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# Rethinking Competitiveness

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## I. Introduction

The concept of “national competitiveness” has been a key focal point of national policy debates at least as far back as Adam Smith, whose notions of specialization and division of labor figure prominently in his early debates with the mercantilists.<sup>1</sup> Later, David Ricardo’s work developing the law of comparative advantage advanced rational economic thinking about competition.<sup>2</sup> Yet while the neoclassical movement refined our understanding and influenced generations of economists, mercantilist arguments that appeal to a nation’s “competitiveness” continue to abound even today. Noneconomists regularly appeal to competitiveness when motivating a wide array of policies, while economists protest or look the other way.

For the most part, a general consensus has emerged that accepts the analysis of Nobel Laureate Paul Krugman, whose 1994 article in *Foreign Affairs* bearing the unambiguous title of “Competitiveness: A Dangerous Obsession,” disposed of the faulty analysis of the 1990s competitiveness mavens as effectively as Smith disposed of the mercantilists. Krugman challenged the idea of competitiveness, arguing that nations usually do not compete with one another in a zero-sum game, even if firms often do. Instead of competing directly with each other, countries benefit from each other’s successes through mutually beneficial trade. In a world with extensive international trade and interconnectedness, competitiveness and productivity are synonymous. When attempting to measure competitiveness according to a nation’s output, you find that the prosperity of one country will often stimulate additional prosperity for others. The notion that the success of one comes at the expense of another is most often incorrect.

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<sup>1</sup> In particular, see *The Wealth of Nations* (Smith, 1776).

<sup>2</sup> Ricardo first described comparative advantage in his 1817 book, *On the Principles of Political Economy and Taxation* (Ricardo, 1817).

To be sure, Krugman recognizes that competitions may arise in some circumstances, but argues that these are, for the most part, not central to debates over macroeconomic policy. This view has been widely accepted among economists, with a few exceptions discussed below. More recently, for example, Cellini and Soci (2002) argued that “the concept of competitiveness is elusive in so far as it neither has a well defined meaning nor is it captured by unambiguous factors.”<sup>3</sup>

A number of alternative approaches have been attempted in the interim with authors focusing on national well being as a measure of a nation’s competitiveness, and on analysis that relates that well being to a series of indicators. Michael Porter, of Harvard Business School, is a prominent advocate of this view of competitiveness. Porter relates the welfare of a nation to the microeconomic determinants of the competitiveness of its firms, and his view of regional or national competitiveness grows out of this concept. In this context, competitive advantage implies that a firm is more productive than the competition (that is, it can produce more for less). This model is extended to apply to nations because in a competitive and interconnected marketplace, nations often compete for specific competitive advantages. Governments are responsible to create conditions to foster the success of firms. This output-based view of competition focuses on microeconomic and productivity measures.

The interest in competitiveness, and especially in comparing the competitiveness of nations, has led to a growing number of indexes that are consistent with Porter’s view. The two most important are *The Global Competitiveness Report* of the World Economic Forum (WEF) and the report prepared by the International Institute for Management Development (IMD) in

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<sup>3</sup> Salvatore (2010) disputes Krugman’s criticisms of competitiveness as a “dangerous obsession,” arguing that a nation’s productivity leads to an increased international competitiveness, which is necessary to attract the investments of entrepreneurs and managers to that particular nation. Godin (2004) also defends the term as a device necessary to justify political decisions, but limits its definition to the phenomenon of technological intensity.

*The World Competitiveness Yearbook*. In addition, firms, governments, and other organizations have developed their own ranking and evaluation systems.

*The Global Competitiveness Report* defines competitiveness as “the set of institutions, policies, and factors that determine the level of productivity of a country.” As with Porter’s work, the role of the firms is to be productive (competitive) while the role of the government is to create an environment that enables productivity. *The Global Competitiveness Report* breaks down the factors to identify 12 pillars of competitiveness. They are institutions, infrastructure, macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation.

*The World Competitiveness Yearbook* (WCY) “analyzes and ranks the ability of nations to create and maintain an environment that sustains the competitiveness of enterprises.” The assumption is that wealth creation happens on the firm level, but the national environment can help or hinder the ability of firms to compete in domestic and international market. The index attempts to analyze the factors that affect the competitive national environment. The 2010 edition analyzed 58 countries according to four primary factors of competitiveness: Economic performance, government efficiency, business efficiency, and infrastructure. Taken together, the WCY includes 327 indicators.

Many academics have offered critiques of these indexes. Sanjaya Lall (2001) provides a sweeping critic of *The Global Competitiveness Report*. Lall’s main complaint is that the scope of competitiveness embodied in these indexes is too broad. He dismisses the definition of competitiveness that includes productivity and growth, and suggests that “all such efforts should

be more limited in coverage, focusing on particular sectors rather than pulling in everything the economics, management, strategy, and other disciplines suggest. They should also be more modest in claiming to quantify competitiveness: the phenomenon is too multifaceted and complex to permit easy measurement.”

More recent work has focused on the correlation between these country rankings and economic growth. These studies (Berger and Bristow, 2009; Ochel and Röhn, 2006) find that there is no relationship between competitiveness rankings and economic growth prospects. Berger and Bristow conclude that the indexes lack a common approach and are poor predictors of macroeconomic performance: “The value of such indices is therefore questionable beyond their purpose in reminding us of the continued success of particular nations and the continued paucity of others and thus encouraging policy-makers to indulge in place promotion.”

Perhaps the state of play is best summarized, by Reinert (1995), who analyzed 500 years of competitiveness theory, arguing that even though the term is relatively new, equivalent ideas have prevailed for centuries. Reinert begins with the common definition of competitiveness coined by Bruce Scott: “National competitiveness refers to a nation state’s ability to produce, distribute, and service goods in the international economy in competition with goods and services produced in other countries, and to do so in a way that earns a rising standard of living” (Scott, 1985). Reinert observes that the criticism levied at competitiveness by Krugman and neoclassical economists can be explained by recognizing that competitiveness does not have any meaning under the assumptions of much of neoclassical theory (representative firms with perfect information and no scale effects). According to this train of thought, the idea of competitiveness, countries increasing their standards of living through competitive activities with other nations, is

in opposition to at least a standard neoclassical model wherein common production technologies and competitive markets move the world toward a Pareto-optimal competitive equilibrium.

Clearly, existing analysis on competitiveness has produced little that is valuable for policy analysis, even while policymakers continue to appeal to competitiveness to justify practically any policy change. This situation must be observed as a lost opportunity for economists, for if they could agree upon an approach that applies rational substance to the notion of competitiveness, then the power of the word in the public debate might well provide a significant impetus for sound policies. The purpose of this paper is to explore the extent to which a fresh perspective can do a better job of pointing researchers and policymakers in specific directions.

As we explore these analytical gaps, cognizant of the research just discussed, we begin with three observations. First, to be useful as an alternative prism through which one can view questions regarding optimal policies, competitiveness must focus on areas over which nations actually compete. That is, competitiveness will never provide a novel observation on any policy that produces an efficiency or welfare gain that applies to an economy in isolation. If efficiency is higher after a tax reform, for example, then a nation should adopt the reform, and do so without ever uttering the word competitiveness.

Second, as the world becomes “flatter” and it is easier for firms and individuals to choose an international jurisdiction that is optimal for their own preferences, then nations are becoming more and more analogous to municipalities. This integration provides an opportunity. An extensive body of research exists analyzing the “Tiebout” competition among cities and towns, and this research may provide a wealth of insights regarding the likely evolution of Tiebout

competition between nations. Indeed, to some extent the literature has begun to move in this direction. Somin (2008), for example, interprets global migration patterns in terms of the Tiebout model. There will, obviously, be some conclusions from the Tiebout literature that extend to nations, and some that do not, but the flattening world makes the extension an interesting focus of research and a promising avenue for adding rigorous analysis to the previously ambiguous notion of competitiveness.

Finally, the extent to which a nation's actions depend on the actions of others should be the focus of competitiveness discussions, even if the competition is not purely zero sum. As we discuss below, Tiebout competition is not always zero sum, and the investigations into global competitiveness should not limit itself to zero sum games.

## **II. Charles Tiebout, Foot-Voting, and Competition among Localities**

Charles Tiebout was a graduate student at the University of Michigan when he half-jokingly proposed what has become a seminal idea in local public finance and one of the best ways to think about competition among localities.<sup>4</sup> It was 1951 or 1952 and Richard Musgrave had just presented work by himself and Paul Samuelson that indicates the impossibility of finding an optimal level of public service through a decentralized pricing system.<sup>5</sup>

In markets of non-collective consumption goods, each buyer will allocate services for themselves optimally based on decisions of costs and benefits. Likewise, competition among enterprises optimally allocates the factors of production. An optimal allocation could be reached for public services, too, if each user could be polled to ask how much a service is worth to him or her and be counted on to answer truthfully and pay that price as a benefits tax. In aggregate, if

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<sup>4</sup> See Fischel (2006)

<sup>5</sup> See Musgrave (1939) and Samuelson (1954, 1955, 1958)

the poll indicates that expected tax revenue will meet the cost of providing the service, then it can be provided. Unfortunately, the user cannot be counted on to answer truthfully. Instead, he or she will under-report his expected benefit from the service hoping that it will be provided anyways according to others' demands, and accordingly, that he or she will then have to pay less than his or her fair share.

Musgrave finished his presentation with the comment that communities, not having a market option, must rely on voting in the political process to determine what levels of public consumption goods to provide. Through the voting process, the government would somehow gain an understanding of the expenditure needs of the typical consumer-voter and taxation could occur, albeit suboptimally, based on ability to pay rather than benefit. Charles Tiebout at this point made his famous half-joke that an optimal allocation of public goods could also be found if consumer-voters move to communities that satisfy their preferences for public services. Simply put, consumer-voters vote with their feet.

In 1956, Tiebout wrote "A Pure Theory of Local Expenditures," expanding on this concept of 'foot voting' and presenting a stylized model in which foot voting reveals consumer-voters' preference for public services and allows for an efficient allocation of the services at the local level (Tiebout, 1956). He was finally taking his idea seriously. The paper has become one of the most cited works in public finance and one of the intellectual bedrocks of decentralization and federalism.<sup>6</sup> The driving hypothesis is:

The consumer-voter may be viewed as picking that community which best satisfies his preference pattern for public goods. At the central level the

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<sup>6</sup> See, for example, Gordon (1983)

preference of the consumer-voter are given, and the government tries to adjust to the pattern of those preferences, whereas at the local level various governments have their revenue and expenditure more or less fixed. Given these revenue and expenditure patterns, the consumer-voter moves to the community whose local government best satisfies his set of preferences.

The model of local finance that Tiebout presents relies on a set of strict assumptions and is highly simplified. As we think ahead to our search for the possible lessons that *nations* can draw from this research, it is fruitful to list these assumptions in detail. The key assumptions are:

1. Consumer-voters are fully mobile and will move to the community that best satisfies their set preference patterns.
2. Consumer-voters have full knowledge of and react to the differences among revenue and expenditure patterns of local governments.
3. There are a large number of communities from which to choose.
4. Consumer-voters live on investment income. In other words, restrictions due to employment opportunities are not considered.
5. Public services exhibit no external economies or diseconomies among communities.
6. There is an optimal community size determined by the fixed resources of land and the pattern of community services demanded by current residents.
7. Communities below optimal size seek to grow by attracting new residents, and those above optimal size seek to shrink.

The first assumption historically has been the key factor limiting the scope of the model to local finance in metropolitan areas, but the flattening world suggests that this is less so today. Firms, workers, and the assets of both are highly mobile among nations, and the competition for the

location of these may well be comparable in impact to that between municipalities. Aside from that, none of the key assumptions would prohibit thinking about this competition as being between nations. This observation suggests that a thorough understanding of the scope of the local public finance research on municipal competition can provide a useful guide to the types of questions that would be raised by a more formal inquiry into the impact of the competition between nations.

Tiebout's model has many implications, and they can be grouped into two broad categories: (1) those that relate to competition between localities for consumer-voters and other entities that could possibly vote with their feet, and (2) those that relate to the optimal distribution of public goods. To the extent that these can be separated, and in the interest of brevity, we focus on the implications of Tiebout's model that relate to competitiveness.

In part A of this section, we confirm that Tiebout's model is supported by empirical observation. This step is necessary to begin to motivate the application of Tiebout competition to the international setting. Part B addresses how competition between municipalities (and nations) can lead to more efficient services. Part C describes explicitly how Tiebout's model provides for an optimal allocation of households among communities based on preferences for the service/tax package. These same mechanisms will apply in the international setting as firms and individuals decide where to locate amongst nations. Of course, Part D then describes the externalities and spillover effects that exist in the real world and contribute to sub-optimality in the allocation of households. Part E describes how the Tiebout concepts also apply to firms. Finally, part F discusses whether we can consider Tiebout competition zero-sum, and notes that the welfare benefits from Tiebout competition indicate that the acceleration of global flattening might be a worth policy goal.

## **II - A. Is the Tiebout Model Supported by Empirical Evidence?**

Tiebout's model did not make much of a splash among economists when it was introduced, and did not receive any testing until Wallace Oates' seminal 1969 capitalization paper (Oates 1969). In 2005, Oates described his thought process behind that paper:

It had occurred to me that if mobile households were 'shopping' for local public services at the lowest price, we should find that housing prices reflect both the quality of local services and the associated tax bill. I thus (perhaps somewhat naively) proposed, as a test of Tiebout, the capitalization of differentials in local public outputs and local tax liabilities into local property values. (Oates, 2005)

Oates regressed the median value of owner-occupied dwellings in various communities against the characteristics of the dwellings, commuting distance, median family income, public school expenditure per pupil, percentage of low-income families in the community, and effective property tax rates. He found that when property taxes rise, property prices fall by approximately two-thirds as much. The increased cost of public services is capitalized into depressed prices.

In his reminiscence, Oates had reason to comment that testing Tiebout with a capitalization study might have been "somewhat [naïve]." Soon after Oates' initial paper, Edel and Sclar (1974) claimed that in the long-run Tiebout equilibrium, there should be no capitalization because Tiebout communities are replicable, and so any fiscally-advantaged jurisdiction would soon face competitors. They find empirical evidence that over time the extent of capitalization dissipates. Several theoretical papers following Edel and Sclar argue that the situation is even more complicated and that the extent of capitalization depends on how many

jurisdictions are in an area and how expandable they are, how fixed boundaries are, and the local decision making process.<sup>7</sup> Fischel (2001), though, points out that there is little ease of entry in the public sector, boundaries are relatively fixed, and there is an inelastic supply of jurisdictions so fiscal advantages can exist for quite some time.

On theoretical grounds, Fischel brought the story back to Oates' original conclusion, but there is also a substantial body of empirical analysis that replicates and builds on Oates' regression analysis. Dowding, John, and Biggs (1994) provide an excellent technical review of the empirical research surrounding Tiebout's analysis. They devote a substantial section to capitalization studies and conclude that although the empirical research has some technical flaws, most papers do find that taxes and public services are capitalized to a significant degree.

Studies of capitalization illuminate a secondary effect of the behavioral assumptions from the Tiebout model. According to the capitalization papers, fiscal differentials affect the demand for houses and are ultimately capitalized into house prices. There are also studies that directly measure the behavioral assumptions of the Tiebout model by examining the effect of fiscal differentials on migration flows. This migration research initially focused on welfare and demonstrated that levels of welfare payments affect migration flows. Areas with high levels of welfare payment attract potential welfare recipients<sup>8</sup> and discourage the migration of wealthier households. Other studies focus on the non-welfare expenditures of state and local governments and typically find that higher expenditures are attractive.<sup>9</sup> Many of these, however, ignore the idea that differences between local tax systems influence location decisions. Cebula (1978)

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<sup>7</sup> See Epple, Zelenitz, and Visscher (1978); Yinger (1982); Rubinfeld (1987); and Yinger, *et al.* (1988).

<sup>8</sup> See Brehm and Saving (1964), Aronson and Schwartz (1973), Cebula (1974a), Von Furstenberg and Mueller (1971), Pack (1973), and Dye (1990).

<sup>9</sup> See Cebula (1974b, 1978), Cebula and Kavoglis (1986), Cebula and Kohn (1975), Day (1992), Ellison (1980), Koven and Shelley (1989), Liu (1977), Mills, *et al.* (1983), Pack (1973), and Schneider and Logan (1982).

shows that white migrants prefer areas with low property taxes, but that non-white migrants are insensitive to local tax differentials. This difference reflects the fact at the time that whites tended to have more property ownership than non-whites. Cebula and Kafoglis (1986) find that migration is significantly responsive to the ratio between per capita state and local tax collections to per capita state and local non-welfare expenditures.

The studies mentioned so far link migration to fiscal differentials using aggregate data. It is possible that they are demonstrating cause, but not effect. For example, Cebula (1974a) notes that discrimination during the 1960s, in the South was a contributor to the movement of blacks to the North. Micro-level survey data allow researchers to examine the reasons people move by asking them directly. Percy and Hawkins (1992) survey 1361 recent moves in Milwaukee and find that the top four reasons given for leaving the city were (1) housing values, (2) schools, (3) crime, and (4) taxes. All four of these are heavily driven by the expenditure-and-tax package. Percy (1993) recognizes that the Percy and Hawkins paper did not include renters and analyzes newspaper reports of property and deed transactions in Milwaukee. He finds that the tax/service motivation is only of secondary importance for leaving a place, although in regression analysis, schooling, taxes, and local spending all had significant and positive effects. When deciding a place to which to move, he finds that these tax/service motivations are of primary importance. John, *et al.* (1994) similarly find that in London boroughs, tax and service levels are of secondary importance when deciding to leave a place but primary importance when deciding where to move to. Understanding which factors might affect household location decisions can help identify in which areas localities compete.

## **II - B. Tiebout Competition and the Efficiency of Services**

Specific services and taxes affect consumer-voter behavior, and not just an overall assessment of the efficiency of the service-and-tax package. In fact, preferences for particular services could lead some consumer-voters to live in a location with less efficiency than another location that provides less preferred services. Several particular services have been studied and found to affect household location decisions, and for these there also an indication that Tiebout competition elicits efficiency gains. Voting with feet incites communities to compete not only by providing the services that desirable consumer-voters want, but also by improving the efficiency of those services.

Public schooling is likely the most significant service for many household location decisions, and the Tiebout research provides clear theoretical grounds for why competition among school districts would raise productivity. While the theory is straightforward, the empirical results have not been entirely consistent. In a widely-cited study, Hoxby (2000) concludes that fragmented governance induces competition among school districts by raising productivity. However, her results are disputed by Rothstein (2005). More recent work by Bayer, Ferreira, and McMillan (2005) finds that the competitiveness of a school's local environment contributes significantly to quality as measured by test scores. Schwager (2007) applies the principles of the Tiebout model to university education in Germany. He concludes that by decentralizing university education and allowing states to choose their tuition level, efficient sorting can occur with tuition serving as a price-signal for mobile students.

Tiebout's ideas have also even been applied to state lotteries. Knight and Schiff (2010) explore the competition among jurisdictions in the context of cross-border shopping for state

lottery tickets. The question is whether competition between neighboring states is significant in the sale of lottery tickets. Individuals living near borders respond to prices when deciding between playing the home-state lottery and crossing the border and purchasing tickets in neighboring states. The factors at play are geographic closeness and the size of jackpots. The authors conclude that states face significant competition from neighboring states – the relationship between sales and prices is the strongest in states with small populations and densely populated border regions. States may respond to this competition the same way they might respond to other Tiebout competition: by lowering implicit tax rates (raising the payout of the lottery) or colluding.

Regulations can also affect household location decisions. Kahn (2000) argues that regulation limiting ozone levels in the suburbs of Los Angeles has attracted migrants who chose not to live there in the past. This implies that those migrants preferred higher regulatory burdens to higher ozone levels. Households with the opposite preference can move to other cities.

These examples develop the essential Tiebout idea that individuals “vote with their feet” according to their preferences for goods and services provided by local government, although such goods and services are by no means an exhaustive list of the determinants that might be important to households.

## **II - C. The Tiebout Model and the Housing Market**

Having established that households “vote with their feet”, we can explore the finer details of the model. Without a market mechanism for distributing more expensive households to jurisdictions with higher local services, there would be free rider problem since cities tend to collect the majority of their revenue from property taxes. In other words, there is an incentive to

move to a city of McMansions and build a hut. Because of the large tax base from the expensive homes, the city will either provide higher levels of public service, lower tax rates, or both, but the hut-dweller will only have to pay property taxes commensurate with the price of his home.

Several papers have proposed approaches for either how cities can circumvent this problem or why this problem is resolved by the housing market. Famously, Hamilton (1975) proposed that city initiated zoning could enforce a floor on property prices and by doing so eliminate the efficiency losses from property taxes. Under this approach, in addition to being sorted by preference for public service levels, households are sorted by their preference for levels of housing consumption because, in equilibrium, all households in a community would have identical zoning-specified levels of housing expenditure. Several testable implications of Hamilton's model, however, have been discredited through empirical analysis.<sup>10</sup> Notably, his model indicates that property taxes will not be capitalized in property prices; however, empirical studies indicate that capitalization occurs.<sup>11</sup>

Ross and Yinger (1999) survey the conceptual literature to find a consensus, and lay out an alternative approach to solving problems: "(1) how does the housing market allocate households to communities when local public services and taxes vary from one community to the next? (2) how do communities select the level of local public services and tax rates? and (3) under what conditions are solutions to the first two problems compatible, that is, when does an urban equilibrium exist?" Their approach has two parts, market bidding and sorting. Jurisdictions all have fixed boundaries and vary according to service levels and effective tax rates. Households

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<sup>10</sup> For example, Hamilton's model indicates that zoning restrictions should be unique to each community based on the housing demand of that community. Lenon, *et al.* (1996) however, shows that zoning, taxing, and spending policies are significantly correlated between neighboring communities.

<sup>11</sup> See Bogart and Cromwell (1997), Black(2000), King (1973), McDougall (1976), Noto (1976), Rosen and Fullerton (1977), Harrison and Rubinfeld (1978), Jud and Watts (1981), Haurin and Bresington (1996), and Carol and Yinger (1994).

are utility-maximizing and can be grouped by a combination of income and preference for public service levels and taxes. More specifically, the authors assume, based on empirical evidence, that there is a positive correlation between income levels in communities and the public service levels in those communities. Additionally, they assume that property taxes and public services are capitalized into house prices. So households can be grouped based on the tradeoff they are willing to make between house prices and the level of public service in the community. This is termed the household's "bid function" and is an upward sloping curve as seen in Figure 1, where  $P$  is the level of house prices,  $S$  is the quality of public services, and the three curves each represent different households' bid functions.

Rich households will be more open to paying a larger differential in home prices in exchange for an additional unit of public services than poorer households. Interestingly, the sorted communities will not be completely homogeneous. If the two groups' bid functions cross at a given level of expenditures, then members from both groups will be willing to live in the community. This result implies a world much like the one where we live: there will be clusters of extremely expensive houses where only the rich live, clusters of extremely cheap houses where only the poor live, and many co-mingled communities that lie somewhere in between.

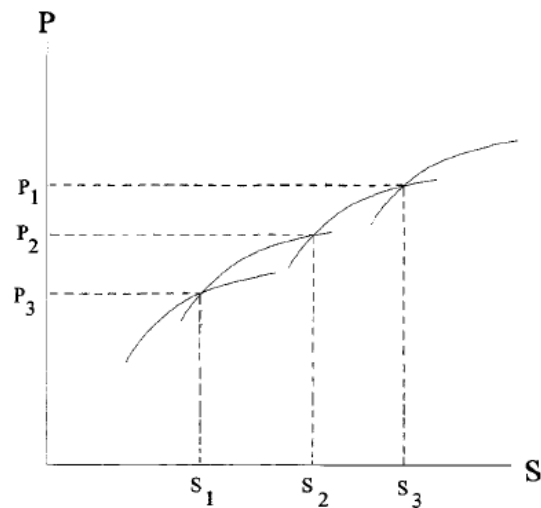


Fig. 1 Consensus Bidding and Sorting

Source: Ross and Yinger (2006)

## II - D. Externalities Contribute to the Prize

Taken as a whole, result of Ross and Yinger implies that communities can attract wealthier

households by providing higher levels of non-welfare public expenditures compared to the tax levels—in other words, more efficient public services. In many ways, there are spillover effects from migration, costs for the region that the migrant leaves and benefits for the region that a migrant enters. Most importantly, home prices will rise due to capitalization as the service/tax package improves and demand for housing increases<sup>12</sup>. Secondary effects include those positive externalities that might accrue from gaining rich neighbors: Ladd and Yinger (1991) find that a city's poverty rate affects the cost of police and fire services. Duncombe (1991) also finds that fire protection costs increase with poverty and building age and the decrease with the presence of commercial and industrial capital. Bradbury, *et al.* (1984) finds that older housing and population density increase the overall cost of local services. Additionally, a large body of research has focused on how students garner educational benefits. Particularly, more socioeconomically advantaged peers and more intensive parental monitoring of teachers and school administrators have been linked to improved educational outcomes.<sup>13</sup>

Peer effects also influence entrepreneurship. School peers affect students' entrepreneurial ambitions, according to Falck, Heblich, and Luedemann (2010). Giannetti and Simonov (2009) and Gompers, Lerner, and Scharfstein (2005) find that peer effects do not just influence entrepreneurship in students, entrepreneurial neighborhoods influence residents to become entrepreneurs and invest more into their own businesses. The wealth segregation implied by consensus model of Ross and Yinger will cause spillovers across municipal borders. In particular, the secondary “social” effects of living in a richer neighborhood, discussed above,

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<sup>12</sup> Fischel (2001) explores the incentives that “home-voters” have to vote for policies that increase the value of their houses.

<sup>13</sup> See, for example, Angrist and Lang (2004), Arcidiacono and Nickolson (2005), Betts and Morell (1999), Cooley (2007), Dale and Krueger (2002), Ding and Lehrer (2007), Figlio (2003), Hanushek, Kain, Markman, and Rivkin (2003), Hoxby and Weingarth (2005), Sacerdote (2001), Vigor and Nechyba (2005), Dimmer and Toma (1999), and Zimmerman (2000).

will accrue only to the wealthy municipalities and the negative externalities of having poor neighbors will fall more often on the poor. Moreover, a large literature suggests that the opportunities available to children affect their chances as adults, so the spillover is both cross-jurisdictional and multigenerational.<sup>14</sup> Oates (2005) indicates that wealthy cities might even attempt to exaggerate the segregation from Ross-Yinger bidding by instituting zoning rules. Typically, zoning is thought to exist for fiscal reasons. Like in Hamilton's model, fiscal zoning sets a minimum house price and prevents free riders. Bogart (1993) describes how zoning can also be used to exclude people who will make it more expensive to produce local public services.

The Tiebout model assumes no spillover effects, and the spillover effects that do exist contribute to inefficient sorting outcomes. The fact that spillovers exist does not mean that communities should not compete for migrants; to the contrary, it means a bigger prize for the winner.<sup>15</sup>

## **II - E. The Tiebout Model and the Firm**

Tiebout originally developed his model to describe the location decisions of households. Given the assumption that consumer-voters are highly mobile, they can "vote with their feet" by moving to that municipality which provides a bundle of public goods most closely matching their preferences. Taxes are taken as the prices consumer-voters pay for the local government services. However, individuals are not the only entity that responds to policy and tax decisions made by local governments. Other research has applied the Tiebout ideas to the location

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<sup>14</sup> See Aaronson (1998); Crane (1991); Cutler and Glaeser (1997); Jencks and Mayer (1990); Massey, Gross, and Eggers (1991); and Vartanian and Gleason (1999).

<sup>15</sup> Another implication is that redistributive policies should be implemented at the federal level rather than the local level. Roy (2009) finds that the Michigan school finance reform of 1994, which evened per pupil school expenditures across districts, increased the value of housing in the lowest spending school districts and, by implication, reduced sorting. However, he argues that continued high demand for residence in the high spending districts implies that peer effects persist.

decisions of firms.<sup>16</sup> In order to promote economic activity, governments can institute fiscal policies with the intention of attracting businesses,<sup>17</sup> but the question remains whether these are important in the decision-making process of firms.

The debate centers on whether firms react purely to the tax rates of a municipality or whether they also consider expenditures. Wayslenko (1980) and Fox (1981) find greater business growth in communities with lower taxes, but ambiguous firm preferences for expenditures on services. Schneider (1985) conducts an empirical analysis of the effects of fiscal differences on the distribution of firms, using a sample of 800 suburbs with data on the number of firms during 1972-1977. His conclusion is that fiscal differences among suburbs significantly affect the distribution of business development; he also points out some differences between retail and manufacturing firms. Manufacturing firms strongly avoid suburbs with high taxes, while retail firms also respond to general market conditions of the communities. Finally, he concludes that local government expenditures do not attract retail or manufacturing firms.

## **II - F. Is Tiebout Competition Zero-Sum?**

The success of the Tiebout model adds an interesting nuance to the observation that analysis of competitiveness either focuses on enhancing productivity, which has merits in its own right, or on zero sum competitions. To the extent that municipalities (or nations) compete over the location of individuals, individual firms, or the location of some of their assets, then the disposition of those can only occur at the expense of other locations. However, the Tiebout competitions need not be considered purely zero sum. First, if we transition from a world

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<sup>16</sup> This idea was originally developed in Fischel (1975) and White (1975).

<sup>17</sup> Analyzing the effect of direct government action to attract firms, Black and Hoyt (1989) demonstrate that direct payments to attract firms have the potential of enhancing social welfare, assuming there is no private information or strategic behavior.

without Tiebout competition to one with competition, then the competition can be expected to benefit all involved, as the characteristics of the competing municipalities (or countries) is driven toward the optimal by the competition itself. The ability of Tiebout competition to benefit all is a key factor that could drive nations to consider adopting policies that “flatten” the world and benefit all.

Second, empirical research has identified countless spillovers that are not included in the canonical form of the model. These spillovers create a rift between the type of competition that Tiebout predicted and the type of competition that actually exists, and that difference may create circumstances that are not purely zero-sum competitions. For example, consider a competition between Philadelphia and Washington for the location of a firm. If Washington wins, then Washington’s neighbor Bethesda might stand to benefit from the competition, while Philadelphia’s neighbor, Camden, would not benefit if Philadelphia wins. If mechanisms do not exist to allow Washington to capture some of the rents to Bethesda, then the outcome of the competition might not be influenced by these external effects, and the optimality of the outcome would not necessarily follow from the competition.

### **III. Tiebout and a New View of “Competitiveness”**

A rich set of implications of the Tiebout model that have been documented empirically. Tax variables and the quality and quantity of public services vary widely, and this variation has a significant impact on foot-voting, and does not lead to homogenous communities. Competition among jurisdictions improves the efficiency of services, with education being the leading example. People also respond to preferences for specific types of public services, not just overall levels of expenditures/taxes, for example asthmatics and outdoor enthusiasts, as opposed to

muscle car lovers, would have been more likely to move to Los Angeles after strict ozone standards were put in place. Finally, firms may be even more responsive to these factors than households, firms clearly respond to fiscal differences between communities, and oftentimes firms are most influenced by the level of capital taxes.

These results, which are summarized in Table 1, provide ample fodder for new research in the international arena, but one cannot simply assume that the extension will follow immediately. For example, the international setting challenges the assumption that consumer-voters receive only investment income, or practically, that they can work and live in different regions,<sup>18</sup> and the assumption that households are completely mobile. As the world flattens, these assumptions will become more and more applicable. In the meantime, the Tiebout studies provide a rich motivation to research why firms and people move in the international setting and how to structure optimal policy.

Perhaps Ilya Somin (2008) has done the most to begin extending the local urban finance analysis to the migration of people in the international setting. He argues that

“Overall, freer international migration could stimulate interjurisdictional competition that increases the utility of foot voting in much the same way domestic freedom of movement does in a federal system. The potential benefits are potentially far larger because there are so many more options for international migrants than domestic ones and because of the very large policy divergences between countries.”

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<sup>18</sup> Flanders, Henderson, and Mieszkowski (1973) show that in a model where workers must work and live in the same region, an efficient distribution of labor will only occur in very narrow and unlikely circumstances. This observation does not say that fiscal competition does not occur, and it certainly does not indicate that other sorts of competition between nations for migrants do not occur.

Global interjurisdictional competition is already happening. The OECD (2002) describes how support for research, a positive climate for business start-ups and self-employment, the location of multi-national corporation, educational opportunities, and political stability attract skilled international immigrants. In other words, skilled immigrants are attracted overwhelmingly by the public service/tax package just like migrants in a domestic setting.

In the case of international immigration the free-rider problem can be solved by selectively issuing visas. In the United States, the H-1B visa serves this purpose by requiring that employees sponsor educated workers in specialty occupations. In fact, there has been a shortfall of H1-B visas during the last several years. As Somin (2008) attested, more freedom of movement would stimulate even more interjurisdictional competition.

The extension of the Tiebout research on households “voting with their feet” to the international setting is still relatively undeveloped. Much more attention has been paid to the international movement of firms, and in particular, firm movement in response to international capital tax competition. Much of the research has focused on the distinction between Tiebout competition and tax competition. But, after tax competition plays out, a world more closely matching the Tiebout model will exist. Firms will likely act much more like individuals and make location decisions based on preferences for the tax/service package.

The motivation for tax competition is a strong relationship between corporate taxes and foreign direct investment (FDI). Hines (1999) summarize the empirical research by differentiating between two types of empirical studies and reports a positive correlation between levels of FDI and after-tax rates of return and elasticities of property, plant and equipment

ownership with respect to corporate tax rates ranging from -0.01 to -2.8.<sup>19</sup> Mooij and Sjiem and Ederveen (2006) also analyze the literature of taxation and FDI and they find that, on average, the literature reports semi-elasticities of around -4. Overall, there is a consensus that differences in corporate taxes between countries have a significant effect on the level of FDI.

It is not surprising then that international governments, like municipalities, would actively compete to lower tax rates to attract business and capital. OECD countries, for example, began to experience declines in statutory corporate tax rates in the 1980s and 1990s, corresponding with the increased capital interaction within the global market. As international competition increased, average corporate tax rates fell. Devereux, Lockwood, and Redoano (2008) econometrically review competition in the corporate tax system among 21 OECD countries from 1983 to 1999 and find evidence that countries compete over both statutory and effective average tax rates. Hassett and Mathur (2007) similarly find evidence of tax competition as countries strategically respond to the tax rates in other countries. In particular, a country is more likely to lower its rates if theirs are higher than the average rates in neighboring countries. Another recent paper by Hassett and Mathur illustrates the fall of corporate tax rates around the world, and results from their papers are displayed in their Figures 2 and 3 (Hassett and Mathur, 2011).

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<sup>19</sup> One branch of this research uses the time-series estimation of the responsiveness of FDI to annual variation in after-tax rates of return and the other branch uses cross-sectional data exploiting large differences in corporate tax rates.

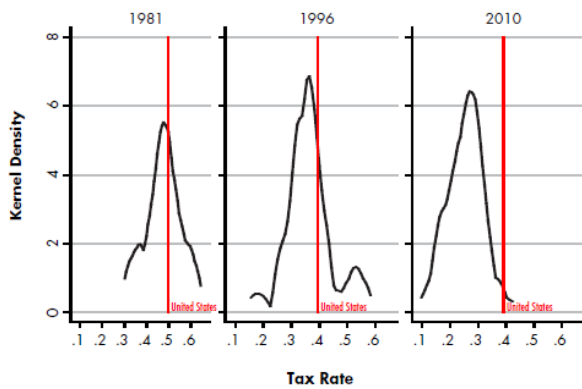


Fig. 2 Distribution of Top Statutory Corporate Tax Rates in the OECD

Source: Hassett and Mathur (2011)

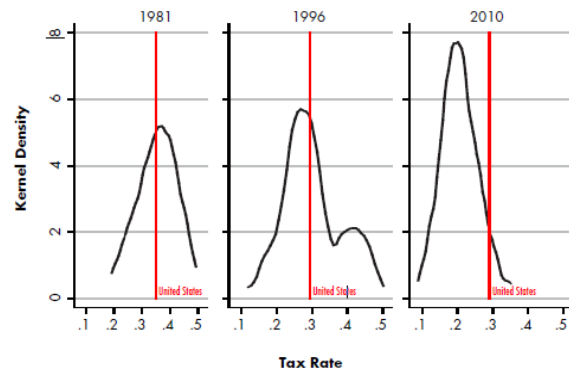


Fig. 3 Distribution of Effective Average Corporate Tax Rates in the OECD

Source: Hassett and Mathur (2011)

Just as researchers do not dispute the existence of international corporate tax competition, a fairly solid consensus has emerged that capital tax competition carries negative effects not associated with the normal Tiebout competition relying on non-distortionary head taxes. In the standard tax competition model, capital is highly mobile, but its overall supply is fixed, so there is a zero-sum game to attract it. Countries are driven to lower their rates competitively with their neighbors, but in the long-run equilibrium, the tax rates will be low and every country will be on the same footing once again. The lasting effect being that tax competition will lead to an underprovision of public goods.<sup>20</sup>

The damage of international tax competition is mitigated by several factors in practice. Counter-intuitively, tax havens have been identified as a significant release valve. These typically small countries offer favorable tax treatment to foreign investors and have often been maligned in the past as offering corporate and banking secrecy that could be used for criminal purposes and eroding other countries' tax bases.

<sup>20</sup> Wilson (2000) surveys this research.

Recent research, however, has challenged both of these claims. Although the concern about transparency has not yet been entirely neutralized, Rose and Spiegel (2006) found that proximity to tax havens can actually improve competition within a domestic banking system as measured by interest rates while additionally spurring banks to extend more credit to the local private sector.

More relevant to a discussion of tax competition is the second criticism, that tax havens erode the tax base for other countries. Desai, Foley, and Hines (2006 a,b) find that rather than reducing economic activity, the proximity of tax havens actually spurs growth and foreign investment. Hines (2010) summarizes the mechanism, “tax-efficient financing structures in tax havens permit taxpayers to avoid costly tax situations in high-tax areas, thereby increasing rates of return and making investment in high-tax places more attractive.” Blanco and Rogers (2009) similarly conclude that the investment in a less developed nation is positively influenced by proximity to a large tax haven.

By acting as a release valve for high-tax countries, it is likely that tax havens limit tax competition. There have been recent calls from the OECD for tax harmonization that would limit the availability of tax havens in an attempt to bring corporate tax rates in line with each other internationally.<sup>21</sup> Such harmonization is likely to be counterproductive and would place downward pressure on rates in the large, high-tax countries that currently remain competitive only because their multinationals can receive favorable tax treatment through havens.

Tax competition exists, and for now is probably the most significant form of international competition for firms. Most models indicate that in long-run equilibrium no country will have a lasting advantage. Likely the existence of tax havens will slow, but not halt, the march to zero capital taxation. The fact that this game ends at a sub-optimal state and a level playing field does

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<sup>21</sup> See OECD (1998 and 2000)

not mean that the United States, or any other country, can bow out. Instead, the responsiveness of FDI to relative tax rates means that whoever lowers their rates the fastest has much to gain.

In order to maintain lost revenues during and after the march to very low taxes, countries should be seeking fundamental tax reforms that leave them with less-distortionary taxes to replace their lost revenues. This process already seems to be happening throughout the developed world, albeit not in the United States, as countries implement consumption taxes. Once capital taxation has reached zero and countries have shifted to less-distortionary taxes, the standard Tiebout model will be more applicable at the international setting for firms. Firms will begin to make location decisions based heavily on their preferences for cost-effective services offered by countries.

#### **IV. Conclusion**

The conceptual language of the Tiebout model is an apt tool for defining international competitiveness, a term most often used without regard for whether nations actually have something over which to *compete*. The Tiebout analysis tells us that municipalities compete for households and firms, which make their location decisions based largely on preferences for services and taxes. As the world flattens, nations are beginning to compete in the same way. Our paper has discussed many of nuances of the Tiebout model, and how international competitiveness, particularly migration and taxation, can be viewed through its lens. There is much ground still to cover, and that task should be taken up in future research. The rest of this book will discuss many areas of competition, from intellectual property to trade. It is our hope that the lessons from this chapter on Tiebout's model, the idea of "voting with one's feet," and even the allocative efficiency of domestic housing markets, will inform our understanding of what is to come.

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Table 1: Empirically-Supported Implications of the Tiebout Model

Implication	Representative Reference
<i>Housing</i>	
Fiscal differentials, by affect the demand for houses, are capitalized into housing prices	Dowding, John, and Biggs (1994)
Households sort themselves into communities according to their preferences for services and taxation—this does not lead to homogenous communities	Ross and Yinger (1999)
“Social” effects accompany rich neighbors. These can contribute to a sub-optimal distribution of housing as municipalities over-provide public goods to attract the rich	Ladd and Yinger (1991)
<i>Migration</i>	
The tax/service package is of primary importance when deciding where to move to, but only secondary importance when deciding whether to leave	Dowding, John, and Biggs (1994)
Regulations, like the tax/service package, influence location decisions	Kahn (2000)
<i>Efficiency of Services</i>	
Competition between localities for mobile consumers improves educational outcomes	Bayer, Ferreira, and McMillan (2005)
Alternatively, localities can collude. This occurs, for example, with state lotteries	Knight and Schiff (2010)
<i>Firm Location Decisions</i>	
Firms, like households, respond strongly to fiscal differences, particularly taxes	Schneider (1985)