrete information about consumers’ rates of substitution. With public goods, in contrast, no obvious market exerts downward pressure on government producers’ marginal costs. Nor does an obvious mechanism force taxpaying citizen-consumers truthfully to reveal their rates of substitution.16

---

14. Technically, a pure public good is a good from which consuming individuals cannot be excluded if they fail to provide their pro rata share of the rent required for production. The provision of public goods, thus defined, economically justifies the existence of government: given free-rider problems, producers of public goods cannot capture some or all of their production cost, and such goods will be undersupplied absent a taxation mandate. Assessment of a good’s status as a public good entails examination of a range of factors, such as the feasibility of exclusion, the properties of demand, and the costs and distributional implications of individually based supply. See Anthony B. Atkinson & Joseph E. Stiglitz, Lectures on Public Economics 483-87 (1980); Paul A. Samuelson, The Pure Theory of Public Expenditures, 36 Rev. Econ. & Stat. 387, 387-88 (1954). In this article, the term “public goods” includes: (1) goods conventionally provided by local government in addition to pure public goods; and (2) public services.


16. The free-rider problem that comes up in the arena of collective political action makes it rational
The Tiebout model of regulatory competition purports to satisfy the Samuelson condition by identifying a mechanism that disciplines government producers and matches citizens' preferences to levels of public goods provision and taxation. The mechanism is a market—a market for public goods purveyed by competing legal governments to a customer base of mobile taxpayers. The model depicts the citizen-voter choice respecting local public goods made by a city resident contemplating a move to the suburbs and choosing among a number of towns.

A series of assumptions underlie Tiebout's model:

1. there exists a large number of communities, and the public goods offerings of each reflect the full range of public goods available;
2. mobility is costless for all relocating actors, who choose a jurisdiction based on taxes and available public goods;
3. perfect information is available respecting the public goods on offer in all jurisdictions;
4. every jurisdiction has an optimal size, defined as the number of residents for which the bundle of services can be produced at the lowest average cost;
5. communities below the optimal size will seek to attract new residents to reduce the average cost of providing services; and
6. there are no externalities, monopolies, or spillover effects across jurisdictions.

With these assumptions in place, the Tiebout model links citizen mobility with preference revelation and predicts that locational decisions will reveal individual preferences for public goods and levels of taxation. Rational forward-looking individuals, after surveying the range of available choices, will act in accordance with their preferences for location-specific bundles of public goods.

---

17. Tiebout, supra note 12, at 422.
18. The model has been subsequently developed and refined. See, e.g., WALLACE E. OATES, FISCAL FEDERALISM (1972); James M. Buchanan & C.J. Goetz. Efficiency Limits of Fiscal Mobility: An Assessment of the Tiebout Model. 1 J. PUB. ECON. 25, 39-40 (1972) (criticizing the Tiebout model's failure to consider the "fact of location" and the "absence of proprietary ownership"); William A. Fischel, Fiscal and Environmental Considerations in the Location of Firms in Suburban Communities, in FISCAL ZONING AND LAND USE CONTROLS 119 (Edwin S. Mills & Wallace E. Oates eds., 1975) (extending Tiebout model to include nonresidential land use).
19. Tiebout, supra note 12, at 419. The model also assumes that the preferences of relocating actors are not influenced by the presence or absence of employment opportunities. Id.
The model goes on to predict that this preference revelation process leads to a market equilibrium. This local public goods equilibrium will be established because, like producers of private goods and services, local government units will compete with their public goods offerings to attract new residents. Competition between local governments thus should be promoted because it will lead to an optimal balance between the level of taxation and the provision of public goods.

2. Extension to Regulation

The Tiebout model influenced the field of public economics profoundly. Public economists have been producing formal models of jurisdictional competition ever since it appeared in 1956. But, during the latter part of this period, strategies for dealing with the model's lack of robustness have been the literature's primary concern.

The original model has fared better in recent years on the interdisciplinary playing field of law and economics, in which the rigors of formalization are relaxed and normative concerns predominate. In further contrast to the model's development in its home field, where it has remained closely tied to the study of the production of local public goods, in legal contexts the model has been applied to a broad range of subject matter. These applications extend the public goods concept to government's output of regulation in addition to its output of actual goods and services. Under this expanded view, the public consumes and pays for regulatory outcomes such as contract enforcement, clean air, safe products, and stable labor relations. Government is just another producer in the overall economy, and law is product. The extended Tiebout model fundamentally changed legal federalism. When the model first came to legal federalism early in the history of law and economics, its applications were in local government law and associated real property topics. The extension to regulation...
tion then enabled the model's application to corporate, banking, and environmental law, with antitrust and product safety following soon thereafter. Jurisdictional competition joined the list of more traditional concerns, and came to be


28. The law as product field is still "booming." Carol M. Rose, Takings, Federalism, Norms, 105 YALE L.J. 1121, 1133 (1996) (reviewing William A. Fischel, Regulatory Takings: Law, Economics, and Politics (1995)). Applications of the basic law as product model to new domestic topics continue to appear. For a recent example, see David A. Skeel, Jr., Rethinking the Line Between Corporate Law and Corporate Bankruptcy, 72 TEX. L. REV. 471 (1994) (suggesting that a variant of state charter competition would be preferable to a federal bankruptcy regime).

29. The volume of applications to general federalism theory has increased notably in the past few years. See, e.g., Calabresi, supra note 7, at 776; LeBouef, supra note 9, at 556; Weingast, supra note 5, at 5-6.

30. Traditional concerns include diversity and participation, checks on central concentrations of power, and republican values. See Richard B. Stewart, Federalism and Rights, 19 GA. L. REV. 917, 917-18 (1985).

After thus becoming a fixture on the landscape of American federalism, regulatory competition expanded to venues worldwide. It has appeared within other federal systems, see Ronald J. Daniels, Should Provinces Compete? The Case for a Competitive Corporate Law Market, 36 MCGILL L.J. 130, 150-51 (1991) (discussing Canadian corporate law), and quasi-federal systems, most notably in discussions on strategies for integration within the European Union, see, e.g., Easterbrook, supra note 6, at 126-36; Gerard Hertig, Imperfect Mutual Recognition for EC Financial Services, 14 Int'l L. REV. & ECON. 177, 178 (1994) (applying the Tiebout model to support the point that mutual recognition is superior to national treatment). Regulatory competition also figures into "globalization" discussions. Its assertions strengthen the case for new supranational legal regimes that promote free trade. They then enable a neat vote face, prompting caution with respect to all other initiatives for transnational regulatory cooperation or coordination, while simultaneously supporting arguments for national-level deregulation in response to global competition for investment capital and global product-market competition. See Joel P. Trachtman, International Regulatory Competition, Externalization and Jurisdiction, 34 HARV. INT'L L.J. 47, 48-49 (1993).
acknowledged as a basic federalism value.

3. Restatement as Legal Federalism’s Race-to-the-Top

Legal federalism relies upon the Tiebout model to support a general prediction about the evolution of state and local regulation—the “race-to-the-top” view. Relying on the model, it makes two assumptions: (1) state and local governmental actors intensely compete for citizens, factors of production, and capital; and (2) this competition leads to an equilibrium result respecting regulation as well as public goods. These assumptions promise diverse menus of public goods and regulation that meet differing citizen tastes, along with an efficient allocation of industrial activity among junior-level jurisdictions. Legal federalism then fits the model into a Darwinian evolutionary framework to predict that, in a dynamic environment, competitive forces will ensure that only efficient regulation remains in effect and over time this race-to-the-top will ensure improved standards of regulation. In contrast, centralization and its secondary counterpart of coordination across junior units emerge as the regulatory equivalents of price-fixing, presumptively retarding the competitive evolution of first-best law. Accordingly, the proponent of central government intervention as the solution to a problem must bear the burden of showing why market forces will not eliminate the problem in due course.

Two universally recognized exceptions to this presumption favoring decentralization should be noted. First, borders must be kept open so factor and citizen mobility can bring competitive discipline to regulation. Authority to suppress anticompetitive lawmaking must be vested at higher levels of government,
whether through a centralizing device such as the Commerce Clause of the Constitution or a coordinating institution such as the General Agreement on Tariffs and Trade or the North American Free Trade Agreement. Second, this higher authority must police externalities pursuant to economic theory's command that the scope of regulation match the domain of its costs and benefits. Competing governments have an incentive to regulate so as to facilitate cross-border cost externalization by their citizens. The classic example occurs when a jurisdiction excepts from its environmental laws a given type of pollution that the scope of regulation match the domain of its costs and benefits.41

A third exception, for welfare and other redistributive policies,44 is widely (if not universally45) acknowledged. Competing local governments have incentives to encourage new investment and immigration by rich citizens and to discourage immigration by poor citizens. It follows that a decentralized system likely leads to a lower level of government-mandated wealth redistribution than its citizens might otherwise prefer. This third exception would also justify centralized welfare provision (or central intervention to impose minimum welfare
4. Ties to Related Devolutionary Theories—Public Choice and Social Choice

Some commentators refer to jurisdictional competition theory as a branch of public choice theory. This reflects the theories' common rational-expectations methodology, common devolutionary recommendations, and common opponents and proponents. Nonetheless, as the following discussion shows, jurisdictional competition theory sharply distinguishes itself from public choice theory by making a more heroic claim for devolutionary benefits. The succeeding discussions in Parts II and III further show that problems in delivering on this claim create tension between jurisdictional competition and public choice.

The two theories' common opponent is the public interest theory of government that prevailed in the early post-war era. Public interest theory emphasizes the government's role as a benevolent maximizer of social welfare both in the provision of traditional public goods and as an economic regulator. It looks to centralization best to realize the public interest, particularly in the wake of a finding of a market failure. Given a democratic political framework, centralization alone is not deemed dangerous. Citizens can limit any expansionary governmental tendencies by expressing their preferences through interest-group competition in the political process.

Public choice proponents countered that the "public interest" cannot be meaningfully articulated in the first place, much less utilized as a template for regulation. Social choice theory supports this view, showing that voting paradoxes prevent the emergence of a public interest preference ordering for public

---


49. The introduction of public choice theory indirectly strengthened this association between the public interest and centralized regulation. Olson's model of government capture stipulates that smaller, better-financed interest groups have an advantage when it comes to influencing regulators because they can more easily surmount collective action problems. MANCUR OLSON, THE LOGIC OF COLLECTIVE ACTION: PUBLIC GOODS AND THE THEORY OF THE GROUP 33-36. 132-35 (2d ed. 1971). This means that producer interests have a structural advantage over consumer interests and policy causes with more diffused bases of support such as the environment and, for that matter, free trade. The movement of regulation to higher levels helps to redress the balance by making possible cost economies in the lobbying efforts of the dispersed interests.
goods, and predicting that no technical adjustment of democratic processes can solve the problem. Regulation, accordingly, does not embody a "public interest," in the sense of an aggregation of the preferences of the electorate.

Public choice theory goes on to account for the content of regulation as a reflection of private interests. The theory asserts that actors rationally employ regulatory capture and excess government growth flourish. Under this public choice/social choice diagnosis of the infirmities of democratic government, regulatory capture and excess government growth flourish when discourse about the public interest prevails in lawmaking contexts. The rhetorical equilibrium conceals the determinant rent-seeking. See Easterbrook, supra note 6, at 128.

55. More specifically, Tiebout's analysis was framed as a direct response to Samuelson's conclusion. See supra note 14 and accompanying text. That individuals would not reveal their preferences for public goods. The Tiebout model follows from the same behavioral assumptions as does public choice theory and shares its methodological preferences. See William J. Baumol & Wallace E. Oates, The Theory of Environmental Policy 288 (2d ed. 1988) (commenting that race-to-the-bottom arguments tend to informality and yield indeterminate results concerning the effects of competition).
market transactions are the most accurate allocators of resources, government should be structured so that regulation follows not from discussion of the public interest but from the responses of at-the-margin producers. Such a market-driven lawmaker equilibrium will also solve the problem of preference aggregation previously identified. To achieve this equilibrium, regulatory authority must be vested in junior-level units. Increasing their jurisdiction expands opportunities for competitive lawmaking. 56

The Tiebout model’s prescription of devolution of regulatory authority to junior levels of government tracks a conclusion reached independently in another line of public choice theory. Under this “Leviathan” theory, government actors—particularly those in central government—use their monopolists’ positions to pursue governmental revenue maximization. 57 The degree of centralization directly corresponds to the size of government, measured in terms of the budget. Given the uncertainties of majority rule cycling, 58 the rational ignorance of voters, and confusion amongst politicians, 59 political controls will fail to contain government growth. Thus, the provision of public goods will reflect not the utility level of the average taxpayer, but that of the expanding state. Meanwhile, regulatory capture leads to bigger dead weight costs when higher levels of government exercise authority. 60 Decentralization thus proves intrinsically beneficial because it reduces the scope of the central government monopoly and ameliorates the negative effects of regulatory capture.

An independent line of public economics also yields a devolutionary prescription. Under this “decentralization theorem,” given a public good consumed by geographical subsets of the population (the production costs of which are equal as between central or local provision), local government can provide a locally determined output level at least as efficiently and frequently more efficiently than central government can provide a uniform level across all jurisdictions. 61 More generally, decentralization narrows the variance in the distribution of preferences, reduces the likelihood of bundled preferences, and ameliorates some problems of asymmetric information. Thus, locally adapted regulation

56. The revenue-enhancement constraints that prompt competitive responses to citizen (and customer) preferences likely would be felt more intensely at junior levels. See Romano, supra note 39, at 48.
58. See supra note 50.
60. Local authorities are less able to damage the economy: they cannot impose tariffs and quotas on imports; their licensing arrangements have a limited reach; and their limited resources limit subsidies. Incentives to interest groups, accordingly, decrease as authority vests in junior levels. Easterbrook, supra note 6, at 127.
61. Oates, supra note 18, at 35. Although the point of origin is public economics, the proposition has not been modelled; instead, the greater responsiveness of more local government systems is assumed. See Albert Breton, Competitive Governments: An Economic Theory of Politics and Public Finance 185 (1996).
more likely approaches the ideal of consonance with citizen preferences. At the same time, the reduction of the regulating unit’s size and the resulting increase in the number of jurisdictional alternatives increases the chance that multiple jurisdictions’ regulations will manifest a diverse range of preferences. The localized experimentation thus fostered makes possible a range of regulatory strategies while simultaneously limiting the negative impact of unsuccessful experiments.

In these combined public choice/public economics theories then, decentralization leads to two benefits—responsiveness to citizen preferences and product innovation—whether or not it also precipitates competition. The addition of jurisdictional competition theory materially strengthens the case in two ways. First, it predicts a first-best equilibrium given junior-level regulation: not only are citizens’ preferences statistically more likely to be satisfied at the junior level, as the decentralization theorem asserts, but their preferences will be satisfied on an ongoing basis even under changing conditions. This prediction gives regulatory competition claims a potentially decisive role in policy debates. Given the complexity of cost-benefit comparisons between central and junior-level regulatory alternatives, a first-best prediction from jurisdictional competition theory allows decentralization to trump. Indeed, the theory purports to preempt the whole cost-benefit discussion.

Jurisdictional competition theory makes its second contribution in rebuttal to the argument that devolution simply turns regulatory subject matter over to the distortive manipulations of state and local interest groups. The disciplinary effect of competition across states and localities minimizes local capture losses. Given mobile factors of production, the imposition of costly and restrictive interest-group legislation in one jurisdiction benefits a neighboring jurisdiction with a less costly regime. As the factors of production vote with their feet, they affect lawmakers’ incentives by making inefficient wealth transfers to favored groups less attractive than regulations that enhance the wealth of the larger population.

62. The larger the number of jurisdictions, the greater the number of winners exceeds the number of losers. See Merrill, supra note 6, at 640. The literature also suggests an incidental consideration: the costs of reconciling preferences through the political channels of dialogue and voting rises with the size of the polity. The larger the group, the more heterogenous and the larger the number of interactions. See Robert Bish, The Political Economy of Metropolitan Areas 35-37 (1971); Briffault, supra note 20, at 402-03.

63. Albert Breton, Centralization, Decentralization and Intergovernmental Competition 8 (1990). Social tastes and preferences differ, and the differences tend to correlate with geography. Calabresi, supra note 7, at 775. Smaller units also are more likely to contain populations with majority preferences that depart from the majority preference of the population of the larger unit. McConnell, supra note 46, at 1498.

64. Romano, supra note 39, at 4-5; McConnell, supra note 46, at 1498.

65. For a larger governmental unit, such small-scale experimentation proves difficult. Even the choice of a venue presents a problem. LeBoeuf, supra note 9, at 555, 562.
B. THE DEBATE IN LEGAL FEDERALISM: THE RACE-TO-THE-TOP VERSUS THE RACE-TO-THE-BOTTOM

The jurisdictional competition paradigm crosses the barrier that separates the public and private spheres to recast the public sector in private sector terms. The legal federalism debate over the paradigm focuses on the legitimacy of this barrier-crossing. Supporters argue that the ensuing race-to-the-top will ensure a high standard of government service. Opponents answer that competitive government actors will forsake their public mission and thereby "race-to-the-bottom." ⁶⁶

To see this race-to-the-bottom perspective, consider how a proponent of a public interest approach would respond to the race-to-the-top theory. From a public interest perspective, dismantling federal regulations to encourage junior-level competition amounts to a betrayal of the public trust. With competition, the content of regulation and the level of public goods and taxation are dictated by the private preferences of a narrow, arbitrarily identified class of itinerant at-the-margin consumers, rather than by a dispassionate and responsible calculation of the public welfare. The individual jurisdiction, forced to cater to the preferences of this narrow class, loses its ability to pursue its notion of the best interests of the citizens committed to remain within the jurisdiction for the long term. At the same time, dismantling federal regulations deprives disaggregated groups of states and localities of the technical ability to regulate multistate businesses, with the mere threat of disinvestment sufficing to move legislatures to satisfy firms' preferences. ⁶⁷

This race-to-the-bottom view shares an important point with its race-to-the-top opposite: both assume that government actors intensely compete for factors of production. Under the race-to-the-bottom theory, however, the race proceeds downward because competition forces the pursuit of policies further and further removed from the public interest. The characterization invites the remedy of preemptive centralization. If, for a particular subject matter, the race necessarily proceeds to the bottom, then a higher level of government should regulate the matter whether or not competition presently determines the content of regulation at junior levels. This view is best known as a justification for the federalization of environmental law. ⁶⁸

The environmental law literature also contributes a restatement of the race-to-the-bottom position in economic terms. This provides that, without centraliza-

---


⁶⁷. See Stewart, supra note 30, at 919. Stewart also notes that even assuming that state and local taxes are not the primarily factor in firms' locational decisions, states reasonably might worry that taxes might matter at the margin. Id. at 949.

⁶⁸. Stewart, Pyramids, supra note 25, at 1211-12.
tion, competition for production factors would leave the states in a prisoner's dilemma respecting environmental standards. The threat of production factors defecting to a competing state would deter any individual state from promulgating environmental standards consistent with its preferences. The greater the competition, the greater the disparity between the level of environmental protection in the public interest and that evolving in practice.

Proponents of jurisdictional competition have recently rebutted this description. They argue that the prisoner's dilemma rests on a set of heroic assumptions, specifically the presence of fixed preferences for strict regulation across many jurisdictions, each of which believe that cost-benefit trade-offs should not be applied to the subject matter. Competition for factors of production and collective action problems then undermine the jurisdictions' ability to adhere to the stated policy, producing a suboptimal result. The critics contend that a more realistic setup would depict a world of scarce resources in which the inevitable cost-benefit trade-offs between levels of regulation and income would prevent the assumption of any a priori fixed preference for a given level of regulation. Without fixed preferences across jurisdictions, a jurisdiction cannot assume that cooperation will yield higher payoffs, such that a prisoner's dilemma is no longer inevitable. It remains possible in theory; but, say the critics, in practice it is unlikely that absolute, normatively based preferences, whether for stricter environmental rules or some other form of regulation, would exist across jurisdictions.

69. Id. Moreover, given a large number of states, the transaction costs of collective action prevent coordination. The prisoner's dilemma accordingly ripens into a commons dilemma. For additional applications of this line of thinking, see Alfred C. Aman, Jr., Administrative Law in a Global Era: Progress, Deregulatory Change, and the Rise of the Administrative Presidency, 73 CORNELL L. REV. 1, 101, 1994 (1988); Cass R. Sunstein, Constitutionalism After the New Deal, 101 HARV. L. REV. 421, 505 (1985). Revesz restates the prisoner's dilemma account in a two-party framework, showing that when a player has two strategies, lax and strict, a suboptimal lax strategy strongly dominates the optimal stringent strategy. Revesz, supra note 9, at 1216-17, 1229-32. The suboptimal lax strategy is a unique equilibrium and will always be selected. See generally DREW FUDENBERG & JEAN TRUROLE, GAME THEORY 9-10 (1992). Absent cooperation or centralization, then, the outcome is Pareto inferior. Furthermore, given 50 states, cooperation through mutual forbearance is unlikely to evolve, even given infinite repetition of the game. Hay, supra note 43, at 625-26.

70. LeBoeuf offers a different formulation of the point. He notes that a state that imposes antipollution legislation transfers wealth away from industry to those who value a clean environment. If the redistributive move embodied in the legislation is Kaldor-Hicks superior (actors in the aggregate are better off although some are left worse off), then the state can make a second redistributive move (a tax break, for example) that compensates industry for the cost of compliance, and still be ahead on a net basis in the end. If the state does not make the second redistributive move, it presumably prefers the redistributive result of the antipollution legislation. If the state enacts no antipollution legislation, its residents presumably prefer to devote resources to capital investment. Federal intervention is, accordingly, redistributive. LeBoeuf, supra note 9, at 578, 589-90.

The race-to-the-top view has the better of this discussion. Where once the race-to-the-top and the race-to-the-bottom views competed for attention as paradigmatic opposites of apparently equal strength, we now see a general presumption in competition’s favor. This result is said to follow from economic theory: regulatory competition pursuant to the Tiebout framework has survived critical theoretical inspection, while the race-to-the-bottom counter has not.

Table 1 below summarizes, for the record only, the components of the race-to-the-bottom and the race-to-the-top views. Succeeding Parts of this article will show that the new economics of jurisdictional competition supersedes this binary framework of analysis.

II. THE TIEBOUT MODEL’S EXTRAORDINARY Demands

The Tiebout model’s shortcomings are well known to economists. Legal scholarship has often acknowledged this point, sometimes along with a bill of particular theoretical and practical problems. Even so, in this case the process

assert that a prisoner’s dilemma at the international level alone does not provide a sufficient justification for a delegation of regulatory authority to a supranational level. Meanwhile, a prisoner’s dilemma characterization remains structurally appropriate when the motivation for the dominant strategy entails a negative externality. See Hay, supra note 43, at 625-26.

74. A recent competition-favorable statement by a once-prominent voice on the race-to-the-bottom side signals the shift. See Stewart, supra note 35, at 2079-82; see also Revesz, supra note 9, at 1244-45 (favoring environmental regulation at the state level). A similar movement can be seen in European commentary. See Majone. supra note 73, at 17. Gustos & Seabright, supra note 73, at 37. 42-43. The degree of acceptance of competition as a regulatory tool can be indirectly confirmed by reference to commentaries that avoid denunciations of competition even as they postulate gains from centralization or coordination. Here, centralized regulation instead is advocated as the means to the end of harmonized regulatory standards that bring cost efficiencies. See David Charny, Competition Among Jurisdictions in Formulating Corporate Law Rules: An American Perspective on the “Race to the Bottom” in the European Communities, 32 Harv. Int’l L.J. 423, 426 (1991); Stewart, supra note 35, at 2043-44. National governments even have raced against one another to provide regulation benefitting consumers. Joel R. Paul, Competitive and Non-Competitive Regulatory Markets: The Regulation of Packaging Waste in the EU, in INTERNATIONAL REGULATORY COMPETITION AND COORDINATION: PERSPECTIVES ON ECONOMIC REGULATION IN EUROPE AND THE UNITED STATES 355, 378-79 (William W. Bratton et al. eds., 1996) (hereinafter INT’L REGULATORY COMPETITION).

75. Revesz, supra note 9, at 1212-13.

76. See, e.g., Briffault, supra note 26, at 427 (externalities and jurisdictional size); Ellickson, supra note 22, at 1552 (mobility); Goldberg, supra note 22, at 98-108 (optimal size, mobility, externalities); Jonathan R. Macey. Transaction Costs and the Normative Elements of the Public Choice Model: An Application to Constitutional Theory, 74 VA. L. REV. 471, 506 (1988) (mobility and information costs); Rice, supra note 27, at 54-55 (mobility and number of jurisdictions); Shaviro, supra note 46, at 964 (costly exit); Stewart, supra note 30, at 923, 927 (limited mobility).

77. The most extensive treatments appear in the areas of local government and real property law, the subject matter closest to that of public economics. See Been, supra note 10, at 511; Briffault, supra note 26, at 399-403; Ellickson, supra note 22, at 1547-49, 1552; Gillette, supra note 46, at 955-62; Goldberg, supra note 22, at 98-108. The exception is Revesz, supra note 9, at 1235-38 (discussing environmental law). These discussions acknowledge that the Tiebout model has encountered difficulties in its home field, but they address only narrow questions. They thereby avoid confronting the negative implications of the model’s sticking points and ultimately reinforce its robust appearance in legal contexts. Been, supra note 10, at 511-39, writes in terms only of land use, but she thoroughly reviews the public economics. In endorsing the Tiebout model, she relies on the conclusions of empirical
Table 1. Jurisdictional Competition: The Binary Analytical Framework

<table>
<thead>
<tr>
<th></th>
<th>Race-to-the-Top</th>
<th>Race-to-the-Bottom</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goal of regulation</strong></td>
<td><strong>Economic welfare</strong></td>
<td><strong>Social welfare</strong></td>
</tr>
<tr>
<td>Causality/competition as</td>
<td>Yes Intense competition determines terms of regulation, given authority at a low level</td>
<td>Yes Intense competition determines terms of regulation, given authority at a low level</td>
</tr>
<tr>
<td>determinant of terms of</td>
<td></td>
<td></td>
</tr>
<tr>
<td>regulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Quality of regulation given</strong></td>
<td><strong>High</strong></td>
<td><strong>Low</strong></td>
</tr>
<tr>
<td>competition</td>
<td>Regulation embodies citizen preferences; no prisoner's dilemma</td>
<td>Capital purchases regulation; prisoner's dilemma across jurisdictions</td>
</tr>
<tr>
<td>Centralization/horizontal</td>
<td><strong>Undesirable</strong> Rent-seeking causes social costs for the benefit of private interests and impairs free markets</td>
<td><strong>Desirable</strong> Holds out cost advantages for influence activities by large groups lacking financial resources; cures market failure; saves social costs through harmonization of regulation</td>
</tr>
<tr>
<td>coordination</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decentralization</td>
<td><strong>Desirable</strong> Unleashes competition; deters capture; fosters innovation; first-best equilibrium evolves</td>
<td><strong>Undesirable</strong> Encourages capture by monied interests; encourages market failure</td>
</tr>
<tr>
<td>Externallities</td>
<td><strong>Undesirable</strong> Justify centralization or cooperation</td>
<td><strong>Undesirable</strong> Justify centralization or cooperation</td>
</tr>
<tr>
<td>Wealth redistribution</td>
<td><strong>If desired</strong> Central function</td>
<td><strong>Desirable</strong> Central function</td>
</tr>
</tbody>
</table>

studies. Id. at 516-17 & nn. 203-04. We draw a different conclusion. See infra notes 157-70 and accompanying text.

Revesz, supra note 9, passim, re-evaluates the robustness of the Tiebout model in the context of environmental law, making extensive references to public economics literature in the process. He endorses the Tiebout model, id. at 1242-44, but only for the limited purpose of refuting the race-to-the-bottom assertion and asserting that theoretically regulatory competition is consistent with the maximization of social welfare. His evaluation, accordingly, does not address parallel questions about the race-to-the-top that we ask here: (1) whether decentralized organization presumptively imports regulation shaped by the operation of competitive forces, and (2) whether competition, once operative, presumptively leads to a first-best regulatory equilibrium. Oddly, Revesz draws extensively on a tax competition model which shows that Tiebout-type regulatory competition within the environmental realm cannot be expected to result in a first-best equilibrium. See id. at 1238-46 (relying on Wallace E. Oates & Robert M. Schwab, Economic Competition Among Jurisdictions: Efficiency Enhancing or Distortion Inducing?, 35 J. PUB. ECON. 333 (1988)). For our discussion of the implications of this model, see infra notes 275-90 and accompanying text.
of intellectual arbitrage from economics to law has been sticky. Mention of the model’s infirmities rarely ripens into acknowledgment of their negative implications for legal federalism’s economic presumption favoring decentralization. The literature instead assumes that the model, although having problems as to particulars, remains robust in its broader outline. Scholars within public economics have undercut the basis for this assumption. They have criticized sharply and successfully the model’s robustness, narrowing it and leaving it in a tentative form. Legal literature has not appreciated the implications of these developments. We seek to complete this stalled arbitrage exercise in this and the following Part of this article.

We also note that interdisciplinary scholars have made cutting-edge contributions to the economics of regulatory competition. See Roberta Romano, Law as a Product: Some Pieces of the Incorporation Puzzle, 1 J.L. Econ. & Org. 225, 233-65 (1985) (offering an empirical study of charter competition); Susan Rose-Ackerman, Market Models of Local Government: Exit, Voting, and the Land Market, 6 J. Urb. Econ. 319, 333 (1979) (developing a model of linkages between exit, voting, and the land market). Two outstanding category-specific refutations of regulatory competition arguments also should be mentioned: Hay, supra note 43 (refuting in detail claim of race-to-the-bottom in common law of product liability), and Sterk, supra note 20 (questioning the existence of competitive constraints on land use exactions).

78. Legal scholars have failed to retrieve and assimilate past analysis of the Tiebout problems. It is well known within the legal literature, for example, that the Tiebout model cannot be applied directly to the real world because its assumptions never have been relaxed successfully in subsequent economic literature. It is less well known that one commentator, Professor (now Judge) Easterbrook, paused to note that the bundle of Tiebout model assumptions may be redeploled as a tool for identifying legal subject matter ill-suited to application of the model. See Easterbrook, supra note 26, at 34-35 (noting fact sensitive standard for distinguishing appropriate from inappropriate subject matter); Rice, supra note 27, at 54-55 (same); see also Henry N. Butler & Jonathan R. Macey, Externalities and the Matching Principle: The Case for Realocating Environmental Regulatory Authority, 14 YALE J. ON REG. 23, 31-32 (1996) (expanding the list to include the problem of regulatory capture). The commentary in question has rarely been cited for that cautionary point, and it has not become the custom to conduct a preliminary suitability evaluation of each topic. Nor does one find suitability standards set out in the existing typologies of regulatory competition situations. See Revesz, supra note 9, at 1247-53; Trachtman, supra note 30, at 59-60. We think that even minimal fidelity to the economics requires that Easterbrook’s suitability standard not only re-enter the discourse, but become central to the process in a restated and expanded form.

Given a body of literature thus constituted, it is unsurprising that clearly erroneous applications of the theory crop up. For a definitive rebuttal of one such suggestion, see John C. Coffee, Jr., Competition Versus Consolidation: The Significance of Organizational Structure in Financial and Securities Regulation, 50 Bus. Law. 447, 448-49 (1995) (considering and rejecting regulatory competition as a justification for a proposal circulated in securities law that consolidation of overlapping regulation of derivative and other products by federal banking, commodities, and securities agencies would be a bad idea because the prevailing system implicates beneficial interagency regulatory competition).

79. It is not uncommon for scholars to mention its serious difficulties and then proceed immediately to apply the model. See Easterbrook, supra note 26, at 34-35 (arguing that application of the model is appropriate given mobility, a large number of jurisdictions, and no externalities); LeBoeuf, supra note 9, at 361 (criticizing the model for artificially assuming sufficient jurisdictions such that every individual could choose one to provide his “desired bundle of public goods”); Schill, supra note 42, at 1294-96 (criticizing the model for failing adequately to consider the impact of external effects). It also has been reasoned that the existence of a market can be inferred despite imperfections from the “possibility of relocation.” Wyeth, supra note 7, at 91 n.10. Macey presents one exception. Macey, supra note 76, at 507 (arguing “the traditional argument that jurisdictional competition leads to the efficient production of public goods appears to be overstated”).
Recall that the Tiebout model depends on a long list of assumptions when it implies that competitive forces determine the shape of regulation at junior levels of government and sets regulation on an evolutionary path to a first-best equilibrium. This Part discusses the consequences of relaxing these heroic assumptions in the ordinary course of testing the model’s robustness. Scrutiny begins with the most important assumption on the Tiebout list—that a large number of communities actively seek an optimal population—and shows that this assumption conceals both an insuperable practical problem and a devastating theoretical problem. The practical problem is that the model envisions a dynamically changing population of political subdivisions that bears no resemblance to the embedded jurisdictions of the second-best real world. The theoretical problem is that the model yields one of two formal results: nonequilibrium or unstable equilibrium. Therefore, the model lacks real world predictive value. Additional frictions envelop the model upon relaxation of its assumptions respecting externalities, mobility, information, and entrepreneurial incentives. As these points of friction are acknowledged, the list of exceptions to legal federalism’s devolutionary presumption grows so long as to be fatally destabilizing.

This analysis supports two conclusions. First, legal federalism should be uncoupled from a general presumption favoring devolution. Junior-level regulation does not necessarily lead to competitively driven lawmaking and, even when it does, the competition does not necessarily produce regulation that meets consumer preferences. Second, the model’s infirmities signal opportunities for gain through centralization or coordination. The complexity of the resulting picture implies that a positive theory of jurisdictional competition should even-handedly address the desirability of both vesting and divesting central or coordinating authority.

A. THE PRACTICAL PROBLEM: BUNDLING, PRICING, AND OPTIMAL NUMBERS

The Tiebout model’s problems begin with the Samuelson condition for efficient supply of local public goods. Strict compliance with the Samuelson condition requires that individuals sort themselves among different jurisdictions so that homogeneity of demand within each jurisdiction results. Such indi-

80. See supra text accompanying note 19.
81. Tiebout, supra note 12, in fact does not state a formal model.
82. See supra text accompanying note 15.
83. This includes the assumption that all residents pay equal taxes. A mixed community is said to be per se inefficient because public goods provision therein responds to an average of at least two types of demand. See Daniel L. Rubinfeld, The Economics of the Local Public Sector, in 2 HANDBOOK OF PUBLIC ECONOMICS 571, 582 (Alan J. Auerbach & Martin Feldstein eds., 1987).
Rubinfeld asks whether the heterogeneity results change if we introduce a Lindahl taxation scheme (defined below) when the tax paid per unit equals the marginal benefit from the public good at a given level of provision. The Tiebout mechanism, however, fails to achieve efficiency here. Even though each type of individual, by moving to a jurisdiction with equal tax, increases her welfare, it makes more sense to redistribute income without forcing overconsumption of public goods. Id. at 582-83. Rubinfeld
individual sorting proves difficult to effect because of the complex packaging of public goods and regulations. Although private goods tend to be produced and sold separately, public goods tend to be jointly produced and made available on a bundled basis. Public goods are not individually priced and regulation tends to apply across the board. These complex packages influence the choices of public goods consumers, who display greater heterogeneity than those in standard product markets.

The Tiebout model's analytical solution to this supply and demand matching problem lies in the dissatisfied citizen's move to a community that meets her preferences. Given a number of jurisdictions sufficiently large to meet every set of preferences (along with costless mobility and complete information), bundling will not prevent preference satisfaction. The problem is that the model achieves this analytical solution by assuming it.

The model stipulates that each jurisdiction has an optimal size and that a large number of jurisdictions offer a large range of public goods and services. These two stipulations interact dynamically. Competition for a large number of public goods presupposes a large number of jurisdictions. Each additional public good increases the required number of jurisdictions. In dynamic conditions, new jurisdictions will have to be frictionlessly formed to meet new demand for particular public goods packages. How many jurisdictions would it take to bring about this first-best result? As the number of public goods becomes very large, the number of jurisdictions would equal the number of individuals

also suggests that this argument can be extended to instances involving large numbers of individuals with differing incomes and tastes. He asserts that given optimal numbers of communities and costless mobility the tax system will be nondistorting, hence there might be an efficient equilibrium. The difficulties with this scenario lie with the standard list of Tiebout mechanism problems. Id. at 582-83.

Lindahl was concerned with how to set public spending such that all consumers agree unanimously. Erik Lindhal, 'Positive Lösung Die Gerechtigkeit der Besteuerung', (1919) (Lund), reprinted in CLASSICS IN THE THEORY OF PUBLIC FINANCE (R.A. Musgrave & A.T. Peacock eds., 1958). He defined government in terms of an auction. When setting tax levels for public goods, the government would offer a tax rate to the consumers who would correspondingly respond with different shares reflecting their levels of spending. New shares are again issued by government reflecting the preferences of different consumers. The Lindahl process continues until unanimity is reached, a Lindahl price being one to which everyone has agreed. This mechanism has been formalized. See GARETH D. MYLES, PUBLIC ECONOMICS 272-79 (1995); see also ATKINSON & STIGLITZ, supra note 14, at 509-12.

84. Susan Rose-Ackerman, Tiebout Models and the Competitive Ideal: An Essay on the Political Economy of Local Government, in 1 PERSPECTIVES ON LOCAL PUBLIC FINANCE AND PUBLIC POLICY 23 (John M. Quigley ed., 1983). Heterogeneity of preferences occurs not only across populations but within given individuals over time. The citizen who prioritizes school expenditures at one stage of her life later may prefer expenditures for senior citizens. For this citizen, the Tiebout model implies a move to another community (or requires that the preferences of every member of the citizen's community change simultaneously). But, of course, the mobility option may become more costly with advancing age. See David E. Wildasin & John D. Wilson, Imperfect Mobility and Local Government Behavior in an Overlapping-Generations Model, 60 J. PUB. ECON. 177, 180-81 (1996) (developing a formal model that reveals attempts by local governments to capture rents from older, less mobile citizens lead to inefficient migration patterns).

85. Note that as the venue moves from the local level to the state and national levels, the application of the model becomes less and less plausible. See e.g., Rice, supra note 27, at 54-55.
within a population.86 The analytical result, then, is that the optimal competitive governmental structure can be achieved only in an atomistic universe in which the number of jurisdictions matches the number of individuals and firms. In other words, the optimal size of each jurisdiction approaches one. Such a universe is a theoretical spontaneous order in which trading markets effect all regulatory adjustments. This environment maximizes the advantages of regulatory competition: individual preferences and governmental actions are in identity; diversity is complete; and interest-group capture of government cannot occur.87 Thus, this one-on-one world does not suffer any bundling problem because it effectively privatizes public goods.88

This solution to the bundling problem, however, leaves the Tiebout model facing an insuperable practical problem: such a spontaneous order, though theoretically attractive, lacks feasibility.89 Given different scale economies for different public goods, their production will necessitate some minimum jurisdictional size. Beyond the problem of minimum size90 lies the problem of optimal size.91 Even if an optimal size could be ascertained as a practical matter, it

86. See Atkinson & Stiglitz, supra note 14, at 528-29; Mueller, supra note 59, at 157.
87. Interestingly, if a sufficient number of such jurisdictions were formed to bring us to a first-best world of matched preferences, the idea of interjurisdictional competition would lose much of its force. Breton, supra note 61, at 230-31. In this world all incoming residents share the preferences of the incumbents; all outgoing residents by definition have nonmatching preferences and target a pre-existing matching jurisdiction. Although the sorting process may be incomplete, there remains no need for new competitive initiatives from government. Competition need not be involved even in the case of movement into a jurisdiction with a suboptimally low population. That jurisdiction may indeed have an incentive to compete. But, given a reservoir of jurisdictions containing too many residents, complete information, and costless mobility, the jurisdiction need not necessarily compete to reach optimal size. Even if inducements to move must be offered to residents of the overcrowded jurisdictions, no competitive response by those jurisdictions will follow. Id. at 231.
89. Other cases of spontaneous order can be mentioned. See, e.g., David R. Johnson & David Post, Law and Borders—The Rise of Law in Cyberspace, 48 Stan. L. Rev. 1367, 1391-95 (1996) (analogizing to the medieval law merchant, leaving the development of regulation in cyberspace to spontaneous order); Edmund W. Kitch, Regulation, the American Common Market and Public Choice, 6 Harv. J.L. & Pub. Pol'y 119, 121-25 (1982) (suggesting better product liability protection would result from a free market approach).
90. This point has been expressed formally. Stiglitz offers the example of two communities, each populated by people with the same preferences but where the two populations have different preferences. In this model, there are three public goods and two utility functions. If two separate communities are formed, each will produce the preferred public good; however, if the community is merged, the third public good could be produced and as a result individuals will enjoy the benefits of economies of scale. There are, of course, potentially diminishing returns to scale, but Stiglitz argues that in most circumstances people will be better off. Joseph E. Stiglitz, The Theory of Local Public Goods, in The Economics of Public Services 274 (Martin S. Feldstein & Robert P. Inman eds., 1977); see also Bewley, supra note 88, at 717-18 (discussing problem that consumers do not take economies of scale into account when moving in context of two person, two region, and one public good example).
91. This condition has been described in economic theory. Under the "theory of clubs," optimal size is a function of the marginal gains that population increases bring to existing residents. See James M. Buchanan, An Economic Theory of Clubs, 32 Econométrica 1, 12 (1965). Significantly, however, practical application of this theory brings a confrontation with sticking points that parallel those impairing the Tiebout model—externalities and spillovers, heterogenous citizen preferences, heterogenous public
would be a size so large as to undercut the large number of jurisdictions required by the Tiebout model. Finally, putting optimal numbers aside to focus on reality, we see that a path-dependent process of geographical and political evolution determines both the size and number of jurisdictions. Any jurisdictional competition by means of the Tiebout mechanism, accordingly, supports only second-best efficiency claims.

B. THE THEORETICAL PROBLEM: NONEQUILIBRIUM AND UNSTABLE EQUILIBRIUM

1. Statement of the Problem

The Tiebout model's devastating theoretical problem is its failure to display the properties of a general competitive equilibrium except under an even more restrictive set of assumptions. This shortcoming, which comes into view upon the restatement of the problem presented by the Tiebout model's assumed optimal numbers in formal economic terms, denudes it of predictive capacity.

a. Nonequilibrium. Let us relax the Tiebout model's assumption of an infinite number of jurisdictions, and instead assume the existence of only two jurisdictions occupied by three evenly distributed types of residents. Given these assumptions, no matter how keenly the two governments compete, some residents always will be dissatisfied and will have an incentive to form a new

Club models and local public goods models should be distinguished. Although club models are concerned with the provision of local public goods, they focus on the pricing of externalities arising from production within a group. Theoretical and empirical work on clubs concentrates on the conditions under which a competitive equilibrium emerges in a club economy. In a club economy it is possible, given broad assumptions, to generate a competitive (or price-taking) equilibrium. See Suzanne Scotchmer, Public Goods and the Invisible Hand, in Modern Public Finance 93 (John M. Quigley & Eugene Smolensky eds., 1994). In club models the consumer pays a fixed entry cost. In contrast, in local public goods models, assuming taxation of real estate, the entry cost can be adjusted by consuming less land or housing, making it much more difficult to structure a competitive equilibrium. See infra text accompanying notes 95-114.

92. Rubinfeld, supra note 83, at 577.

93. Id. at 578-80.

94. See Daniel L. Rubinfeld, Comments on Chapter Four, in Modern Public Finance, supra note 91, at 120, 121-22. “First-best” outcomes yield zero welfare losses. A second-best world is one in which constraints respecting either incentives or institutional context prevent the achievement of a first-best outcome. See Jean-Jacques Laffont, Fundamentals of Public Economics 167 (1988). For another useful definition, see David P. Baron, The Economics and Politics of Regulation: Perspectives, Agenda, and Approaches, in Modern Political Economy: Old Topics, New Directions 10, 12 (Jeffrey S. Banks & Eric A. Hanushek eds., 1995) (stating “‘second-best’ refers to institutional restrictions or restrictions arising from asymmetric information or observability, and ‘optimal’ refers to the choice of the best policy relative to those restrictions”), and Roger Guesnerie. The Genealogy of Modern Theoretical Public Economics: From First Best to Second Best, 39 EUR. ECON. REV. 353, 354-55 (1995) (arguing that second-best modelling has introduced essential new ideas to the field; for example, the study of nonconvexities has shown the possibility of efficiency-enhancing income redistribution).
jurisdiction to improve their positions. No equilibrium will result.95

Frank Westhoff has demonstrated a Tiebout equilibrium in a model assuming a finite number of jurisdictions, but only given additional assumptions.96 Westhoff’s model assumes that there are multiple localities of a finite number, that resident votes determine government policy, and that there are two goods, one public, one private.97 The model also assumes a continuum of individual types, each ranked according to their marginal rates of substitution between the public good and the private good.98 Under these assumptions, the model shows that for any exogenous positive integer \( M \) there exists a Nash equilibrium99 with \( M \) jurisdictions.100 Westhoff, however, assumes consumer preferences are single-peaked—a questionable assumption.101 If one relaxes this assumption, the equilibrium is lost.102

---

95. See Bewley, supra note 88, at 721.
97. These assumptions ensure that the resident chooses between more and less public goods, avoiding social problems.
98. See Westhoff, supra note 96, at 84.
99. A ‘Nash equilibrium’ is a profile of strategies that players select which are the best response to the strategies the other players are likely to choose. See David M. Kreps, A Course in Microeconomic Theory 404 (1990). Conceivably one could formulate a Tiebout equilibrium in two different ways—a Nash equilibrium in which no single individual wishes to join an already existing jurisdiction, or a more demanding equilibrium in which there exists no group of individuals that can make each of its members better off by forming a new jurisdiction. See Joseph Greenberg & Shlomo Weber, Strong Tiebout Equilibrium Under Restricted Preferences Domain, 38 J. Econ. Theory 101, 101-03 (1986). Westhoff shows the first, less demanding equilibrium on the assumption of a continuum of individuals. See Westhoff, supra note 96, at 85-86. However, the second, more demanding notion of equilibrium presents more difficulties. See Greenberg & Weber, supra, at 102. Greenberg and Weber attempt to demonstrate the existence of an equilibrium by endogenizing the number of communities. Id. at 106.
100. See Atkinson & Stiglitz, supra note 14, at 544-46.
101. Preferences for a single public good are usually single-peaked. The single-peakedness of voters’ preferences means a common criterion of tastes has emerged to provide a basis for the analysis of alternatives. The single-peaked requirement ensures that a majority voting equilibrium will always occur. See Peter C. Ordeshook, Game Theory and Political Theory, An Introduction 164-66 (1986). The problem, of course, is that a real world public goods equilibrium would have to encompass multiple public goods.
102. See Bewley, supra note 88, at 727. Nonequilibrium may be the result in cases of myopic majority voting. See Atkinson & Stiglitz, supra note 14, at 544-46; Buchanan & Goetz, supra note 18, at 28-29; Westhoff, supra note 96, at 85-90. Epple, Filimon, and Romer add that Westhoff, investigating the model’s properties, was pessimistic about the prospects for developing a model in which a unique stable equilibrium exists—the model derives a stable equilibrium only when there are multiple equilibria, and a unique equilibrium always will be unstable. Dennis Epple et al., Equilibrium Among Local Jurisdictions: Toward an Integrated Treatment of Voting and Residential Choice. 24 J. Pub. Econ. 281, 282 (1984). Epple, Filimon, and Romer themselves take the position that while the difficulty of relaxing the mobility assumption is fatal to most theorizing about local public goods, a unique public goods equilibrium can exist in limited situations. Id. at 283. More specifically, they argue that an equilibrium level of housing can result when consumers select the amount of housing and vote for the level of public goods provision when there are restrictions on preferences and the technology of the public goods supplied. Id. at 387.

For another approach to establishing a Tiebout equilibrium, see Bryan Ellickson, Competitive Equilibrium: Theory and Applications 144 (1993) (discussing “the basis for the ‘homogeneous community’ condition” as being “a natural consequence of allowing for increasing returns with an
This analysis reveals the first of two unrealistic requirements for an optimal public goods outcome under jurisdictional competition: consumers must be presented with a range of choices large enough to include the optimal package for each type of consumer, and history, geography, and scale economy disable the real world from offering the number of jurisdictions large enough for the task.\(^{103}\)

b. Unstable Equilibrium. Tiebout's depiction of optimization through the attraction of new residents implies a normative consequence of encouraged migration. Indeed, increases in mobility theoretically enhance economic welfare.\(^{104}\) This mobility, however, also entails spillovers with negative implications for economic welfare, resulting in an unstable equilibrium.

To see this, assume that a number of jurisdictions provide the same public good for two types of residents, one high-income and the other low-income. Assume also that demand for the good is income elastic and positively correlated with demand for real property, and that jurisdictions finance production of the good with a flat-rate property tax. The high- and low-income types thus consume the public good at different marginal rates of substitution. The ultimate question follows: under the assumptions of the Tiebout model, will high- and low-income types sort themselves into separate jurisdictions with homogeneous populations, yielding a first-best equilibrium?

The answer is no. To see this, assume that such sorting occurs between time \(t=0\) and \(t=1\) so that by \(t=1\) all low-income types reside in low-income jurisdictions and high-income types in high-income jurisdictions. This equilibrium will be unstable. Between \(t=1\) and \(t=2\), low-income types will have an incentive to migrate to the high-income jurisdictions. There low-income types

---

\(^{103}\) See Rose-Ackerman, supra note 77, at 319; Rubinfeld, supra note 94, at 121; Frank Westhoff, Policy Inferences from Community Choice Models: A Caution, 6 J. URB. ECON. 535 (1979). It could be added that within each homogenous community, the cost per resident of each public good must be the minimum. See Suzanne Scotchmer & Myrna H. Wooders, Competitive Equilibrium and the Core in Club Economies with Anonymous Crowding, 34 J. PUB. ECON. 159, 162 (1987).

\(^{104}\) Factor movements are normally a basis for efficiency gains. Paul R. Krugman, Rethinking International Trade 20-27 (1990) (hereinafter RETHINKING). Krugman, writing in the context of international economics, has demonstrated that labor generally increases its income by moving from one region to another. Paul R. Krugman, Peddling Prosperity 184 (1994) (hereinafter PEDDLING). The gains from this out-migration more than compensate the labor that remains, but payment of such compensation to the labor that remains does not always occur.

See also Andrew Caplin & Barry Nalebuff, Competition Among Institutions, 72 J. ECON. THEORY 306, 331-33 (1997) (employing index theory to prove existence of equilibrium in a multidimensional Westhoff model).

Infinite variety of product types”) and Bryan Ellickson, Competitive Equilibrium with Local Public Goods, 21 J. ECON. THEORY 46, 48-55 (1979) (offering an “approximate” local public goods equilibrium with heterogenous consumers). The problem here concerns the degree of distance between the real world local government approximation and the theoretical competitive case. Professor Rose-Ackerman comments that “[i]n spite of Ellickson’s optimism about the importance of his results, it would seem that in general the approximation will not be very close.” Susan Rose-Ackerman, Beyond Tiebout: Modeling the Political Economy of Local Government, in LOCAL PROVISION OF PUBLIC SERVICES: THE TIEBOUT MODEL AFTER TWENTY-FIVE YEARS 55, 60 (George R. Zodrow ed., 1983); see also Andrew Caplin & Barry Nalebuff, Competition Among Institutions, 72 J. ECON. THEORY 306, 331-33 (1997) (employing index theory to prove existence of equilibrium in a multidimensional Westhoff model).
can consume smaller properties, paying lower taxes than the high-income types nonetheless enjoying the same, higher level of public goods. At the same time, however, high-income types will have no incentive to migrate to low-income jurisdictions as they will obtain fewer public goods with little tax savings. More generally, given egalitarian access to public goods in each locality and the payment of different levels of real estate tax based on income-based preferences for consumption of real estate, the provision of the public goods will result in wealth redistribution, a result the high-income types do not prefer. The built-in inducement for low-income migration thus makes any equilibrium unstable.

This spillover problem can be solved by giving jurisdictions the discretion to select their residents and, in theory, taxes and zoning regulations can be aligned to do the selecting. While such a solution sacrifices the Tiebout model’s full mobility assumption, it does permit the attainment of a stable equilibrium.

Bruce Hamilton’s model formally shows how to attain this stable equilibrium. It assumes:

1. that the housing supply is perfectly elastic;
2. that residents within each jurisdiction have homogenous preferences for public goods;
3. that residents are perfectly mobile;
4. that local governments offer a diverse range of tax and expenditure measures to satisfy all preferences; and, critically,

105. High levels of externalities likely would accompany any existing equilibrium. See Rubinfeld, supra note 94, at 123.

106. With an income tax, even one without progressive rates, a redistribution still benefits poor residents. To see this, assume a flat income tax of 20%. Preferences for the public goods exchanged for the tax will vary depending on the income level of the taxpayer. Presumably, the redistributive effect benefits poor taxpayers. The opposite could be the case if the jurisdiction imposed a poll tax. Whatever the tax system, open access to public goods will be redistributive.

107. Of course, some income redistribution occurs under the auspices of local government. It is possible to hypothesize how a modest amount of this could accord with the preferences of high income types. See Kaplow, supra note 11, at 472-79.

108. In addition, excessive migration to a single target jurisdiction may entail externalities and result in a suboptimal equilibrium characterized by crowding-out. The Tiebout model’s other assumptions—that movement by one individual has no effect on the welfare of other individuals, and that, given the presence of public goods, an additional resident benefits the target community—foreclose any possibility of this problem. Mueller, supra note 59, at 157. Neither assumption, however, seems plausible as a general proposition. A converse condition of suboptimality could arise when a locality directs itself to the attraction of new residents through public goods competition. Governments seeking to attract residents risk the progressive lowering of taxation until they are unable to finance the public goods package. Stephen Woolcock, Competition Among Rules in The Single European Market, in INT'L REGULATORY COMPETITION, supra note 74, at 289, 300-01. Suboptimal allocations of public goods result.

(5) that each jurisdiction has a zoning ordinance requiring each resident to consume a stated quantity of housing, with quantity varying from jurisdiction to jurisdiction.

The zoning ordinance builds in a price mechanism. The ordinance bars poor residents who would consume smaller, cheaper houses and thereby gain a surplus of public goods benefits over taxes paid. At the same time, it allows rich residents who desire to consume an amount of housing larger than the jurisdictional minimum to move to a jurisdiction with a minimum zoning requirement that equals their housing preference. Rich residents thereby avoid paying higher than average taxes that would confer a public goods benefit on other residents. Thus, the ordinance forces each resident to pay an equal share for the jurisdiction's public goods, becoming the functional equivalent of a nondistortionary head tax. 110

The Hamilton model removes the instability caused by the free movement of residents of different income levels across jurisdictions, and thereby yields an equilibrium. Here citizen mobility leads to an efficient result because citizens are precluded from adjusting their property consumption level in response to the property tax levels within a given jurisdiction. To adjust, they must move.

The problem with the Hamilton model is its long and unrealistic set of assumptions. 111 It makes little sense to assume that communities are homogeneous both in terms of demand for local public goods and housing, or to assume that there is an exact correlation between housing tastes and income. The model also mirrors the Tiebout model by demanding a number of communities large enough to match the tastes of all individuals for both housing and public goods consumption. 112 Finally, and just as critically, the model tolerates no political bias favoring old residents over newcomers. Such a bias, often present in the real world, leads to strategic zoning and tax appraisal regimes designed to force newcomers to pay a greater than pro rata share of public goods cost, destroying the equilibrium. 113

In sum, there emerges a second unrealistic condition for a public goods

110. See Bruce W. Hamilton, Capitalization of Intrajurisdictional Differences, in Local Tax Prices, 66 A.M. ECON. REV. 743, 745 (1976) (showing that average costs will equal marginal costs in this system).

111. This equilibrium result highlights the regressive implications of Tiebout preference satisfaction for community life. If one tries to hypothesize a Tiebout-Hamilton world, the first thing that comes to mind is the contemporary gated community.

112. The last requirement means that profit-maximizing entrepreneurs must be free to produce new communities to satisfy the demands of the residents. In addition, the public good must be produced at minimum average cost with respect to population. See Rubinfeld, supra note 83, at 591.

113. See Rose-Ackerman, supra note 102, at 61 (noting that the efficiency guarantee fails if any one of the Hamilton model's assumptions is dropped, forcing the specification of a political model); Michelle J. White, Fiscal Zoning in Fragmented Metropolitan Areas, in FISCAL ZONING AND LAND USE CONTROLS: THE ECONOMIC ISSUES 31, 97-99 (Edwin S. Mills & Wallace E. Oates eds., 1975) (asserting widespread strategic zoning disrupts the Hamilton equilibrium and leads to suboptimal public goods provision).
equilibrium. In addition to an optimal number of jurisdictions, the provision of public goods in each jurisdiction must be tied to a strict membership criterion. Applying this to the real world, one cannot expect any equilibrium. The numbers fall short of the optimum. And even if the numbers did not fall short, any equilibrium would be unstable. The public sector (at least as known in American history) is institutionally unequipped to replicate the gatekeeping of a private club. Unsurprisingly, many economists have concluded that the Tiebout mechanism succeeds only in cases so stylized that they lack realism.114

2. Implications

The Tiebout mechanism's failure theoretically to yield a stable equilibrium raises a question as to its viability as a practical policy tool. The question is serious as a matter of economic theory, for in economics the study of efficiency presupposes a stable institutional framework. As a result, questions respecting stability take precedence over questions respecting efficiency.115

To put it bluntly: The Tiebout model, viewed in isolation, provides no basis for predicting that competitive behavior by government leads to optimal preference matching. Instead, the model predicts instability—competition may make residents better off or worse off depending on a dynamic and complex mix of factors that competing governments cannot control. With this result, economic theory withdraws its support from an unqualified presumption favoring devolution. It remains possible to articulate a powerful economic case for a particular devolutionary initiative. Such a case, however, will require a much more complex foundation than that offered by the Tiebout model.

Given the instability attending Tiebout competition, a minimalist federal government would have to perform a number of stabilizing functions. Certainly, it would have to monitor junior-level competition and be prepared to intervene in the event of instability. This regulatory function, in part, would parallel that played in the private sector by an antitrust authority.116 A need for additional stabilizing tasks becomes apparent as one accounts for additional Tiebout imperfections, identified in the economic literature and discussed in the following section of this article. The central government also would have to address tax and other fiscal externalities, infrastructure development, research and development, wealth redistribution, and local government structure.117

The last factor, local government structure, opens a Pandora's Box of junior-

114. LAFFONT, supra note 94, at 57. At best, he says, Tiebout's approach would decrease the heterogeneity of populations living in the same locality, but ultimately leave one to determine how other motives—such as workplace, natural advantages, and exogeneity of sites—affect the location of agents. See id.: Bewley, supra note 38, at 713-14; Pierre Pestieau, The Optimality Limits of the Tiebout Model, in THE POLITICAL ECONOMY OF FISCAL FEDERALISM 173, 184-85 (Wallace E. Oates ed., 1977); Rubinfeld, supra note 83, at 589, 591.
115. BRETON, supra note 61, at 240-41.
116. That is, it would prevent predatory pricing, conspiracies and cartels, and trade barriers. Id. at 250-51.
117. Id. at 251-62.
level public choice problems and associated failures in the market for regulation. One should expect this list of failures to be lengthy. To see why, recall the problem with which this Part began—the example involving bundled public goods and heterogeneous consumer preferences. The model’s failure to yield an equilibrium except on stylized assumptions reveals that this problem cannot be solved. The “law as product” analogy becomes attenuated as a result. Competition respecting public goods presents a level of complexity respecting supply and demand that far outstrips anything respecting ordinary goods and services. Although this complexity does not prevent such competition from occurring, it does reduce the disciplining effect of consumer preferences on producers. As this expected disciplinary effect diminishes, the Tiebout model fails in its essential purpose as a preference-matching device, and public choice problems return to center stage.

C. ADDITIONAL FRICTIONS INHIBITING THE TIEBOUT MECHANISM: EXTERNALITIES, MOBILITY, AND INFORMATION

Even if some higher power were to intervene to cure the problems surrounding the Tiebout model’s optimal numbers assumption, it still would not emerge fit for immediate application in federalism contexts. The model’s first-best results depend on a number of additional, equally unrealistic assumptions. To relax these assumptions is to describe a series of frictions that retard the real world operation of the Tiebout preference-matching mechanism. This section takes up three of these assumptions: no externalities, complete mobility, and perfect information. The section that follows takes up a fourth: that actors in government have incentives similar to those of free market entrepreneurs.

1. Externalities and Spillovers

The Tiebout model unrealistically assumes the absence of externalities. Legal federalism concedes the necessity of relaxing this assumption and accepts a limit on decentralization (through increased regulation) for the policing of externalities. The externalities mentioned most often are the physical conditions giving rise to tort liability. The economic concept of externalities, however, encompasses a much broader universe of behavioral effects. In a theoretical first-best regime, the impact of all costs and benefits of public goods production


119. The same relaxation must follow for spillovers, which are positive externalities. Restating the point, to bring about internalization, larger and larger jurisdictions are required, reducing the menu of choices. See Briffault, supra note 20, at 427.
must be restricted to the providing jurisdiction. Any departure from this first-best—fiscal or physical—implies the broader economic concept of an externality. Real world practice at the state and local level falls short of the first-best in limitless ways. Taxes may fall disparately on out-of-state owners. Alternatively, the actions of one jurisdiction may benefit other jurisdictions or their citizens (“spillover” effects), justifying adjustment by a central authority. More broadly, given incomplete markets and imperfect information—as tend to obtain outside the constrained models of neoclassical welfare economics—individual actions often have external effects. This occurs whenever one’s actions impact on the interests of others and one fails to account for such impact. Adverse selection and moral hazard problems represent well-known

120. See infra text accompanying notes 173-97. This point has been expanded into a simple theory for locating the level of government appropriate for any particular regulatory problem—the geographical area affected by the regulation should determine the level of government. See James M. Buchanan & Gordon Tullock, THE CALCULUS OF CONSENT: LOGICAL FOUNDATIONS OF CONSTITUTIONAL GOVERNMENT 113-16 (1965). For an application of this point to environmental regulation, see Butler & Macey, supra note 78, at 25.

121. See infra note 185 and accompanying text.

122. In product markets, externalities can occur when the calculus of a given consumer has an impact on the future choices of other consumers. Sometimes the value of a product is tied to the number of purchasing consumers. The utility of telephones increases with the number of users: with computers, increased use brings increased selection of technically compatible goods; with many other machines, increased use means scale economies in spare parts manufacture and a larger supply of experienced repair personnel. Such products exhibit “network externalities” wherein existing users benefit from a positive externality when a future consumer opts for the product and increases the size of the network; the externality becomes negative when another consumer terminates use. Joseph Farrell & Garth Saloner, Installed Base and Compatibility: Innovation, Product Preannouncements, and Predation, 76 AM. ECON. REV. 940, 942 (1986).

These spillover effects among consumers mean that one consumer’s private calculus has no necessary relationship to an optimal result. When network externalities influence supply and demand, decentralized, individually maximizing decisions will be path dependent. See, e.g., Philip H. Dybvig & Chester S. Spatt, Adoption Externalities as Public Goods, 20 J. PUB. ECON. 231, 231-33 (1983); Michael L. Katz & Carl Shapiro, Systems Competition and Network Effects, 8 J. ECON. PERSP. 93, 112-13 (1994); Michael L. Katz & Carl Shapiro, Technology Adoption in the Presence of Network Externalities, 94 J. POL. ECON. 822, 830-33 (1986). Suboptimal equilibria may result as there may be excessive uniformity among products or excessive diversity, or an inferior product may come to dominate the market. See Paul A. David, Clio and the Economics of QWERTY, 75 AM. ECON. REV. 332, 335-36 (1985) (discussing the development of the widespread use of the allegedly inferior QWERTY keyboard design). But see S.J. Liebowitz & Stephen E. Margolis, The Fable of the Keys, 33 J.L. & ECON. 1, 4, 19-20 (1990) (arguing that if a superior keyboard design was available, the best long-term financial interests for keyboard producers would be to internalize the external costs of training on the new, superior keyboards). The simple picture of product competition that informs the Tiebout model, in contrast, assumes that value behavior by consumers leads directly to optimality. This assumption is not safe to the extent that the choices of consumers of law have significant network effects. In the latter case, junior-level diversity may be more costly than beneficial. Michael Klausner argues for the application of models of network externalities to legal technologies. See Michael Klausner, Corporations. Corporate Law, and Networks of Contracts, 81 VA. L. REV. 757 (1995); see also Charny, supra note 74, at 441-55 (considering external effects in the analysis of a harmonization model for European corporate law). For a general argument against employment of the network models in legal contexts, see Michael I. Krauss, Regulation vs. Markets in the Development of Standards, 3 S. CAL. INTERDISC. L.J. 781, 797-808 (1994).

In all such circumstances, free market transactions will not be Pareto efficient and accordingly, in theory, a higher authority may intervene to improve collective economic welfare.

As previously discussed, the costless mobility assumed in the Tiebout model potentially causes externalities. If different levels of income preponderate in different localities, a policy looking to competitive matching of public goods packages and individual preferences can have unintended effects of wealth redistribution, can result in overcrowding, or can disrupt fiscal policy. Additionally, public economists have written extensively on fiscal externalities incident to state and local taxation. Significantly, these scholars employ a modified version of the Tiebout mechanism to show that downward competition to externalize presents a significant problem at the state and local level.

The point for present purposes is this: Externalities hold open a wider door for appropriate regulatory intervention by central government than the legal federalism literature assumes. A question thus arises as to the plausibility of a theory of government built on a global devolutionary presumption ex ante subject to adjustment for externalities by a central authority acting ex post. Once the economic interest suffers damage, any ex post adjustment may be too little, too late.

2. Mobility

The Tiebout model assumes full mobility of all factors of production. Since movement is costly, this assumption is also implausible. Unfortunately for the model, formal showings confirm that even the slightest relaxation of this assumption leads to inefficient public goods production. Furthermore, for jurisdictional competition to be widespread in practice (whether with efficient results or not), the full mobility assumption can be only slightly relaxed. Mobility allows an actor a choice of regulatory regimes, breaking the monopoly on regulation held by the actor’s jurisdiction of origin. It therefore must be

124. Id. at 30-31; see Margaret F. Brinig & F.H. Buckley, The Market for Deadbeats, 25 J. LEGAL STUD. 201, 206, 224-27 (1996) (showing empirically that some states have legal regimes that attract migrant deadbeat debtors, assisting them in frustrating their out-of-state creditors).


126. STIGLITZ, supra note 123, at 27-32.

127. See supra notes 104-08 and accompanying text.

128. See infra notes 179-97 and accompanying text.

129. See Wildasin & Wilson, supra note 84, at 194-95. Wildasin and Wilson’s model assumes that local governments seek to maximize property values and posits two types of citizens: younger mobile types for whom mobility is costless, and older types whose attachments and other location-specific capital make mobility costly. Id. at 178-79. The model shows that governments will have an incentive to extract rents from the less mobile residents. Indeed, within this model’s confines a central tenet of the Tiebout model is completely reversed; location changes of mobile residents prompted by a desire to escape fiscal exploitation themselves add to social costs. Id. at 194.

130. This assumes that significant choices are held out. The literature tends to ignore one possible sticking point. Most models assume two tiers of government, central and local. In our system, however,
immediately feasible for jurisdictional competition to occur in practice.\(^\text{131}\)

Consider the mobile individuals who cause public goods provision to be competitive public goods provision in Tiebout's model. Significant transaction costs will attend their changes of domicile. These costs will vary depending on both the distance of the move and the relative conditions of local housing and employment markets. The cost thus relates directly to the geographical size of the home and target jurisdictions. The larger the community,\(^\text{132}\) the greater the cost barrier to move, and the less mobile its citizens become.\(^\text{133}\)

Furthermore, pecuniary costs may not be the most significant barrier to individual mobility. Family, community, and cultural ties also may make movement an undesirable response to dissatisfaction with public goods, taxes, or regulation. At some level, then, the localism supposedly promoted by jurisdictional competition theory retards the mobility that it presupposes.\(^\text{134}\) Finally, even among localities, the potential scope of competitive discipline will always be limited by the immobility of land.\(^\text{135}\)

3. Information

The Tiebout model assumes perfect information about the characteristics of all public goods in all jurisdictions. This assumption, like those of no externalities and full mobility, must be relaxed. Unfortunately, relaxation of this assumption makes it technically impossible for the model to deliver on its claims.

Like much of law and economics, jurisdictional competition theory implies that, assuming an appropriate initial allocation of wealth, every Pareto efficient allocation can be attained through the use of market mechanisms. The mathematics that undergird this result stress the importance of convex indifference curves.\(^\text{136}\) That is, market-driven Pareto efficiency depends on the assumption that the law of diminishing returns and diminishing marginal rates of substitu-

---

\(^\text{131}\) Although Tieboutian sorting depends on actual movement, governments may feel competitive pressure absent actual movement. By analogy to the critical influence of the potential entrant on the behavior of the monopolist, threatened exit may motivate reform with actual exit signaling unwillingness to compete. Id. at 237. For further discussion of this point, see infra text accompanying note 256.

\(^\text{132}\) The mobility assumption, accordingly, becomes more and more of a sticking point as the model's venue of application moves from the local level to the state and national levels. Rice, supra note 27, at 54-55.

\(^\text{133}\) MUELLER, supra note 59, at 155. In comparison, the smaller the community, the more likely the benefits accruing from the provision of a specific public good will spill over to other communities, causing externalities across communities and non-Pareto allocations.

\(^\text{134}\) In comparison, large numbers of local governments and high mobility lessen both the significance and likelihood of participation in local government processes. Briffault, supra note 20, at 407.

\(^\text{135}\) Local governments remain free (to some extent) to usurp land rents. See Macey, supra note 76, at 506-07; Sterk, supra note 20, at 844-45, 850, 857-58.

\(^\text{136}\) Indifference curves are convex if the straight line that connects any two points on it lies above the curve. DAVID M. KREPS, A COURSE IN MICROECONOMIC THEORY 37 (1990).
tion ordinarily obtains. With sufficient nonconvexities, in contrast, markets will not be competitive.\textsuperscript{137}

Whenever information is imperfect, nonconvexities will pervade. Information is a fixed cost that must be incurred regardless of its eventual use. The return on a single piece of information is thus always zero, and to the extent this investment in information is costly, a net loss always results. Such fixed costs in information give rise to nonconvexities, and theoretically justify intervention by governmental authority.\textsuperscript{138}

Economists contend that several conventional assumptions about the convexity of private goods cannot be extended to markets for local public goods.\textsuperscript{139} That is, clearing prices for public goods usually cannot be shown. Accordingly, one cannot safely assume that public goods are competitively priced. This implies that markets for public goods (to the extent they exist) will be sticky.\textsuperscript{140}

In other words, if those who relocate have imperfect information about the range of alternatives (and investment in the acquisition of perfect information is not cost-beneficial), then they cannot match their preferences with the best-suited locality, and a first-best equilibrium does not emerge from the local public goods market.\textsuperscript{141} To the extent that actors know the bounds on their information sets, they will tend to assign their preference orderings respecting jurisdictions in accordance with factors other than public goods and regulation. In the alternative, citizens may move based on limited public goods information and prompt uninformed regulatory competition. The resulting mismatch between preferences and public goods could be less efficient than the \textit{ex ante} mismatch.

\textbf{D. THE PROBLEM OF ENTREPRENEURIAL INCENTIVES}

When the Tiebout model asserts that factor movement causes public goods producers to minimize costs, it implicitly recasts government actors in the behavioral mold of private sector entrepreneurs. This section considers the

\textsuperscript{137} Stiglitz, \textit{supra} note 123, at 45, 55-56. It was thought that consumers and producers normally would satisfy the assumption of convexity. \textit{Id.} at 56.

\textsuperscript{138} \textit{Id.} at 52-54. Nonconvexities are also associated with adverse selection and moral hazard problems.

\textsuperscript{139} Atkinson \& Stiglitz, \textit{supra} note 14, at 520; Laffont, \textit{supra} note 94, at 60-76.

\textsuperscript{140} Like the externality problem, the information problem could be ameliorated through central government intervention. Here the device would be investment in a central information-sorting repository (and mandatory disclosure of any nonpublic information). But, unlike the case of externalities, controversy would follow the suggestion of central intervention. Compare Romano, \textit{supra} note 39, at 91-108 (suggesting that due to market incentives to disclose, participation in the securities laws' mandatory disclosure system should be optional) with Frank H. Easterbrook \& Daniel R. Fischel, \textit{The Economic Structure of Corporate Law} 290-291 (1991) (suggesting that mandatory disclosure is justified because incidental benefits to third parties stemming from disclosure create systematic incentive to underdisclose).

\textsuperscript{141} A recent study shows that voters in a metropolitan area frequently lack information about tax and service alternatives. See David Lowery \& William E. Lyons, \textit{The Impact of Jurisdictional Boundaries: An Individual-Level Test of the Tiebout Model}, 51 J. Pol. Econ. 73, 91-93 (1989).
plausibility of this description, identifying an additional source of friction that retards and distorts real world occurrences of jurisdictional competition.

1. The Entrepreneurial State and the Problems of Observation and Verification

The Tiebout model does not explicitly assume the existence of a local public goods entrepreneur. Analytically, it need not do so. Entrepreneurship respecting public goods logically results from the operation of the model's mechanism of consumer choice. In the model's vision of things, local government agents must act entrepreneurially or they will lose their entire populations. Obviously, however, to the extent that this competition does not occur in practice and contrary to the model's prediction, local officials will not be disciplined to behave as entrepreneurs.

Might maverick entrepreneurs jump-start the competitive process? Consider the possibility of a local government takeover tycoon who applies the model to turn real world frictions into an arbitrage profit. The scenario is simple. First, the tycoon identifies jurisdictions with high-cost, inefficiently produced public goods. Then the tycoon buys real estate in the most inefficient of these jurisdictions. Next the tycoon invests in getting elected to office in the chosen jurisdiction, and, once in office, cuts production costs drastically. Finally, the tycoon sells the previously purchased real estate and collects an arbitrage profit. This individual has a high-powered incentive to invest in information acquisition, and, like a stock market arbitrageur, ameliorates real world problems of asymmetric information. Given extreme levels of inefficient goods production, even product bundling should present no problem. Efficient management alone should cause taxes to fall and real estate prices to rise, securing the arbitrage profit.

But a problem remains. A second assumption lies concealed within the Tiebout model's complete information assumption—an assumption that residents and potential residents can both observe and verify the quantity and quality of local public goods. For some local public goods, this will be the case—the public swimming pool, school buildings, streets, and fire trucks are there for all to see. Concrete, asphalt, and steel, however, are unlikely to influence the marginal consumer of local public goods. Residents care more about school quality, but it is much harder to discern. Thecrudeness of the hard statistical evidence—such as student teacher ratios, training records, even college board scores—prevents the extraction of valuations. Consumer verification becomes a serious problem and, as a result, the conditions necessary for an entrepreneurial arbitrage model do not emerge. Nonverifiability, then, helps explain the absence of cost-reducing entrepreneurship with respect to local public goods.

Serious doubts result for a core proposition of the Tiebout model, that

143. Id. at 7.
communities with populations below the optimal size will compete for new residents. The model, deeming this proposition to be safe, depicts government as a rent-seeking black box, and side steps the problematic exercise of describing supply-side incentives in the public goods market. This approach is implausible. The problem of verifiability, taken together with the other frictions that retard the Tiebout mechanism's operation, emerges to undermine this assumption of intense competition for citizens. Accordingly, a plausible case for jurisdictional competition requires a particular description of supply-side incentives.

2. The Conventional State as Entrepreneur

An informal comparison of incentive profiles of private sector entrepreneurs and local government actors further illustrates the severity of this supply-side problem. Both actors produce for pecuniary and other personal gain. The private sector actors must do so competitively because of the presence of other private sector actors selling the same goods or services, and because of the diminished returns and risk of bankruptcy that come from excess production costs and high prices or low sales. When government actors produce public goods and regulation, in contrast, the consequences of management failure are less catastrophic, diluting the incentive effect. These actors produce for votes or other political capital. If they fail to compete, their jurisdiction does not disappear (unlike an economically uncompetitive firm). Fiscal improvidence can, of course, lead to bankruptcy for a government unit. Unlike the case of a firm, however, the absence of product competitiveness is neither a necessary nor a sufficient cause of bankruptcy. Generally, then, agency problems in the production of public goods can be presumed to be more substantial than those within firms; self-interested production does not necessarily imply product entrepreneurship.

Public economists have attempted to ameliorate this problem by restating the assumption respecting supply-side motivations. For example, in some models, property value maximization replaces population maximization. This approach resonates better, but it solves the problem of supply-side incentives only by making the further, implausible assumption of identity between the jurisdiction's government actors and its real estate interests. Other models analogize to private sector profits and assume a government desire to maximize tax

145. Of course, new residents can lead to scale economies. But that does not complete the incentive story; the scale economies must be tied to the political or economic interests of the lawmakers.
146. Revesz, supra note 9, at 1233-35.
148. Cf. Wildasin & Wilson, supra note 84, at 179 (considering this point and concluding that because developers and landowners generally have some influence in each jurisdiction, the land value maximization assumption "is of greater interest than might at first appear to be the case").
revenue. This change also yields a more plausible model because government actors require operating revenues. But an entrepreneurial state still does not emerge. Questions arise about the intensity of the revenue constraint, its connection to particular outcomes, and the role of competition in shaping those outcomes. Indeed, given Dennis Epple and Allan Zelenitz's generally accepted conclusion that citizen mobility cannot completely eliminate government monopoly power, a tax maximization incentive invites the perverse result of a Leviathan state.

In sum, one cannot assume an entrepreneurial state. As a result, the Tiebout model fails to achieve its intended goal of incentive compatibility. Under the economic theory of the second-best, the Tiebout model's black box must be opened to address directly the problem of motivating government actors to supply public goods in accord with citizen interests. This exercise has two critical implications. First, it undercuts the claim that the Tiebout mecha-

149. See infra notes 206-07 and accompanying text.

150. A conceptual antecedent is noted in Dennis Epple & Allan Zelenitz, The Implications of Competition Among Jurisdictions: Does Tiebout Need Politics?, 89 J. Pol. Econ. 1197, 1198-99, 1206-10 (1981). That model greatly contributed to the move from the Tiebout mechanism, noting that long-run individual sorting into communities will not ameliorate the problem of fiscal rent extraction. It assumes an exogenous number of communities, inflexible community boundaries, and inactive landowners and developers. The role of politics is introduced by virtue of the fact that local government, given passive owners and residents, will attempt to maximize its tax revenues by usurping maximal land rents. But cf. J. Vernon Henderson, The Tiebout Model: Bring Back the Entrepreneurs, 93 J. Pol. Econ. 248, 257-58 (1985) (calling this the Tiebout model with bad politics).

A related line of literature should be distinguished. This line of public choice theory shows that bureaucrats are able, through agenda control, to expand public goods output beyond the level preferred by the median voter. See, e.g., William A. Niskanen, Jr., Bureaucracy and Representative Government 36-58, 169-86 (1971). In those models, tax revenue maximization implies overproduction of public goods. In the tax competition models, it is just as likely that underproduction of local public goods results.

151. It also would seem safe to project a variable relationship between this revenue incentive and the incentive to expand expected voter consent. See Breton, supra note 61, at 236-37.

152. Epple & Zelenitz, supra note 150, at 1199.

153. Perhaps it may be created in the future under a different set of institutional arrangements. See infra text accompanying notes 222-28. Even when incentives to compete clearly are present, additional incentive problems may inhibit the evolution of first-best legal products. With the network models, described above, we saw that a demand-side problem may cause suboptimal equilibria to evolve and product innovation to be choked off in situations of intense product competition. Supply-side problems also may crop up. Product innovation presupposes an incentive to invest in research and development. With industrial competitors, prospects of a patent monopoly bolster the incentive. The patent deters entry by competitors, ensuring a potential return on investment in research and development. The basic patent model assumes that there is an optimal way to stimulate firms to invest in research and development, which is deemed necessary for product innovation. See A. Michael Spence, Investment Strategy and Growth in a New Market, 10 Bell J. Econ. 1, 1-2, 9-10 (1979). Conversely, if an innovation easily can be copied by a rival, then new technologies will not efficiently replace old technologies. Legal innovation leads to the production of a public good, and carries no patent protection. Ian Ayres, applying this point to corporate law, suggests that competing states will have insufficient incentives to invest the resources in product innovation. Ian Ayres, Supply Side Inefficiencies and Competitive Federalism, in INT'L REGULATORY COMPETITION, supra note 74, at 239, 254.

nism solves the problem of regulatory capture. Second, it substitutes an incentive picture in which market competition shares a place with the conventional political factors of interest-group influence and voter accountability.155

The result is a very different, more complex working model of competitive government. In this model, government actors act entrepreneurially when tax revenues, export earnings, jobs, technology, or other positive externalities yielded by the attraction of factors of production also yield appropriate political benefits, either in the form of electoral advantage or satisfaction of the demands of favored interest groups.156 Part III shows that these elements distinguish the new generation of formal models of jurisdictional competition.

E. EMPIRICAL TESTS OF THE TIEBOUT MECHANISM

How, given the Tiebout model's nonequilibrium and unstable equilibrium results and its disabling frictions, can we explain the legal literature's ongoing endorsement of its predictive power? One explanation lies in a thick stack of studies of its testable implications. Proponents claim these studies provide strong support for the core proposition that jurisdictions use tax and public goods packages to compete for residents, apparently overcoming the model's sticking points.157

We have two comments to make about these studies. First, the proponents' characterization of the results as strong support is itself too strong. The results are, at best, suggestive, and make very little progress toward affirmatively showing a crucial missing element—entrepreneurial behavior patterns in government actors. Second, even if the studies offered strong support for the Tiebout model's jurisdictional competition assertion, such support would not compensate for the model's failure to yield stable equilibrium results. The model makes two primary assertions, one descriptive and the other normative. The studies for the most part address the descriptive assertion that jurisdictions compete for residents. The normative assertion, which the studies do not address, is that this rivalrous behavior will lead to a first-best result by matching public goods packages with citizen preferences. This is the assertion undercut by the model's failure to yield a stable equilibrium.

155. This has of course been suggested many times in the law review literature. For recent instances, see Daniel C. Esty, Revitalizing Environmental Federalism, 95 Mich. L. Rev. 570, 638-51 (1996), and Swire, supra note 66, at 94.

156. Or, in the alternative, the particular actor cuts an advantageous deal with the responsible government actors directly. We would add a factor—the satisfaction incident to enhancing public welfare. It is less certain that an entrepreneurial incentive relationship can be assumed as a systematic proposition. Indeed, where it does exist it can be ephemeral. Unlike firms, which must hew to the profit incentive over time, the objectives of government suppliers change over time with voter preferences. See Rose-Ackerman, supra note 77, at 329. Of course, under a loose Tieboutian view of the world, sorting through migration brings homogeneity and thus political stability. The opposite result, however, flows from Rose-Ackerman's model: migration causes the identity of the median voter to change, resulting in an unstable equilibrium. Id.

I. Capitalization Studies

One line of empirical work on the Tiebout mechanism appears to support the normative assertion. This line began with Wallace Oates's famous study showing that tax and property levels are capitalized in property values. More particularly, property values are negatively related to property tax levels and positively related to education expenditures.\(^{158}\) This result, which has been confirmed many times,\(^{159}\) supports the model's description of demand-side awareness of the contents of tax and public goods packages. At first glance, one might believe the study also supports the normative assertion. Oates suggested that consumers can use real estate prices as guides to jurisdictions with the best public goods provision because high real estate values imply a surplus value of public goods benefits over the tax cost.\(^{160}\) According to this view, housing prices measure both the amount that relocating citizens willingly pay for public goods and the differential attractiveness of communities.\(^{161}\) Thus conceived, they seem to bear a familial resemblance to prices on the New York Stock Exchange. Stock prices do more than indicate the point at which buyers and sellers come together; stock prices also provide an empirical measure of management performance over time that on the downside can trigger a disciplinary device such as a hostile takeover. By analogy, the real estate market provides an empirical equilibrating market for local public goods, along with an informational focal point that facilitates the market disciplinary mechanism of citizen exit.

Unfortunately, the analogy to the securities markets does not fully carry. Real estate price behavior certainly influences migration decisions. The problem is that real estate pricing does guarantee preference matching. Indeed, to the extent that housing prices capitalize the value of the public goods package and confirm consumer awareness of that value, the prices simultaneously negate the existence of a Tiebout equilibrium. Because real estate consumers treat local taxes as the price they pay for public goods, capitalization could not occur in a world with a Tiebout equilibrium. Theoretically speaking, in equilibrium, marginal demand equals marginal cost. In a Tiebout public goods equilibrium, the value of public goods benefits exactly equals the taxes levied to produce them. Given the equality of benefits and costs, no excess value or dead weight cost could be

---

\(^{158}\) See Wallace E. Oates, The Effects of Property Taxes and Local Public Spending on Property Values: An Empirical Study of Tax Capitalization and the Tiebout Hypothesis, 77 J. POL. ECON. 957, 966-67 (1969). Thus, a jurisdiction with high property values will have low property tax levels but high education expenditures.

\(^{159}\) The literature has been summarized. See Been, supra note 10, at 521-23; Keith Dowding et al., Tiebout: A Survey of the Empirical Literature, 31 URB. STUD. 767, 775-779 (1994). The numbers yielded as to the quantum of capitalization vary widely across the literature. See Dowding et al., supra, passim. Estimates vary between zero and 100%, with most results fixing capitalization at between 30% and 70%. Id. at 776. In addition, several methodological shortcomings have been uncovered and corrected as the literature has developed. See id. at 775-76.

\(^{160}\) OATES, supra note 18, at 968.

\(^{161}\) BRETON, supra note 61, at 238-39.
capitalized in real estate prices. Oates, then, inadvertently confirmed the absence, rather than the presence, of a Tiebout equilibrium.

The real world’s failure to deliver optimal numbers explains the result. Presumably, given a sufficiently large number of communities and public goods packages from which to choose, no rational citizen would willingly pay a premium over the intrinsic value of the public goods offered in any particular jurisdiction. Instead, she would move to a jurisdiction that matched her preferences. In contrast, the combination of a limited number of communities, a high demand for public goods, and taxes set at the cost of public goods implies that the aggregated jurisdictions fail to satisfy demand. As a result, real estate prices rise as the value of the benefit is capitalized (or go down if the tax burden exceeds the value of the public goods).

2. Other Studies

Other Tiebout studies focus exclusively on demand-side motivations, and attempt to measure the extent to which tax and public goods considerations influence migration. Here, aggregate census data indicate that fiscal factors influence population movement. Summarizing the principal results, first, high tax rates do not attract migrant groups; second, migrating people of color are

---

163. Dennis Epple et al., A Search for Testable Implications of the Tiebout Hypothesis, 86 J. Pol. Econ. 405, 406 (1978). The Hamilton modification of the Tiebout model, see supra text accompanying notes 109-11, also refutes the suggestion that real estate values serve as a price mechanism in a local public goods market. Recall that the model reaches a stable equilibrium result by stipulating a zoning regulation that functions as a nondistortionary head tax. In so doing, it concretely demonstrates that the Tiebout model’s central problem is the lack of a price mechanism. Dowding et al., supra note 159, at 778.
164. Epple & ZeJenitz, supra note 150, at 1212-13, revive the Oates claim, asserting that statistically significant estimates of capitalization evidence the presence of a Tiebout mechanism. BRETON, supra note 61, at 238, objects to this reading. Citing Dennis Epple, Allan Zelenitz, and Michael Visscher, Breton notes that they assume an equilibrium and that nothing can be summarized about an equilibrium’s properties from an equilibrium analysis of disequilibrium states. On the other hand, notes Breton, given a scarcity of desirable locations, it hardly is surprising to see results indicating capitalization of higher rental values. Id.
sensitive to levels of welfare provision; and third, results are mixed on whether white migrants are sensitive to levels of welfare provision. There is a methodological problem with these studies, however. Because they use census data to measure individual motivations, the studies remain open to the introduction of additional variables. Micro-level studies of relocation motivations—conducted through questionnaires—potentially solve this problem, but suffer from a cheap talk possibility. In any event, the micro-level studies reach conflicting conclusions as to the influence of tax/public goods packages.

Still other studies show that people sort themselves by location, causing a trend to homogeneous populations in particular jurisdictions. Consistent with the Tiebout hypothesis, this result supports an inference that the sorting occurs due to tax/public goods package preferences. Another inference can be drawn, however. Statistically speaking, given many jurisdictions and random (as opposed to intentional) sorting, a relatively more homogeneous subset will emerge despite preferences for tax/public goods packages.

These studies, taken together with the capitalization studies, do support the idea that people pay attention to tax/public goods packages. But they only take us one step beyond the general assertion that citizens have preferences respecting taxes and public goods. The supply-side assertion that local government actors actively compete for residents with tax/public goods packages remains sorely in need of empirical confirmation. That assertion receives only indirect

166. We rely here on the collection and recounting of the literature in Dowding et al., supra note 159, at 779-82.

167. Id. at 784-85. That is, most empirical micro-level studies have a very narrow focus, omitting analysis of the effects of local government, thus weakening their scope of application.


169. Dowding et al., supra note 159, at 774. There also are some equivocal results in the stack of studies. See Robert M. Stein, Tiebout's Sorting Hypothesis, 23 URA. AFF. Q. 140, 155 (1987) (testing Tiebout by regressing tax/service package differentiation against mean municipal heterogeneity and finding no significant relationship other than racial sorting). A final body of studies, more directly connected to the Leviathan assertion of public choice theory than to the regulatory competition literature, shows that big government tends to cost more per capita, and smaller government tends to cost less. The problem with this stack is that it measures expenditures but not efficiency. They can mean either that smaller units provide the same public goods packages for less or that demand tends to drop where jurisdictions are small. See Dowding et al., supra note 159, at 769-71.
support from the studies. The studies show that mobile residents respond to fiscal variables. Such a finding suggests that governments will be sensitive to mobility. From there an inference of rivalrous behavior does arise. But the strength and character of the behavior pattern remains speculative, and hence a long list of real world frictions stands between the behavior pattern and the projection of a concrete regulatory result. Therefore, there remains every reason for skepticism about policy presumptions that rely on competitive behavior.

III. JURISDICTIONAL COMPETITION IN A SECOND-BEST WORLD: THE NEW ECONOMICS

The development of a robust version of the Tiebout model stood high on the public economics agenda for more than a quarter century. But lately only a few continue to pursue the development of a workable, self-standing Tiebout mechanism. Jurisdictional competition still figures prominently in research in the field, however. This work, herein termed the “new economics,” models jurisdictional competition in a second-best framework. It continues to employ the Tiebout mechanism, but only for limited purposes or in a substantially modified form. This work also pursues alternative conceptions of competitively disciplined local public goods production. In the end, the new approach relegates the first-best Tiebout model to the sidelines as a compelling vision of an unattainable state of the world.

One line of research, the tax competition literature, employs a modified version of the Tiebout mechanism to model the problem of externalities in a federal system. These models employ a capacious concept of externality that

170. BRETON, supra note 61, at 239.

171. Under a first-best approach, the idea of perfect competition means that markets that are competitive will induce efficient outcomes. See JEAN-JACQUES LAFFONT, FUNDAMENTALS OF PUBLIC ECONOMICS 2-4 (1988). But the Arrow-Debreu paradigm that underlies the first-best approach has been challenged over the last 15 years by the new industrial economists who contend that the perfect competition conception of the market is undermined by the failure to take into account the absence of perfect information, the costs of acquiring information, and nonconvexities. Id. at 167-90. These theorists argue that, given the presence of information convexities, the level of government intervention required to produce Pareto allocations cannot be as limited as the second welfare theorem recommends. See STIGLITZ, supra note 123, at 58.

This new body of research in economics and political science also takes moral hazard, adverse selection, and political opportunism into the analysis of economic policy choice. See, e.g., LAFFONT & TIROLE, supra note 48. This approach provides a means, in a second-best context, to determine the bargaining situations that might yield optimal regulatory outcomes. The second-best approach also shifts attention to the establishment of productive grounds for altering the institutional features of regulatory policy.

172. As we have seen, see supra notes 95-103 and accompanying text, given a fixed number of geographically defined jurisdictions, efficiency claims must take the status of second-best. With fixed boundaries, a unique equilibrium respecting public goods production is unlikely to emerge. Rubinfeld, supra note 94, at 124. We caution that the point of view we describe is not universally held within the economics community. There is, for example, a body of neo-Tieboutian tax models. See infra notes 208-15 and accompanying text; see also WILLIAM A. FISCHER, REGULATORY TAKINGS: LAW, ECONOMICS, AND POLITICS 268-69 (1995) (endorsing the vitality of the Tiebout model with a citation to law and economics sources).
includes intrastate economic and political distortions in addition to all cost and benefit consequences of public goods production that cross state lines. The models caution about distortive effects that can be expected when junior levels of government compete in a federal system. The models indicate that, given competition, the productive provision of public goods must include the delineation and correction of these externalities. The problem cannot be assumed away, as in the Tiebout model, nor treated as a limiting factor and otherwise ignored, as in legal contexts. Confronting the problem, meanwhile, implies central government intervention.

A second line of literature concentrates on local-level information asymmetries and pursues the same objective as Tiebout modelling—the design of local government mechanisms that match preferences and public goods production. Some of these models employ the Tiebout mechanism, acknowledging its shortcomings and experimenting with curative supplements. Other models abandon the Tiebout mechanism altogether. Instead of using competition as an outside force that solves political problems by avoiding them, these models address the democratic process and experiment with means to inject more competition.

As a whole, the new approach withdraws economic theory's support for the legal literature's general presumption that competitive forces ensure that devolution enhances welfare. This literature teaches that legal federalism has not as yet asked the right questions about the economic welfare effects of devolution.

A. TAX COMPETITION MODELS

In a first-best economy, taxation and public goods provision meet the Samuelson condition, and all costs and benefits are restricted to the providing jurisdiction. Tiebout-type models meet this condition by stipulating exclusive use of a residential head tax. With a head tax, there can be no interjurisdictional tax spillovers; and, given the assumptions of perfect mobility and an unlimited supply of states, no state can export its tax burden. These results lead some observers to encourage interstate tax competition. They argue that tax competition enhances welfare by forcing state governments to lower tax rates, and limits efficiency losses by constraining the self-serving activities of politicians.


174. See supra text accompanying note 15 (explaining that the Samuelson condition is fulfilled when the sum of each person's willingness to pay for another unit of a public good for her marginal benefit equals the cost of producing that additional unit).

175. See supra notes 109-11 and accompanying text.


177. Reference to the Leviathan school of public choice theory provides affirmative support for this assertion. See supra notes 57-59 and accompanying text.
The new generation of tax competition models abandons this first-best template, however. Like the Tiebout model, they assume that state governments compete for mobile citizens and capital. Unlike the Tiebout model, these models depict jurisdictions in competition for tax dollars rather than citizens and situate the Tiebout mechanism in a world of myopic government actors. The models show that economic distortion results when government decisions about the provision of public goods fail to consider secondary effects (both internal and external) to the taxing state. They further show that government competition for factors of production aggravates this distortion. The models suggest a range of policy remedies.

1. Basic Model

The basic model, hereinafter the Gordon model, assumes a two-tiered federal structure in which residents live in one state and sell their factor inputs and purchase goods and services throughout the federation. State governments hire factor inputs to produce goods and services, and meet their revenue needs by taxing factors, goods, and services. Social welfare is defined as an aggregate of: (1) the social welfare function for all people within the federation, (2) the after-tax prices for goods, services, and factors, (3) the provision of public goods, and (4) a state-by-state congestion factor tied to prevailing price levels. Taxes may be based on the residence of the taxpayer or on the sources of transactions. Each state sets its own tax rate under a constraint of a mandatory balanced budget.

In addition, the state government must satisfy the re-election demands of local citizens. The model specifies a political objective function sensitive to the political power wielded by groups in state politics. The maximization of the political objective function determines the state’s tax rates, subject to the budget constraint. As with the Tiebout model, households and factors are mobile across jurisdictions. Finally, the model assumes each state government to be myopic concerning the allocative effects of its tax rates on other states’ tax rates and on citizens’ relocation decisions.

---

178. Suzanne Scotchmer, supra note 91, at 93, 115.
180. In public goods models the terms crowding and congestion are used to describe the same phenomenon. The congestion factor has both positive and negative relationships. On the one hand, a positive factor implies that there is a utilization measure based on the number of voters and the units of public goods provided. On the other hand, a negative factor suggests a proportional increase in the use or level of consumption of the public good. See CORNES & SANDLER, supra note 91, at 348.
181. Gordon, supra note 179, at 577 (modelling the simple case of median voter politics across all states); see also Walter Hettich & Stanley L. Winer, Economic and Political Functions of Tax Structure, 78 AM. ECON. REV. 701, 706-10 (1988) (expanding the model to encompass coalition politics).
182. Gordon, supra note 179, at 577.
183. Equilibria have been demonstrated for competitive federalist economies thus modelled. See Ravi Kanbur & Michael Keen, Jeux Sans Frontieres: Tax Competition and Tax Coordination When
According to the model, although an island jurisdiction could set an optimal tax rate, interstate effects prevent a state in a federation from so doing, leading to suboptimally low provision of public goods. The model describes five types of distortive effects: tax exportation, regressivity, "not-in-my-backyard" (NIMBY) tax devices, tax spillovers, and "beggar-thy-neighbor" tax competition.

The first effect, tax exportation, occurs when tax burdens and public goods are distributed unequally. In one case the effect is interstate: taxes paid by out-of-state citizens and firms provide public goods consumed in-state. The other case is intrastate: the controlling voting coalition within the state enjoys most of the public goods benefits while sharing the taxation burden with disenfranchised local citizens (as well as nonresidents). In either case, officials will have an incentive to export the tax burden.

The second distortion is the system's bias toward regressive results. Given factor mobility, exit or threatened exit by upper-income households tends to keep tax burdens and public goods benefits evenly balanced. Because the poor pay less tax, maintenance of the balance forecloses provision of public goods benefits to them. Thus, the model effectively blocks redistributive welfare provision for the poor.

The third problem concerns congestion. Myopic states can raise tax rates to encourage exit by unwanted businesses and residents, leaving the remaining residents better off. This NIMBY phenomenon likely arises when production processes that benefit society in the aggregate offend those within the jurisdiction.

The fourth distortion follows from indirect effects of increases or decreases in tax rates. One indirect effect occurs intrastate and concerns the taxing state’s fiscal policy. A change in tax rates will alter private sector consumption levels, causing an indirect tax revenue effect; similarly, tax rate changes will affect the prices of factors, and the cost of running state government will rise or fall as an indirect result. The second category of indirect effect is the cross-border spillover. Given mobility, consumption and factors may migrate elsewhere when a
state raises its tax rates. This migration may impact other states positively causing their tax revenues to rise and their cost of public sector inputs to fall.\(^{188}\)

The home state accordingly has a disincentive to tax a mobile base,\(^{189}\) even though such a tax may otherwise create transaction cost efficiencies.\(^{190}\)

The fifth distortive effect involves the terms of trade in the home state. Price changes following tax rate changes impact the incomes of local residents.\(^{191}\) There results an incentive toward lower taxes on mobile inputs, increasing the disposable incomes of the members of the state’s dominant coalition. When more than one state vies for such mobile inputs, there results the “beggar-thy-neighbor” effect characteristic of the classic race-to-the-bottom.\(^{192}\) Subsequent models focus on interstate competition for scarce capital and yield similar results.\(^{193}\)

---


189. Inman & Rubinfeld, supra note 176, at 315.

190. In models allowing for only one type of tax, these spillovers will cause an incentive to underprovide local public goods. See George R. Zodrow & Peter Mieszkowski, Pigou, Tiebout, Property Taxation and the Underprovision of Local Public Goods, 19 J. URB. ECON. 356, 358-66 (1986).

191. Aggregate income changes of private finns are assumed to be zero both before and after any rate change. Inman & Rubinfeld, supra note 176, at 312.

192. See supra text accompanying note 69. The Oates-Schwab model of an environmental race-to-the-bottom, see Oates & Schwab, supra note 77, is the classic example. According to Inman and Rubinfeld, supra note 176, at 317, tax spillovers and terms of trade effects are unlikely to be significant respecting consumption taxes. Factor taxes, however, are a different matter. Here there is empirical support for significant effects. See William Morgan et al., A Regional General Equilibrium Model of the United States: Tax Effects on Factor Movements and Regional Production, 71 REV. ECON. & STAT. 626, 631 (1989) (computable general equilibrium model showing that regions can increase residents’ income by substituting a lump sum tax for existing taxes on mobile labor); John H. Mutti et al., The Incidence of Regional Taxes in a General Equilibrium Framework, 39 J. PUB. ECON. 83, 91-98 (1989) (computable general equilibrium model showing that a one percent decrease in a region’s tax on business capital leads to a significant migration of capital into the region, significantly impacting the region’s revenue); R. Wassmer, The Use and Abuse of Economic Development Incentives in a Metropolitan Area, 46 PROC. NAT’L TAX ASS’N 146 (1993) (showing extensive use of tax subsidies).

193. Zodrow and Mieszkowski, supra note 190, at 358-68, develop a model in which jurisdictions compete for capital investment by holding down a source-based tax to finance local public goods. See also Roger H. Gordon, Taxation of Investment and Savings in a World Economy, 76 AM. ECON. REV. 1085, 1094-97 (1986) (arguing that when other tax instruments are available, a local government of the Zodrow-Mieszkowski type will make use of resident-based taxation in lieu of source-based taxation). For a contrasting vision, see John D. Wilson, A Theory of Inter-Regional Tax Competition, 19 J. URB. ECON. 296 (1986), in which an individual jurisdiction relies on a property tax which is distortionary and may restrict the public good level because of the perceived marginal excess of the local tax. In Wilson’s model, there are many small jurisdictions, each relying on a uniform tax rate and facing an exogenously given net return to capital. A fixed supply of capital in the overall economy is assumed. Id. at 298. Given tax competition, there will be underprovision of local public goods even if all households would be better off by a simultaneous increase in the amount of public goods in all jurisdictions. Wilson shows that tax competition will lead to a prisoner’s dilemma, as taxes are driven too low by the state’s attempt to capture flows of mobile capital. Id. at 303-04. A prisoner’s dilemma results because each symmetric community understands an increase in local tax spending will cause a loss of local capital. See also Sam Bucovetsky & John D. Wilson, Tax Competition with Two Tax Instruments, 21 REGIONAL SCI. &
These tax competition models signal that jurisdictions must coordinate with each other to achieve a Pareto superior outcome. Alternatively, central government intervention may be justified. But the literature avoids suggesting broad-brush centralization, instead positing discrete interventions. The central government might, for example, require resident-based taxes for all states, with a consequent diminution in incentives to externalize. The central government might also correct state-level distortions by strategically linking central taxes to corrective grant-in-aid reallocations. Finally, given source-based taxation

---

**URB. ECON.** 333, 345-49 (1991) (arguing that when both residence- and source-based taxation are available, local governments provide efficient levels of local public goods).

194. See Jeremy Edwards & Michael Keen, *Tax Competition and Leviathan*, 40 EUR. ECON. REV. 113, 119-26, 130-31 (1996) (arguing that international tax coordination is required when the tax on mobile capital is the only revenue source available to policymakers; and suggesting that when policymakers are neither wholly benevolent nor wholly unconcerned about the welfare of citizens, it is clear that, irrespective of whether the tax base is fully or partially mobile, a small multilateral increase in the tax on mobile capital from the noncooperative equilibrium will increase the welfare of the representative citizens); Guy Gilberd & Pierre Picard, *Incentives and Optimal Size of Local Jurisdictions*, 40 EUR. ECON. REV. 19, 28-33 (1996) (showing that optimal size of a jurisdiction in respect of public good production relates to the magnitude of uncertainty on cost and spillover effects).

Coordination tends to be viewed as a superior alternative to centralization because it keeps authority at junior levels. But coordination is not easily sustained on a spontaneous basis—central authority will have to design a reward and punishment system in order to induce cooperation. Klibanoff and Morduch formally show that the cost of inducement may exceed the benefit of coordination. Peter Klibanoff & Jonathan Morduch, *Decentralization, Externalities, and Efficiency*, 62 REV. ECON. STUD. 223, 231-35 (1995). In this model, “coordination will be worthwhile only if external effects are at least as large as the largest possible private net benefit.” Id. at 234.

195. Inman & Rubinfeld, *supra* note 176, at 318-19. Administration would present a problem, however, because each jurisdiction would have to monitor its residents’ out-of-state transactions. In addition, local tax regressivity would remain unconstrained. Wage and income taxes piggy-backed on a centrally administered tax regime are suggested. Consumption taxes would present more of a problem due the possibilities for unobservable out-of-state activity. *Id.* at 319. A restriction to residence-based taxation would reduce interstate tax exposition but allow possible intrastate exportation across political coalitions. Inman and Rubinfeld argue that a restriction also would deter NIMBY competition on the theory that the activity to be discouraged through a tax disincentive now by definition is owned by a resident; to the extent nonresidents conduct such activity they could not be taxed. *Id.* at 319. Other competition would be discouraged “since mobile capital ... is uniformly taxed across locations under the residency principle.” *Id.* at 319.

196. *Id.* at 320-21. For example, to combat beggar-thy-neighbor tax breaks on investment capital, the central government could tax the benefitted factor or good at its source and redistribute the proceeds in a “locational neutrality” fashion. *Id.* at 321; see also Robert P. Inman & Daniel L. Rubinfeld, *The EMU and Fiscal Policy in the New European Community: An Issue for Economic Federalism*, 14 INT'L REV. L. & ECON. 147, 150-51 (1994) (arguing the same point for the EC); David E. Wildasin, *Income Redistribution in a Common Labor Market*, 81 AM. ECON. REV. 757, 761-65 (1991) (arguing that the federal government could to ameliorate fiscal externalities arising from migration flows, design optimal transfer payments to lower-level jurisdictions effectively to internalize the externalities, and pointing out that the rates should be nonuniform to reflect divergent preferences); David E. Wildasin, *Interjurisdictional Capital Mobility: Fiscal Externality and a Corrective Subsidy*, 25 J. URB. ECON. 193, 196-98 (1989) (employing a Nash equilibrium approach with unmobile agents, viewing tax competition as an externality, and constructing a corrective subsidy). Inman and Rubinfeld acknowledge a substantial feasibility problem: the economic incentives that lead to inefficiency at the state level may lead to inefficient central government correctives. Inman & Rubinfeld, *supra* note 176, at 311-15. They look to strong national political parties and executive power as counterweights to the inefficient tendencies of legislative logrolling; and as a final backstop, they suggest embedding a restriction to resident-based taxation in the constitution. *Id.* at 328-29.
across jurisdictions of unequal size, a minimum tax rate may have a beneficial effect.\textsuperscript{197}

2. Evaluation

This theoretical case for interstate coordination or central intervention becomes practical only to the extent that these models describe significant economic distortions in the real world.\textsuperscript{198} Thus evaluated, these tax models have a marginally stronger claim to plausibility than do preceding applications of the Tiebout mechanism. This conclusion follows from considering the models' success in confronting the unresolved problems of earlier Tiebout literature—the matters of unstable equilibrium, externalities, limited information and mobility, and entrepreneurial incentives.

\textit{a. Unstable Equilibrium.} Some highly technical progress with the unstable equilibrium problem has occurred in the tax competition context. Jack Mintz and Henry Tulkens derive a Nash equilibrium in a model of two jurisdictions, each of which conditions its optimal tax policy on the other's tax policy. This model, however, only derives discontinuous reaction functions in the two jurisdictions. That is, the competing state's response sometimes departs from the result expected by the acting state, sometimes preventing a Nash equilibrium. Moreover, any equilibria reached in the model are not Pareto optimal.\textsuperscript{199}

\textsuperscript{197} It has been shown that the asymmetrically sized states will reach a noncooperative equilibrium in which the small state sets a lower tax rate than the large state, resulting in a higher level of tax revenue and spending in the smaller state. Kanbur & Keen, supra note 183, at 881. The Kanbur-Keen model shows that unequal state size aggravates the inefficiency problem that would exist if the states were of equal size. This unusual analysis focuses on the role of size of jurisdiction as a source of inefficiency, inviting application to a range of issues, such as location decisions of multinationals or transfer pricing policies among affiliates. In the Kanbur-Keen analysis, the model consists of two states. Taxes are based on source and enforcement is imperfect. \textit{Id.} at 879. Each citizen can either purchase a unit of commodity in her own state where it is available for $t$ or can travel to the bordering jurisdiction where it can be purchased for $T$, incurring travel and other transaction costs. The consumer will purchase the unit in the next jurisdiction only if the surplus she enjoys exceeds that from buying the unit locally and the surplus is nonnegative. With open borders between states, the question arises of how to select the tax rate that maximizes revenue, given that each country will account for the tax rate of the other. \textit{Id.} at 879-80. Asymmetry emerges between the responses of the small and large state. We start at $t=0$ with low tax rates in both states and open the borders. Given the low rate, the home state optimally sets its tax above the outside rate, given that at the margin it is not worth attracting certain citizens. As other rates increase, the home state optimally responds by increasing its rate by half. This suggested rate, however, is subject to change when the increase of tax is sufficiently high; then, the best response is to increase the tax rate by a discontinuous reduction. \textit{Id.} at 881. The model suggests two significant strategic responses. First, the increase in cross-border shopping provides a basis for the large state to increase taxes without loss of revenue to the small state. For this reason, the small state may increase its own tax rate without fear of lost trade to the neighbor state. The upshot is that if strategic responses are taken into account, it will be apparent that an increase in transport costs will have little impact on the cross-border shopping. It follows that it is also not too risky for the lower tax state to induce measures which make it more costly to cross-border shop.

\textsuperscript{198} The view of those responsible for these models is that they are practical. See Inman & Rubinfeld, supra note 176, at 316-18, 322.

\textsuperscript{199} Jack Mintz & Henry Tulkens, \textit{Commodity Tax Competition Between Member States of a}
The model also has been criticized for its high degree of generality. The critics insist that even if Mintz-Tulkens can show the emergence of a noncooperative equilibrium in pure strategies, their insight offers few general characterizations or conclusions.200

The mainstream tax literature accordingly must join the Tiebout literature in assuming that a stable equilibrium exists in a federalist economy.201 The tax models then consider the effects of different fiscal policies upon the assumed equilibrium. The assumption weakens their predictive power. The models can predict distortions likely to occur if the federal system is competitive. But they cannot establish that the system is keenly competitive in the first place. Even so, the models retain a powerful critical function for legal federalism, in which a beneficial competitive system is now routinely assumed.

b. Externalities, Information, and Mobility. In the legal Tiebout world, externalities remain on the sidelines as subject matter inevitably left over for central government treatment. In the tax models, externalities take center stage as the subject to be modelled. The comparison shows that the number of problems requiring central government treatment is longer than the legal Tiebout literature leads one to expect.

Information presents less of a problem for the tax models than for the original Tiebout model. The tax models stipulate myopic government actors, implying a limited information world. In addition, the most important piece of information in a tax model—the tax rate of the competing state—is observable. Questions remain, however, about the quantity of information real world government actors have about the fiscal effects of these observable tax policies, and about the probable actions of other states and the preferences of their dominant coalitions.

Mobility still is the mainspring with the tax models, with emphasis shifting from citizen residency to capital transactions. There is also a reversal. With pure Tiebout models, less mobility and less competition imply more distortion in public goods production. With the tax competition models, less mobility and competition imply fewer externalities and less distortion. Either way, the mobility assumptions need empirical support if these models are to have policy import.202 With the tax models, as with pure Tiebout models, it comes down to a matter of degree. Most observers will acknowledge a minimum degree of

Federation: Equilibrium and Efficiency, 29 J. PUB. ECON. 133 (1986). Each jurisdiction taxes a traded good and provides a local public good. The features of the model reveal that tax changes in one jurisdiction will impact the tax and price level in other jurisdiction. Because these effects are ignored by self-interested policymakers, inefficiency emerges.

200. Kanbur & Keen, supra note 183, at 878-79.
201. See Inman & Rubinfeld, supra note 176, at 313.
202. There also may be an analytical problem. See Sam Bucovetsky, Rent Seeking and Tax Competition, 58 J. PUB. ECON. 337, 337 (1995) (arguing that an optimal equilibrium will emerge only if no migration of capital or labor were required to achieve efficiency, otherwise tax competition leads to too little migration).
mobility-induced fiscal distortion (for example, there is a well-known connection between consumption taxes and cross-border shopping). Studies offer additional support. Labor has been shown to move across state lines in response to tax-related changes in the prices of goods and services. Other research similarly reveals that tax changes induce capital movement, but here the results are less compelling.

c. Entrepreneurial Incentives. The tax models, like the Tiebout precedents, assume that entrepreneurial incentives motivate governmental actors. Within the tax context, this assumption proves more plausible. Although government actors universally need both tax dollars and residents, in an underfunded and overcrowded world it is safer to assume a desire for additional tax dollars than a desire for additional residents. Questions remain about the degree of need, the connection between needs and particular outcomes, and the role of competition in shaping those outcomes. The problem, however, proves less troubling because the tax models concede interest-group influence as an objective function. The stipulation that the dominant coalition prefers a given tax result technically solves the incentive problem because it ties the result pursued by government actors to the ballot box and hence to their interest in their own careers.

3. Neo-Tieboutian Tax Models

A minority view in the tax competition literature stands in contrast to the models just described. More particularly, the Krelove-Myers models purportedly show that state government activity does not imply fiscal distortions due to externalities and spillovers, and that tax efficiency does not require central intervention. These models assume that: (1) local taxes are limited to head taxes and taxes on rents; (2) all households have identical preferences and endowments; and (3) all governments set tax rates to maximize residents' welfare and recognize that resident welfare must be equal to welfare in competing neighboring regions.

Russel Krelove's model posits a market corrective to tax externalization. In the model, a state causes the burden of a local tax on rents to fall disproportion-

204. See Inman & Rubinfeld, supra note 176, at 316.
206. See supra text accompanying notes 104-08, 147-57.
207. The models' majority rule, median voter approach precludes a more complex description of interest-group politics, however. Such models also have been criticized for predicting less stable outcomes than are observable in the real world. See William R. Dougan & James M. Snyder, Jr., Interest-Group Politics Under Majority Rule, 61 J. PUB. ECON. 49, 50 (1996).
ately on out-of-state property owners. The resulting low-cost public goods package attracts an influx of new residents. These new residents enter the labor market and bid down wages. Therein lies the correction: wages fall in the amount of the tax subsidy provided by the out-of-state owners.

Alternatively, in Gordon Myers's model, the government realizes in advance that the tax subsidy will attract new migrants, and voluntarily transfers cash to out-of-staters to prevent the depression of wages. In the end, no state has an incentive to export its tax burden because countervailing movement of factors of production into the state over time will have an equilibrating effect that eliminates the advantage of subsidized public goods production.

The insight that household relocation could neutralize tax exportation has undeniable power. The models nevertheless fail to undermine the position of the mainstream models because the result depends on a long line of additional assumptions. Robert Inman and Daniel Rubinfeld question the speed with which Krelove-Myers household relocation would occur. If it occurred slowly, there would remain room for fiscal myopia on the part of local politicians. Inman and Rubinfeld also note that the mainstream models allow for a greater range of local tax devices and heterogenous citizen preferences, more commonly known as politics. Given multiple types of citizens, the Krelove-Myers equilibrium generally would not be efficient. Finally, Inman and Rubinfeld question the validity of an assumption that local governments explicitly consider the effects of their fiscal decisions on relative household welfare across localities. Local government officials acting in accordance with this assumption are hyperrational beings who perceive all external effects and subject them in advance to the equilibrating analysis of the Krelove-Myers model. Inman and Rubinfeld accurately conclude that the Gordon models' myopia assumption better reflects reality.

The Krelove-Myers models have to expunge the political factor accepted by other tax competition models in order to solve the problem of fiscal externalities

211. Krelove also offers a contrasting approach for shaping the remedy of corrective taxation. See Russell R. Krelove, Competitive Tax Theory in Open Economies: Constrained Inefficiency and a Pigovian Remedy, 48 J. Pub. Econ. 361, 369-74 (1992) (suggesting that governments be forced to internalize by effectively creating a market for rights in the tax base). But see Thomas Piketty, A Federal Voting Mechanism to Solve the Fiscal-Externality Problem, 40 Eur. Econ. Rev. 3, 7 (1996) (arguing that "this solution [is problematic in] that it relies on the existence of a federal agency which has the power to set the tax rate for attracted capital and enforce it, which requires both the national political preferences (to compute the optimal tax rate) and amounts of foreign capital attracted by each country (to charge the tax) to be publicly verifiable. Such conditions seem very unlikely to be met in practice at the international and EC level: information about international capital movements is highly decentralized, and various actors (including governments) have little incentive to reveal it (the same is true, to a lesser extent, for national political preferences)."
212. See Inman & Rubinfeld, supra note 176, at 324.
213. Id.
214. Moreover, given elasticity of supply of all factors of production, there literally will be no rents to tax, returning us to the efficient but infeasible world of the Tieboutian head tax. Id.
215. Id. at 323.
and allow for the reinstatement of a first-best presumption respecting junior-level authority. Even then the solution depends on the assumption of homogenous preferences and a universe limited to two tax devices. The Krelove-Myers models also aggravate the old Tieboutian problems of information and entrepreneurial incentives. The hyperrational Krelove-Myers politician operates in a world of homogenous preferences under a job description requiring that the tax regime gives locals no welfare advantages over nonresidents. Such behavioral characteristics approach those of the public interest theory's benevolent politician! The resemblance stands to reason. Krelove-Myers, like the Tiebout model, purports to claim a complete and spontaneous solution to local-level public choice problems. For that to occur, a benevolent hand, whether visible or invisible, has to be at work somewhere.

Furthermore, the interpolation into a tax model of a fully-informed, public-spirited government actor does not by itself guarantee a first-best result. Relying on this assumption, a recent model by Thomas Nechyba reveals that citizen migration can frustrate such government actors' attempts to reform distortive local tax regimes. The Nechyba model assumes that politicians know about the interjurisdictional effects of the taxes they set, but that citizens, who have immobile real estate holdings, mobile incomes, and heterogenous preferences, are myopic about the effects of their locational decisions. This model also assumes that politicians, subject to a balanced budget requirement, set taxes by choosing a proportion of a flat real property tax and a flat rate income tax. The model demonstrates the results of one jurisdiction's politicians' attempt to improve its tax system by increasing the proportion of the less distortionary income tax. Unsurprisingly, citizens whose income is proportionally high compared to the value of their real estate react by moving out. Meanwhile, immigrants attracted to the reformed tax system have low incomes in proportion to their real estate, and may include both high- and low-income types. The shift to the less distortionary tax causes the overall income of the jurisdiction and its tax base to shrink. Furthermore, an income tax, even if uniformly employed across jurisdictions, will not result in a stable situation because politicians in each jurisdiction will have an incentive to lower the income tax and permit the voters to increase the property tax instead. Local politicians, in effect, are locked into the property tax despite its distortions.


218. Id. at 24. Interestingly, if there existed opposition to the property tax, there might exist a prisoner's dilemma in that politicians would be forced to introduce simultaneously an income tax, but every party would have an incentive to breach the agreement. See Nechyba. supra note 216. This type of agreement is unlikely unless there is a third party which could monitor and police the agreement (for example, the state government). Because the state government can legislate a uniform tax and transfer the monies back to the local level, it is assumed that the state behaves as an enforcement body for the
B. ASYMMETRIC INFORMATION MODELS OF LOCAL PUBLIC GOODS PRODUCTION

Another, more tentative, line of public economics reconstructs the paradigm of jurisdictional competition for a second-best world in terms of the economics of asymmetric information and mechanism design. This approach proposes revelation mechanisms that cause government actors truthfully to reveal their costs, inducing them to produce local public goods at a marginal rate. The model supplements the Tiebout mechanism, acknowledging its inadequacy without implying its complete rejection. Other models bypass the Tiebout mechanism entirely, determining that it fails to offer a viable profile of an efficient public goods producer.\textsuperscript{219} These models substitute a political jurisdictional competition story\textsuperscript{220} in which voters cast ballots instead of voting with their feet.\textsuperscript{221} Emphasis thereby devolves on information asymmetries that impair the vote's disciplinary effect.

1. Information Revelation by Local Government Agents in a Tiebout Context

Caroline Hoxby has developed a model that attempts to cure the Tiebout model's infirmities and enhance the responsiveness of local government in a Tiebout world by adding a preference-matching mechanism drawn from Jean-Jacques Laffont and Jean Tirole's theory of optimal regulation.\textsuperscript{222} On its own, this mechanism does not make the Tiebout mechanism robust, but it takes a step in that direction.

Hoxby presents the example of a school board that actively pursues the goal of providing quality education priced at marginal cost. This profile follows from two key Tieboutian assumptions. First, residents sort themselves into different school districts until reaching an equilibrium,\textsuperscript{223} and second, public goods producers have an incentive to limit costs because competition will drive high-cost providers out of the market in the long run.
An information problem hobbles the school board as it tries to produce quality education at the margin. Although both the board and the residents of the school district can observe school quality, they cannot verify school quality. The school administrator (an agent of the board) does report actual costs, but the board does not know the parameters of the cost function. Such incomplete information permits easy rent extraction by the administrator and leads to diminished effort.\textsuperscript{224}

The industrial organization model, developed by Laffont and Tirole, shows that an information-revelation mechanism can lead to acquisition of truthful information about the cost parameters of a regulated firm.\textsuperscript{225} This theory hypothesizes a regulator who must set a price for a firm's output without necessary information about its marginal cost. The firm possesses this information but has no incentive to report it. The theory shows that the regulator, armed with a probability distribution respecting the firm's marginal costs, can design a price menu based on an optimal combination of rents allowed to the firm and surplus supplied to the consumer. The price menu operates as a screening device that sorts high-cost and low-cost producers and facilitates the maximization of expected economic welfare under conditions of information asymmetry.\textsuperscript{226}

In her school model Hoxby assumes two types of school administrators, efficient and inefficient. The problem is that the efficient school—that is, the school with low-cost or high-demand parameters—can mimic the inefficient school, exploiting an information asymmetry so as to decrease its effort level for each level of improvement in its cost or demand parameters. To solve the problem, Hoxby has the school board offer the administrators a Laffont-Tirole menu of contracts.\textsuperscript{227} The wrinkle in the menu comes with its provision for an offer by the regulator (here the school board) to both types of producers (here the school administrators) of a side payment. Given this offer, the efficient school will provide truthful information concerning its cost and demand parameters and the average cost to produce the good because it has an incentive to

\textsuperscript{224} Assuming that there are low- and high-cost school administrators, the informational asymmetry allows low-cost types who might be forced to invest in productivity gains to capture rents. The social costs of these rents may prevent high-cost types from making productivity enhancing investments.

\textsuperscript{225} Laffont and Tirole have developed a theory of incentives in regulation that focuses on the role of the transmission of information between firms and regulators. See Laffont & Tirole, supra note 48, at 19-47. Given information constraints, regulators cannot easily observe the discretionary actions of the firm that impact the costs of quality of its products. This asymmetry of information gives the firm an advantage and imposes substantial inefficiencies in regulatory outcomes. Hence, the existence of information problems requires regulators to employ regulatory instruments designed to gather information and lessen informational asymmetries. The theory of incentives, in particular, allows regulators to design incentive-compatible contracts that induce firms voluntarily to transmit their private information. Truthful revelation can lead to optimal outcomes. See Jean-Jacques Laffont, The Economics of Uncertainty and Information 153-58 (1989).

\textsuperscript{226} It also facilitates maximization of welfare under the incentive and individual rationality constraints of the regulated firm. Under an incentive-compatible regime the regulator is positioned to offer an optimal trade-off between control of rents to the firm and the transfer of surplus to consumers.

\textsuperscript{227} See Laffont & Tirole, supra note 48, at 82-83.
select a low subsidy and a high marginal side-payment. In contrast, a high-cost school will choose the converse combination. The price menu approach allows the school board to account for this observable but unverifiable information about the schools' cost parameters in setting the budget.\footnote{228}

Hoxby couples this Laffont-Tirole incentive mechanism with a short-run Tiebout mechanism, thereby offering a solution to one of the Tiebout model's major information problems—the unverifiable quality of many public goods. If this were the only information problem impairing the Tiebout mechanism's viability for policymaking, this might be the awaited breakthrough. Significant frictions other than information asymmetries, however, also must be confronted. For example, under the model's assumptions, the school board desires to produce at the margin, otherwise population loss will drive the jurisdiction out of business. This keen entrepreneurial incentive requires that every other assumption on the Tiebout list remain intact.\footnote{229} Those assumptions, however, do not describe the real world. Consequently, there is no basis to assume that the school board has an incentive to design a revelation mechanism in the first place.\footnote{230} The model's accomplishment must be narrowly stated: Given a Tiebout mechanism on the demand side, in theory, a mechanism can ameliorate supply-side information problems and realign supply-side incentives in a productive direction.

2. Yardstick Competition

Yardstick competition models seek to ameliorate the Tiebout model's shortcomings by substituting the vote for mobility as the competitive mechanism. More specifically, these models posit that a form of jurisdictional competition exists when voters demand that their governments provide public goods of cost and quality equalling that in other jurisdictions.\footnote{231}

\footnote{228. The importance of a revelation mechanism is that it effectively introduces a cost and quality index to assist the board in reducing costs and increasing school quality.}

\footnote{229. Indeed, if that were the case we would be in a first-best world and the school administrator would share the school board's incentive to produce at the margin for fear of losing her job due to bankruptcy. In such a scenario, the administrator has every incentive to tell the truth, eliminating the information asymmetry!}

\footnote{230. The device presumably would have to be imposed by a higher governmental authority as a process and structure reform. Some problematic preconditions to the operation of the Laffont-Tirole paradigm also might be mentioned. The model assumes that the regulator has the first-mover advantage by means of a take-it-or-leave-it offer. As this assumption is relaxed, a commitment problem arises and it becomes impossible to predict that the bargaining process will always result in an efficient outcome. In the alternative, the regulated firm may test the regulator's commitment to a policy by refusing to participate, leading to a temporary breakdown of negotiations. In this case, the regulator will find it difficult to make credible commitments for the entire policy period, for example, by refusing to make future offers to the firm. See Baron, supra note 94, at 10, 13.}

\footnote{231. In contrast with standard incentive devices, tournaments look to the relative performance of each agent rather than individualistic compensation schemes. This literature was developed originally}
The leading treatment comes from Timothy Besley and Anne Case. This two-period, multijurisdictional model, like the Hoxby model, follows the pattern of the game theory models developed in industrial organization literature. The model assumes that voters’ choices and incumbent behavior are determined simultaneously, and that incumbent politicians decide whether to increase taxes based on the tax policies of other jurisdictions. Asymmetric information obtains, with politicians possessing better information about the cost of supplying public goods than voters. There are two types of politicians: those who respond to voters and do not engage in rent-seeking behavior, and those who finance their careers at the expense of voters’ interests, thereby adding to the marginal cost of public goods.

Politicians set tax levels in response to three possible external shock values—low, medium, and high. The asymmetrically informed voters must determine their incumbents’ type based on performance. The model stipulates that the...
voters have an indirect informational means to assess the incumbents’ performance. Specifically, they observe the tax policy and public goods performance relative to other jurisdictions. Voters rely on this information in setting a benchmark to measure the incumbents’ performance, thereby determining the incumbents’ type and suitability for re-election.

A range of both pure and mixed strategies emerges in Besley and Case’s formal analysis. The following examples represent a few of the results. Assume that voters do not have access to information about tax and public goods production in other jurisdictions. These voters likely will re-elect an incumbent when the incumbent sets an intermediate-level tax, assuming a stochastic shock of a sufficiently high value to ensure that an incumbent who selects this level is indeed a good type. At the same time, however, a bad incumbent may falsely signal quality and gain re-election by nominally reducing his rent. Change assumptions so that the voters have access to information about the tax level in an identical, neighboring jurisdiction, and three possibilities emerge: (1) if both incumbents are good, then there will be no added tax cost of public goods; (2) if both incumbents are bad, then both will reduce rents when the cost shock is medium; and (3) if one incumbent is bad and the other is good, the bad incumbent will be discovered if she sets a higher tax than the good incumbent; in this case, because of the yardstick mechanism, taxes fall in the second period.

Thus, a re-election mechanism can discipline incumbents by forcing them to increase their effort level. Besley and Case note an analytical inconsistency between this approach and the Tiebout approach. In a Tiebout world, where citizens migrate according to their tax and public goods preferences, citizens dissatisfied with the incumbent’s first period tax level presumably vote with their feet rather than cast ballots in period two. On the other hand, Besley and Case note the possibility of a hybrid model in which higher taxes lead to capital flight, depressing property values and prompting general voter dissatisfaction.

This model, then, breaks with the Tiebout approach at a technical level. Significant commonalities, however, persist at an aspirational level. The yardstick competition approach shares the Tieboutian preference for decentralized government and the view that competition between governments can lead to superior outcomes. Indeed, the emphasis on information asymmetries comes coupled with an assertion that better information gives state and local government an efficiency advantage. Compared with an aggregated national information base, a local information base is said to provide better guidance for the design of regulatory policies and incentive structures because the smaller population allows politicians to know more about voters and vice-versa.

236. Of course, other mechanisms exist to discipline politicians, such as party control. Id. at 30 n.10.
237. The scenario leads to a perfect Bayesian equilibrium (this generates an equilibrium in which voters and politicians have rational expectations). Id. at 30-31.
Besley and Case conclude that their tax-setting/vote-seeking story embodies an insight superior to that of the Tiebout mobility story. Their conclusion resonates in the real world. Projected election results certainly concern politicians more than resident and capital movement, and politicians certainly set taxes with voting results in mind. But acknowledgment of the approach's relative superiority does not, by itself, signal robustness for policy purposes.

Here is the question: given present institutional arrangements, to what extent do voter performance comparisons determine state and local election outcomes? Besley and Case address this question with an empirical study of tax setting and gubernatorial results.238 The results show that tax changes in a neighboring state positively and directly effect a state's tax equation239 and that a tax increase increases the probability of incumbent defeat. Unfortunately, these interesting results neither support a conclusion that votes cause state and local spending levels to reflect citizen preferences,240 nor reveal whether state and local regulation is otherwise unimpaired by interest-group rent-seeking. Under this model, if bad types predominate, then bad outcomes follow whatever the level of voter information. In that event, state and local governments have no apparent advantage over central government other than a local information base that proves better outfitted for interest-group rent-seeking.

C. SUMMARY

The new approaches to jurisdictional competition send a complex signal. The tax competition models modify the Tieboutian assumptions to depict in detail market failure at the state and local levels. The models tell us that productivity gains through devolution cannot be assumed, even given Tieboutian assumptions. No plausible showing can be made without an exhaustive review of possibilities for distortive fiscal effects.

The asymmetric information models show us that jurisdictional competition models may look quite different in the future. Hoxby's interpolation of the Laffont-Tirole model of incentive-compatible regulation solves one of the many information problems assumed away in the Tiebout model. In doing so, however, this model does not synergistically clear away all the other sticking points.

238. Besley and Case examined tax changes in neighboring jurisdictions and incumbent governor defeats using tax data for two income classes—joint-filers without dependents who earned $40,000 and $100,000 respectively in 1977. Id. at 34; see also Anne C. Case et al., Budget Spillovers and Fiscal Policy Interdependence: Evidence from the States, 52 J. PUB. ECON. 285, 302-03 (1993) (showing that expenditure changes respond to spending decisions made in other jurisdictions).

239. For example, a one-dollar increase in neighbors' taxes results in roughly a twenty-cent increase for the home state. Besley & Case, supra note 221, at 38. These results reflect the assumption that given the different measures of state taxes, individuals likely will respond differently to changes in economic and demographic factors.

240. Also, the model must be contextualized to account for the range of demographic and economic conditions that impact the tax increases in certain states. The existence of both anticipated and unanticipated shocks means that, unless voters are capable of making the correlation between the two forms of shock, it is assumed that they respond to change whether or not it is anticipated. Id. at 40.
The yardstick competition approach more closely approaches this goal by focusing on the vote as the disciplinary mechanism. However, we still do not realize the ideal of responsive local government. The model makes some troublesome assumptions: first, that voters evaluate their government by comparing it to similarly situated governments; and second, that common voter preferences prevail across jurisdictions. Clearly both conditions exist to some extent in the real world. But it stretches credulity to suggest that they exist to a degree sufficient to solve public goods incentive problems. Although it may be possible to design a junior-level democratic institution that induces beneficial rivalrous behavior, as yet no one has come close to succeeding.

Finally, the models' focus on information asymmetries suggests a route to the ultimate test of the robustness of law as product. If the analogy is robust, then correction of regulatory and political information asymmetries should, by itself, solve junior-level public choice problems. If law is not product, then transparency by itself will not ensure its efficient production.

IV. IMPLICATIONS FOR LEGAL FEDERALISM

This Part sets out recommendations for legal federalism that follow from the preceding economic analysis and makes some observations respecting the economics' application in regulatory competition situations. Regulatory competition theory informally extends the Tiebout model, which mainly concerns local public goods, to outputs of regulation. The shift of context can affect the model's application. In some regulatory competition situations, such as corporate law, the model applies with greater robustness than with local public goods. In other cases, such as environmental law, the model's problematics carry over unabated.

A. A SUITABILITY STANDARD FOR CLAIMS OF COMPETITIVE BENEFIT

1. Implications for Legal Federalism's Devolutionary Presumption

The economics of jurisdictional competition suggest that legal federalism makes two unjustified predictive leaps. The first, shared by both race-to-the-top and race-to-the-bottom proponents, views competition that formatively influences the terms of regulation to be an inevitable outcome of decentralization. The economics identify significant frictions, such as product bundling, mobility costs, spillovers, information asymmetries, and the lack of a public goods entrepreneur, that inhibit competitive lawmaking in practice. These frictions imply that regulatory subject matter requires categorization based on its degree of structural suitability to competitive influence. Accordingly, legal regulatory competition theory should avoid making a general prediction, and instead articulate a suitability test.

241. BRETON, supra note 61, at 189, 233-34. The models also assume that any mobility-based competition between jurisdictions is not for the movement of people but resources. Besley & Case, supra note 221, at 26.
Second, legal federalism questionably predicts that, assuming decentralized regulation subject to competitive influence, competition will produce a first-best outcome. The economics provide no basis for predicting stable, long-term equilibria in competitive lawmakersitton situations. Two factors exacerbate this problem. First, the federal system holds out limitless possibilities for externalization of costs, possibilities more likely realized given competitive behavior. Second, given the Tiebout mechanism's failure to import a discipline that solves public choice problems, any claim of welfare enhancement through devolution must account for the possibility of junior-level interest-group rent-seeking.

The field of public economics continues to work on all of these problems, but no general solutions have been forthcoming as of yet. This leaves the legal literature overstating the connection between decentralization, competitive behavior, and efficient results.

This conclusion does not implicitly favor federalization. Nor does it controvert the independent claim of junior-level advantage that public economics makes with the decentralization theorem. This emphasizes the more likely satisfaction of preferences in small numbers situations, an observation reinforced by the asymmetric information literature. The theorem also asserts regulatory experimentation to be more likely when many jurisdictions confront the same problem. Nothing in our analysis detracts from the force of these points. But, the decentralization theorem makes claims of a lesser magnitude

242. Assuming of course that provision at a senior level of government holds no cost advantages. See supra notes 61-65, infra notes 291-96 and accompanying text.

243. Serious doubts have been raised about the robustness of this claim. One problem is its lack of a profile of the levels of risk aversion of government actors at various levels. See Susan Rose-Ackerman, Risk Taking and Reelection: Does Federalism Promote Innovation?, 9 J. LEGAL STUD. 593, 614-16 (1980) (arguing that because local politicians are more risk averse than are federal, one should expect innovation at the federal level). In addition, just as law may be analogized to product, so too may it be analogized to technology. Unlike many technological innovators, lawmakers seeking returns on investment face a public goods problem. Moreover, once technical complexity is present, product competition alone does not ensure innovation, as shown by the application of the economics of network effects, see Klausner, supra note 122, at 789-824, and patent races, see Ayres, supra note 153, at 241-46, in the law as product context.

244. We have more doubts about the robustness of the Leviathan theory of public choice literature, see supra notes 57-60 and accompanying text, which advances the idea that decentralization acts as a constraint on budget-maximizing bureaucrats. Few of the empirical studies support the thesis that size of government varies inversely with the extent of fiscal decentralization. See James Heil, The Search for Leviathan Revisited, 19 PUB. FIN. Q. 334 (1991); Wallace E. Oates, Searching for Leviathan: An Empirical Study, 75 AM. ECON. REV. 748 (1985). But see Randall W. Eberts & Timothy J. Gronberg, Can Competition Among Local Governments Constrain Government Spending?, 24 ECON. REV. 2, 3, 7 (1988); Jeffrey S. Zax, Is There a Leviathan in Your Neighborhood?, 79 AM. ECON. REV. 560 (1989) (concluding that there is "solid statistical evidence" that decentralization constrains spending at the metropolitan and county levels, if not at the state level). Oates argues that "there is not enough unambiguous support available to make a convincing case that decentralization in itself constrains government size. If we want smaller government, then other measures are probably in order." Wallace E. Oates, Federalism and Government Finance, in MODERN PUBLIC FINANCE, supra note 91, at 126.

148. We also note the appearance of a counterstory reflecting political developments of the past decade-and-a-half, see Reiner Eichenberger, The Benefits of Federalism and the Risk of Overcentralization, 47 KYKLOS 403, 407-409 (1994). Eichenberger contends that centralization weakens the demand
than does the Tiebout model. The theorem speaks only in terms of probabilities and makes no absolute claims about the quality of the projected result. As such, it folds easily into traditional federalism dialogues. All else equal, the states have always gotten the nod, and the product experimentation point finds its most famous articulation in Justice Brandeis’s reference to the states as social laboratories. Jurisdictional competition theory, in contrast, purports to preempt discussion about the appropriate level of regulation by ascribing determinative benefits to the states.

Our analysis also neither denies that jurisdictional competition occurs in the real world, nor implies a presumption that jurisdictional competition imparts negative effects. States and localities routinely make taxing and spending decisions under competitive stress, for example, with stadium deals for professional sports teams and tax breaks for firms locating new plants. Competition has shaped entire areas of law—corporate law being the prime example. The corporate law system, although not first-best, brings the benefits of responsiveness to business interests and technically expert decisionmaking. We even agree that regulatory competition appropriately may be termed a federalism value, at least at a broad structural level. We would not, for example, dispute a prediction that relocation of factors of production would frustrate a state’s plans to form an industry cartel or confiscate the wealth of a class of firms.

2. The Suitability Standard, the Race-to-the-Top, the Race-to-the-Bottom, and the Prisoner’s Dilemma

Legal federalism needs to be more closely aligned with the terms of the public economics if it is validly to connect junior-level competition and economic welfare. Two structural adjustments should move the discourse in this direction. First, the list of barriers to first-best competitive results should be restated as a suitability standard. Second, the race-to-the-top and race-to-the-bottom concepts should be discarded as misleading.

A claim that competitive benefits redound from the vesting of regulatory authority at the junior level will be more plausible when: (1) the regulation is

---

246. Nor does our analysis imply rejection of the body of legal scholarship on regulatory competition. To the contrary, we think that situation-specific legal applications provide a useful source of material for demonstrating the theory’s shortcomings.
249. See Weingast, supra note 5, at 5.
unbundled, (2) the regulation implicates no substantial interconnections with other jurisdictions or with later consumers, (3) all actors affected by the regulation are highly mobile, (4) all actors are well-informed, and (5) competitive pressures registered by all actors affected by the regulation determine its content. To the extent that one or more these variables does not obtain, the case for competitive benefits weakens. Meanwhile, a proponent of a plausible jurisdictional competition claim should be able to describe a causal connection between the mechanism of competition and the projected benefits, showing the impact on the alignment of interest-group politics and other factors influencing regulatory outcomes in competing jurisdictions.

Claims of competitive detriment may be slightly easier to sustain under this standard. A proponent must still demonstrate unbundled regulation and mobility, but can omit positive showings respecting information, input by all affected parties, and an absence of externalities. Additionally, there is a strong case for relaxing the requirements of state-level mobility and well-informed actors when jurisdictional competition theory is drawn on to support centralized wealth redistribution policies. The point that negative competitive effects at junior levels require a centrally managed redistribution policy has been central to jurisdictional competition theory from the beginning. Nothing in the literature of Tiebout problematics disturbs this application, and some very suggestive empirical studies provide support for this application.

250. Compare Easterbrook, supra note 26, at 34-35 (setting out a suitability test based on the Tiebout model's assumptions and determining that exit will cause a "powerful tendency toward optimal legislation" to the extent four conditions are satisfied: (1) mobile people and resources, (2) a large number of jurisdictions, (3) jurisdictions free to enact any law they desire, and (4) all consequences felt within the jurisdiction); Rice, supra note 27, at 54-55. In our view this test is incomplete, because it omits product bundling, limited information, and interest-group politics. See also Butler & Macey, supra note 78, at 31 (adding a factor: "lawmakers must be forced to respond to adverse events such as falling population, real estate prices, market share, or revenue, and other manifestations of voter discontent that result from inefficient regulations"). We agree with Butler and Macey, but articulate a longer list at a higher level of generality.

251. Wilson, supra note 193, carries this point to its logical conclusion and argues that, if the power to set and implement redistributive policies is vested at multiple levels of government, then one level of government may always undermine income policies promulgated at another level. Id. at 303-04. Junior-level policy coordination remains a possibility, but might increase the overall costs of achieving an optimum level of income distribution. Viewed through the lens of regulatory competition theory, strongly stated, such coordination would be a diluted form of centralization. Thus the problems of taxation and distribution can be solved only through coordination by the central government. Public economists continue to add force to the redistribution point. See Roland Benabou, Equity and Efficiency in Human Capital Investment: The Local Connection, 63 REV. ECON. STUD. 237 (1996). Benabou studies the relationship between human capital formation and decentralized school funding, demonstrating that decentralized local school expenditure and taxes are important forces leading to highly stratified communities. Id. at 251-53. He insists that this form of price discrimination cannot be ameliorated by competition among communities for good types (there is no pure equilibrium because the two communities would yield different levels of rents for developers) and that the city-suburb relationship is inefficient. Id. at 250. In Benabou's view, efficiency requires city-wide coordination through a united local government or a monopolistic developer. Id. at 254-57.

252. See supra note 166. This point has been made powerfully in connection with recent welfare legislation, although not so powerfully as to have had an impact in Washington. See Paul E. Peterson,
The retirement of the race-to-the-top and race-to-the-bottom concepts makes sense for a number of reasons. The frictions that inhibit the Tiebout mechanism may prevent a race from commencing in the first place. Even given a race, the unstable equilibrium discussion shows that the regulation likely would never reach the top, and even if it did, it likely would not remain there for long. In addition, endless possibilities for distortive externalization remain. As a result, even with keen competition, central authority will have to make adjustments. Race-to-the-top rhetoric obscures all of these points.

The race-to-the-bottom concept should be retired because it does not provide an effective basis for challenging weak claims for competitive benefits. The concept unnecessarily concedes the existence of intense junior-level competition, and its all-purpose prisoner's dilemma story has been rebutted persuasively.\textsuperscript{253} Meanwhile, the tax competition literature shows that an important point about distortive competition has been overlooked in legal discussions: A showing of downward directed competition does not presuppose a prisoner's dilemma. An assumption of government myopia and an open economic concept of an externality provide a sufficiently capacious framework.\textsuperscript{254} The myopia assumption, although controverted within public economics, resonates well in legal contexts. Finally, nothing in the economics per se delegitimizes political and public interest justifications for centralization in legal contexts.

3. Scare Talk

One likely objection to our analysis of the economics must be addressed. Some contend that actual mobility is unnecessary for operation of the Tiebout mechanism. Exit need not occur, it need only be threatened. To see this, consider a decentralized regime in which: (1) factors of production are very mobile, (2) the content of regulation figures into locational decisions, (3) interest-group agreements determine the content of regulation in each jurisdiction, and (4) the attraction of new factors of production does not affect the content of the interest-group agreements. Competition does not purposively shape the law in this system. Yet, given mobility and the effect of regulation on locational decisions, the regulatory status quo affects the movement of factors of production. A prediction that movement could become a lawmaking influence as conditions change over time is justified. Indeed, the potential for future

\textit{Devolution's Price}, 14 YALE J. ON REG. 111, 112-19 (1996) (citing additional empirical literature); Note, \textit{Devolving Welfare Programs to the States: A Public Choice Perspective}, 109 HARV. L. REV. 1984, 1987-89 (1996) (describing race-to-the-bottom effects in welfare context). In practice, redistributive programs are implemented at the state and local level and interjurisdictional pressures do not prevent the existence of such programs. These pressures, however, do contain the magnitude of such programs. For discussion of this point, see Kaplow, supra note 11, at 472-79.

\textsuperscript{253} See supra text accompanying notes 71-73. We note, however, that formal economics do confirm that prisoner's dilemmas can be made out in jurisdictional competition situations. See supra note 218.

\textsuperscript{254} Cf. Richard Briffault, \textit{The Local Government Boundary Problem in Metropolitan Areas}, 48 STAN. L. REV. 1115, 1147 (1996) (arguing that localities acting in their own interest will not decide optimally because they will not take regional interests into account).
competitive influence could be characterized as a benefit incident to any decentralizing initiative. Given this picture, regulatory competition legitimately figures into policymaking calculations whether or not it presently influences regulation or is likely to do so in the future. It need only be a long-term possibility. The argument finds support by analogy in the contestable markets approach to antitrust under which the mere possibility of new entrants adequately disciplines the monopolist.

This good argument poses the question of whether the Tiebout model should be applied on an "as if" basis. That is, even though the model is not robust, it should applied in policymaking as though it were robust due to the continuing possibility (however small) of long-run competitive effects. The question should be answered in the negative with these preemptive competition arguments being put to one side for situation-specific application. First, the contestable markets view is rejected by subsequent contributions to the economics of monopoly. The literature identifies a long list of imperfections—including downward-sloping demand, nonconvexities, and imperfect information—and concludes that potential competition has limited effects and fails to provide a basis for a deregulatory presumption. The analysis of the infirmities of regulatory competition works similarly. Given the frictions that inhibit real world appearance of Tiebout competition, preemptive competition arguments likely become "cries of wolf" over time. Initially plausible, they lose credibility in the absence of actual competition. Even the first-time call for a preemptive response need not be determinative. The opponent of the preemptive initiative can still suggest that the jurisdiction wait to see if the predicted competition actually occurs. At that point, the issue becomes whether the wait-and-see option entails possible injury to the jurisdiction. Delay will have a cost only when the proponent can show a first-mover advantage in a potential competitor state. Otherwise, the jurisdiction with a countervailing policy reason not to try to compete can wait, ready to copy the first mover should competitive disadvantage occur.

B. IMPLICATIONS FOR REGULATORY COMPETITION

The economics of jurisdictional competition focus primarily on local public goods production and tend not to address regulatory competition situations. The

255. See, e.g., Perry, supra note 36, at 738-46 (arguing that the SEC should amend its regulations to facilitate competition with foreign markets for equities, even though domestic companies still issue equity at home, because such competition will arise in the future).


257. See STIGLITZ, supra note 123, at 119-125.

258. An exception for wealth redistribution policy again may be appropriate. Here the cry of wolf is made when a local welfare regime threatens to draw poor people to the jurisdiction. Given the prejudice against the poor in American society, the cry may prompt action on the thinnest of empirical bases.


260. See Ayres, supra note 153, at 246-51 (discussing the ease of copycat responses on the part of follower states).
transition to regulatory contexts can cause the precepts of the theory to apply differently than in public goods situations. Much of the differential can be assessed by grouping regulatory competition situations into two categories. In the first, conflict of laws rules put firms or individuals in a position to select a jurisdiction for the situs of a legal relationship, with jurisdictions competing for their business. In the second, product competition across jurisdictional lines prompts competitive lawmaking by governments either pursuing new factors of production or attempting to confer competitive advantages on existing residents. Both categories overlap at points with local public goods production and related tax policy.

1. Competition to Confer Legal Status

The clearest cases of regulatory competition arise when a conflict of laws regime allows actors to choose a nominal jurisdictional situs for a firm, transaction, or other legal relationship. If the choice produces rents for the jurisdiction in the form of taxes, fees, transactional expenses, or enforcement expenses, then the jurisdiction has an incentive to shape the applicable law to suit the selecting actors' preferences. Corporate law is the classic case. Corporate actors may choose their state of incorporation without regard to the location of the firm's physical assets. The states have competed for chartering businesses for a century, offering attractive codes and ancillary services in exchange for franchise tax revenues.

International competition for incorporations also has emerged, though on a lesser scale. Because national tax systems vary in the bases on which they prescribe jurisdiction, firms (and individuals) can exploit the systems' limitations by situating themselves and their transactions in offshore tax havens. What has gone for the chartering of firms also has gone for the registration of ships. A handful of leading jurisdictions offer regulatory havens to ship owners worldwide. This pattern of competitive lawmaking extends beyond the siting of commercial relationships. Liberal marriage and divorce rules can produce tourist revenues for jurisdictions accessible to population centers with more restrictive family law regimes.

261. A 1985 Senate Committee Report identifies 29 tax haven jurisdictions worldwide. Senate Comm. on Gov't Affairs, Crime and Secrecy: The Use of Offshore Banks and Companies, S. Rep., No. 99-130, at 29-31, 33-34 (1985). The largest of the states on the list are Austria, the Netherlands, and Switzerland. Id. at 33-34. The report lists three distinguishing characteristics: low or nonexistent taxes on foreign-source income, bank secrecy, and banks and financial institutions with a dominant role in trade and commerce. Id. at 29-30.

262. The leading open registry states are Liberia, Panama, Singapore, Cyprus, and Vanuatu. Jane M. Wells, Comment, Vessel Registration in Selected Open Registries, 6 Mar. Law. 221, 221-223 (1981). They offer easy registration procedures and free transferability, no income taxes, no restrictions on manning by foreign nationals, and no other significant domestic regulations. Id. Registration in an open registry jurisdiction increases the market value of the ship. Id.

263. At one time Nevada divorces were the primary example. Today the question is whether the point might hold for same-sex marriages. Brown, supra note 259, at 769-72.
The literature of Tiebout problematics demonstrates why the sale of status shows up in practice as the clearest case of regulatory competition. Simply, here the problem of the entrepreneurial government actor is solved. Nominally sited legal relationships are unbundled legal products that can be sold separately to foreign consumers. Their provision leads to a two-party transaction resembling a conventional sale of goods. For customers of means, actual movement presents a cost but not a barrier. Verifiability either presents no problem, as with marriage and divorce, or may be delegated to the judgment of a legal professional. Within corporate law, lawyers play an especially prominent intermediary role. Reincorporating firms can choose among fifty state codes. These firms base their decisions on information provided by their lawyers (and their investment bankers). Lawyers, in turn, draft the state codes selected by the reincorporating firms. Their participation has contributed to an evolutionary convergence on the basic terms of the fifty state codes and the appearance of a model code. As a result, despite fifty alternatives, reincorporation presents a manageable informational problem.

As to these relationships, law may approximate product. Status entrepreneurship, however, is not a game any status-providing jurisdiction can play. Particular conditions tend to obtain in jurisdictions in which product sales become wrought into the lawmaking structure. Not all potential suppliers face sufficient competitive incentives. Small jurisdictions tend to take leading competitive roles. For example, about half of the corporations listed on the New York Stock Exchange are incorporated in Delaware. Additionally, small island states generally serve as tax havens, and Liberia and Panama lead in the registration of ships. The explanation prevailing for Delaware probably applies across the board. Corporate franchise fees comprise fifteen percent of Delaware’s tax base; the same cash flow, however, would be a trivial percentage of the tax base of a large state. Given a limited market, competitive success has a larger percentage impact on the smaller budget of a small jurisdiction. Political and financial incentives to create (or enter) a legal product market arise when there is the possibility of a significant payoff. The incentive relationship, in turn, lends plausibility in the product market. The small jurisdiction’s propensity for fiscal dependence on its legal business provides a structural assurance that customer interests will take precedence over all competing interests in local political deliberations.

Finally, even though the status sale category shows that entrepreneurial


265. Romano, supra note 39, at 6-12. But even given such a clear-cut incentive favoring the interests of a customer, integration with the rest of the federal system can create complications. For instance, when enforcement is through private lawsuits, states do not fully control their product because parties may sue elsewhere. See Hay, supra note 43, at 652. In the corporate law context, this incident of federalism has complicated Delaware’s incentive picture. Delaware must offer the plaintiff’s bar sufficient returns to induce litigation in the state while simultaneously maintaining a reputation for privileging the interests of management. See Bratton & McCahery, supra note 248, at 1898-1900.
government actors can exist in practice, there is no concomitant assurance that incentives respecting status sales will be aligned to ensure first-best lawmaking. First, status sales tend to entail minimal contacts between the granting state and the customer. This permits the granting state to regulate without concern for negative effects on parties in interest to the status relationship who lack a voice as to the choice of jurisdiction. Corporate law demonstrates the operation of such a distortive incentive structure. One interested group, corporate management, makes the locational decision while the statutory structure excludes from the political decisionmaking process another group with a conflicting interest—corporate shareholders. As a result, rent incentives on the supply side are tied to management’s interest on the demand side. Juridical path dependencies and collective action problems prevent the shareholders from influencing the law of any of the fifty states to make the competitive system work for their benefit. The result is regulatory capture constituted by a competitively driven lawmaking system. Because management’s preferences vastly outweigh those of the shareholders, to most observers the resulting legal regime is suboptimal.

2. Competition for Factors of Production

Competitive regulation also can result from interactions between regulators and actors in product markets. The clearest case occurs when rent-seeking government actors (or private actors in a position to influence those in government) seek to attract mobile factors of production, offering investment-specific tax breaks or subsidies. A more subtle case occurs when the regulatory profiles of alternative jurisdictions affect these mobile actors’ locational decisions. Jurisdictional differentials in environmental regulation give rise to

266. Macey and Miller offered the first public choice analysis of charter competition. Macey & Miller, supra note 264, at 483-509; see also Butler & Macey, supra note 78, at 679 (arguing that what appears to be federal-state competition for bank charters is rent-seeking).
268. For the proposition that the state’s responsiveness to the management interest refutes any race-to-the-top claim for the system, see EASTERBROOK & FISCHER, supra note 140, at 222, and Ralph Winter, The “Race for the Top” Revisited: A Comment on Eisenberg, 89 COLUM. L. REV. 1526, 1528 (1989).
269. One should not assume that such competition is upward directed. See Leon Taylor, Infrastructure Competition Among Jurisdictions, 49 J. PUB. ECON. 241, 244-48 (1992) (presenting a model in which jurisdictions compete to attract a big-ticket plant project by investing in new infrastructure). Under the assumptions of Taylor’s model, the contest involves net waste that might be mitigated by central planning. Id. at 251-52. Taylor stresses limitations on the result—waste should be expected when the contest is long, involves many of contestants, and the infrastructure has limited alternative uses. Id. Taylor also notes that existing literature on regulatory competition for industry assumes that the contest itself consumes no resources. Id. at 242; see also Enrich, supra note 247, at 382-405 (discussing the effects of interstate tax competition on local decisions of business).
270. In core cases of regulatory competition, competition for individuals, factors, or capital either determines the shape of a legal regime or prompts pressure for its reform. A conceptually related class
such a case. Today, large firms choose among not only states, but also nation states when investing in new plants. As between two potential venues, a firm might desire the location with less restrictive environmental regulation from a cost perspective. Thus, capital mobility may compel a jurisdiction to choose between attracting investment by absorbing the environmental costs of production, and sacrificing capital investment by charging environmental costs to producers to satisfy residents’ preferences for a clean environment. As a result, competition for capital influences discussions respecting, and the shape of, environmental regulation.

Capital mobility also arguably influences other regulatory regimes, such as securities regulation. A number of centers worldwide compete to provide capital for any given financing. If investment institutions sited in one of these centers find their freedom of action limited by local securities or investment laws, and consequently lose business to foreign firms and capital markets, they will argue that international competition justifies relaxation of the local constraints. Some of these deregulatory initiatives have prompted changes in domestic securities regulation while others have not.

of legal conflicts arises when a legal regime that is not determined by regulatory competition has consequences for producers or consumers in a competitive product market that operates across jurisdictional lines. For example, differentials in environmental regulation that impact the competitiveness of local businesses have led to disputes in international trade law. Producers in states with less restrictive environmental regulation get a cost advantage over producers in more restrictive states; the disadvantaged producers, if they cannot secure a relaxation of local regulation, seek retaliatory sanctions against imports from less restrictive states. Viewed from the perspective of the more restrictive states’ lawmakers and producers, such a sanction is a competitive lawmaking response. But it is anticompetitive when viewed from the perspective of the goods market and its consumers, and may run afoul of an international trade law regime. More generally, differentials in environmental regulation have been stumbling blocks in the negotiation and ratification of liberalizing international trade regimes.


271. See Petti Haaparan, Competition for Foreign Direct Investments, 63 J. PUB. ECON. 141, 143-46 (1996) (showing that nation states employ subsidies when competing to attract investment by firms).

272. International tax competition presents the case of maximum mobility. Multinational corporations have proved adept at using internal transfer pricing to shift income to lower tax venues, avoiding the cost of physically shifting operations. After Britain and the United States cut corporate rates during the 1980s, Canada felt impelled to follow suit lest its corporate taxpayers use paper ruses to shift income out of the country. See Robert A. Green, The Future of Source-Based Taxation of the Income of Multinational Enterprises, 79 CORNELL L. REV. 18, 62 (1993).

273. In the United States, the Securities and Exchange Commission has taken limited steps to
All the frictions that inhibit the appearance and impact of competition in local public goods situations can bear on cases in this broad category of regulatory competition. Competition, accordingly, cannot be assumed. Even the presence of heated policy discussions about competition does not ensure its actual presence. For example, it is unclear whether the tie between competition for capital and environmental regulation actually influences real-world locational choices. Studies have shown repeatedly that environmental regulations do not have a statistically significant effect on plant location decisions.274

The degree of inhibiting friction will vary with the particular subject matter. The following discussion makes some observations about structural tendencies. The discussion initially describes how the tax competition models reveal a theoretical possibility of distortive results when environmental regulation becomes implicated in competition for capital investment. The discussion then proceeds to the problems of optimal numbers, mobility, information, and entrepreneurial incentives.

a. Externalities and Competitive Environmental Policy. The tax competition literature should not be cabined to tax policy discussions. Potential connections between state fiscal policy and state regulatory policy make these models pertinent to a range of regulatory competition debates. Tax policy, for example, can be influenced by policies respecting investment and employment, and those policies, in turn, can influence levels of regulation. A model that shows a suboptimal trade-off of tax for new investment capital can be extended to include trade-offs made respecting labor and environmental standards. Thus, it comes as no surprise that a tax competition model already has taken a leading role in the federalism debate in the field of environmental law.

The model is the Oates-Schwab model of environmental law competition. This model, which has been commended as a theoretical base point for a revolutionary legal policy, states outcomes that depend entirely on assumptions respecting tax policy. As recently extended by John Wilson,275 the model demonstrates that fiscal effects of state-based environmental regulation create a potential for inefficiency whenever the regulating state proposes a suboptimally constructed tax regime. The model thereby teaches an important lesson about the appropriate concept of environmental externalities. Despite conceding that


interstate environmental externalities justify federal regulation, legal commenta-
tors generally think in strictly physical terms, with cross-border pollution
emerging as the primary policy problem. The extended Oates-Schwab model
shows this conception to be unduly restrictive. Fiscal externalities must also be
considered.276

Economic theory states that firms should pay taxes in an amount equal to the
costs of the public goods they consume plus the external costs imposed by their
activities. The theory thereby connects tax levels to environmental regulation.
In theory, a polluting firm can be taxed in an amount equal to the cost of its
pollution with public goods thereby financed being returned to the citizenry as
compensation for the pollution. Predictably, according to the Tiebout literature,
competition will force the optimal setting of this tax level; firm mobility will
prevent competing states from imposing a pollution tax greater than pollution
cost, while local zoning regulation will ensure that firms do not underpay.277
The Oates-Schwab model takes this a step further, showing that a regime of
environmental controls can provide a functional substitute for a regime of
pollution and taxation. Under the Oates-Schwab model, the cost-benefit trade-
off occurs with the capitalization of the cost of the regulations. More particu-
larly, instead of paying tax for the right to pollute, firms operate under
environmental controls that tie the right to pollute to the hiring of additional
units of labor. The model assumes a fixed supply of labor,278 and assumes that
the states tax labor but not capital. Given these assumptions, payment for the
emissions comes not in the form of public goods financed by taxes, but in the
form of higher wages for factors supplied by residents. Each jurisdiction’s
residents have an incentive to reduce emissions to the point at which their
marginal value from a cleaner environment equals their marginal loss in output
and employment.279 The states sort themselves according to their relative
preferences for pollution and wages.280

Wilson shows that land may be substituted for labor as the fixed factor in

276. See also A.L. Bovenberg & F. van der Ploeg, Environmental Policy, Public Finance and the
and tax policy trade-offs on realistic tax assumptions and getting second-best results); James R.
Markusen et al., Competition in Regional Environmental Policies When Plant Locations Are Endog-
enous, 56 J. PUB. ECON. 55, 71-73 (1995) (showing that, with absentee owners and endogenous plant
location, competition will result in significantly lower output taxes).

277. Wilson, supra note 173, at 394, 400. The leading models are Fischel, supra note 18, and
Hamilton, supra note 109.

278. Oates & Schwab, supra note 77, at 336-37; cf. Wilson, supra note 193, at 298 (fixed supply of
capital in model of tax competition).

279. Oates & Schwab, supra note 77, at 337-38; Wilson, supra note 173, at 403-05.

280. Wilson points out that this first-best result depends on the assumption of a fixed labor supply.
Wilson, supra note 173, at 408. A different result is reached if one assumes an upward slope in the labor
supply curve. Now the regulatory link between emissions levels and employment amounts to a
distortionary subsidy to labor. To reduce the subsidy, the permitted amount of emissions must be
decreased to an inefficiently low amount. The result is a NIMBY situation, i.e., a suboptimally strict
environmental regime. Id. at 405.
Oates-Schwab. Given land use controls, a higher permitted level of emissions results in higher land rents. But the trade-off between emissions and rents works only to the extent that all rent recipients live in the jurisdiction. With significant absentee land ownership, the absentees will favor inefficiently lax standards, while the residents will prefer inefficiently strict standards, exporting the cost to the absentees. The actual result will depend on the jurisdiction's political equilibrium.

The Oates-Schwab model similarly incorporates the possibility of a suboptimally lax environmental regime when it introduces a tax on capital while leaving environmental regulation tied to inputs of a fixed supply of labor. Because the supply of capital is not fixed in the model, stricter emission standards reduce the capital supply, which indirectly reduces tax revenues. The cost of stricter emissions controls now exceeds the jurisdiction's willingness to pay. Given interstate competition for capital, a race to relax environmental standards and attract capital results. That result, however, is avoided if the model ties permissible emissions to capital rather than labor supply. If capital is taxed at a rate equal to the environmental cost of an additional unit of capital, efficient emissions regulation emerges. However, if the capital tax rate is higher than the environmental (and other) costs of the investment, then a suboptimal competitive situation results. Capital outflows occur, and governments, wishing to recoup the loss in the tax base, lower environmental standards as they attempt to increase the capital supply. Otherwise, if capital is taxed at an inefficiently low rate—that is, the tax yields less than the environmental and other costs incurred in the jurisdiction—a propensity toward inefficiently high standards, the NIMBY effect, results. Wilson concludes that jurisdictions should not use environmental regulation as an instrument for attracting capital. Subsidies and tax reductions present lower-cost means to this end. To the extent that jurisdictions adopt suboptimal capital taxation regimes, however, they likely will employ environmental policy to influence investment levels. Unfortunately, jurisdictions have many incentives to tax capital suboptimally. Some may skew capital tax levels due to their relation to employment levels. Alternatively, high transaction costs related to the collection of a capital tax may cause the substitution of environmental policy as a mechanism for influencing investment.

Significantly, this discussion never generally predicts downwardly directed results. Nor does it generally predict upwardly directed results. The present state
of learning provides neither a theoretical nor empirical basis for either prediction. Research, says Wilson, should be undertaken to enhance our understanding of the incentives that cause governments to substitute environmental policy for more effective fiscal tools. The key lies in a better understanding of "political market failures."  

b. Optimal Numbers. Optimal numbers are less of a concern with regulation than with public goods, because words in a statute do not present the same scale economy problems as the production of actual goods and services. Concerns about scale economies, however, still remain, manifested in ongoing debates between proponents of competitive decentralization and proponents of interstate regulatory conventions. Conventions, expected regularities of behavior, perform a coordinating function analogous to a taxing sovereign's provision of traditional public goods. Though a range of behavior patterns may be equally rational, the selection of one behavior pattern within the range will reduce costs. With the rules of the road, for example, the uniformity resulting from conventions reduces accident costs. With standardized default rules for contracting parties, uniformity economizes on the transaction costs of search, verification, and coordination. Similarly, with product specifications, diversity across jurisdictions can increase the transaction costs of compliance by foreign producers, amounting to a form of protectionism. Harmonization, in contrast, can produce scale economies and increased competition. Thus, given trade and mobile factors of production, cost minimization requires horizontal units to operate together as a juridical system to some extent. Decentralization will become suboptimal when the number of jurisdictions is so large that diversity begins to entail net costs. 

Advocates of maximal decentralization respond with a spontaneous order story. Efficient local legal regimes can evolve by trial and error, achieving harmonization without requiring central adjustment. The market then can balance between regulatory diversity and harmonization. Mobile capital will gravitate to the jurisdictions with the best rules; those rules, having risen to the top, will then serve as focal points for imitating jurisdictions. Harmonization results on a bottom-up rather than a top-down basis.

289. Id. at 424.
290. Id. at 396, 408. It should be noted that Wilson suggests several models and avenues of inquiry in addition to those mentioned here. In any event, the theoretical result tracks the detailed responses to Revesz, supra note 9, in the environmental law literature. See Esty, supra note 155, at 638-51: Swire, supra note 66, at 94.
292. Charny, supra note 74, at 443-44.
293. Stewart, supra note 35, at 2043-44; see also Esty, supra note 155, at 613-23 (showing how technical complexities implicated in environmental regulation make state regulation unfeasable).
294. Cf. Klauser, supra note 122, at 848 (firms have incentives to create products compatible with a dominant product); Krauss, supra note 122, at 786-96 (describing the emergence of spontaneous order as the dominant strategy in repeated "crossroads" games).
295. The corporate law system provides an example of this process. See William W. Bratton,
Given complete factor mobility, intense competitive pressures, and stable equilibria, evolutionary processes might produce the cost-benefit regime envisioned. These assumptions, however, are not safe. In practice, factor mobility and competitive pressures on regulators are sporadic and vary in intensity. Costly diversity, therefore, may persist over time. Given this dead weight cost, centralized coordination that provides a uniform set of standards, whether default rules or mandates, can economize on transaction costs. In sum, any claim that junior-level regulation ensures an optimal degree of uniformity respecting regulation must be evaluated in the circumstances.

c. Mobility. Regulatory competition, like public goods competition, depends on mobile factors of production, prompting discussion of differentials in particular factors' costs of movement. Competition for residents is more likely among localities within a state, or states within a federation, than among nation states. Competition for capital, in contrast, may appear at all levels. In advanced economies, capital's mobility will exceed that of labor, particularly across national borders. Furthermore, the mobility of liquid financial capital will exceed that of capital already invested in hard assets or locationally situated through ties of goodwill. Incidences of regulatory competition will reflect these differentials. Competition for residents across national borders, like that predicted by Tiebout, is unlikely. Instead, as evidenced in the area of securities regulation, national regulators will compete by offering low-cost regulatory products to highly mobile factors. In effect, the relatively immobile factors of production—individuals in different countries or locations—will use their government to compete for the more mobile factors, capital and technology.

At the state and local level, higher relative mobility for capital and technology may skew the appearance of jurisdictional competition in a different direction from that predicted by the Tiebout model. Given limited citizen mobility, markets may not effectively discipline government actors to produce public goods that match citizens' preferences. Simultaneously, tax policy and


297. There is a trend toward greater international labor mobility, but its level is often overstated. See Woolcock, supra note 108, at 301. Movement of labor between countries remains too small to have much economic significance. KRUGMAN, RETHINKING, supra note 104, at 181.

298. See Green, supra note 272, at 57-58; Shaviro, supra note 46, at 964.

299. See Cox, supra note 267, at 156-60. But even here in this most fluid of international situations, a number of factors seem to be keeping capital tied to home markets. See Perry, supra note 36, at 708 (citing tax policy, the issuer's desire for a public profile, administrative costs, and domestic market efficiency in accounting for fact that American companies still tend to raise equity capital at home).

300. Woolcock, supra note 108, at 306.
industrial regulation could be heavily influenced as government actors chase capital investment.\textsuperscript{301}

d. Information. The problem of asymmetric information will be ameliorated in some regulatory competition situations by intermediaries who will appear to collect and channel information to consumers for a fee. For Tiebout’s relocating individuals, networks of real estate agents probably will only slightly remedy the information asymmetry problem. But, given the subject matter shift to competition for regulatory goods across states and nations, the profiles of informational intermediaries become more pronounced. As noted above, lawyers and investment bankers disseminate information about corporate law across the fifty states. Similarly, large law firms provide the comparative expertise necessary for consumer choice among regulatory regimes within the fifty states and internationally.\textsuperscript{302} Because both the sellers and buyers of regulation will consult these lawyers, who themselves move in and out of government, the lawyers’ intermediary role will be far from passive. Nonetheless, they may solve any serious problems of information availability about regulation (if not of information cost). Generally, as the scale of regulatory consumer choice expands from the local and mundane (the choices of individuals) to the far ranging and grand (the choices of managers of capital), information asymmetries pose less of a problem.

One other information problem merits mention. Law production results from deliberative, political processes. If asymmetric information exists between competing lawmakers (as in the tax competition models previously discussed),\textsuperscript{303} then equilibrium matching of regulation and preferences is prevented.\textsuperscript{304} Alternatively, one jurisdiction may inaccurately predict the trade-off calculus prevailing in another, setting its regulatory standard lower (or higher) than necessary.\textsuperscript{305} Subsequent attainment of accurate information will create an opportunity for a cure, provided that other factors remain relatively stable. On the one hand, given keen competitive pressures, neither interest-group deals nor political stasis should impede an adjustment. On the other hand, given sporadic competitive pressures, adjustment may be painstakingly slow. The greater the capital investment implicated by a particular regulation, the less problematic the information asymmetries.

\textsuperscript{301} BRETON, supra note 61, at 192.

\textsuperscript{302} Yves Dezalay, Between the State, Law and the Market: The Social and Professional Stakes in the Construction and Definition of a Regulatory Arena, in INT’L REGULATORY COMPETITION, supra note 74, at 59, 64-69.

\textsuperscript{303} See supra text accompanying note 202.

\textsuperscript{304} See MAJONE, supra note 73, at 24; Bewley, supra note 88, at 720. International tax competition has been described as an area of perverse effects resulting from failings of technical understanding on the part of taxing authorities. According to Green, supra note 272, at 59-60, manipulation of source-based corporate tax systems leads to competition, but not a competition related to levels of public goods production.

\textsuperscript{305} Stewart, supra note 35, at 2059.
e. Entrepreneurial Incentives and Regulatory Capture. As with local public goods, credible predictions of beneficial regulatory competition require sustained attention to supply- and demand-side incentives.\textsuperscript{306} Compare a conventional producer of private goods with a regulator. In conventional product markets, cost-benefit calculations on both the supply and demand side focus on the price and quality of a single product and result in the consummation or rejection of a two-party transaction. With regulation, however, the product’s welfare effects often present complex conflicts of interest. For example, with a new environmental regulation, government actors must consider welfare effects on all constituents of polluting firms residing in the jurisdiction, in addition to effects on the firms themselves and on the residents who do (and do not) bear the cost of the pollution. Differential effects present problems of preference aggregation and difficult political calculations. The rent-incentives, electoral interests, and welfare concepts of multiple actors are implicated. Additional complications result when bundles of issues become tied together in the decisionmaking process.\textsuperscript{307}

This preference aggregation problem cannot easily be solved, making likely a problem of winners and losers in the final political outcome. Some affected actors may be dissatisfied with the regulatory result, whether or not competitively determined. According to the theory, the losers should protect themselves by relocating to a more satisfactory jurisdiction. In the environmental regulation example, polluting firms must disinvest in strict jurisdictions and reinvest elsewhere; pollution-sensitive individuals must move from jurisdictions that enact inadequate regulations. But the technical possibility of \textit{ex post} exit does not solve the lawmaker’s \textit{ex ante} preference aggregation problem. Bundled regulatory products, information asymmetries, associational ties, cultural preferences, and moving costs imply that exit will not be a viable option for all dissatisfied parties. Given these frictions, the presence of junior-level competition does not guarantee that the political process of trading off preferences and policies operates as a Pareto superior preference-matching mechanism.

A possibility of regulatory capture also remains. An extension of the competi-

\textsuperscript{306} Indeed, even though the Tiebout model does not make this demand, such attention has been the practice of many legal scholars. Discussions of regulatory competition respecting product standards and product liability are distinguished for their care to include consideration of probable lawmaker incentives. The earliest such model projected a race by the states toward stricter product standards than they otherwise would prefer. Rice, \textit{supra} note 27, at 56-60. The ultimate cause is the product manufacturers’ inability to design and price so as to reflect differentials between the laws of more and less strict states. In Rice’s model, legislative movement toward stricter standards is sparked by a class of disadvantaged merchants. Solimine, \textit{supra} note 43, at 72-73, supports McConnell, \textit{supra} note 46, on suboptimal product liability litigation, with an interest-group story. State supreme court judges, says Solimine, are not fully insulated from interest-group pressure. Id. at 73. Finally, Hay, \textit{supra} note 43, at 617-18, 651-52, rebuts McConnell by arguing that the states’ pro-plaintiff conflicts rules allow states more leeway to make their own liability rules less stringent, thus favoring their own manufacturers. The credibility of any of these projections can be questioned. The point is that when they are included, the black box is opened, enhancing the chances for evolution of an accurate description.

\textsuperscript{307} Information problems also may inhibit preference sorting in the environmental area. See Esty, \textit{supra} note 155, at 631.
tive corporate law pattern to environmental regulation provides an illustration.\textsuperscript{308} Interest groups favoring pollution could effectively capture regulators throughout jurisdictions so that the number of clean air alternatives dwindles to the point at which the regulatory decision might as well have been made by the central government. Under this scenario of dwindling clean air alternatives, the dissatisfied parties effectively lose exit as a possible solution.

More generally, if a complex of variables connects competition and product quality, then the outcomes predicted in regulatory competition models must be stated in relative terms. Given qualified predictions, the evaluation of present or projected regimes of competitive lawmaking may turn on descriptions of the institutional contexts in which competition influences lawmaking\textsuperscript{309} and closer attention to distortions stemming from interest-group politics.

**CONCLUSION**

The economics of jurisdictional competition have followed a standard social science pattern during a four-decade history. After a confident start, ordinary testing and criticism has led to retrenchment. A tentative theory emerges today, still heavily couched in enervating assumptions and enjoying only suggestive empirical confirmations. Actors in public economics, dissatisfied with the construct, experiment with improvements and alternative strategies. Legal federalism should take this economics on its own terms. Thus, a plausible case for a competitive solution to a regulatory problem requires a situation-specific demonstration of both projected beneficial effects and the absence of perverse effects identified in the economic literature. Lawyerly presumptions have no place.

Our claim that legal federalism does not reflect the terms, implications, and problems of the formal economics on which it draws gives rise to an institutional question: given the competitive and critical nature of academic discourse, why has there been such a long wait for an arbitrage corrective to this situation of interdisciplinary information asymmetry? We answer by analogizing to the efficient markets literature, which teaches that informationally efficient results depend on the presence of an appropriate incentive structure.\textsuperscript{310} Simply, law and economics are not incentive compatible, at least in this case.

Several factors explain the absence of incentives favoring thorough arbitrage from public economics.\textsuperscript{311} For example, legal jurisdictional competition is a

---

\textsuperscript{308} See *supra* text accompanying notes 275-90.

\textsuperscript{309} Cf. JULES L. COLEMAN, RISKS AND WRONGS 61 (1992).

\textsuperscript{310} Few still contend that securities markets are strong-form efficient—if all relevant information is already incorporated into market prices, then no one has a financial incentive to invest in acquisition of new information. If, however, prices only partially reflect the information level of the best-informed trader, the requisite incentives can be included in the description. See Sanford J. Grossman & Joseph E. Stiglitz, *On the Impossibility of Informationally Efficient Markets*, 70 Am. Econ. Rev. 393, 401 (1980).

\textsuperscript{311} The problem also may be derivative. See Rose-Ackerman, *supra* note 77, at 333 (commenting that “the lessons of theoretical economics have not been well assimilated by urban economists” in the Tiebout mold).
disaggregated discussion. Applications and critical responses occur in separate, well-defined subject matter categories such as local government and land use, corporate, environmental, products liability, trade, and so forth. The subject matter divisions amount to natural barriers to the circulation of information. Local government and property law are the only applications with strong subject matter affinities to public economics. Not surprisingly, these discussions tend to be better informed. In addition, the sharpest criticisms of the theory take the race-to-the-bottom perspective. These critics view competition as an intrinsically illegitimate influence on regulation, even as they share assumptions respecting the presence and effects of competition with the theory's proponents. A race-to-the-bottom proponent has little incentive to look to public economics for useful ideas.

Broader structural disincentives also should be mentioned. Interdisciplinary legal discourses do not necessarily replicate the critical incentive structures of the natural and social sciences. Legal scholarship is normative, tending more toward the support of policy positions than to accurate description. It therefore may favor simpler (and often older) economic models that signal definite bottom-line results. Reputational payoffs also may tend to favor an initial arbitrage of a particular economic theory over a maintenance exercise that marginally enriches a well-established interdisciplinary discourse. Indeed, to the extent that a maintenance exercise casts doubt on an established policy position supported by outdated economics, reputational disincentives may outweigh incentives. There also may be a numbers problem. The number of legal scholars applying economics greatly exceeds the number of trained economists producing legal scholarship. As the complexity of economics increases, the number of potential observers with an incentive to maintain the information level of the legal literature becomes smaller. As this article shows, however, corrective incentives are not wholly absent in the legal context.
Proving Intentional Discrimination: The Reality of Supreme Court Rhetoric

MICHAEL SELMI*

TABLE OF CONTENTS

INTRODUCTION.................................................................................. 280
I. DEFINING DISCRIMINATION.......................................................... 286
   A. DEFINING INTENT .................................................................. 288
   B. THE REVERSING THE GROUPS TEST ...................................... 291

II. PROVING DISCRIMINATION......................................................... 294
   A. THE EVOLUTION OF THE COURT’S DISCRIMINATION DOCTRINE. 295
      1. Discrimination Law Prior to the 1960s ................................. 296
      2. The Easy Cases of the 1960s .............................................. 298
      3. The More Difficult Cases of the 1960s ............................... 299
   B. THE COURT’S MODEL OF PROOF ........................................... 301
      1. The Arlington Heights Factors ........................................... 302
      2. Demanding Proof Beyond the Arlington Heights Factors: Memphis v. Greene ................................. 306
   C. THE DEVELOPMENT OF THE COURT’S MODEL OF PROOF IN PARTICULAR CONTEXTS ................................. 309
      1. Voting Rights ................................................................... 309
         a. Mobile v. Bolden ............................................................ 310
         b. Rogers v. Lodge ............................................................ 313
         c. The Redistricting Cases ............................................... 315
      2. Applying the Arlington Heights Factors in the Criminal Context: From Batson to McCleskey ...................... 318
         a. Batson v. Kentucky ....................................................... 318

* Associate Professor, George Washington University Law Center. J.D., Harvard Law School, 1987; A.B., Stanford University, 1983. I am indebted to Lou Bilionis, Roy Brooks, Charlie Craver, Tom Dienes, Pauline Kim, Linda Hamilton Krieger, Chip Lupu, Deborah Malamud, Molly McUsic, Larry Mitchell, Charles Ogletree, Wendy Parker, David Sutphen, Mark Tushnet, and the participants in a faculty workshop at George Washington University for their comments on earlier drafts of this article. Laura Leacy and Leslie Lee provided excellent research and library assistance.