ABSTRACT

Title of Document: INTERJURISDICTIONAL COMPETITION

                                      AND URBAN AREA FRAGMENTATION

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The collective action problem in political science examines the circumstances

under which groups can be successfully formed and maintained. While earlier

generations of political scientists believed that groups developed in democracies

because of the nature of democratic culture and procedures, Mancur Olson (*The Logic*

of Collective Action, 1965) demonstrated that free-riding doomed many attempts at

collective action unless selective benefits were granted to members—hence

automobile association members receive free travel services, for example.

Subsequent theories posited other reasons for successful collective action, such as

communication, leadership and anticipated returns from joining.

        Tests of these hypotheses have taken place primarily in laboratory

experiments. This study conducts a real-world natural experiment, examining

interjurisdictional competition (IJC)—a government's offer of incentives for

businesses to locate within its environs as opposed to the territories of others—in the

setting of urbanized areas of various degrees of fragmentation (political organization

as one, several or many local governments). If the free-rider hypothesis is true, IJC would increase with higher fragmentation.

As the "free-rider" title suggests, IJC has been portrayed in game theory as a prisoners' dilemma. However, more detailed analysis in this study reveals several possible games, each posing a related collective action problem.

Methodologically, additive indices from a nationwide survey of economic development practices measure the intensity of IJC effort. Urban area fragmentation is represented by indices using the Hirschman-Herfindahl Index method. The major hypothesis—IJC is a function of fragmentation—is analyzed using OLS regression.

The regressions refute the free-rider hypothesis. The statistical analysis then examines the subsequent explanations of collective action. Anticipated returns cannot be substantiated; however, civil society-based indicators show communication and leadership to be causes of successful collective action.

Finally, a case study of Hampton Roads (the Virginia Beach-Norfolk-Newport News, Virginia metropolitan area) provides a historical narrative of the efficacy of communication and leadership in successful collective action as well as a possible example of game transition from the prisoners' dilemma to an assurance game.

INTERJURISDICTIONAL COMPETITION AND URBAN AREA
FRAGMENTATION

By

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Dissertation submitted to the Faculty of the Graduate School of the
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Preface

P.1   Introduction

Having been raised in the canon of New England home rule, I quickly became fascinated by the range of options for governmental organization of an urban region as I was stationed around the country during my twenty-year Army career. Probably early immersion in county-based Southern regions during my first tour of duty in South Carolina proved too big a shock to ignore. If the South can rely on counties, which are so unimportant in New England that they were abolished in Connecticut, and Oregon can generate a regional government based upon a city named after my hometown in Maine, then what other possibilities might exist? I was hooked.

My post-Service graduate school courses included analysis of the problem of collective action. Mancur Olson had written that free riding would doom collective action attempts by all but the smallest groups (absent selective benefits); alternative theories upheld the efficacy of anticipated returns, leadership and communication. Fragmented versus less-fragmented forms of urban regional governance seemed an appropriate setting for a natural experiment in collective action theory. The controversy over jurisdictions competing with each other for new firms by offering tax rebates, public works and other incentives was an obvious phenomenon for such testing. My initial speculation was that the free-rider theory would win out—that more fragmented regions devoid of an overarching county or regional government would naturally spend more on such interjurisdictional competition because their myriad component jurisdictions would have to compete with each other for new firms as well as with other urban areas, and would be drawn into raiding each other's firms.

As outlined below and elaborated in the study, that proved false. The free-rider explanation does not bear up. Fragmentation proves to be inversely correlated with interjurisdictional competition, and leadship and communication are key to gaining cooperation in collective action.

P.2 Overview of the Study

Chapter One—*Interjurisdictional Competition*—provides a description of interjurisdictional competition, or IJC. Anecdotal evidence shows that magnitudes of incentives can be quite high—over $62,000 per new job in one case recounted; up to $250,000 in other reports. Such evidence also shows that IJC can indeed be intra-regional, solely among jurisdictions within a single urban region. However, along with internecine conflict there can also be cooperation on limiting IJC within the region and cooperating on attracting new firms. After introducing interjurisdictional competition and the various forms of local governance, the chapter traces collective action theory from early political science, which held collective action to be an inherent function of democracy, through Mancur Olson's *Logic of Collective Action* (1965) as described above. The basic hypothesis to be examined is:

$$IJC = f(urban\ area\ fragmentation)$$

While the collective action problem is the theoretical focus of the study, IJC and urban area fragmentation are of interest to other major debates in theory and policy. The Appendix to Chapter One sketches two IJC paradigms in the public finance branch of economics. The first sees intergovernmental competition for business as ensuring that all taxes are benefit taxes, a normative value in welfare economics. The second portrays IJC as destructive competition, a race to the bottom.

The concluding chapter revisits these debates and discusses the implications of the study for them.

Olson's free-rider theory is often presented in game theory as a prisoners' dilemma, and critics of IJC frequently employ the prisoners' dilemma image. However, invoking a metaphor or even proposing numbers for a matrix does not constitute sufficient analysis of this political phenomenon. Chapter Two—*Theory*—examines rewards and costs in a game theoretic context. The chapter appendix provides strict logical proofs of assertions in the chapter proper. Given different circumstances—such as raiding other cities within the metropolis or dealing with firms which have other location options outside one's own urban region—the game can actually be a prisoners' dilemma, an assurance game, or a situation of total defection. However, in the spirit of Bendor and Swistak's 1997 critique of Axelrod, the assertion of IJC-as-prisoners'-dilemma is false, but the insight is correct. A strong incentive to defection exists in all circumstances.

Chapter Three—*Methodology*—lays out the options for analysis. Interjurisdictional competition is notoriously difficult to quantify. The negotiating positions of winning and losing jurisdictions generally remain secret, often cloaked in claims of proprietary information. However, the International City/County Managers Association (ICMA) conducts a survey of economic development among local governments approximately every seven years. The 1994 survey provides questions from which a researcher can derive additive indices assessing the intensity of competitive effort of respondent—hence, a proxy for IJC. Measuring fragmentation of urban areas can be accomplished in various ways. The best available uses 1990

Census data for Census-designated urbanized areas to compute fragmentation indices, which are essentially Hirschman-Herfindahl Indices subtracted from 1. (The HHI measures concentration, hence the subtraction produces an index of fragmentation). The chapter also presents a list of control variables—other financial, social, or political phenomena which could have an impact on IJC levels, such as jurisdiction income per capita or form of government (elected mayor versus city manager).

Chapter Four—*The Free-Rider Hypothesis*—uses the ICMA and Census datasets to evaluate the main hypothesis. If the free-rider hypothesis is to be substantiated, then increased fragmentation should lead to increased IJC. However, not only is there no statistically significant positive correlation, the relationship is an *inverse* correlation. Greater fragmentation is associated with less IJC. Chapter Five—*Alternative Theories*—explores what might explain this counterintuitive result. Three major alternatives to the free-rider explanation of collective action exist. First, the results of attempted collective action might be a function of the size of *anticipated returns*—large enough anticipated returns should call forth sufficient persons to make collective action successful. A statistical test with national data fails to substantiate the hypothesis that cooperation on IJC is a function of anticipated returns. However, similar national level tests do substantiate *leadership* and *communication* as affecting such cooperation. The more leadership and communication within an urban region, the less the IJC.

National-level data analysis provides an important window on a phenomenon usually observed and tracked anecdotally in specific high-profile cases across the county. Chapter Six—*Case Study: Hampton Roads, Virginia*—analyzes IJC as part

of the overall phenomenon of regional economic development cooperation within the Virginia Beach-Norfolk-Newport News MSA. This is an interesting example of what had been two urban areas and MSAs divided by the two-mile-wide James River until 1983. An underlying competitive relationship between the two sides of the River exacerbates the typical urban-suburban strains, as does the rapid growth of Virginia Beach to overtake historic urban center Norfolk as most populous city during the 1990s. Nonetheless, a constellation of economic shocks around 1990 led to greatly increased efforts for regional cooperation on economic development among business and government elites. An anti-raiding agreement prohibited poaching other jurisdictions' firms. Existing economic development alliances were upgraded, new regional partnerships were formed, and at the end of the study period the subregional economic development alliances from the two sides of the James were merged. The chapter argues that Hampton Roads shows how *game transition* can change the underlying dynamics of a situation from the prisoners' dilemma to an assurance game, producing a stable cooperative equilibrium to which leadership elites can move the polity.

Chapter Seven—*Conclusions*—summarizes the study, ties up loose ends such as implications for theories other than collective action (as presented in the appendix to Chapter One), and proposes an agenda for future research.

P.3   Acknowledgments

My indebtedness is great; the list is lengthy but undoubtedly misses someone, to whom I apologize. Any errors in the study are, of course, my own.

Academically, I had a great dissertation committee, chaired by Professor Joe Oppenheimer and comprising Professors Karen Kaufmann, Irwin Morris, Wallace Oates (Economics) and Clarence Stone. Each made original contributions to my thinking as research and writing unfolded, commenting not only on first draft sections and chapters but rewrites as well. More than once a thoughtful, incisive and detailed suggestion led me down that prize of scholarly life, a profoundly rich new path of inquiry and insight. Each insisted on the highest standards but was nonetheless encouraging and personally supportive throughout the sometimes long and lonely process. I am deeply grateful.

Special thanks are due to committee chair Joe Oppenheimer, one of the leaders in many realms of contemporary political science. Joe has a wonderfully nuanced touch on the reins. He knew when to give me the latitude to explore new lines of inquiry and when to pull me back into line before the project got too badly off the road. I am especially thankful for the several mini-classes he taught me in his office when gaps in my background kept me stumbling on a section which should have been progressing more quickly. Joe combines insistence on high standards with a personal interest in his students—the definition of true mentorship.

Every major undertaking has at least one saint—a person outside the formal structure who takes a personal interest in the project, opens doors and provides a wealth of information and insight. I'd like to acknowledge two such individuals. First, at the Bureau of the Census, Marie Pees of the Population Division helped me

Marie Clark for keeping the graduate program in general and my candidacy in particular on track.

My doctoral candidacy reflected the frequent observation that dissertations can truly be "agony and ecstasy" experiences. As much as I thought I was prepared for dissertation writing, the process—combined with a move back to our ancestral homeland in Maine—proved at times quite trying, to state it euphemistically. You don't make it through tough times alone. Thus, on a more personal level, many individuals deserve great thanks for being encouraging and extremely supportive.

This group ranges from friends and relatives to some people I don't know— fortune cookie writers whose sayings got posted on my mood-altering wall alongside Accenture's Tiger Woods *"Go on…Be a Tiger"* ads; more seriously, Herman Wouk, whose epic of the embattled Henry family during World War II *(The Winds of War; War and Remembrance)* got me through my command tour in Korea in the 1980s and once again provided both retreat and inspiration during dissertation writing.

Primacy of place goes to my best friend and wife, Helen Marie Aylward. Helen stuck with me during the most nerve-wracking times when the insights and answers just didn't seem to be coming. I am particularly grateful for the Saturday when my brain and spirit were so fried that we just sat on the futon all day doing crafts, me mindlessly but soulfully carving a small ship out of balsa, she placidly knitting and consenting to my turning on a football game in the afternoon. No matter what my mood, Helen was always sincerely optimistic that I could finish the project. Many thanks, Love!

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…All I have needed
Thy hand hath provided;
Great is Thy faithfulness,
Lord, unto me.

"Great Is Thy Faithfulness"
(hymn) W.M. Runyan, 1923

…When you saw only one set of footprints,
It was then that I carried you.

"Footprints in the Sand"
Mary Stevenson, 1936
Margaret Powers, 1964

Dedication

For Helen, with all my love.

Table of Contents

Chapter 1: Interjurisdictional Competition

1.0 Overview

      This chapter serves as an introduction to the topic of interjurisdictional competition; its setting in practice among governments—especially at local level—and in theory. Section 1.1 will define *interjurisdictional competition* and provide several examples to illustrate various aspects of the phenomenon. Section 1.2 will explore the governance of urban regions in the United States. American metropolitan heritage has produced a rich typology of governments at local and urban regional level. Because this study will offer insights relevant to the foregoing debates in various literatures, Appendix 1 to the chapter will present theories associated with regional governance as well as with interjurisdictional competition. However, the main theoretical concern of this work is interjurisdictional competition among local governments as an example of the *collective action problem,* which is the topic of Section 1.3.

1.1 The Issue Setting—*Interjurisdictional Competition*

      *Interjurisdictional competition (IJC)*is the use by a government of tax, spending, zoning and/or other regulatory provisions as incentives to induce a specific firm—or firms in general—to locate (or remain) in its own jurisdiction as opposed to another city, county, state or nation. Incentives can include property, sales and/or use tax abatements and exemptions; tax credits for job creation or plant size; grants and loans; employee training programs; accelerated depreciation; assistance with site, supplier and market information; easing of environmental regulations; zoning reclassifications or variations; and numerous other services and considerations

(Browning, 1980, p 38; Brunori, p36; Deloitte & Touche, 1998; Kenyon, 1988, as cited in Netzer, 1991, p 224; Aylward, 2002). Local governments— the focus of this study—generally grant such incentives on the basis of jobs or size of investment. Some incentives are standing offers to any firm promising increased employment or capital spending.   Other offers are firm-specific or 'discretionary' (Klender, 1995), wielded on a case-by-case basis to compete with other jurisdictions for specific businesses.

IJC has a long history in American political economy: New Jersey offered tax abatements to lure Alexander Hamilton's factory in 1791 (Levine, cited in Brunori, 2001, p 45). IJC is widely practiced throughout the United States and abroad: The *Tour de France* bicycle race course varies from year to year as towns vie for inclusion on the route by offering different packages to support the event (Marketplace, 2002). IJC varies in its dollar-per-job cost: Standing economic offers open to any qualifying new business or expanding current business average $2500 per job in a recent Georgia study (Faulk, 2002), while nationally, one-off packages negotiated for specific firms range from $25,000 to over $250,000 per job, averaging $95,000 per job and defraying up to 45% of new wage costs (Deloitte & Touche, 1998). And, as is the case for many economic development programs, IJC is controversial: *"The real friend to minorities,"* claims the antagonist in Richard North Patterson's 1999 political mystery <u>Dark Lady</u>, *"is Steelton 2000"*— a reference to his incentive-driven downtown redevelopment project.

> *"This project benefits **all** races, **all** neighborhoods.*
> *"It changes the image of Steelton from a burning river to a*
> *city with a glowing future.*

> *"It keeps Steelton's money in the hands of Steelton's workers, through a state-of-the-art ballpark built by local contractors, supplied by local vendors, and played in by a team with local ownership…*
> *"The two hundred seventy-five million dollars [of incentives] is as good as paid for—in new tax revenues from jobs created and more baseball tickets sold,* **and** *from more new events like rock concerts [and] All-Star games."* (Patterson, pp 34, 41)

Proponents of local government use of business incentives tend to view IJC in the context of public-private partnership. An already prosperous community can employ incentives to maintain a brisk pace of economic development and prepare the local economy for the next source of business expansion, be it biotech or next-generation videogame software. A community struggling to get back on its feet after the closing of a major employer can tighten its fiscal belt to afford incentive offerings to attract new sources of prosperity (Fairfax County Revitalization Groups, 2001; Fischel, 2001; Freiden & Sagalyn, 1989). Overall, IJC facilitates *"bottom-up competition aimed at reinforcing success"* in an environment of different urban regions with varying strengths upon which to capitalize (McRae, 5/16/01).

But the belt-tightening worries critics of business incentives. Again, <u>Dark Lady's</u> debate scene:

> *"So,"* [the protagonist objects], *"what are we talking about here?"*
> *"Two hundred seventy-five millon dollars of* **your** *money to build a new ballpark for [the developer].*
> *"Two hundred seventy-five million dollars for a stadium* **you** *can't afford to take your kids to, crammed with luxury boxes that go for a* **hundred thousand dollars a year.**
> *"Two hundred seventy-five million dollars to keep the wealthy downtown interests—folks who have no interest in* **your** *neighborhood, or***your** *lives, but a very generous interest in Tom's*[the opponent's] *campaign—happier with their own lives…*

"What else could we do, Tom wonders, with two hundred seventy-five million dollars?

*"Tom says he's worried about **crime.***

*"With two hundred seventy-five million dollars we could do for Steelton what Mayor Giuliani's done for New York—put cops back on the beat keeping **you** safe, rather than stuck back at the station filling out police reports.*

*"Tom says he's worried about **schools.***

*"For two hundred seventy-five million dollars we could rebuild our public schools, start some new charter schools with rules that make sense to **you,**not some o verpaid bureaucrat.*

*"Tom says he's worried about **jobs.***

"With two hundred seventy-five million dollars we could fund job-training programs for displaced workers, to help give back [to] our families the security they deserve." (Patterson, p 38)

Critics urge a strict separation of government programs and private development. They object to what they see as inordinate business influence based upon the whipsaw tactic *("…town X has offered incentive Y… will you match that package?")* and assert that incentives are an inappropriate use of taxpayer money, in effect financing what should be a private market function and putting public money into private coffers. Incentives tilt the competitive balance in favor of the big businesses which can pressure governments for tax abatements and fiscal and regulatory boons, away from the small entrepreneurs who can't (Nader, 4/15/99). On a larger scale—regionally, nationally, and even globally—IJC may constitute a *race to the bottom* as governments relax environmental regulations as incentives to business location, or trade off enlightened (but costly) social policies for money to fund incentives (Falk, 1996). Indeed—as above in Patterson's fictitious debate and as we will see in examples below—harmful income redistribution effects are alleged as funding for programs benefiting the poor and middle classes is reduced and in effect

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funneled to those already wealthy. And all the while, the privileged patrons reward

their incentive-granting politicians with campaign donations (Babington, 10/21/98).

Let's look at a few recent examples of IJC in order to examine the breadth of

the phenomenon, beginning with a bidding war near the nation's capital:

1.1(a)   1999 Marriott Corporate Headquarters Relocation: An Introductory Example

December 1998 promised to be a holiday season beset with dark storm clouds

for Montgomery County and the state of Maryland.   On December 10th the Marriott

Corporation confirmed reports that it had outgrown its twenty-year-old southern

Maryland headquarters and planned to build a new $144 million, 3,000-employee

facility—but not necessarily in southern Maryland's Montgomery County, host to the

current headquarters. Sites were also under consideration in adjacent Frederick

County, in Virginia's rapidly developing Loudoun County, and in famed Tyson's

Corner in Fairfax County, Virginia—one of the nation's original edge cities (Garreau,

1991). Local and state planners and politicians immediately geared up their

negotiating options. (Shear and Evans, 12/11/98; McQuaid, 12/12/98).

Marriott had already signaled displeasure with Maryland's business climate.

While Chairman J. Willard Marriott had supported Maryland Democratic governor

Parris Glendening's successful first gubernatorial bid in 1994, by 1998 Mr. Marriott

was highly critical of Glendening's economic policies, calling for further tax cuts and

highway construction to counter congestion. Marriott and fellow executives

campaigned for Glendening's opponent, donating large sums to the Republican war

chest. The drama heightened as Montgomery County's elected County Executive

Douglas Duncan attempted to coordinate an incentives package with the Glendening

Administration, whose newly appointed business and economic development secretary publicly commented, *"[This deal] has to be fair for all Marylanders and all businesses in Maryland. We can't set a precedent for one company* (Wilson, 12/15/98).*"* A week later, a Marriott spokesperson ominously commented that *"Virginia has economic advantages"* over a Maryland location (Pyatt, 12/15/98).

By mid-January, 1999, Washington-area newspapers were reporting preliminary offers: Montgomery County and Maryland were offering $35 million in incentives. Fairfax County and Virginia had put together a package valued at $6 million as well as millions of additional dollars in new roads and services such as employee shuttles, and a lower general tax rate (McQuaid, 1/14/99). Marriott's opening demand to stay in Montgomery County was variously reported as $51 million (Staff, Baltimore Sun, 1/22/99) or $75 million (Wilson, 2/2/99).

Reports of incentive offers, meetings and telephone conversations up to the gubernatorial level continued throughout Montgomery County's long winter of 1999—as did commentary pro and con from editorialists, elected officials and everyday citizens. Even the District of Columbia—snubbed as a potential location by Marriott management—made a brief attempt to snare the new corporate headquarters (Pyatt, 3/8/99). Finally, on March 11, 1999, Marriott International's decision was announced: The headquarters would remain in Montgomery County, Maryland. The combined county/state incentives package would total $44 million—over $14,650 per job (Brunori, 2001, p 43; Wilson 3/12/99). The figure is lowered to $11,890 when Marriott's agreement to add 700 new workers is considered (Staff, Baltimore Sun,

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3/12/99). Fairfax County and Virginia's combined offer still stood at $6 million plus

additional services noted above.

Or was the per-job figure really so relatively low? In late March, 1999,

Baltimore Sun reporters used the Freedom of Information Act to obtain telephone log

notes of calls between Marriott executives and Virginia officials.   A summary of a

February 10th conversation revealed that Marriott's treasurer had told a Virginia

official that Virginia had lost the bidding war. The treasurer asked that the

information be kept quiet to avoid damage to Marriott's ongoing negotiations with

Maryland (Hancock, 3/27/99; Brunori, 2001, p 43).   The Marriott financial officer

later stated that he had merely informed the Virginia official the basics of Maryland's

final offer had been presented on February 1st, and that all other things being equal,

the Maryland offer would suffice to keep Marriott in the state (Murphy, 3/30/99). If,

however, the more conspiratorial interpretation of events is to be believed, then

Marriott's 3000 Maryland jobs were never in jeopardy, and the state and county

gained only 700 new jobs in return for the incentives package—$62,850 per job.

Moreover, some have argued that Marriott headquarters was certain to expand

anyway to accommodate extensive recent and planned acquisitions, so the IJC price

per job was infinitely higher[1] (Pyatt 3/15/99). As if anticipating this deduction, CFO[2]

Magazine had earlier published a set of guidelines for companies desiring both to stay

in their present locations yet receive state and local incentive funding entitled

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[1] Properly, of course, the price per job became 'undefined': $44,000,000 divided by zero is undefined
because division by zero is always 'undefined' in mathematics. However, given everyday parlance,
"infinitely higher" makes better intuitive sense.

[2] Chief Financial Officer

"There's No Place Like Home—How Companies Are Cashing In by Staying Put" (Behr, 3/12/99).

Commentary on the pending *3M Deal* (Montgomery, Maryland and Marriott) reflected much of novelist Patterson's dramatic confrontation above. Greater Baltimore [development] Alliance president Ioanna T. Morfessis worried, *"It raises the issue, 'What about all of the other companies that have been doing business and paying their taxes?' At some point they could get in line and say, 'What are you going to do to keep me here?' Inevitably, more will follow* (Behr and Evans, 3/8/99).*"* Maryland legislature Delegate Leon G. Billings (D-Montgomery County) worried about income redistributive effects: *"One particular taxpayer is going to receive significant tax breaks to stay in our county, which increases the burden on other taxpayers and rewards economic blackmail. If they want to leave, that's their business decision, but it should not be tied to the amount of socialism it can get out of the government… If you asked the people of Montgomery County if they want to use $50 million to bribe a company to stay, the answer would be, 'No, let's build schools instead'* (Wilson, 2/24/99).*"*

Other comment was guarded or even filled with praise. *"My only worry is that [the deal] could undercut other efforts on our part to meet real needs in the county—but we are in the fortunate position of having substantial resources available to us,"* commented Blair G. Ewing, Montgomery County Council member (D- At Large) (Wilson, 2/2/99). The Baltimore Sun editorialized that *"Losing a Fortune 500 company headquarters of Marriott's esteem would be a crushing blow for Maryland's economic development efforts* (Staff, Baltimore Sun, 2/7/99).*"* And an

internal Montgomery County financial analysis obtained by the press asserted that

Montgomery County would recover its $18 million share of the incentives offer in

three years—Marriott costs the County $6.6 million in traffic, schools and public

services but pays $12.6 million in taxes. A similar Maryland document projected a

State break-even date two years later (Wilson, 2/15/99).

Key Analytical Points: The Marriott headquarters relocation bidding war
highlights the extremely competitive IJC world with both state and local incentive
offerings. Greater Baltimore Alliance president Morfessis' comments demonstrate
that the major concern is about IJC *as a process*. The amount paid for keeping
Marriott in state can be more readily justified than a process in which *"all of the other
companies…say, 'What are you going to do to keep me here?'."* Later in the
appendix to this chapter we will see that the theoretical literature on IJC is also
concerned with IJC as a process rather than as single, unique phenomena. Relatedly,
the Marriott example underscores the usefulness of the *prisoners' dilemma* paradigm,
in which two or more individuals or governments have individual motivations to
continue to compete for firms even though they conceivably would do better to
cooperate on business attraction and retention to avoid IJC costs. The next chapter,
Theory, will explore the prisoners' dilemma and other game theoretic concepts in
detail.

Not all IJC involves an interstate component, however. Our next case will

recount an entirely intra-urban region example of IJC.

1.1(b)   Portland-Westbrook, Maine Warehouse & Television Facility Relocation: A Local IJC Example

The Portland, Maine area—comprising 120,000 residents in seven cities and towns—has become a locus of intense IJC over the past decade. The central city, Portland, employed tax-increment financing (TIF) nine times between 1994 and 2001, ploughing corporate property taxes into roads and other improvements which enhance the corporation's site instead of into city coffers. The value of these TIFs ranges from $711,570 to $10.3 million (Downtown Portland Corporation, 1997; Shanahan, 6/30/01). The city has granted benefits up to $50,826 per job created or retained (Downtown Portland Corporation, 1997).

The most recent TIF sought to cement the move of a 120-employee telecommunications firm from elsewhere in the State with $4.8 million in benefits, or $40,000 per new job (Staff, Portland Press Herald, 9/28/01). However, IJC within the Portland area can also include raiding firms from other jurisdictions within the urban region itself. In 1998, Bindley Western Industries' pharmaceutical warehouse was moved from Portland to neighboring Westbrook in response to a tax abatement offer (Staff, Mainebiz, 1/7/02). In October, 1999 the local Fox and Paramount network affiliates announced that they had outgrown their jointly-owned Portland facility. A new facility would enable the stations' news programming to be "equal to or better than" that of competitors. Their search for a new site focused on a Westbrook location. The Westbrook City Council approved a 25% property tax reduction for the site over ten years, saving the firms $166,000 (Bell; Staff, Press Herald, 10/20/99). The affiliates accepted the offer and relocated, even as the stations' project manager remonstrated that the companies would have moved without the tax break. No money

from a higher echelon of government was involved in this transaction, although

Westbrook's cost is actually somewhat less than $166,000 because of state and

county tax accounting procedures.

> *Key Analytical Points:* Interstate IJC is not the only game in town. IJC can
> and does occur between neighboring towns and cities. Such intra-urban IJC raises the
> same concerns as interstate IJC, and once again, the prisoners' dilemma descripton
> fits the ongoing process.

As a near-poetic footnote to Westbrook's victory, in 2001 the Ohio-based new

owner of Bindley Western closed the TIF-won warehouse, eliminating 111 jobs

(Staff, Mainebiz, 1/7/02).

1.1(c)   *Boeing Headquarters Relocation-- Chicago vs Denver: An Example of Intra-Urban Area IJC vs Cooperation*

Maryland's Marriott Corporation is not the only mega-firm capable of

surprising its host community. On March 21, 2001, aircraft maker Boeing

Corporation announced plans to move its 1,000-member world headquarters out of

Seattle, the city of its founding in 1916. Boeing startled not only Seattle officialdom

but movers and shakers in the Chicago, Dallas-Fort Worth and Denver urban areas by

announcing that one of the latter three metropolises would be the manufacturing

giant's next home (Staff, AP, 3/21/01; Draper, 3/22/01).

The eventual winner of this IJC tug-of-war, Chicago, immediately swung into

action. Democratic mayor Richard Daley quickly enlisted the support of beleaguered

Republican Governor George Ryan. The two had long been the odd couple of Illinois

politics, mutually financing a new football stadium for the Chicago Bears and

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pushing a $12 billion state construction bill. Illinois pundits were not surprised by Daley's public support for Ryan's re-election several months after the Boeing announcement: With the gubernatorial re-election, Daley would remain the most influential Illinois Democrat, and Ryan would continue to enjoy Daley's impetus in a number of legislative battles in the divided Illinois state government (Dizon, 7/21/01).

The combined state and city incentives offer to Boeing eventually came to $75.5 million: $52.5 million in state tax credits and other benefits, and $23 million in Chicago tax breaks. The battle for legislative approval was not easy. South Illinois interests demanded similar help for their regional coal industry. Many lawmakers were dubious about providing benefits to firms while proposals to cut the state gasoline tax were being shelved as too expensive. In the end, the $52.5 million approved was $11 million less than the amount originally offered to Boeing by the Governor—a shortfall which did not reverse Chicago's victory (O'Connor, 5/31/01; J. Patterson, 4/21/01 & 5/15/01).

Legislative conflict was not the only homegrown threat to Chicago's Boeing bid, however. Intra-metropolitan IJC took seed and sprouted throughout the region during the spring of 2001. No less than seventeen urban and suburban Chicago jurisdictions ranging from Elgin to tiny Bannockburn (population: 1,400) developed their own packages of incentives to lure Boeing. About a dozen could not meet real estate requirements for Boeing's headquarters (Spielman, 4/11/01; Susnjara, 4/12/01). Five remained strong enough as competitors that Boeing executives toured them as part of their official April on-site inspection of the Chicago urban region

(Toomey, 4/11/01). The internecine conflict was sufficiently disturbing for a writer in Crain's Chicago Business to mourn (Merrion, 4/2/01):

> *On paper, the Chicago region's effort is being coordinated by the DCCA [state Department of Commerce and Community Affairs]… [However,] so far, Denver has not seen any localities pitching Boeing independently, and in Texas, only two or three outside of Dallas and Fort Worth has expressed interest… While Chicago [regionally] lacks an organizing force…Denver has a regional economic development group called the Metro Denver Network, which covers the six-county region.*

The editorialist was soon partially in error: Within a fortnight, two Denver area counties had announced bid packages, and three component communities were offering additional incentives should Boeing bless their turf with its presence (Arellano, 4/13/01; Griffin and Leib, 5/4/01). However, the general description of regional cooperation in the Denver region was correct. Central to the mechanisms for cooperation is the Metro Denver Network (MDN). The MDN is the successor organiation to the Greater Denver Corporation (GDC), formed in 1987 after some particularly difficult years for the Denver region economy. Founders from six counties and almost five dozen cities agreed in their charter to *"combine the resources of all metropolitan area economic development agencies for the purpose of attracting more new business and industry."* MDN also came to include almost one hundred corporate members.

According to founders, the GDC and MDN doubled the number of cases in which Denver had become a finalist in the site selection process. The organizations were also responsible for coordination of the region's new international airport and a light rail system. MDN leadership and regional business leaders believe that

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prospective firms prefer well-coordinated regional proposals rather than a cacophony of varying bids (Hornby, 1995; Merrion, 4/2/01).

What then explains the eventual emergence of competing Denver-area offers for Boeing? The MDN charter authorizes only MDN to make the initial contact with firms proposing a Denver-area location. Any signatory receiving an overture from such a firm is required to refer the company to the MDN. Only after its own initial talks with the firm will MDN open the site selection process up to component communities. And on a similar note germane to the previous section of this chapter, jurisdictions are not allowed to raid other MDN members. If a firm in Aurora offers to move to Denver if Denver's price is right, Denver officials are compelled to first contact Aurora to ensure that Aurora officialdom knows what is transpiring (Metro Denver Network, Code of Ethics, undated).

Despite site inspection tour highlights such as breakfast in the governor's mansion with Denver Broncos star quarterback John Elway, Boeing officials passed over Denver and its almost $30 million in combined state and local incentives (Tsai, 5/1/01; Leib, 5/11/01). But Denver officials did not register dismay. The benefit of lessons learned and the publicity of making Boeing's short list were the theme of official comments and most editorials. And no one doubted the continued applicability of the lesson in regional cooperation learned over a decade earlier.

> *Key Analytical Points:* Urban regions can foster cooperation as well as IJC.
> In greater Denver's case, the genesis of cooperation was severe economic distress:
> The crisis of the mid-1980s—a boom time for most of the rest of the nation—saw the
> loss of 14,000 petroleum jobs (half of the local energy sector), a high rate of business

failures and plummeting land prices. The area's office vacancy rate became the highest in the nation (Hornby, 1995, pp 12-13). Such economic distress would among other things raise the real cost of IJC. The theoretical chapter will demonstrate how heightened costs can transform IJC from a prisoners' dilemma to an *assurance game*, which more readily results in group cooperation.

1.1(d)   IJC—The Developer's Point of View

While this study will be from the perspective of local governments and the economic development problems they face, it is instructive to understand IJC from the perspective of the business executive making a location decision.

The literature on the practice of commercial and retail location follows fairly logically from the economic and geographic theories of industrial location. Miller (1977), for example, sketches theories of agglomeration, locational interdependence, and spatial general equilibrium, then tests each against the experiences of eight major industrial groups. Hack (1999) emphasizes the derivative lessons for practitioners. The executive should primarily consider proximity to markets and materiel, transportation costs, utility cost and availability, and labor costs. The average firm will need to consider approximately one hundred jurisdictions in about six states (Hack, 1999, pp 38-39). Cutting edge computer software programs also employ these methods graphically. Map-based computer geographic information systems (GIS) allow users to optimize location vis a vis factors such as target income, ethnic and sociological groups, desired transportation facilities, and sources of industrial inputs. A typical iterative search—conducted on an on-screen map—might essentially

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request, *"Show me the areas which are (a) within 10 miles of a concentration of at least 20,000 people with per capita income exceeding $65,000 per year and who are of ethnic backgrounds 'X' and 'Y', (b) within one mile of an interstate highway off-ramp, (c) within ten miles of a major airport, and (d) within 25 miles of a research university. I want to locate our new branch office/sales site in one of those areas."* The output of this Boolean logic process is a map highlighting suitable locations (ESRI, 1996).

Hack covers the differences in state and local tax structures—as well as local zoning ordinances and restrictions—to illustrate the need to evaluate each in detail before making a location decision. His work contains only a brief IJC-esque reference to considering local *"availability of financial aid"* (Hack, 1999, pp 109-116, 119). On the other hand, a Rouse Company guide to industrial site selection (Browning, 1980) incorporates a full chapter on incentives and IJC. Browning details all the incentive types outlined in the first section of this chapter. He notes the existence of geographically specific Federal programs (and regional Congressional coalitions supporting them) as well as state incentives. Critically for our study, Browning acknowledges the crucial role of local incentives—it's not just a state-level game.

After listing these considerations, the Rouse reader treats the budding site selector to a walk through the incentives negotiation process—an enlightening transit indeed (pp 31-33, 40):

> *Almost every political jurisdiction in the United States waits*
> *eagerly to aid you in your location search…Most counties and*
> *cities of any size have some kind of staffed economic*
> *development organization… A successful relationship with*

representatives of economic development organizations (especially at local level) will often speed up all the permitting processes which must go on after a final location decision has been made… In all cases, discussions are confidential… The basic rule of thumb when dealing with the public agencies is "Ask and you may receive."… The competition among states for your business is fierce; the same is true county to county and city to city…

If you elect to conduct your business incognito, don't feel you'll be poorly treated… it is not uncommon for companies to go to elaborate means to disguise who they are. Some even go as far as to cut the labels out of their suits lest the people they are talking to discover their city of origin…

As should be clear by this time, industrial development is a highly competitive sales situation. [Government representatives] will… work nights and weekends should your needs dictate…[and] consider their role as that of a catalyst to bring the company and the community together…

A somewhat less effusive (while nonetheless maturely pragmatic) treatment in the professional literature is presented in Klender (1995). The author notes the smorgasbord of benefits available but cautions executives to base their short lists of sites for final consideration on the conventional economic analysis described at the outset of this section (p 2):

While incentives are often one of the first things our clients discuss when we begin site selection projects, we caution that incentives should play a secondary role in evaluating the desirability of potential locations. Most incentives are of a short-term nature; after they run their course, the company is left with the basic attributes of the community… For most projects, incentives' main role should come in the later stages of selecting a location, when the company is narrowing the choice among a small group of top locations… It is at this point that the location offering the most attractive package of incentives will generally get the facility.

Klender alerts businesspersons to the possible requirement of formal "clawback" agreements guaranteeing investment or hiring targets. If the firm fails to meet the target(s), the incentive deal is off. He also cautions executives that the cost in

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goodwill of belligerently extracting the last few thousand dollars of incentives may outweigh the value of those benefits over the long run.

> ***Key Analytical Points:*** While significant, incentives do not appear to have the same overriding criticality to private executives that they do to their government counterparts, for whom incentives are a major tool of economic development—and the only one they possess with which to compete for specific firms. Also important for our study is the repeated observation that business executives consider the local level incentives to be as important as state IJC.

1.2   The Issue Setting—Governance Structures and Fragmentation

As might be inferred from the examples in sections 1.1(a)-(c), IJC is often linked in debate to *fragmentation* of urban regions into multiple local governments. If destructive competition is a problem, why not simply pare the number of players (jurisdictions) down to one government for the whole urban region and eliminate the problem? The debate tends to produce two polar positions. A number of descriptors exist for these two schools, often with rhetorical baggage attached: Those favoring unified metropolitan area-wide government often refer to the opposite opinion as *Balkanization.* Those seeing greater virtue in local home rule strike back with *Gargantua* to describe unified governance. This study will use the terms *poloycentricity* and *monocentricity*—originally derived from Michael Polanyi's 1951 *The Logic of Liberty* and adopted by the Indiana University Workshop in Political Theory and Policy Analysis (McGinnis 1999a, 1999b, 2000)—as well as neutral synonyms such as *fragmented* or *multiple jurisdiction governance,* and *unified,*

metropolitan, or *regional government,* respectively. The appendix to this chapter will sketch these arguments and the concluding chapter will comment on the implications of this study for these theories. For now, we should take a brief look at American local government and the structure of urban regions.

There is considerable variety in the mechanisms of local government in the United States. State governments have designated *counties* and *townships* as subdivisions of the state vested with certain governmental functions. Particularly in southern states, the county is the predominant form of local government. Locations within the county may carry place names but have no independent government (a well-known example: Reston, in Virginia's Fairfax County), although some truly independent self-governing cities may exist within the county's boundaries. The functions of townships vary nationwide, from the renowned town meetings of New England to mere collection of poor taxes in many states of the old Northwest Territories.

Unlike other forms of local government, the incorporated *city* is deliberately formed by local citizens who desire local self-determination and government. As such, it is historically a unique bottom-up institution (David Miller, 2002, p 27). The twentieth century, however, spawned other forms of bottom-up (in some cases, arguably middle-across) institutions to handle the demands of urban regions which had outgrown central city urban boundaries. *Annexation* of adjacent incorporated or unincorporated communities—already an option in some areas—was used frequently in the Progressive Era. *City-county consolidation* has been the result of nineteen mergers approved by voters since World War Two (Rusk, 1996, p 36). *Regional*

government has been instituted in several U.S. metropolitan areas. Portland,

Oregon's Metro Government is the only directly elected regional government—other

governing bodies are appointed by component jurisdictions.

Finally, *special districts* manage distinct functions across areas which may or

may not be contiguous with the boundaries of local general purpose governments

such as cities and counties. School systems are frequently governed as special

districts. Water and waste management functions also are often administered on a

special district basis.

To further complicate the picture, the latitude granted local governments

varies from state to state. Most restrictive are the *Dillon's Rule* states, which follow

Iowa Supreme Court Justice John F. Dillon's dictum in his 1881 *Commentaries on

the Law of Municipal Corporations* (p 75):

> *Public corporations [municipal governments] are called
> into being at the pleasure of the state, and while the state may, it
> need not, obtain the consent of the people of the locality to be
> affected. …[T]he power of the legislature over such
> corporations is supreme and transcendent: it may erect, change,
> divide, and even abolish them, at pleasure, as it deems the public
> good to require.*

In a more modern phrasing: *"Municipal corporations have and can exercise only

those powers expressly granted [by the state legislature], those necessarily or fairly

implied therefrom, and those that are essential and indispensable* (McCarthy, p 14).*"*

In practice this doctrine has been applied with varying degrees of liberality.

Nonetheless, the application of Dillon's Rule remains far distant from the *home rule*

spirit expressed in the 1868 work of Michigan Justice Thomas M. Cooley, *A Treatise

on the Constitutional Limitations* (pp 189, 191):

*In contradistinction to those governments where power is concentrated in one man, or in one or more bodies of men, whose supervision and active control extends to all the objects of government within the territorial limits of the State, the American system is one of complete **decentralization,** the primary and vital idea of which is that local affairs shall be managed by local authorities and general affairs only by the central authority… [A] dense population renders different rules important from those which are needful for the rural districts… [The] regulation of such local affairs…is not understood to properly belong to the State; and when [the State legislature] interferes, as sometimes it must, to restrain and control the local action, there must be reasons of State policy or dangers of local abuse to warrant the imposition.*

The argument over the proper degree of local autonomy is both old and ongoing. Recent commentary on urban region issues such as sprawl and IJC spending have frequently distinguished such controversies as properly falling into Justice Cooley's "reasons of State policy" to justify the intervention of state legislatures. This debate can rapidly become complex; for our purposes, it serves to underscore the intriguing variety of local government arrangements across the nation.

Statistically, then, what is the urban region setting in which various types of municipalities must solve problems facing their inhabitants? Using Census-defined *urbanized areas* (we will examine definitions and measures of urban regions in Chapter Four), we find a heterogeneity similar to that of government types. Urbanized areas range from a single jurisdiction covering the entire urban population—Davis, California—to dozens or even hundreds of local (including county), general-purpose (as opposed to special district) governments. The following table lists several well-known examples from the spectrum:

Urban Area	Population	Local Governments
Boston, Massachusetts	2,774,717	99
Chicago, IL-- Northeast IN	6,793,132	379
Davis, California	52,711	1
Denver, Colorado	1,517,803	30
Las Vegas, Nevada	679,078	4
Los Angeles, California	11,402,955	141
New York, NY-- Northeast NJ	16,044,493	459
Portland, OR-- Vancouver WA	1,171,834	6
Washington, DC-- MD-- VA	3,363,047	57

Urban areas thus can contain vast numbers of cities, towns, and counties.

1.3   The Theoretical Setting—*The Collective Action Problem*

A vast policy literature has been devoted to whether IJC and urban area governmental fragmentation are socially beneficial or bad. The results of this study will have implications for this debate; therefore, the appendix to this chapter will describe these arguments and the concluding chapter, the implications of the statistical and case analysis to be presented. However, the major thrust of the inquiry will be what the American urban area IJC phenomenon teaches us about one of the key elements of democratic life—collective action by citizens and groups. This section will outline the history of collective action theory in political science.

1.3(a) Introduction

> *The [retreating] Athenians hurried on to the Assinarus River… As soon as they were there, they rushed in without any order, each man wanting to be the first to cross while the enemy laid into them… [T]hey fell upon one another and got trampled under foot… In the end, …the army was utterly defeated…* (Thucydides, p 150).

Personal security and individual benefits can be powerful disincentives to successful action by groups. Yet for many decades twentieth century social science

looked upon democratic collective action as an inherent function of individuals raised

in a tradition of freedom. Groups may have different 'intensities' of activity and

utilize different 'techniques' to influence others and pressure government officials

(Bentley, 1908, pp 215-216), but groups occur simply because that is what citizens in

a democracy do:

> *I am inclined to think that if a complete analysis of the whole process could be made we could attain a point of view at which we could see the activity of all these discussion and organization groups so completely absorbed into the represented interests, that we should no longer feel ourselves under the necessity of attributing any independent activity to them. …[I]nterest is merely a manner of stating the value of the group activity…* (Bentley, 1908, pp 445, 215.)

1.3(b)   The Logic of Collective Action

Mancur Olson challenged the prevailing view in his 1965 *The Logic of*

Collective Action. Olson argued that while small-size groups have the ability to

enforce agreements through social pressure, larger ones are doomed to failure in the

manner of Thucydides' account of the Athenian defeat in Sicily. The group

members' common goal is not enough to attract and keep members. In fact,

ironically, the existence of an organized group—political pressure group, labor union,

and the like—works against goal attainment: The average individual who shares the

goal, noting the organized group, will be tempted to *free ride* on the efforts of those

who have already joined the group. If I, a senior citizen, see that the American

Association of Retired Persons is pushing for legislation helpful to seniors, why

should I spend money on AARP membership for lobbying benefits I already receive?

The same problem is publicized yearly during public television membership drives:

Many individuals enjoy public television programming at the expense of others'

financial support. They are able to view their favorite shows without helping to pay for them. They are free riders.

What, then, is Olson's solution? Olson saw that successful organizations offered potential participants more than attainment of the common goal. In addition to the collective benefit upon which so much free-riding is possible, successful organizers ensured that those who joined the organization received *selective benefits* from which non-members were excluded (Olson, 1965, pp 133-4).

A thoughtful look around successful contemporary organizations furnishes a number of examples of selective benefits. The American Automobile Association (AAA) lobbies state and national governments for highway construction and measures to aid the motoring public. Non-members certainly receive the benefits of AAA-backed legislation. However, in addition to these lobbying results, those who choose to become AAA members also receive AAA roadside assistance, low AAA hotel and car rental prices, free trip maps and other such selective benefits. Similarly, to continue an example from above, American Association of Retired Persons (AARP) members receive not only the benefits of AARP lobbying successes but also low-cost prescription drugs, vacation packages, and other selective benefits. Even an outfit with as pristine an image as the Sierra Club relies upon selective benefits in the forms such as wildlife vacation packages to attract members.

Olson compares organizations with virtually identical lobbying goals, some of which succeeded and others of which failed. Representative is the case of farmers' lobbies. Nineteenth century lobbies did not offer selective incentives. Only one—the Grange—ever became successful, and that success lasted barely over a decade before

it collapsed, survived by a meager following as a nostalgic echo of the past. The twentieth century saw the rise of several farmers' organizations, the most successful of which were organized as 'Kirkpatrick cooperatives'. Under this scheme, management is in the hands of the lobbying organization, not the members. Kirkpatrick-type Farm Bureau cooperatives conduct business with any farmer, but only members receive dividends—a selective benefit. Members also receive low-cost insurance. This prompted a newly-formed no-frills competitor lobby to advertise *"we insure your income, not your car"* in an attack on the allegedly frivolous side-programs of the Farm Bureau, but the challenger failed to draw membership numbers close to those of the Farm Bureaus (Olson, p 153-9). Through this and other mini-case study narratives, Olson substantiates his thesis. Numbers are the key to the collective action problem: Small groups can overcome the collective action problem but as 'n'—the number of individuals sharing the common interest—increases, successful collective action is imperiled. The only solution Olson sees is selective benefits.

1.3(c) Critiques of Olsonian Collective Action

Olson's n-based collective action analysis receives support not only from his mini-case studies, expanded in his later *The Rise and Decline of Nations* (1982). Shepsle and Bonchek (1997) list more contemporary examples (pp 242-244). Terry Moe found that most individuals who joined trade and other economic unions did so for the selective benefits, not for promotion of the group cause. (Moe, 1980, in Shepsle and Bonchek, 1997, p 249). In summarizing the empirical evidence (1989, p 310), Dennis Mueller includes the following observations: *"Some but not all*

individuals will free ride in a prisoners' dilemma situation… Free riding increases as the number of players expands, at least if the return to a player declines as group size increases." Yet less than ten years later, John Ledyard (1995) would characterize number of participants as having no effect on collective action in his survey of experimental research on public goods (p 143, table 2.10; pp 151-5). Thus, while certain case studies are mustered to substantiate Olson's theory, rigorous experiments have not to date supported it.

Moreover, subsequent theoretical analysis has revealed that Olsonian free-rider collective action theory does not apply to pure public goods—goods or services which are *joint* (one entity's consumption does not reduce the amount available for others) and *non-excludable* (no person or entity can feasibly be excluded from consumption of the public good). An example of a pure public good is national defense: Once provided, this protection is available to all, and the birth/immigration of a new citizen does not diminish the amount available for others. On the other hand, a public swimming pool can be a non-pure public good. A fence and gatekeeper can bar residents of another community, and too many swimmers at one time can crowd the pool, decreasing its benefits to the average user.

Olson's characterization of the importance of 'n' remains valid for non-pure public goods, as will be detailed in Chapter Two and its appendix, Sections 2.7 and 2*.7. The public good of concern in IJC is *economic development and fiscal benefits from the lowest-cost attraction (and retention) of business firms.*

We can deal with the nature of the public good in more detail. First, observe that IJC really has two components—the amount needed to attract a firm to one's UA

(call this "Level #1 IJC") and the amount necessary to attract development destined to the region to one's own jurisdiction within the UA ("Level #2 IJC). If cities and towns cooperate by agreeing not to provide Level #2 incentives, they in effect obtain an amount of money equivalent to the savings of Level #2 IJC. The benefits of the public good (with commentary on jointness) are:

- Taxes from the new firm: Not joint. These accrue only to the gaining jurisdiction.

- Jobs, shopping and business supply opportunities: Partially joint. A new firm brings jobs, new opportunities to shop and for existing firms to obtain wholesale supplies. These benefits spill over into other jurisdictions in that their citizens may shop or work at the new firm. However, the net benefits decline as a function of distance. For example, the benefits of a job are partially eroded by a long commute, which imposes time costs as well as gasoline or transit costs.

- Saving Level #2 IJC costs: Joint. Any jurisdiction can opt to cooperate and forswear intra-UA IJC, sharing in the public good.

The non-pure IJC public good is also not excludable. A non-cooperating jurisdiction can offer incentives to lure firms away from its neighbors and still enjoy some of the spillover benefits noted above. However, this should not imply that one or two defectors will obtain all the firms attracted to the urban area because, just as the region has limits to its absorptive capacity, so too do individual jurisdictions.

Thus, IJC is a non-pure public good. (Section 2.7 of Chapter Two and its appendix present a more formal argument.) Attempts at cooperation through

collective action should consequently exhibit Olson's prediction that cooperation fails as a function of increased numbers. Therefore, the major hypothesis examined in this study is:

$$IJC = f(urban\ area\ fragmentation)$$

More broadly, this study seeks to answer the question: Is IJC effort a function of increased numbers of players, or is competition/cooperation among jurisdictions determined by any of the three major alternative explanations—anticipated returns, communication and leadership? These will be elaborated and explored statistically in Chapter Five.

1.3(d) Non-competitive Behavior as Cooperation

An objection encountered in early presentations of this thesis and data concerns the nature of interjurisdiction cooperation in an IJC world: Can we really claim that by not offering incentives, jurisdictions are actually cooperating? If we cannot, then knowledge claims concerning collective action become untenable.

The opposite of a competition-cooperation dichotomy would be an array of behavior characterized by competition—no interaction—cooperation. We frequently find phenomena of this sort: A business firm may compete with some firms, cooperate on joint business ventures with others, and simply have no intercourse with firms in completely different industries. However, we can also find a number of phenomena in which the middle ground of "no interaction" is ruled out. An important economic example is tacit collusion in oligopolistic industries. Price-fixing does not necessary entail explicit agreements in restraint of trade. Firms may also cooperate by following the lead of a major trendsetter company. In international

affairs, nations may (again tacitly) cooperate on reducing or eliminating an arms race by foregoing purchase of a new weapons system or eschewing upgrades to current military hardware. Relatedly, military history contains a number of instances in which military units of both sides stationed in quiet sectors refrain from firing on one another. Not firing at even an exposed enemy becomes a norm, creating a more tolerable life in the trenches—effectively a small pocket of truce in the midst of the most harrowing competition of all.

The key is that in all such situations, the societal environment precludes the no-interaction option. Firms in an industry group either compete or cooperate. Once an arms race starts, nations in the region either exacerbate or ameliorate it by their decisions and actions. Soldiers on a battlefield either fight or find some way to cooperate with the enemy to avoid fighting.

Interjurisdictional competition—like competition among businesses—is similarly a fact of the environment. Public officials who employ IJC sometimes publicly bemoan the practice while asserting that they are forced into it because "that's the way economic development is done these days". Jurisdictions can either compete for firms or not, but they cannot opt out of the game. The interaction of the free market with local governments' economic development desires drives the system to IJC—or to cooperation to overcome it. Such cooperation can either be by explicit agreement, as in the case of greater Denver, or tacit in accordance with local political culture. Richard Feiock (2003) has documented a social capital foundation for interjurisdictional cooperation on economic development, for example.

1.4   Conclusion.

> *Demand-side motivations and supply-side forces thus generate fragmented local government structures in the suburbs of most metropolitan areas… Some more broad-minded people form civic organizations to promote a regional perspective concerning land use policies, but they are always a minority. Local officials are particularly susceptible to parochialism, because only citizens who live within their locality's boundaries can directly influence their political survival. So nearly every citizen, official, agency and community tries both to capture as many benefits of growth as possible for its locality, and to shift as many costs of growth as possible onto other localities. This results in beggar-thy-neighbor policies of most localities and no attempt to maximize the welfare of the region as a whole.*
> (Downs, 1994, p 20.)

> *In this noncooperative solution, the competing jurisdictions are all worse off than if they could somehow cooperate and agree not to compete (an example of the prisoners' dilemma).*
> (McGuire, 1991, p 155.)

This chapter has demonstrated interjurisdictional competition and the related phenomenon, urban area fragmentation, to be important topics in public debate and policy studies. It has also shown that IJC in the urban area setting is an example of the collective action problem in political science. As Therese McGuire notes above, a common analytical paradigm for the prisoners' dilemma is game theory, and to a detailed game theoretic approach the next chapter will turn.

Appendix to Chapter 1 (Interjurisdictional Competition):
The Policy Setting

1.A.1 Introduction

As noted at the beginning of section 1.3, an extensive policy-oriented literature has grown around IJC and urban area fragmentation. The chapter Appendix describes these rich literatures, which are important to this study because research results impact upon them as well as collective action theory. The following paragraphs are intended to provide brief thumbnail sketches. The concluding chapter will comment on these theories in light of the study findings.

1.A.2 Interjurisdictional Competition

The analysis of interjurisdictional competition is centered in public finance, a major field of economics. Many economists regard IJC as having beneficial qualities in a properly functioning market economy: Firms are steered to jurisdictions in which they are most productive. The taxes they pay are benefit taxes geared to the public goods provided for them. A summary of this position is provided in Oates (2001a, p 136):

> *'Small' [local or state] governments …compete for mobile capital [industries] using marginal-cost pricing policies. Firms face 'tax-prices' in each jurisdiction for publicly provided services… Likewise if households are mobile, they too face tax prices…that mirror the marginal cost of providing public services to residents. In such a world, taxes guide location decisions of economic agents, both residents and firms, in an efficient manner. And jurisdictions are led to select efficient levels of public activities [i.e., levels which citizens and firms would select if they paid individually in a market for government-provided services], encompassing public outputs for both residents and firms.*

The opposite IJC paradigm is the *destructive competition* model (McGuire, 1991), or *race to the bottom.* The model encompasses two classes of citizen, mobile (business firms) and immobile (residents). Jurisdictions have a preference for income redistribution and hence compete for the mobile class to attract its riches. In the short run, taxes on immobile residents are reduced. However, as mobile firms find they can move in response to offers of lower taxes from other communities, interjurisdictional competition lowers taxes on the wealthy firms and raises them for immobile residents—a bitterly ironic outcome.

Econometric studies of IJC are unfortunately rare. Those which have been conducted tend to find little evidence of destructive competition. For example, several studies find no degradation in environmental protection expenditures after Reagan-era devolution of anti-pollution efforts to the states (Fredriksson & Millimet, forthcoming, cited in Oates 2001b; List & Gerking, 2000, cited in Oates 2001b; Millimet, 2000, cited in Oates 2001b), and German local government programs are only partially constrained by tax competition (Buettner, 2001, cited in Oates, 2001b).

1.A.3 Urban Area Fragmentation

As noted in the main chapter, the debate over urban area fragmentation tends to produce two polar positions—colloquially, *Balkanization* versus *Gargantua;* more civilly, fragmentation versus unified or regional governance; most formally, *polycentricity* versus *monocentricity.*

1.A.3.1 Polycentricity Theory

Interestingly, polycentricity traces its origins to Charles Tiebout's 1956 solution to the problem of putting a value on public goods, given that individuals

have an incentive to understate their valuation for collective goods in order to minimize their contributions thereto (Musgrave, 1939; Samuelson, 1954). *"If consumer-voters are fully mobile,"* states Tiebout, *"the appropriate local governments, whose revenue-expenditure patterns are set, are adopted by the consumer-voters… The solution, like a general equilibrium for a private spatial economy, is the best that can be obtained given preferences and resource endowments."*

Tiebout was joined by Vincent Ostrom and Robert Warren in 1961 to refocus his original article into a descriptive and normative argument for multi-jurisdiction governance of urban regions. Polycentric regimes not only allow citizens to vote with their feet. Government in less populous towns and cities is often more responsive to residents. It can provide many services with greater agility and technical efficiency than a bureaucracy-laden unified metro government. Indeed, local governments will compete to offer the best services at the lowest tax rate in order to retain citizens. And local governments can engage in equipment-sharing agreements to attain economies of scale on big-ticket items such as specialized fire-fighting equipment. The latest flowering of polycentric theory is William Fischel's 2001 *The Homevoter Hypothesis,* which employs the median voter theorem to conclude that *"…homeowners, who are the most numerous and politically influential group within most localities, are guided by their concern for the value of their homes to make political decisions that are more efficient than those that would be made at a higher level of government* (p 4)*."*

1.A.3.2   Monocentricity Theory

Monocentricity reflects the views of writers dating back to Woodrow Wilson (1885, p 30-1, 186) that centers of power always exist in any body politic; thus, effective government must identify an individual (or legislative body) responsible for the entity. Norton Long, writing in the *American Journal of Sociology* in 1956, decried the lack of any formally constituted bodies with responsibility for entire urban regions (p 476):

> *[There exists an] attempt to organize the influentials of metropolitan areas into self-conscious governing groups… This is in many ways… general groping after a territorial government capable of dealing with a range of problems that the existing feudal disintegration of power cannot.*

Interest in monocentricity continued through subsequent decades, adopting new themes such as the citistates movement (Pierce, Johnson & Hall, 1993) along the way: *"We are now organized to respond to challenges at municipal-county, state and national level, but the major ones are emerging at neighborhood, regional and international levels… The mismatch of governance structures and regional challenges fosters interest in experimenting with new regional decision-making mechanisms* (Dodge, p 19, 27)*."*

1.A.3.3   Empirical Substantiation--Polycentricity

As might be expected, both sides marshal studies buttressing their claims. Empirical research joined the growing body of polycentricity theory in the 1970s. The study of police services is an interesting example. Ostrom and Whitaker (1973) studied police effectiveness in a regional government versus smaller home-rule governments. The setting was the the Indianapolis metropolitan region. Most

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Indianapolis-area jurisdictions had formed the city-county consolidation known as *Unigov.* Several had opted to remain separate cities. Ostrom and Whitaker surveyed 722 households in the Indianapolis metropolitan region on satisfaction with police services. Among their findings: Unigov residents were more likely to be victims of crime. Independent city citizens were about 50% more likely to receive 'special assistance' such as resolving family disputes or finding lost children than Unigov citizens. Independent city police forces received a better score on prompt response, police-citizen relations, and overall performance. The authors conclude that *"…in the area studied, small police forces under local community control are more effective than a large, citywide-controlled police department in meeting citizen demands for police protection* (p 196)*."*

Ostrom and Whitaker (1974) replicated the study in the Chicago area, comparing Chicago city with poverty-stricken neighboring villages Phoenix and East Chicago Heights. The results mirrored the Indianapolis study: The smaller jurisdictions maintained far better performance ratings than the city. In response to more general questions, citizens of the smaller jurisdictions also displayed greater faith in the ability of their governments to respond to resident needs.

In 1976, Elinor Ostrom expanded the methodology further, employing secondary sources to wrap the Grand Rapids and Nashville metro areas into the study with Indianapolis and Chicago. The results were again similar to the original Indianapolis findings. In addition, the author reported on a study of 109 jurisdictions. The smallest or middle-ranked communities consistently out-performed the largest jurisdictions on measures of performance effectiveness and dollars-and-cents

efficiency. For example, per capita expenditure in small police forces ranged from

$7.20 to $20.56, while those of the largest forces ranged from $19.29 to $52.77.

The 1980s and 90s saw the inclusion of polycentricity in institutionalism (the

study of the effects of formal and informal organizations and rules) as well as its

extension into formal rational choice theory. Scholars tested new institutionalist

concepts in settings such as principal-agent game theoretic analysis of South Asian

shepherds (Agrawal, 1997) and groundwater commons law in the western United

States (Gardner, Moore & Walker, 1997). Others used game theory to discover the

effects of polycentric organization on phenomena ranging from institutionally

induced equilibrium (Crawford & Ostrom, 1995) to policy outcomes in two-stage

games (McGinnis & Williams, 1993).

Most recently, scholars have evaluated polycentric governance in terms of

collective action and civic society (Oakerson & Parks, 1988; Oakerson, 1999; Feiock,

2004). They find competition coexisting with cooperation. Polycentric urban regions

are found to foster regional agreements which provide the benefits claimed for

monocentricity while stimulating greater responsiveness to local concerns and a more

vibrant, involved civic society.

1.A.3.4   *Empirical Substantiation—Monocentricity*

Two popular policy analysts have developed causal mechanisms

advocating monocentricity. Myron Orfield (1997, 2002)—state legislator and creator

of the neologism *metropolitics*—asserts that only 7% of communities in the 25 largest

American urban areas have reliable resource bases which cover municipal

governmental and social needs. This creates self-perpetuating imbalances among

communities: The success of affluent job centers begets more success; the problems

of central cities foster middle-class flight and business abandonment, further

burdening remaining citizens and government resources. The strengths of one part of

the metropolis are not brought to bear upon problems elsewhere. Complementarity,

let alone synergy, are not developed among components of the region.

David Rusk, former Albuquerque mayor, advances an *elasticity-based*

explanation of urban region success (1993). This is not the elasticity of economics

but rather a reference to the ability of a central city government to grow spatially to

encompass the urban area as it expands. Rusk compares pairs of cities similar in most

respects except elasticity and finds (p 47) that:

> *An inelastic area has a central city frozen within its city limits and surrounded by growing suburbs…[C]ity neighborhoods are increasingly catch basins for poor Blacks and Hispanics. With the flight of middle-class families, the city's population has dropped steadily…City government is squeezed between rising service needs and eroding incomes…Rivalry among jurisdictions often inhibits the whole area's ability to respond to economic challenges.*
> *In an elastic area…the central city is able to expand and capture much of suburban growth… [M]inorities are more evenly spread throughout the area…Tapping a broader tax base, an elastic city is better financed…[L]ocal political institutions…tend to be more unified and promote more united and effective responses to economic challenges.*

Most recently, Drier, Mollenkoph and Swanstrom (2001) present evidence to

argue that polycentric arrangements have failed to successfully address problems such

as poverty, poor housing, education and health care. They call for institution of

stronger regional governments, popularly elected for true representation of all

citizens.

1.A.3.5   A Middle Ground

In point of fact, there is a middle ground in this debate, populated by those who advocate *regionalism*—cooperation among local governments to achieve progress in areas affecting entire urban regions. Support for regionalism comes both from monocentrists discouraged by slow progress toward regional government (Katz, 2000) and polycentrists who see certain problems such as urban sprawl as unfortunate negative by-products of the polycentric mechanism (Fischel, 2001).

Chapter 2: Theory

2.1   Introduction

As we saw in the first chapter, newspapers and weekly magazines decry losses to internecine competition among localities and a new *"war between the States"* (Time, 1996; Business Week, 1988). Anthony Downs refers to urban area fragmentation phenomena such as IJC as *beggar thy neighbor policies* (1994, p 20) and Therese McGuire explicitly terms some forms of IJC *prisoners' dilemmas* (1991, p 155). But how exactly can such theorists support the claim of IJC as a prisoners' dilemma?

In their numerical textbook example of IJC, Avinash Dixit and Susan Skeath (1999, pp 274-6) set a prisoners' dilemma in the contest for firms between two states, "Ours" and "Theirs", which face the question of *"bidding for business"* (Anderson & Wassmer, 2000)—of offering or not offering business incentives:

		THEIRS:	
		No Bid	*Bid*
OURS:	*No Bid*	3, 3	1, 4
	Bid	4, 1	2, 2

> *If no incentives [bid] offer is made by either state, the status quo is maintained. Neither state incurs the cost of incentives, but it does not get new firms to move in either… If Ours offers incentives while Theirs offers none, then Ours will encourage firms to move in while Theirs loses firms; Ours gains at the expense of Theirs… The opposite will be true for the situation in which Theirs offers incentives while Ours offers none… If both states offer incentives, firms are likely to switch states to take advantage of incentives packages, but the final number of firms in each state will remain the same as in the absence of*

> *incentives. Each state has incurred a high cost to obtain an
> outcome equivalent to the original situation.*

The example is clear, exciting and useful as a textbook illustration of the wide

applicability of game theory. Its language emphasizes that the true social problem is

not a single act of piracy but rather the ongoing process of IJC, as we noted in

Chapter One. However, at a deeper level, simply assigning numbers to a social

phenomenon is not sufficient proof of the validity of its characterization as a

prisoners' dilemma or any other game. In the sections below, we will confirm that

many situations indeed are prisoners' dilemmas. In particular, in a scenario in which

states, urban regions or cities raid each others' industries—essentially the IJC

scenario underlying the Dixit and Skeath exposition—the outcome is always a

prisoners' dilemma. However, raiding is not the only conceivable IJC scenario.

Local jurisdictions may compete for new firms which have already decided for

economic reasons to come into the urban area, or they may compete for firms which

are considering other metropolitan areas and for whom incentives may be influential

or decisive in the inter-metropolitan location selection. Finally, each of these

scenarios can exist with spillover externalities or without such externalities.

Externalities typically are found in intra-urban area IJC (Level #2 IJC) as opposed to

Level #1 inter-urban area IJC.

To provide a capsule preview of the results of the analysis in this chapter,

there are three possible IJC scenarios, each with its own gaming result:

1. Raiding each others' industries—offering incentive bids to induce firms to

    relocate from their present jurisdictions to one's own jurisdiction—always

    produces a prisoners' dilemma.

2. The opposite scenario, that of new firms willing to come to an urban region even if no incentives are offered, engenders a prisoners' dilemma if bids are lower than a ceiling (the ceiling being a percentage of the direct benefits to a city or town of firm location within its environs) and an assurance game if bids exceed that ceiling.

3. Finally, if the scenario involves new firms which can locate outside the region (and thus are in a position to demand IJC bids), the game becomes not a prisoners' dilemma but rather one of complete defection. The payoff for cooperation is never sufficient to motivate jurisdictions to forego bidding. However, easing assumptions a bit can yield a prisoners' dilemma even in this scenario.

Unfortunately, there is no overarching meta-scenario in which game type is a function of underlying factors such as, say, the ratio of direct benefits to externalities. All three scenarios are at work simultaneously in the typical metropolitan area. One town successfully pirates a firm from a neighboring city, promising property tax rebates. A nationwide chain decides it must establish a new distribution center somewhere in the urban area even if no incentives are available (although if local governments compete for the firm, the incentives offered would be a welcome part of the final location selection). And another nationally ranked enterprise is seeking a location for a new research campus. It will consider locating within this urban area… if incentives are offered.

The good news for analyzing IJC, then, is that despite some variety, collective action games pervade this social phenomenon. Most of them are prisoners'

dilemmas, so the claims of prisoners' dilemmas—hitherto largely metaphorical—are

valid. Further, the addition of externalities to the model does not change outcomes.

2.2   Basic Game Setup and Assumptions

The standard non-numerical symbology for a game such as the prisoners' dilemma is:

		THEIRS:	
		No Bid (cooperate)	*Bid (defect)*
OURS:	*No Bid (cooperate)*	R, R	S, T
	Bid (defect)	T, S	P, P

…where 'R' is the Reward for mutual cooperation, 'T' represents the Temptation to

defect rather than cooperate, 'S' is the Sucker's payoff for innocently cooperating

while the other player defects, and 'P' is the Penalty (or Punishment) for mutual

defection. Each IJC scenario has different specific values for T, R, P, and S—for

example, Dixit and Skeath characterize R in the raids scenario as maintenance of the

status quo. No matter what the application, the basic dilemma is that players are

motivated toward mutual defection—but the greater social reward is in mutual

cooperation. Also no matter what the scenario, the proof of a prisoners' dilemma

remains the same. The single equilibrium in the game must be suboptimal while the

social optimum in 'R, R' is not an equilibrium. In the prisoners' dilemma, that means

that T>R and P>S (overall, that T > R > P > S), and that 2R>T+S. (The latter

condition has been shown to be overly restrictive: an *asymmetrically optimal*

prisoners' dilemma can exist in which T+S>2R and players' greatest benefit comes

from alternating between T,S and S,T cells by agreeing upon a varied pattern of

cooperation and defection. See Frohlich and Oppenheimer, 1996**;** which deals mainly

with n-person games).

Other games have been used to characterize the collective action problem.

The assurance game is of particular relevance as it plays a role in one of the IJC

scenarios. As in the prisoners' dilemma, assurance game players can be motivated to

mutual defection even though mutual cooperation carries a higher social reward. (In

the n-player version, to be illustrated shortly, players are induced to defect unless a

large enough number cooperate—a *'tipping point'* phenomenon.) Unlike the case in

the prisoners' dilemma, however, mutual cooperation in the assurance game

constitutes a second equilibrium. If players can get to mutual cooperation, there is no

inducement to defect. Technically, this means that R>T>P>S—the 'R' and 'T' have

changed positions. To provide a comparison with Dixit and Skeath's numerical

example, here is the standard numerical matrix of an assurance game:

		THEIRS:	
		No Bid	**Bid**
OURS:	**No Bid**	4, 4	1, 3
	Bid	3, 1	2, 2

…and again for comparison, Dixit and Skeath's IJC prisoners' dilemma:

		THEIRS:	
		No Bid	**Bid**
OURS:	**No Bid**	3, 3	1, 4
	Bid	4, 1	2, 2

The n-player versions of these games are:

PRISONER'S DILEMMA

Payoff

Defect:
Bid

iii

iv

Cooperate:
No Bid

i

ii

n = cooperators

N (number
of players)

ASSURANCE GAME

Payoff

Cooperate:
No Bid

iv

iii

Defect:
Bid

i

ii

n = cooperators

N
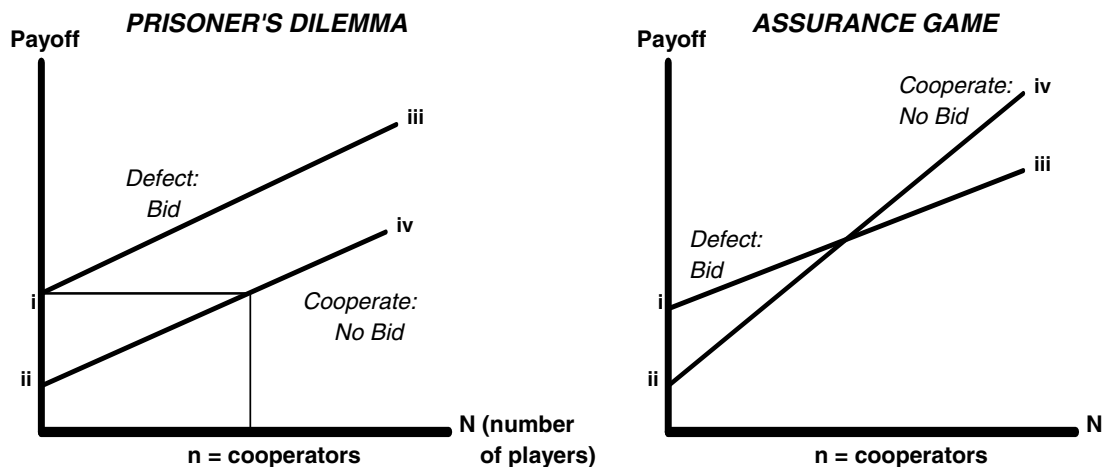
A time-honored example of an assurance game is a wildcat strike in a company town. In the early stages of the walkout, with only a few strikers, the costs of joining the protest outweigh the benefits. Unless more workers can be persuaded to walk, strikers will be fired and the company will easily find new workers locally. If, however, enough join the strike, the company knows it cannot find replacements for them all and must accede to worker demands. Now the payoff for cooperating in the strike is greater than the costs—a worker can become part of those who brought management to its knees and avoid being seen as a spineless pariah who remained subservient to supervisors. A more modern example of the assurance game is the twentieth century civil rights movement as elucidated by Dennis Chong (1991).

As can be seen in the Dixit and Skeath example, IJC game analysis typically measures benefits and costs using welfare/policy criteria, such as jobs and income. The present chapter will proceed in this vein. It should be noted that the model might also be specified in political space, looking, for example, at rewards and punishments for political actors based upon which groups are helped or hurt and what their relative power is. Indeed, Section 2.7 will examine a related objection to the approach in this

chapter—the contention that pressure groups or entrenched bureaucracies are the true underlying determinants of local government behavior.

The models in this chapter use the following abbreviations:

- **B:** …the *Bid* for firms. This is the financial cost of incentives to lure firms. It is paid only to firms which accept IJC offers—losing jurisdictions do not pay B.

- **D:** …the *Direct benefits* of a firm locating in one's jurisdiction. These include jobs, income, shopping opportunities for consumers and new sources of supply for existing businesses.

- **E:** …the spillover *Externality* to a non-gaining jurisdiction from a firm locating in another locality.   These are the job, income, shopping and supply opportunities open to residents of the non-gaining jurisdiction because of a firm newly located in a nearby city or town. Note that these are spillover externalities in the regional development sense, not traditional multiplier effects.

The first of several assumptions comes from Dixit and Skeath: *"…assume that the states have done enough prior investigation to be able to construct an incentive package whose costs are offset by the benefits of the arrival of new firms."* Thus:

- **D > B**   and

- **D – B > 0** (net benefits are positive)   *Rationality Assumption*

We will encounter an important objection to this characterization later in this chapter.

The second assumption comes from regional development theory. The maximum impact of new development is felt in the immediate vicinity of the new plant or firm, with effects diminishing with distance The gaining jurisdiction gets more in 'D' than nearby jurisdictions receive in 'E'. Thus:

- **D > E** *Nature of Externalities*

The concept of such distance decay is common in regional economic analysis and not to be confused with macroeconomic multiplier effects. In the postwar era, the non-spatial growth center theories of Francois Perroux were applied to geography by development economists such as Albert Hirshman (1958) and J.R. Boudeville (1966). Briefly, the product was a theory (and a policy prescription) of regional growth emanating from a central pole. The theory has been successfully tested and applied in institutions and industries such as high-tech research parks (Luger & Goldstein, 1991; Debackere, Clarysse & Van Dierdonck, 1995; Keeble et al, 1999), medical centers (van der Berg & van Klink, 1996; Lawson & Lorenz, 1999), and research universities (Luger & Goldstein, 1991; Anselin, Acs & Varga, 1997; Meyer & Hecht, 1996).

Finally, for IJC to exist, net benefits must be greater than externalities. Were the case reversed, jurisdictions would not compete for net benefits. They would simply wait for other cities or towns to attract such firms. In such cases, the collective action problem in regional economic development is not intra-urban area IJC but the more traditional problem of raising any funds necessary to induce the firm into the metropolitan region. Remember that by our original definition of IJC (page 1), bids ('B') include not only financial but zoning and environmental concessions, so the term 'net benefits' is inclusive of all effects, positive and negative. Thus,

- **D – B > E** *IJC Game Parameter*

2.3   ALWAYS a PRISONERS' DILEMMA: Raids Scenario

Raiding—using incentives to lure firms from their current jurisdictions—is probably the most dramatic and politically controversial scenario in the IJC realm. Examples include the Portland, Maine area television studio and instances which helped prompt the anti-piracy provision in the code of ethics for the Metro Denver Network. Certainly the raids scenario was the basis for the Dixit and Skeath IJC model. We will first analyze raids without externalities, as we would expect to be the case among different urban areas or perhaps distant cities within a large conurbation.

2.3(A) Raids Scenario without Externalities.   We can begin defining T, R, P and S by recasting Dixit and Skeath's numbers. The mutual cooperation 'R,R' cell ("no bid/no bid") follows the standard '3,3' in their text. However, the authors clearly describe the product of mutual cooperation as the *status quo,* which is more precisely a '0,0' outcome. Thus, 'R' in this model shall be 0.

The temptation to defect, 'T', is the net benefit of wresting firms away from a cooperative second player. A jurisdiction bidding while the other jurisdiction refrains from bidding gets the direct benefits of pirated firms for the price of the bids. 'T' therefore is 'D – B' in this scenario.

And what of the cooperator jurisdiction? In the process of pursuing its no-bid policy, the community loses many of its firms.   The sucker's payoff 'S' can be conveniently symbolized with '– D'.

Finally, the penalty 'P' for mutual defection—both localities bidding—is that each gains and loses an equal number of firms. Equivalently, each has an equal

chance to gain or lose a firm as individual firms consider relocating. Both gaining

and losing firms have been symbolized above; the equal chance of either is '½ (D –

B) + ½ (– D)'. To summarize all the foregoing:

- **T:**   D – B

- **R:**   0

- **P:**   ½ (D – B) + ½ (-D) = – ½ B

- **S:**   – D

…and the game matrix is:

	No Bid	*Bid*
No Bid	0, 0	-D, D-B
Bid	D-B, -D	1/2(D-B)+1/2(-D) 1/2(D-B)+1/2(-D)

Algebraic proof of the prisoners' dilemma in this scenario is in the Appendix to this

chapter, Section 2.3(A)*. Intuitively, a jurisdiction finds bidding to always be in its

best interest. If the other jurisdiction does not bid, it is better to bid and receive the

net benefits of 'T' as opposed to the status quo '0' of 'R'. If the other jurisdiction

does bid, bidding oneself attains roughly equal amounts of gains and losses of

businesses, whereas not bidding means only the loss of one's firms. (Another way to

see this uses the simplified definition of P as – ½ B. Thus, if the other jurisdiction

bids, bidding oneself entails the loss of half the cost of the bids, while refraining from

IJC means the loss of whole firms, a much greater cost because D > B by the

rationality assumption.) Both jurisdictions face the same alternatives and pressures

from the situation, so the equilibrium outcome is 'bid/bid', or the 'P,P' cell.

This equilibrium is inferior to the status quo of mutual cooperation in the 'R,R' cell: All the gains and losses of firms even out for the jurisdictions. They only constitute churn, resulting in basically the same number of firms per jurisdiction as in the mutual cooperation cell. However, mutual defection also entails the reality of incentives bids costs, a major loss to the public fisc in the IJC process, a point reinforced by the simplified definition of $P = -\frac{1}{2} B$. By similar reasoning, the social value of mutual cooperation—2R—is greater than that of the 'bid/no bid' cell. Status quo is better than the loss of bid costs.

2.3(B) Raids Scenario With Externalities. The symbology of this variant of the Raids Scenario follows from that above, adding externalities to all outcomes except of course the '0,0' status quo. Thus, the sucker's payoff 'S' becomes the loss of firms but gaining of their externalities, now that the firms are in the competing jurisdiction. Note that because the direct benefits of firms—'D'—are greater than their externalities, the sucker's payoff is negative. On the other hand, the competitor winning the temptation outcome 'T' still obtains net benefits of new firms but loses the lesser quantity of their externalities—the gaining jurisdiction now has direct benefits 'D' instead of externalities 'E' . Because net benefits are greater than externalities by the parameters of the IJC game, 'T' is positive. The penalty 'P' includes these shifts in externalities. This makes the algebra at 2.3(B)* more cumbersome but is necessary to avoid doublecounting.

The new symbology and 2-player game matrix is:

- **T:** $(D - B) - E$

- **R:** 0

- **P:** $\frac{1}{2}\{(D - B) - E\} + \frac{1}{2}(-D + E)$

- **S:** $(-D + E)$

	No Bid	*Bid*
No Bid	0, 0	(-D+E), (D-B)-E
Bid	(D-B)-E, (-D+E)	1/2{(D-B)-E}+1/2(-D+E), 1/2{(D-B)-E}+1/2(-D+E)

The intuitive explanation of the prisoners' dilemma is also similar to that of the 'raids-without-externalities' variant of the Raids Scenario. It is better to bid than not. If the other jurisdiction does not bid, then net benefits $(D - B)$ minus the lost externalities of firms induced to come to the jurisdiction are greater than zero, per the IJC game parameter that net benefits are always greater than externalities. If the other jurisdiction does bid, not bidding entails the negative sucker's payoff involving loss of firms, while bidding in the face of defection carries the positive 'net-benefits-minus-externalities' outcome half the time. (As in 2.3(A) above, the simplified definition of $P = -\frac{1}{2}B$ can be employed here. If the other jurisdiction bids and ours does not, then the loss of half the bids amount is better than the loss of complete industries, even with our jurisdiction receiving externalities from the new location.) However, mutual cooperation remains greater than mutual defection because, again, after all the churn of net benefits of gained firms and losses of departed firms—including the churn of externalities—the only difference between mutual cooperation and mutual defection is the depletion of bids from local governmental coffers, as can

be seen in the simplified definition of P as "– ½ B". Finally, mutual cooperation

('2R') remains greater than either of the 'bid/no bid' cells for a similar reason: The

business movements in the latter cell balance each other out, with the loss of IJC

funding as the real difference between the mutual cooperation and cooperation mixed

with defection.

2.3(C) Generalization to n-Players

> **Game Setup:** In each round, jurisdictions choose either to
> cooperate by not bidding for firms in other jurisdictions or to
> defect by offering IJC bids. Additionally in each round, each
> jurisdiction has a firm which is open to being induced to move if
> incentives are offered by another jurisdiction.

The existence of an n-player prisoners' dilemma can best be demonstrated by

showing that a matrix of the options available to an undecided player essentially

corresponds to the prisoners' dilemma graph previously discussed. Here, then, is the

prisoners' dilemma graph again:
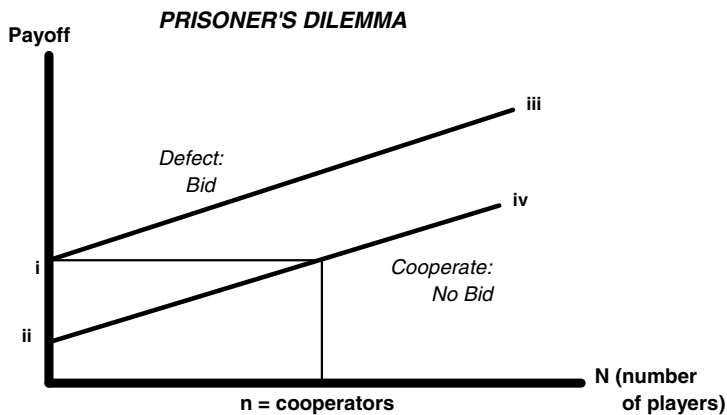
And here is the game matrix:

	number of other jurisdictions which bid (or defect, "d")				
	N- 1	**...**	**2**	**1**	**0**
Bid:	(1 - [(N-1)/N])(D - B) **+** [(N-1)/N](-D) {Cell i}	...	(1 - (d/N))(D - B) **+** (d/N)(-D)	(1 - (d/N))(D - B) **+** (d/N)(-D)	(D - B) {Cell iii}
No Bid:	[(N-1)/N](-D) {Cell ii}	...	(d/N)(-D)	(d/N)(-D)	0 {Cell iv}

The matrix views the gaming situation from the perspective of the last undecided player. This player—in this case, a jurisdiction—has the option of bidding or not bidding. Payoffs are a function of that choice plus the number of other jurisdictions which have decided to defect, as shown across the top of the matrix. Each cell shows the reward for a particular choice. The endpoints of the functions on the graph are noted as Cell i, cell ii, and so forth in the matrix.

Columns for $d = 1$ and $d = 2$ show that the chance of being raided is the number of defectors divided by the number of jurisdictions, or 'd/N'. The undecided jurisdiction's chance of successfully raiding another jurisdiction is 1 minus the probability that another jurisdiction successfully raids the target firm. In order to underscore the relative magnitudes of these fractions in the "N – 1" column, we substitute in "N – 1" for 'd'. The use of 'd/N' accords with basic probability theory (the probability of mutually exclusive events is the sum of the probabilities—c.f. Wonnacott and Wonnacott, pp 81-82). Mutual exclusivity should not be a controversial assertion: Many jurisdictions may attempt to raid a firm in another city, but only one jurisdiction can successfully do so. While this steers the model away

from the mechanics of bidding wars among multiple jurisdictions, it keeps the probability mathematics tractable and clear.

Using 'd/N' permits a separate realistic element to enter the model: A jurisdiction will probably believe that inertia will keep firms within its own boundaries and hence raid another jurisdiction, but it may in some rounds prefer to defensively bid on one of its own firms instead. Mathematically, the alternative of using 'd/N – 1' to preclude defectors from "raiding themselves" would cause an unacceptably unrealistic zero coefficient for 'D – B' in the 'N – 1' column. The appendix to this chapter further details the mathematics and logic of the matrix.

An inspection of the graph reveals the similarities to the two-player game above. If every other player has determined a course of cooperation—not bidding, depicted in the "0" column—and the undecided jurisdiction also opts to cooperate, then the outcome is the status quo in *Cell iv*. If on the other hand all other jurisdictions cooperate and the (previously) undecided jurisdiction defects—"bids"— then that jurisdiction can raid with impunity, gaining a firm at the cost of the incentives bid in *Cell iii*. And what if every other community defects (the "N – 1" column)? If the undecided jurisdiction then cooperates, it has the maximum chance of losing a firm and gaining nothing, as depicted in *Cell ii*. If, however, it also defects, then it has a chance of offsetting this highly probable loss with the gain of a firm *(Cell i)*. The matrix thus explicitly and implicitly covers all the possible outcomes for a jurisdiction: explicitly, gaining or losing a firm; implicitly, both gaining and losing or neither gaining nor losing a firm.

We now need to demonstrate that the numbered cells in the matrix describe the same phenomenon as do the functions on the graph. *Cell iii* is certainly of greater value than *Cell iv:* Defecting when all others cooperate produces a new firm for the defector whereas also cooperating would yield only the status quo. *Cell i* is also above *Cell ii* because it adds a the chance—however small—of gaining a firm to the near-certainty of losing a firm. And *Cell iv* is greater than *Cell i* because the negative component of *Cell i* —the strong possibility of losing a firm— clearly outweighs the chance of gaining a firm at the cost of the IJC bid. For example, with N = 5, the absolute value of 4/5(– D) exceeds that of 1/5(D – B). Thus, in summary, the matrix indeed reflects the graph. Formal proofs are in the appendix.

The case of externalities modifies the matrix as shown:

number of other jurisdictions which bid (or defect, "d"):

	N - 1	...	1	0
Bid:	[1 - {(N-1)/N}][(D - B) - E] **+** [(N-1)/N](-D + E) **{Cell i}**	...	(1 - (d/N))[(D - B) - E] **+** (d/N)(-D + E) **{Cell ii}**	(D - B) - E **{Cell iii}**
No Bid:	[(N-1)/N](-D + E) **{Cell ii}**	...	(d/N)(-D + E) **{Cell iv}**	0 **{Cell iv}**

Payoffs in each cell remain essentially the same. However, a jurisdiction which gains the direct benefits "D" of a new firm loses the externality benefits which had accrued when the firm was in a nearby jurisdiction. Similarly, a raided jurisdiction loses direct benefits of a lost firm but gains the externality benefits.

The comparison of graph endpoints and numbered matrix cells also proceeds in similar fashion. *Cells i* and *ii* share the near-certainty of the loss of a firm (albeit

ameliorated by the lesser amount of externality benefits), but *Cell i* entails the small chance of gaining a firm as well, making it of greater value than *Cell ii*. *Cell iii* is, by the game parameter, is greater than zero. Thus, the undecided jurisdiction receives a higher payoff from bidding (defecting) than refraining from bidding and receiving only the status quo in *Cell iv*. Finally, *Cell iv* is of greater magnitude than *Cell i* because in *Cell i*, the positive component is less than the negative component—both share the difference between direct benefits "D" and externalities "E", but the positive component also subtracts the bid "B". Again, formal proofs are in the appendix.

In overall summary then, the Raids Scenario always results in a prisoners' dilemma, whether it entails externalities or not, and whether two- or n-player. We will next use similar methods to explore other scenarios… and find a rich game-theoretic world involving not only prisoners' dilemmas but other game types as well.

2.4 PRISONERS' DILEMMA & ASSURANCE GAMES: New Firms—which will move in without IJC bids—Scenario

The Raids Scenario dealt with a closed system in which one jurisdiction's gain of a firm was always at the expense of another jurisdiction. Of course, not every IJC bid is made to raid a jurisdiction within one's own metropolitan area. Sometimes a firm may decide that only a single, particular urban region has the necessary mix of labor force, resources and market proximity for the needs of the enterprise. For example, in a later chapter, we will later touch on the case of motion picture studios locating in the Hollywood area. Finally, note that there is a 'local capital' argument for some new facilities siting within a given urban area: A television station's new studio or transmitter almost necessarily needs to locate within the urban area, as does

a new newspaper print plant or a taxicab office or maintenance shop. Thus, the New-Firms/will-move-without-bids scenario is quite realistic.

A major difference, then, between the Raids and the New-Firms/will-move-without-bids scenarios is that in the latter, jurisdictions realize that even without bidding, they have a possibility of obtaining new firms. Thus, bid size becomes important. If bids seem too large, why not simply refrain from bidding and take a chance on the firm picking your jurisdiction?

As we will see below, the prisoners' dilemma model fits the circumstance in which bids do not rise above a certain percentage of direct benefits and—in the variant of the scenario—externalities. If competitive pressure raises bid levels above this, the situation generates an assurance game.

2.4(A) New Firms—which will move in without IJC bids—Scenario Without Externalities.   There are three major changes to the definitions presented for the Raids Scenario. First, instead of the reward 'R' for mutual cooperation being the status quo, there is now an even possibility of getting firms. Even if neither jurisdiction offers incentives, this class of firms comes to the urban region—and some jurisdiction will get the industrial location. Second, instead of losing firms, the sucker's payoff 'S' is now simply the status quo, 0. These firms are generated elsewhere, so no local jurisdiction is deprived of an existing business entity. Finally, reflecting the second point, the penalty 'P' for mutual defection is modified to drop the even chance of losing a firm. It is now simply the even chance of getting the net benefits of having firms respond to one's incentives bids. The algebraic definitions are thus:

- **T:**   D – B

- **R:**   ½ D

- **P:**   ½ (D – B)

- **S:**   0

…and the game matrix is:

	No Bid	*Bid*
No Bid	1/2D, 1/2D	0, D-B
Bid	D-B, 0	1/2(D-B), 1/2(D-B)

Because the bid conditions vary for prisoners' dilemma and assurance, we will analyze both separately here and in the corresponding chapter appendix sections 2.4(A)1* and 2.4(A)2*.

2.4(A)1: Prisoners' Dilemma

The prisoners' dilemma still holds in this scenario… if bids are held to less than ½ of direct benefits. If the other jurisdiction does not bid, then it is better to bid—as long as the bid does not lower net benefits below ½ D, or half of direct benefits. This of course implies that bids must be less than ½ D. If bids are higher than this level, then it would make sense not to bid in the face of the other jurisdiction's restraint.

If on the other hand the other jurisdiction does defect by bidding, then clearly half of net benefits is greater than the status quo, 0, and the greater payoff is in bidding. Further, the social returns to mutual cooperation exceed society's returns in the 'Bid/No Bid' cell: the sum of mutual cooperation is direct returns, while the sum of defection/cooperation is net returns. Similarly, the reward 'R' for being part of

mutual cooperation is greater than the penalty 'P' for being part of mutual defection—half of direct benefits is greater than half of net benefits.

2.4(A)2: Assurance Game

Assurance games contain not just the one 'defect/defect' equilibrium of the prisoners' dilemma but also a second equilibrium in the 'cooperate/cooperate' cell. As can be seen, if some factor such as competitive pressures in a financially well-off set of jurisdictions raise bids to the point that net benefits (D – B) are less than half of direct benefits 'D', then the best response to the other jurisdiction not bidding is to not bid. This gives rise to 'no bid/no bid' –'cooperate/cooperate'—as an equilibrium. On the other hand, if the other jurisdiction does bid, then the greater payoff is to also bid—half of net benefits is better than nothing. Thus, 'defect/defect' remains a valid equilibrium.

2.4(B): New Firms—which will move in without IJC bids—Scenario With Externalities.   Modeling externalities modifies most game payoffs. The temptation to defect if the other cooperates, 'T', remains the same but the sucker's payoff 'S' changes from the status quo to receipt of externalities from new firms moving in the nearby community. The penalty for mutual defection, 'P', reflects this, becoming an even chance of receiving net benefits by attracting the firm and, on the other hand, receiving only externalities. In similar fashion, the reward for mutual cooperation, 'R', now contains an even chance of receiving externalities or direct benefits. Algebraic definitions following from this discussion are:

- **T:**   D – B

- **R:**   ½ D + ½ E

- **P:**   ½ (D – B) + ½ E

- **S:**   E

The game matrix is:

	No Bid	*Bid*
No Bid	1/2D + 1/2E, 1/2D + 1/2E	E, D-B
Bid	D-B, E	1/2(D-B) + 1/2 E, 1/2(D-B) + 1/2E

Mathematical analysis is reserved for Appendix sections 2.4(B)1* and 2.4(B)2*, while intuitive explanations are below:

2.4(B)1: Prisoners' Dilemma

The reasoning here is similar to that of 2.4(A)1, the prisoners' dilemma in this scenario without externalities. In the earlier case, the bid ceiling was 'B < ½ D'. With externalities modeled, the ceiling becomes 'B < ½ (D – E). First, we can examine the best payoff if the other jurisdiction does not bid. If the bid is less than half the difference between direct benefits and externalities, then net benefits will be greater than half a chance at direct benefits and half a chance at externalities. Thus, the best outcome attaches to bidding. If the other jurisdiction does bid, then half a chance of receiving net benefits combined with half a chance of winding up with only externalities is clearly better than a 100% chance of externalities, because by game parameters net benefits are greater than externalities.

To complete the intuitive proof of the prisoners' dilemma, the sum in the mutual cooperation cell, direct benefits plus externalities, clearly exceeds that of either 'bid/no bid' cell, which is net benefits plus externalities (direct being greater than net). And the reward for mutual cooperation 'R' similarly exceeds the penalty for mutual defection 'P': half a chance at direct benefits plus half a chance at externalities is greater than half a chance at net benefits plus half a chance at externalities.

2.4(B)2: Assurance Game

If bids are above the prisoners' dilemma ceiling, $B > \frac{1}{2}(D - E)$, then net benefits are of less value than a 50% opportunity to obtain direct benefits combined with a 50% chance of receiving externalities. The bid amount subtracted from direct benefits simply lowers net benefits too drastically. The higher payoff in the face of a jurisdiction which cooperates and offers no bid is to also refrain from bidding. Mutual cooperation thus becomes an equilibrium. The other, mutual defection equilibrium described in section 2.4(B)1 above remains, for the same reasons as related in that section.

2.4(C) Generalization to n-Players.

Game Setup: In each round, a new firm announces its intention to locate in the urban area, even if no incentives are offered. If incentives are offered by any jurisdictions, the firm will locate in one of the jurisdictions making IJC bids. Thus, a jurisdiction either gets a firm or does not in the basic, non-externality scenario, which will be examined first.

Here again are the prisoners' dilemma and Assurance game graphs as well as the game matrix:

PRISONER'S DILEMMA

Payoff

iii

Defect:
Bid

iv

i

Cooperate:
No Bid

ii

N (number of players)

n = cooperators

ASSURANCE GAME

Payoff

Cooperate: iv
No Bid

iii

Defect:
Bid

i

ii

N

n = cooperators

number of other jurisdictions which bid (defect, "d"):

	N- 1	...	2	1	0
Bid:	$(1/N)(D-B)$ **+** $[1 - (1/N)]0$ {Cell i}	...	$(1/d+1)(D-B)$ **+** $[1 - (1/d+1)]0$	$(1/d+1)(D-B)$ **+** $[1 - (1/d+1)]0$	$(D-B)$ {Cell iii}
No Bid:	0 {Cell ii}	...	0	0	$(1/N)D$ **+** $[1 - (1/N)]0$ {Cell iv}

A quick tour of the matrix: Beginning in *Cell iii,* if no other jurisdiction bids and the final, undecided jurisdiction opts to bid, then it gains the new firm with complete certainty. On the other hand, if the final jurisdiction joins all the others in not bidding *(Cell iv)*, then each jurisdiction has an equal chance (represented by '1/N') of being selected by the new firm. Note that if the final jurisdiction bids, it receives the direct

benefits 'D' of the firm but pays the amount of the bid, 'B', while if it does not bid

and gains the firm, it receives full direct benefits. Moving to the left-hand side, if all

other jurisdictions have defected and the undecided jurisdiction determines it will also

defect *(Cell i),* then it has an equal chance (again, '1/N') of receiving net benefits 'D

– B'. Should it decide not to bid, then it settles for the status quo, 0, because the new

firm will choose one of the bidding jurisdictions. Between the left- and right-most

cells, non-bidders ('cooperators') have no chance of receiving the new firm. On the

other hand, defectors have a diminishing probability of gaining the firm and net

benefits from right to left. Specifically, the probability is '1/(d+1)', where 'd' is the

number of other jurisdictions which bid. Thus, in the case in which the final

jurisdiction and one other town bid, the probability the final jurisdiction will get the

firm is '1/(1+1)' or ½. '1/d+1' clearly steadily becomes smaller to the right. *Cell i*

contains a special case: at 'N – 1', '1/d+1' equals '1/N', as demonstrated in the

appendix. This notation makes for an easier comparison with *Cell iv.*

 We can compare critical cells to see that the matrix describes the prisoners'

dilemma and assurance game graphs above. Beginning with the leftmost cells (i and

ii), bidding carries a higher payoff than not bidding—some chance of net benefits is

greater than a certainty of receiving nothing. This argument continues until the

rightmost cells (iii and iv). Here, if 'B' is not too large, net benefits are of greater

value than a small chance of receiving full direct benefits. The defection line remains

above the cooperation function and the game is the *prisoners' dilemma.* On the other

hand, if bids are higher than this ceiling, then net benefits are less than a chance of

direct benefits. The cooperation line has crossed above defection in a step function

(for more on this and alternative configurations, see the appendix) and the game is the *assurance game.* The latter may occur in a well-heeled community with large public coffers capable of supporting large bids.

The generalization to n-players with externalities is similar. The new game matrix is directly below. Instead of receiving nothing, non-gaining jurisdictions now receive externality 'E'. In that all probabilities in a cell sum to 1, some chance of net benefits plus the remaining chance of receiving externalities is greater than the certainty of externalities alone. Thus, the argument for the situation without externalities applies to that with externalities.

number of other jurisdictions which bid (defect, "d"):

	N- 1	...	2	1	0
Bid:	$(1/N)(D\text{-}B)$ **+** $[1 - (1/N)]E$ {Cell i}	...	$(1/d\text{+}1)(D\text{-}B)$ **+** $[1 - (1/d\text{+}1)]E$	$(1/d\text{+}1)(D\text{-}B)$ **+** $[1 - (1/d\text{+}1)]E$	$(D\text{-}B)$ {Cell iii}
No Bid:	E {Cell ii}	...	E	E	$(1/N)D$ **+** $[1 - (1/N)]E$ {Cell iv}

2.5 (Almost always) a DEFECTION GAME:
New Firms—with out-of-region opportunities—Scenario

Between the polar scenarios of raiding and new firms which would move in without IJC bids stands a third scenario, new firms which have location options outside of the urban region. The standard economic draws for locating a plant, distribution center or office complex are important to these firms, but they find more than one urban region which provides these assets in sufficient abundance. These businesses can demand incentives bids and can be expected to move in only if

incentives are provided. A well-tailored incentives package can prove decisive in management's location determination. The example of the Boeing headquarters move illustrates this scenario. This scenario is important both because it relates the urban area to the overall context of a nation (and world) of urban areas, and because when we modify assumptions a bit, it reflects the planner's reality that incentives are not the only factor determining industrial location. Other, more traditionally economic factors influence entrepreneurial decisionmaking, and even the biggest incentive package may prove less important than general amenities, schools, or proximity to resources.

2.5(A) New Firms— with out-of-region opportunities —Scenario Without Externalities.   To again begin with definitions: If both jurisdictions decide to cooperate on reducing IJC and thus offer no bids, the outcome is the status quo, 0. Firms in this scenario will go elsewhere. The sucker's payoff for not bidding when the other jurisdiction offers incentives is also 0, while the temptation payoff is the net benefit of offering incentives and getting firms. Finally, the penalty for mutual defection is an even chance of getting firms via bids and thus receiving net benefits. The algebraic definitions are:

- **T:** $D - B$
- **R:**   0
- **P:** $\frac{1}{2}(D - B)$
- **S:**   0

The game matrix is:

	No Bid	Bid
No Bid	0, 0	0, D-B
Bid	D-B, 0	1/2(D-B), 1/2(D-B)

A comparison of options shows that these specifications lead to something resembling but different from the prisoners' dilemma**.** If one jurisdiction does not bid, then bidding gets the other jurisdiction net benefits, which are greater than the status quo outcome of following suit and also not bidding. If the first jurisdiction bids, then the second again finds bidding to achieve the higher outcome: Better to get net benefits half the time than play sucker to the other's garnering of firms. Mutual cooperation is of less value to society than the value of one jurisdiction cooperating and the other defecting, and yet this 'cooperate/defect' cell value is only equal to that of mutual defection. Jurisdictions are indifferent between on the one hand taking turns bidding and not bidding, and on the other hand, mutual defection. Thus, an alternating 'bid/no bid' cooperative outcome is not in sight—an asymmetrically optimal prisoners' dilemma does not fit this scenario. It remains a depiction of complete defection—a "defection game" instead of a prisoners' dilemma.. (We will modify assumptions later, briefly, in section 2.5(D) to speculate about other outcomes.) Algebraic analysis is at appendix section 2.5(A)*.

2.5(B) New Firms— with out-of-region opportunities—Scenario With Externalities. Modeling externalities in this scenario leads to the now-familiar result of the sucker's payoff 'S' changing from 0 to E, and the penalty 'P' for mutual defection picking up an additional term, ½ E. If both jurisdictions refrain from bidding, then the outcome remains 0—firms simply stay away. The algebraic definitions become:

65

- **T:**   (D – B)

- **R:**   0

- **P:**   ½ (D – B) + ½ E

- **S:**   E

…and the game matrix is:

	No Bid	*Bid*
No Bid	0, 0	E, D-B
Bid	D-B, E	1/2(D-B) + 1/2E, 1/2(D-B) + 1/2E

Algebraic proof of defection is at appendix section 2.5(B)*. More intuitively, once

again, if one jurisdiction does not bid, then the other jurisdiction's better outcome is

to bid and receive net benefits rather than refrain from bidding and retain the status

quo, 0. If the one jurisdiction does bid, then clearly again it is better for the other

jurisdiction to also bid and have half a chance of externalities and half a chance of net

benefits, than to refrain from bidding and receive only externalities. This is because

net benefits are greater than externalities, per the game parameter, so the combined

value of half externalities and half net benefits must be greater than externalities

alone. This cannot be a prisoners' dilemma because the 0 reward for mutual

cooperation is not greater than the penalty 'P' for mutual defection (a 50% chance of

net benefits combined with a 50% chance of externalities), and the social value of the

mutual cooperation cell, 2(0) = 0, is clearly less than the social value of the 'bid/no

bid' cell, net benefits plus externalities. And the regional polis is again given no

inducement to cooperate on alternating the 'bid/no bid' cells: the value of 'bid/no

bid' is still the same as the total value of mutual defection. Once again, this is the defection game.

2.5(C) Generalization to n-Players.

> **Game Setup:** In each round, a new firm announces its interest in several metropolitan regions. However, it will not consider a region without receiving incentives bids. Thus, if in a particular urban area under consideration, no jurisdiction offers a bid, the firm does not come to that region and the payoff to all jurisdictions in the area is the status quo, 0. If any jurisdictions within an urban area do submit bids, the firm will choose one of them in which to locate.

The matrix for the scenario with externalities is:

number of other jurisdictions which bid (defect, "d"):

	N- 1	...	2	1	0
Bid:	$(1/N)(D-B)$ **+** $[1 - (1/N)]E$ {Cell i}	...	$(1/d+1)(D-B)$ **+** $[1 - (1/d+1)]E$	$(1/d+1)(D-B)$ **+** $[1 - (1/d+1)]E$	$(D-B)$ {Cell iii}
No Bid:	E {Cell ii}	...	E	E	0 {Cell iv}

The matrix is the same as in New-Firms/will-move-without-bids/with-externalities, with one critical exception: If no other jurisdiction bids and the undecided jurisdiction also submits no bid, then the new firm does not move into this metropolitan area. All

jurisdictions receive the status quo. Other than this point, the tour of the critical cells is the same as this New-Firms/will-move variant.

The analysis of this matrix follows that of previous n-player prisoners' dilemmas: The payoff for bidding always exceeds the return to not bidding. At the very left hand (Cells i and ii), it is better to bid and have a chance at net benefits as well as externalities than not to bid and receive externalities with certainty, given the IJC game parameter $\{(D - B) > E\}$. This analysis holds as the net benefits component of bidding expands moving rightward. Finally, at the very right, if no other jurisdiction bids, the greater payoff is net benefits from bidding rather than the status quo from entering no bid.

However, there is one critical difference from previous analyses: Cell i is greater than Cell iv (as well as all 'no bid' cells between Cells ii and iv). All terms in Cell i are positive (and net benefits are greater than externalities), so the payoff for defection is always greater than the payoff for cooperation, even if all jurisdictions cooperate. The situation is illustrated below. Just as in the 2-player games, this is a scenario for complete defection. Clearly, from inspection of the matrix, the same holds true for the scenario variant without externalities.

DEFECTION GAME

Payoff

Defect:
Bid

i

iv

Cooperate:
No Bid

iii

ii

N (number of players)

n = cooperators
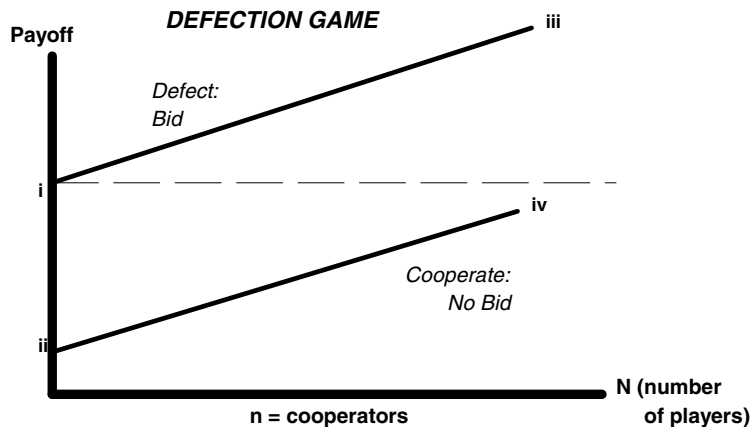
2.5(D) "Almost always" a Defection Game: Varying Assumptions

Produce Different Games… at the margin. Calls for regional cooperation—the

development of vibrant "citistates" in the evolving world economy—persist in the

policy literature and public commentary. The cooperation prescription involves

pooling urban area public resources to revitalize central cities, create effective

transportation networks and first class education systems. The approach banks on

industries responding to these features more often than to high IJC bids which drain

funds from these other development options. Yet, our analysis to this point has

demonstrated that bidding by all jurisdictions is optimal in the face of firms with out-

of-region location opportunities. Can assumptions be reasonably modified to support

this "if you build it, they will come" approach to attracting new industry?

Another look at the matrix for this scenario without externalities gives rise to

some interesting speculation about the nature of the game if underlying scenario

assumptions are varied. Here again is the matrix:

	No Bid	Bid
No Bid	0, 0	0, D-B
Bid	D-B, 0	1/2(D-B), 1/2(D-B)

First, what happens if for reasons of risk aversion, jurisdictions within this two-city

urban area decide that they would prefer the certainty of alternating 'bid/no bid' as

new firms look at the area? Perhaps very few firms actually ever show an interest in

this metropolitan region, so jurisdictions fear that with so few cases, the odds over

any reasonable length of time will not become 50/50. These jurisdictions fear that in

actual fact, the penalty 'P' will not be ½ (D – B)and ½ (D – B) but rather something

like, say, ¼ (D – B) and ¾ (D – B). Thus, each fears being the ¼ (D – B) recipient

and would therefore prefer an agreement to alternate the 'bid/no bid' pattern, turning the game from defection to an *asymmetrically optimal prisoners' dilemma.*

Another interesting possibility is that jurisdictions may actually perceive that despite what corporate location officers may say, some firms will actually locate in the region without incentives. The call for incentives is simply an attempt to extort more public funds, services or tax breaks in a deal which will be made regardless of incentives offers. This perception may or may not be accurate, but in any event, it is the perception which motivates game parameters and player actions. We can model this variant by replacing the status quo outcome in the matrix above with '(x/y)(D)' , where 'x/y < ½' reflects the jurisdictions' perceptions that some firms will locate despite their calls for incentives. (If jurisdictions' perceptions and experiences were that x/y = ½, the situation would be mathematically equivalent to new firms which would move in without incentives offers.) The adjusted matrix is:

	No Bid	Bid
No Bid	(x/y)D, (x/y)D	0, D-B
Bid	D-B, 0	1/2(D-B), 1/2(D-B)

This portrait picks up elements of other scenario variants previously examined. If one jurisdiction decides not to bid, the other should bid only if net benefits 'D – B' are greater than (x/y)D. This necessitates an upper limit on 'B'. If on the other hand the jurisdiction decides to offer incentives, then the other jurisdiction finds its payoff greater if it bids—better half a chance of net benefits than status quo 0. Finally, the sum of outcomes in the mutual cooperation cell can be greater than the total benefits of the 'bid/no bid' cell only if a lower limit is placed upon 'B'.

Thus, when 'B' is contained within certain boundaries of (x/y)D, a prisoners' dilemma is the result. A more formal analysis is in chapter appendix section 1.5(D)*. In overall summary of this section, a prisoners' dilemma (standard or asymmetric) can occur in the out-of-region opportunities scenario, given simple and realistic modifications of basic assumptions.

2.6   Nested Games

To summarize the foregoing, we have seen that different scenarios beget different games. Raiding always generates a prisoners' dilemma, while new firms entering without demanding incentives will generate either a prisoners' dilemma or an assurance game, depending on the size of the bid relative to direct benefits and externalities. New firms with out-of-region opportunities demanding bids to enter produce either a defection game or—if assumptions are modified—some chance of a prisoners' dilemma or an asymmetrically optimal prisoners' dilemma. In short, all IJC scenarios carry with them some game form of the collective action problem.

George Tsebelis (1990) has modeled comparative political phenomena using *nested games*. In this concept, social phenomena are modeled not in one massive, overall model but as one game within another game, both with different pressures on and inducements for players. For example, a game of assurance at local and state level might take place within the context of a prisoners' dilemma at national Congressional level. Tsebelis uses this modeling context to explain interesting counter-intuitive outcomes, such as local British Labour Party nominating committees selecting individuals who have no chance of being elected rather than less doctrinaire

potential winners. (They want to keep candidates and the party in general hewing to Labour ideals.)

IJC games do not appear to generate such intrigue. However, a nested games approach does help substantiate the idea of different games being played simultaneously. For example, Denver area movers and shakers evidently recognized two levels of game—and two different games—in the Denver area, prompting them to promulgate the "no raiding" provision in the Metro Denver Network Code of Ethics, but not to outlaw other types of potential bidding wars. Mutual defection in the regional IJC raiding scenario would drain public coffers without adding to the regional economic base[*], motivating the mutual cooperation agreement, while incentives bidding remains allowed for the desirable purpose of bringing to the region new firms which are considering not only greater Denver but other urban areas as well.

2.7   Objections (And Responses) To This Approach for IJC Modeling

The objective of this chapter was to develop games of collective action to flesh out the frequent claim that urban area governmental fragmentation inter alia causes higher incidence of IJC. Two major criticisms of this portrayal should be considered at this point.

The first objection, already mentioned in Section 2.2, criticizes the rationality assumption. Do incentives really attract more than their value in benefits, or are net benefits often negative because residents and elected officials unquestioningly follow pro-growth dictates—new industry at any price? An extension of this argument

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[*] note, of course, the Chapter One argument that competition also leads to better city services—a position not necessarily completely at odds with asserting other, more deleterious effects.

attacks the game parameter: Perhaps business complexes really most benefit the *"suburbanites who take the relatively high-paying jobs created by office economy growth. (Reed, 1986, p 161)"*

Certainly such phenomena can occur in urban political economy. Rather than confront this by radically adapting the model in this chapter, it is more to the point (and less unwieldy) to make explicit the underlying reliance of the model on the median voter theorem, which argues that democratic outcomes reflect the central tendency of the range of voters as opposed to the preferences of special interest groups or entrenched bureaucracies. Thus, the cost of bids and the direct and externality benefits of business location are appropriate as the key variables. While certainly theoretically contentious, the median voter theorem has been found to have stronger explanatory power than other paradigms in state and local tests. For example, Congleton and Bennett (1995) show that state highway expenditures are better explained by median voter than special interest group models. Ahmed and Greene (2000) find that while institutional and interest group explanations test almost as well, the median voter theorem best explains county expenditures in New York. And of course Fischel (2001) bases his *Homevoter Hypothesis* on the median voter model.

In contrast, Reed and others argue more in political space—support or opposition of voting blocs and key controllers of other political inputs such as campaign funds—than in the tradition of the median voter model. *"Politicians are of course concerned with the size of the pie,"* Todd Swanstrom (1988) summarizes, *"but they are concerned first and foremost with slicing up the pie in order to feed their*

political coalition." Basically, these scholars would be among those arguing against the descriptive validity of the median voter theory. Politicians' decisions in the cases they have studied have been more influenced by concerns over whether core constituency groups are positively or adversely affected, and what effects decisions will have on campaign contributors. The median voter advocate would respond by acknowledging the potential for such outcomes, which certainly are of serious concern because of their impacts on the less affluent, but would point to the many studies—including those cited at local level—which tend to substantiate the median voter model's predictive fidelity (Mueller, 189-93), which is of course not meant to preclude the possibility of important outliers.

Furthermore, injecting the political into only one portion of the game model itself is in essence mixing apples and oranges. If one part of the collective action game model is to be in political space—in this case, the benefits counted in terms of votes and partisan inputs such as campaign funds—then the other parts should also be measured in political costs such as loss of votes and contributions, not in welfare-policy space using loss of revenues because of incentive bids. In other words, all parts of the model must be focused on the objective function of the political decisionmaker. If the median voter model is used to motivate the decision, then benefits and costs can be measured in terms of the welfare of the median voter. If a political space model such as interest groups is to be used, then the decisionmaker's benefits and costs must be measured in terms of electoral support. The different paradigms should not be mixed.

A second criticism of the model in this chapter is that it does not really address urban area fragmentation—greater numbers of jurisdictions rather than a unified (or near-unified) metropolitan government. The models employed speak of 'n' cooperators and 'N' number of players, but the differences in payoffs and motivations are a function of 'n', not 'N'.

This also is an important objection. It can be countered by reiterating the contention in Chapter One that the IJC phenomenon is not a pure public good. Typically, pure public goods include examples such as national defense, air quality and non-toll bridges, highways and parks. Once provided, their benefits cannot denied to those who did not help fund them. (The benefits per person also do not decrease as more individuals use the public good.) A yearly example of such a pure public good is the week-long campaign for public radio membership, which plaintively reminds listeners that many of them are free-riding on others' donations… so won't they all please do their part and become members?

The IJC phenomenon is not a pure public good. Some of its benefits are limited to gaining communities. Even when neighboring jurisdictions receive benefit, it is in the form of lesser externalities. And there is a limit to the absorptive capacity of a local economy—urban areas and component jurisdictions cannot take in an infinite number of new firms because of labor and resource limitations. Thus, the potential benefits from saving on IJC bids are also limited. Faced with a public good with limits, the average benefit per player diminishes as the number of players expands (in our terms, as an urban area becomes more fragmented, has more local governments). Thus, the incentive to cooperate in provision of the public good

decreases as 'N' increases. This is in marked contrast to the value of a pure public

good, which increases with 'N' (e.g., the value of national defense per person does

not diminish—and the total value increases—as the population increases). A

mathematical analysis is presented in chapter appendix section 2.7. The key point is

that in addition to game influences described already in this chapter, the effect of

increased numbers works counter to inducements for cooperative behavior.

2.8   Summary

The theoretical world of IJC games thus does not resolve itself into a single

game type. Various games of collective action are being played simultaneously and

in different proportions in different urban areas. However, the prisoners' dilemma

certainly plays a conspicuous part in all scenarios. The prisoners' dilemma is

inherent in raiding as well as often present when new firms will move into the urban

area without demanding incentives. The assurance game is only indicated when new

firms will enter the metropolis without incentives but bid levels in that urban area are

high. When new firms also possess an out-of-region location alternative and can

demand an incentive to locate within an urban area, the result can be a defection

game, or—by amending assumptions—a prisoners' dilemma, either standard or

asymmetrically optimal.

An interesting phenomenon uncovered in this chapter is the possibility of a

game transition from prisoners' dilemma to an assurance game (Section 2.4). The

game transition takes place if bid costs, 'B', rise to be more than half of direct

benefits, or "B > ½ D". Chapter Six, the case study, will present an argument that the

recent economic development history of the Hampton Roads, Virginia urban area is an example of such a game transition.

Thus, the pervasiveness of the prisoners' dilemma in the IJC world. The next chapter will describe the plan for statistically assessing the prisoners' dilemma in metropolitan interjurisdictional competition. How can we test the assertion that interjurisdictional competition is a function of urban area fragmentation?

Appendix to Chapter 2 (Theory): *Mathematical Proofs*

2.1   *Introduction*

No appended arguments.

2.2   *Basic Game Setup and Assumptions*

To repeat the basic game matrix, definitions and assumptions:

		THEIRS:	
		No Bid (cooperate)	**Bid (defect)**
OURS:	**No Bid (cooperate)**	R, R	S, T
	Bid (defect)	T, S	P, P

- **B:** …the *Bid* for firms. This is the financial cost of incentives to lure firms. It is paid only when firms accept IJC offers—losing jurisdictions do not pay B.
- **D:** …the *Direct benefits* of a firm locating in one's jurisdiction. These include jobs, income, shopping opportunities for consumers and new sources of supply for existing businesses.
- **E:** …the spillover *Externality* to a non-gaining jurisdiction from a firm locating in another locality.   These are the job, income, shopping and supply opportunities open to residents of the non-gaining jurisdiction because of a firm newly located in a nearby city or town. Note again that these are spillover externalities in the regional development sense, not traditional multiplier effects.

Rationality assumption:
- $D > B$ and
- $D - B > 0$ (net benefits are positive)

Nature of spillover externalities:
- $D > E$

IJC Game parameter:
- $D - B > E$

2.3(A)   Raids Scenario without Externalities*

Definitions and game matrix:

- **T:** $D - B$
- **R:**   0
- **P:** $\frac{1}{2}(D - B) + \frac{1}{2}(-D)$
- **S:** $-D$

	No Bid	*Bid*
No Bid	0, 0	-D, D-B
Bid	D-B, -D	1/2(D-B)+1/2(-D) 1/2(D-B)+1/2(-D)

Proof of prisoners' dilemma:

- **T > R:** $D - B > 0$ *per rationality assumption*

- **P > S:** $\frac{1}{2}(D - B) + \frac{1}{2}(-D) > -D$
  $D - B - D > -2D$
  $2D - B > 0$ *follows from rationality assumption*

- **R > P:** $0 > \frac{1}{2}(D - B) + \frac{1}{2}(-D)$
  $0 > D - B - D$
  $0 > -B$ *zero is greater than a negative quantity*

- **2R > T+S** $2(0) > (D - B) - D$
  $0 > -B$ *zero is greater than a negative quantity*

2.3(B)   Raids Scenario With Externalities*

Definitions and game matrix are:

- **T:** $(D - B) - E$
- **R:**   0
- **P:** $\frac{1}{2}\{(D - B) - E\} + \frac{1}{2}(-D + E)$
- **S:** $(-D + E)$

	No Bid	*Bid*
No Bid	0, 0	(-D+E), (D-B)E
Bid	(D-B) E, (-D+E)	1/2{(D-B) E}+1/2(-D+E) 1/2{(D-B) E}+1/2(-D+E)

Proof of prisoners' dilemma:

- **T > R:** $\quad$ (D – B) – E > 0 $\qquad$ *per game parameter*

- **P > S:** $\quad$ ½ {(D – B)– E} + ½ (– D + E) > (– D + E)
  $\qquad\qquad$ D – B – E – D + E > – 2D + 2E
  $\qquad\qquad$ – B > – 2D + 2E
  $\qquad\qquad$ B < 2D – 2E $\qquad$ *follows from game parameter:*
  $\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ *D – B > E*
  $\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ *– B > E – D*
  $\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ *B < D – E ; thus B < 2D – 2E*

- **R > P:** $\quad$ 0 > ½ {(D – B)– E} + ½ (– D + E)
  $\qquad\qquad$ 0 > D – B – E – D + E
  $\qquad\qquad$ 0 > – B $\qquad\qquad$ *zero is greater than a negative quantity*

- **2R > T+S** $\quad$ 0 > (D – B)– E + (– D + E)
  $\qquad\qquad$ 0 > – B $\qquad\qquad$ *zero is greater than a negative quantity*

In summary of the 2-player IJC game discussion to this point, the Raids Scenario always generates a prisoners' dilemma, whether externalities are present or not.

2.3(C) $\quad$ *Generalization to n-Players*

In this game, jurisdictions in each round choose either to cooperate by not bidding for firms in other jurisdictions or to defect by offering IJC bids. Additionally in each round, each jurisdiction has a firm which is open to being induced to move if incentives are offered by another jurisdiction.

The game matrix is:

	N- 1	...	2	1	0
Bid:	(1 - [(N-1)/N])(D - B) **+**	...	(1 - (d/N))(D - B) **+**	(1 - (d/N))(D - B) **+**	(D - B)
	[(N-1)/N](-D)		(d/N)(-D)	(d/N)(-D)	
	{Cell i}				**{Cell iii}**
No Bid:	[(N-1)/N](-D)	...	(d/N)(-D)	(d/N)(-D)	0
	{Cell ii}				**{Cell iv}**

As noted in the main text, the "N – 1" column substitutes "N – 1" for "d" to illustrate relative magnitudes. The n-player prisoners' dilemma graph is:

PRISONER'S DILEMMA
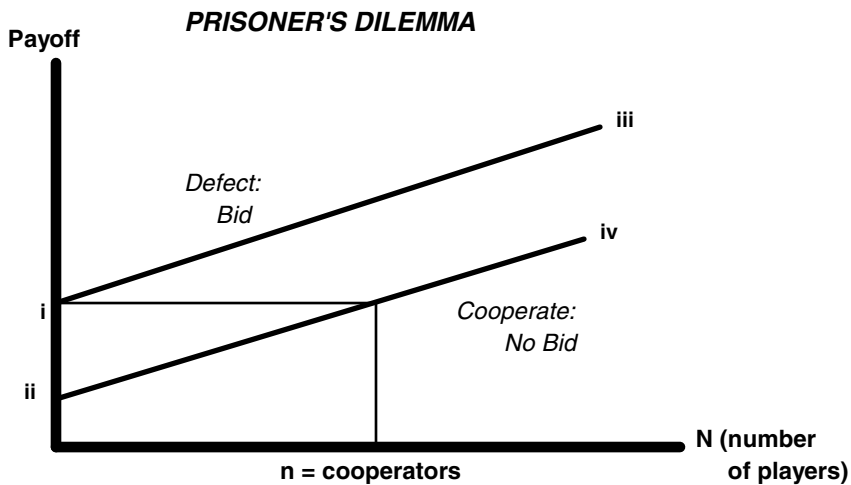
The following proofs are offered to equate the matrix with the graph:

- **Cell i > Cell ii:**　　First, consider the situation without coefficients:

$$D - B + (- D) > - D$$
$$D - B > 0 \qquad \textit{per rationality assumption}$$

　　　　　　　　With coefficients, note that $(- D)$ is multiplied by the same coefficient on the left and right sides and thus still drops out. Now note that any positive coefficient on "D – B" still yields the inequality above, and "$1 – [(N – 1)/N]$" is certainly positive.

- **Cell iii > Cell iv:**　　$D - B > 0$ 　　　　　*per rationality assumption*

- **Positive Slopes:** For the "no bid" row, note that from left to right cells progress from a heavily weighted fraction of '– D' to zero; hence, a positive slope. For the "bid" row, note first the progression from the smallest possible fraction of "D – B" to the full value of "D – B". This alone would constitute a positive slope. Additionally, the positive nature of the slope is reinforced by the diminishing "– D" term, which vanishes completely in the d = 0 cell.

- **Cell iv > Cell i:** First, for clarity, replace "(N – 1)/N" by 'a'. Thus:

  $$0 > (1 – a)(D – B) + a(– D)$$
  $$0 > (1 – a)D – aD – (1 – a)B$$

  If there are only two jurisdictions, the 'D' terms drop out because both coefficients are ½ . If there are more than two jurisdictions, then the "D" terms are negative; e.g., with N = 4, 'a' becomes ¾, and ¼ D – ¾ D is a negative quantity. Thus, the 'D' terms are either zero or negative. The 'B' term is always negative—as noted above, its coefficient is positive. Hence, the inequality always holds.

  ****

The generalization from two to n-players is similar. Here is the matrix:

number of other jurisdictions which bid (or defect, "d"):

	N - 1	...	1	0
Bid:	[1 - {(N-1)/N}][(D - B) - E] **+** [(N – 1)/N](-D + E) {Cell i}	...	(1 - (d/N))[(D - B) - E] **+** (d/N)(-D + E) {Cell ii}	(D - B) - E {Cell iii}
No Bid:	[(N – 1)/N](-D + E) {Cell ii}	...	(d/N)(-D + E)	0 {Cell iv}

- **Cell i > Cell ii:** Without coefficients:

  $$(D – B) – E + (– D + E) > (– D + E)$$
  $$D – B – E > 0 \qquad \textit{per the game parameter}$$

  This inequality would remain with the coefficients, as demonstrated in the without-externalities case above.

- **Cell iii > Cell iv:** $D – B – E > 0$ *per the game parameter*

- **Positive Slopes:** In that $(-D + E)$ is negative because of the *nature of externalities*, the argument parallels that of the without-externalities case.

- **Cell iv > Cell i:** Without coefficients:

  $0 > (D - B) - E + (-D + E)$
  $0 > -B$ *zero is greater than a negative magnitude*

  This inequality would remain with the coefficients, as demonstrated in the without-externalities case above. In this case, the D and E coefficents work out to be equal, but because $D > E$ by the *nature of externalities* and D remains negative, the overall term is negative. For example, using N = 4; hence, a = ¾ :

  $0 > (1 - ¾)(D - B - E) + ¾(-D + E)$
  $0 > [(1 - ¾)D - ¾ D] + [-(1 - ¾)E + ¾ E] - (1 - ¾)B$
  $0 > -½ D + ½ E - ¼ B$

2.4(A)* New Firms—which will move in without IJC bids—Scenario Without Externalities

Definitions and game matrix:

- **T:** $D - B$
- **R:** $½ D$
- **P:** $½ (D - B)$
- **S:** 0

	No Bid	Bid
No Bid	1/2D, 1/2D	0, D-B
Bid	D-B, 0	1/2(D-B), 1/2(D-B)

2.4(A)1* Prisoners' Dilemma

- **T > R:** $D - B > ½ D$
  $-B > -½ D$
  $B < ½ D$ *prisoners' dilemma valid if this condition is met*

- **P > S:** ½ (D – B) > 0
  D – B > 0   *per rationality assumption*

- **R > P:** ½ D > ½ (D – B)
  D > D – B
  0 > – B   *zero is greater than a negative quantity*

- **2R > T+S:** 2(½ D) > D – B + 0
  D > D – B
  0 > – B   *zero is greater than a negative quantity*

2.4(A)2*   Assurance Game

- **R > T:** ½ D > (D – B)
  B > ½ D   *assurance game is valid if this condition is met*

- **P > S:** ½ (D – B) > 0
  D – B > 0   *per rationality assumption*

- **T > P:** D – B > ½ (D – B)
  2D – 2B > D – B
  D – B > 0   *per rationality assumption*

2.4(B)*   New Firms—which will move in without IJC bids—Scenario With Externalities

Definitions and game matrix are:

- **T:**   D – B
- **R:**   ½ D + ½ E
- **P:**   ½ (D – B) + ½ E
- **S:**   E

	No Bid	*Bid*
No Bid	1/2D + 1/2E, 1/2D + 1/2E	E, D-B
Bid	D-B, E	1/2(D-B) + 1/2 E, 1/2(D-B) + 1/2E

2.4(B)1*   Prisoners' Dilemma

- **T > R:** $D - B > \frac{1}{2}D + \frac{1}{2}E$

   $2D - 2B > D + E$

   $- 2B > - D + E$

   $B < \frac{1}{2}(D - E)$ *prisoners' dilemma valid only if this condition is met*

- **P > S:** $\frac{1}{2}(D - B) + \frac{1}{2}E > E$

   $D - B + E > 2E$

   $D - B > E$ *per IJC game parameter*

- **R > P:** $\frac{1}{2}D + \frac{1}{2}E > \frac{1}{2}(D - B) + \frac{1}{2}E$

   $D + E > D - B + E$

   $0 > - B$ *zero is greater than a negative quantity*

- **2R > T+S:** $2(\frac{1}{2}D + \frac{1}{2}E) > (D - B) + E$

   $D + E > D - B + E$

   $0 > - B$ *zero is greater than a negative quantity*

2.4(B)2*   Assurance Game

- **R > T:** $\frac{1}{2}D + \frac{1}{2}E > D - B$

   $D + E > 2D - 2B$

   $2B > D - E$

   $B > \frac{1}{2}(D - E)$ *assurance game valid if this condition is met*

- **P > S:** $\frac{1}{2}(D - B) + \frac{1}{2}E > E$

   $D - B + E > 2E$

   $D - B > E$ *per IJC game parameter*

- **T > P:** $D - B > \frac{1}{2}(D - B) + \frac{1}{2}E$

   $2D - 2B > D - B + E$

   $D - B > E$ *per IJC game parameter*

2.4(C)*   Generalization to n-Players

In this game, in each round an outside, or 'new', firm announces its intention to relocate to the urban area. While it does not demand incentives, its final selection of a specific jurisdiction would be influenced by them if offered by a component jurisdiction.

This generalization is best demonstrated first without externalities. A jurisdiction either gets a firm or it doesn't. Note that the fraction which forms the

basis for probabilities is now 1/N, not '1/N-1', because this is not a raiding situation. The entire set of jurisdictions is the relevant group, not N-1 because a jurisdiction will not raid itself. Here is the expanded game matrix plus graphs of the n-PD and n-Assurance games.

	N - 1	...	2	1	0
	number of other jurisdictions which bid (others defect, "d"):				
Bid:	$(1/N)(D-B)$ **+** $[1 - (1/N)]0$ **{Cell i}**	...	$(1/d+1)(D-B)$ **+** $[1 - (1/d+1)]0$	$(1/d+1)(D-B)$ **+** $[1 - (1/d+1)]0$	*(D-B)* **{Cell iii}**
No Bid:	0 **{Cell ii}**	...	0	0	$(1/N)D$ **+** $[1 - (1/N)]0$ **{Cell iv}**

Note that Cell i substitutes "1/N" for "1/d+1". The two are equivalent in this cell:

$$1/d+1$$
where d = N – 1
$$1/\{(N – 1) + 1\}$$
$$= 1/N$$

PRISONER'S DILEMMA

Payoff

iii

Defect:
Bid

iv

i

Cooperate:
No Bid

ii

N (number
n = cooperators   of players)

ASSURANCE GAME

Payoff

Cooperate: iv
No Bid

iii

Defect:
Bid

i

ii

N

n = cooperators
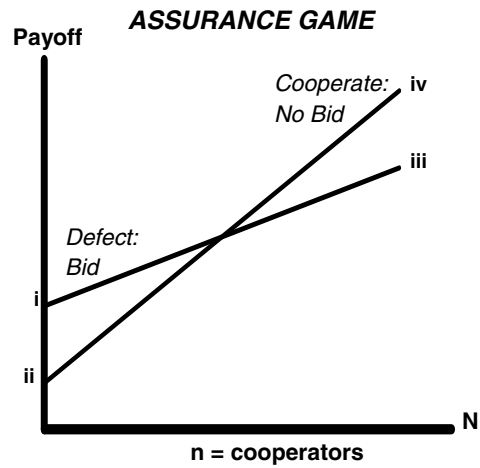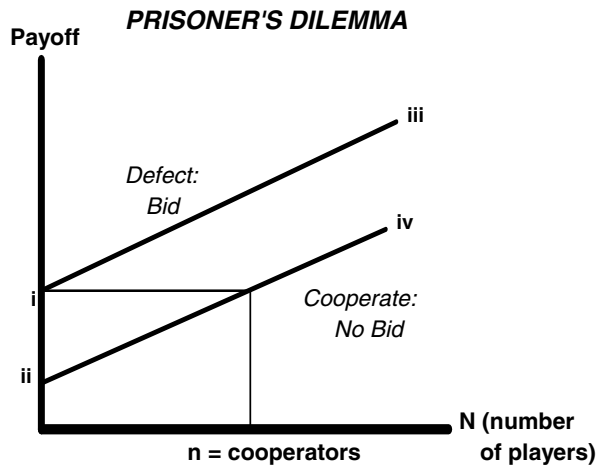
- **Cell i > Cell ii:** $(1/N)(D-B) > 0$
                              $D – B > 0$ *per rationality assumption*

- **Cell iv > Cell i:** $(1/N)D > (1/N)(D – B)$
                              $D > D – B$
                              $0 > – B$ *zero is greater than a negative*

quantity

- **Positive slopes:** For defection (bidding), note that the line starts on the left with the smallest fraction of 'D – B' ('1/d+1' where 'd' is one short of all 'N'), gains in value with an increasing coefficient and ends with 'D – B', a greater quantity than any to the left. For cooperation, the line begins with 0 and is a step function from 0 to the positive (1/N)D. Additionally, note that for the prisoners' dilemma immediately below, the defection function lies above cooperation at all points—the defection payoff adds a fraction of the positive quantity 'D – B' to the 0 baseline shared by both sets of cells. The special case of cells iii and iv is discussed below.

- **Cell iii > Cell iv (Prisoners' Dilemma):** D – B > (1/N)D
  first, observe that B = (1 – 1/N)D is the border between the conditions for the PD and Assurance games. This follows from the B < ½ D prisoners' dilemma condition (and related Assurance condition, B > ½ D) of the 2-player game. As N increases, potential competitive pressures on bid size increase, so the ceiling on B increases as a proportion of D, from (1 – ½) to (1 – 1/3) to (1 – ¼), and so on. Now, consider the case in which B = (1 – 1/N)D, *the border between the conditions for PD and Assurance games:*

$$D – ((1 – 1/N)D) = (1/N)D$$
$$D – (D – (1/N)D) = (1/N)D$$
$$D – D + (1/N)D = (1/N)D$$
$$(1/N)D = (1/N)D$$

  Thus, when B < (1 – 1/N)D:
  D – B > (1/N)D, and the game is ***n-Prisoners' Dilemma.***

Alternatively,
- **Cell iv > Cell iii:** Following the proof of 'Cell iii > Cell iv' immediately above, when B > (1 – 1/N)D, then (1/N)D > D – B, and the game is the ***n-Assurance Game.***

****

The generalization to n-players with externalities is similar. Here is the new game matrix:

number of other jurisdictions which bid (defect, "d"):

	N - 1	...	2	1	0
Bid:	$(1/N)(D-B)$ **+** $[1 - (1/N)]E$ {Cell i}	...	$(1/d+1)(D-B)$ **+** $[1 - (1/d+1)]E$	$(1/d+1)(D-B)$ **+** $[1 - (1/d+1)]E$	$(D-B)$ {Cell iii}
No Bid:	E {Cell ii}	...	E	E	$(1/N)D$ **+** $[1 - (1/N)]E$ {Cell iv}

- **Cell i > Cell ii:** Note that the probabilities within each cell sum to unity. Cell i is '$(1/N)(D – B) + (1 – 1/N)E$'. Cell ii can be restated as '$(1/N)E + (1 – 1/N)E$'. By the IJC game parameter, $D – B > E$. Thus, while the '$... + (1 – 1/N)E$' components of both cells are equal, the inclusion of '$(1/N)(D – B)$' in Cell i makes Cell i > Cell ii.

- **Cell iv > Cell i:** Again, Cell i is '$(1/N)(D– B) + (1 – 1/N)E$'. Cell iv contains the equivalent portion of 'E', but the remainder is $(1/N)D$, which is greater than $(1/N)(D – B)$. Thus, Cell iv is greater than Cell i.

- **Positive slopes:** For defection, once again remember Cell i is '$(1/N)(D – B) + (1 – 1/N)E$'. Cell iii can be restated as '$(1/N)(D – B) + (1 – 1/N)(D – B)$. The first parts of each term, '$(1/N)(D – B)$', are equivalent. However, because by the game parameter $D – B > E$, the second parts are not. Thus, Cell iii is greater than Cell i. Cells between Cell i and Cell iii see an increase in their '$D – B$' component as they move from left to right, completing this part of the argument. For cooperation (not bidding), by similar reasoning E in Cell ii can be divided into two parts, one of which is equivalent to '$+ (1 – 1/N)E$'. The other part compares $(1/N)D$ with $(1/N)E$. By the nature of externalities, Cell iv is greater than Cell ii. Note that once again, cooperation is a step function.

- **Cell iii > Cell iv:** $D – B > (1/N)D + (1 – 1/N)E$
  first consider the case in which B = {$(1 – 1/N)D – (1 – 1/N)E$}, *the border between the conditions for PD and Assurance games:*
  $$D – \{(1 – 1/N)D – (1 – (1/N))E\} = (1/N)D + (1 – 1/N)E$$
  $$D – \{D – (1/N)D – (1 – (1/N))E\} = (1/N)D + (1 – 1/N)E$$
  $$(1/N)D + (1 – (1/N)E = (1/N)D + (1 – 1/N)E$$

Thus, when B < {(1 − 1/N)D − (1 − 1/N)E}:

D − B > (1/N)D + (1 − 1/N)E, and the game is an

n-Prisoners' Dilemma

Alternatively,

- **Cell iv > Cell iii:**   Following the proof of 'Cell iii > Cell iv' immediately above, when B < {(1 − 1/N)D − (1 − 1/N)E}, then (1/N)D + (1 − (1/N))E > D − B, and the game is the ***n-Assurance Game.***

****

The existence of n-Assurance as a step function which increases only when all jurisdictions choose not to bid may seem troubling. However, it is interesting and perhaps reassuring to contemplate respecifying the game to allow for some small percentage of firms deciding not only to come to the urban region without bids, but also to select a jurisdiction within the metropolitan area without incentives, even in the face of bid offers from other jurisdictions. In this case, matrix cells left of Cell iv would contain a probabilistic progression of the term (1/x)(1/N)D, becoming larger from right to left. All other relationships would hold and cooperation would cease to be a step function.

2.5(A)   New Firms—which will NOT move in without IJC Bids—Scenario Without Externalities*

Definitions and game matrix:

- **T:**   D − B
- **R:**   0
- **P:**   ½ (D − B)
- **S:**   0

	No Bid	**Bid**
No Bid	0, 0	0, D-B
Bid	D-B, 0	1/2(D-B), ½(D-B)

- **T > R:**   D − B > 0   *per rationality assumption*

- **P > S:**   ½ (D − B) > 0
                   D − B > 0   *per rationality assumption*

However,

- **P > R:**   ½ (D − B) > 0
                   D − B > 0   *per rationality assumption*

…and
- **T+S > 2R:** $\quad$ D – B + 0 > 2(0)
  $$D – B > 0 \qquad \textit{per rationality assumption}$$

…and
- **T+S = 2P:** $\quad$ (D – B) + E = 2{½ (D – B) + ½ E}
  $$(D – B) + E = (D – B) + E$$

Thus, jurisdictions would at best be indifferent between mutual defection and alternating 'bid/no bid' with 'no bid/bid'. This is barren ground for an asymmetrically optimal prisoners' dilemma. This is a scenario for a ***defection game***, not any type of prisoners' dilemma.

2.5(B) New Firms—which will NOT move in without IJC Bids—Scenario With Externalities*

Definitions and game matrix are:

- **T:** $\quad$ (D – B)
- **R:** $\quad$ 0
- **P:** $\quad$ ½ (D – B)+ ½ E
- **S:** $\quad$ E

	No Bid	**Bid**
No Bid	0, 0	E, D-B
Bid	D-B, E	1/2(D-B) + 1/2E, 1/2(D-B) + 1/2E

- **T > R:** $\quad$ D – B > 0 $\qquad$ *per rationality assumption*

- **P > S:** $\quad$ ½ (D – B) + ½ E > E
  $$D – B + E > 2E$$
  $$D – B > E \qquad \textit{per game parameter}$$

However,
- **P > R:** $\quad$ ½ (D – B) + ½ E > 0
  $$D – B + E > 0 \qquad \textit{D – B > 0 per rationality assumption;}$$
  $$\textit{E is also a positive quantity.}$$

- **T+S > 2R:** $\quad$ (D – B) + E > 2(0)
  $$D – B + E > 0 \qquad \textit{D – B > 0 per rationality assumption;}$$
  $$\textit{E is also a positive quantity.}$$

- **T+S = 2P:** $(D – B) + E = 2\{½ (D – B) + ½ E\}$
                 $(D – B) + E = (D – B) + E$

Once again, this is not a prisoners' dilemma and there is no motivation for an aysmmetrically optimal prisoners' dilemma. The scenario produces a defection game.

2.5(C)*   *Generalization to n-Players*

The n-player matrix is:

number of other jurisdictions which bid (defect, "d"):

	N - 1	...	2	1	0
Bid:	$(1/N)(D\text{-}B) +$ $[1 - (1/N)]E$ {Cell i}	...	$(1/d{+}1)(D\text{-}B) +$ $[1 - (1/d{+}1)]E$	$(1/d{+}1)(D\text{-}B) +$ $[1 - (1/d{+}1)]E$	$(D\text{-}B)$ {Cell iii}
No Bids:	E {Cell ii}	...	E	E	0 {Cell iv}

Analyzing relationships among key cells, we find that:

- **Cell i > Cell ii:**   Cell ii can be expressed as '$(1/N)E + (1 – 1/N)E$' and compared with Cell i. The two have '$(1 – 1/N)E$' in common, but in that $(D – B) > E$ by the game parameter, Cell i is greater than Cell ii. By extension of this argument, all defection cells to the left of 0 other defectors are of greater than their cooperation counterparts.

- **Cell iii > Cell iv:** $D – B > 0$ *per rationality assumption*

- **Cell i > Cell iv:**   Both terms in Cell i are fractions of positive quantities, thus positive and greater than 0. Thus, Cell i > Cell iv. Note that this would be the same even if Cell iv retained the 'E' value of cells to the left, as proven in demonstrating that Cell i > Cell ii, above.

The fact that Cell i > Cell iv means that the payoff to defection is at all times greater than the payoff to cooperation. The situation is illustrated below. The n-player game remains one of complete defection. The demonstration of the scenario without externalities proceeds in similar fashion.

Payoff   *COMPLETE DEFECTION*   iii

Defect:
Bid

i

Cooperate:
No Bid

E = ii

iv   **N (number**
   of players)

n = cooperators
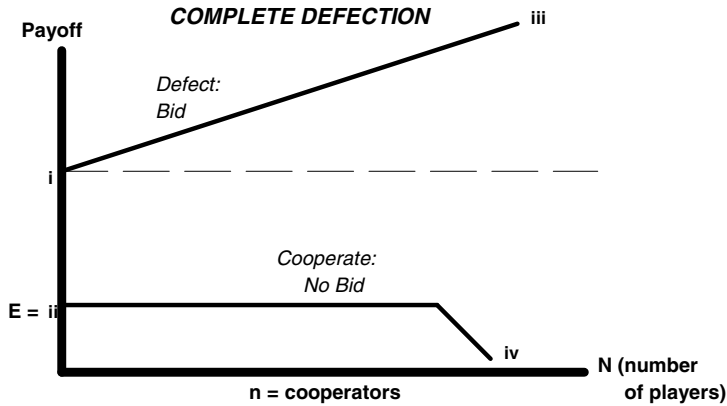
2.5(D)   "Almost" Complete Defection: Varying Assumptions Produce Different Games…at the margin*

The demonstration of a prisoners' dilemma and the conditions on it are best first demonstrated with a numerical example, then algebraically. A possible 2-player game matrix is:

	No Bid	**Bid**
No Bid	1/3D, 1/3D	0, D-B
Bid	D-B, 0	1/2(D-B), ½(D-B)

- **T > R:**   D – B > 1/3 D
  D – 1/3 D > B
  B < 2/3 D   *prisoners' dilemma valid only if this condition is met*

- **P > S:**   ½ (D – B) > 0
  D – B > 0   *per rationality assumption*

- **R > P:**   1/3 D > ½ (D – B)
  2/3 D > D – B
  B > 1/3 D   *prisoners' dilemma valid only if this condition is met*

- **2R > T+S:**   2 (1/3D) > D – B + 0
  2/3 D > D – B
  B > 1/3 D   *prisoners' dilemma valid only if this condition is met*

Thus, the condition on B is: '2/3 D > B > 1/3 D'.

<div align="center">************</div>

More formally, the definitions are:

- **T:**   D – B
- **R:** $(x/y)D$, *where x/y < ½. (Note that were x/y = ½, it would be the "New Firms—WILL move without bids" Scenario.)*
- **P:**   ½ (D – B)
- **S:**   0

Thus,

- **T > R:**   D – B > x/y D
                D – x/y D > B
                B < (1 – x/y) D

- **P > S:**   ½ (D – B) > 0
                D – B > 0   *per rationality assumption*

- **R > P:**   x/y D > ½ (D – B)
                2x/y D > D – B
                B > D – 2x/y D
                B > (1 – 2x/y) D

- **2R > T+S:**   2 (x/y)D > D – B
                B > (1 – 2x/y) D

Thus, more generally, this is a prisoners' dilemma when:

$$(1 – x/y)D > B > (1 – 2x/y)D$$

2.6*   *Nested Games*

No appended arguments.

2.7*   *Objections (And Responses) To This Approach for IJC Modeling*

The differences between a pure public good and a non-pure 'constant value' public good are illustrated in this chart, adapted from Russell Hardin's *Collective Action* (1982, Table 3-1, p 46):

	n	nV_i	V_i	C	V_i/C	1 -V_i/C	C/V_i	k
Baseline 'small' group	5	$10m	$2m	$3m	0.67	0.33	1.5	2
Constant-value' p.g.	20	**$10m**	$0.5m	$3m	0.16	0.84	6	7
Pure p.g.	20	$40m	**$2m**	$3m	0.67	0.33	1.5	2

Table 2.7*-1
Pure vs. non-Pure Public Goods

Legend: n = number of jurisdictions in UA

nV_i = total value of public good

V_i = value of public good to individual jurisdiction

C = total cost of the public good

V_i/C = return to jurisdiction per dollar

$1 - V_i/C$ = disincentive to pay $1 to public good

C/V_i = pre-k computation

k = smallest group which can produce public good

The first row of the table covers the case of a 'small' group numerically, such as urban area X. The second treats urban area Y, with its twenty jurisdictions. The third row is presented to illustrate the contrast between the Olson-Buchanan constant-value public good and a pure public good, as examined in Frohlich and Oppenheimer (1970). The decisive difference between the two is highlighted: The constant-value public good does not increase in total value if there are more players; accordingly, the value to the individual player decreases. On the other hand, in the pure public good case, the value per player (jurisdiction in this case) remains constant and the total value increases with an increased number of players. Of course, as argued in the chapter proper, an urban area has a maximum absorptive capacity of new economic development per period, so the pure public goods case of row 3—which generates the $40 million public good—is not appropriate to the IJC analysis.

The value of the public good to individual jurisdictions (V_i) is the result of dividing the two previous columns. The move from a 5-jurisdiction urban area to the 20-jurisdiction urban area with IJC analyzed in the constant-value public good sense necessarily leads to a lower V_i. The next column, cost, reflects such things as the funding of a regional council and staff, or the risk that another community(ies) might defect and use Level #2 IJC to reduce the amount of new development to be shared by those cooperating in the regional council. V_i/C also represents the marginal benefit of contributing, so $1-V_i/C$ in the next column is the disincentive to pay. Note the increase in the disincentive from the first to the second row. This again supports testing the Olson numbers-based collective action hypothesis. The final two columns

compute 'k', the smallest group which can produce the public good. This increases between rows 1 and 2. For sake of completeness, note that in the case of a pure public good (moving from row 1 to 3), 'k' remains the same even with larger group sizes.

Chapter 3: Methodology and Plan of the Study

3.1   Introduction

Chapters One and Two outlined the dimensions of interjurisdictional competition as a public, policy and theoretical issue, demonstrating that IJC among communities in an urban area is a valid instance of a game theoretic portrayal of the collective action problem, predominantly in the form of the prisoners' dilemma. Chapter Three will elaborate the means of investigating this phenomenon in order to test the free-rider hypothesis and other explanations of collective action.

3.2   Unit of Analysis

Rigorous studies in social science must designate *units of analysis—* individuals, groups, organizations or artifacts from editorials to revolutions *"…that we initially describe for the ultimate purpose of aggregating their characteristics in order to… explain some abstract phenomenon* (Babbie, 1983, p 76)*."*   Our natural experiment in IJC corresponds closely to laboratory collective action experiments. The purpose of such experiments is to explain human behavior in the face of the prisoners' dilemma. In the laboratory, the individual is the unit of analysis. In the great prisoners' dilemma of IJC, the individual jurisdiction is the unit of analysis. Faced with a prisoners' dilemma situation, how will the local jurisdiction react? In the laboratory, individuals are studied as parts of groups. Each group generally undergoes multiple trials under the same or differing conditions, and a single experiment will almost always study a number of groups. Nonetheless, individual behavior in the context of the prisoners' dilemma is still the main concern, and the unit of analysis remains the individual. Similarly, in this study jurisdictions are

examined in their regional settings. The natural experiment looks at behavior across numerous metropolitan regions, but the jurisdiction is the unit of analysis.

3.3 Data Sources

Of course, testing the link between interjurisdictional competition and metropolitan fragmentation is not going to be a straightforward task. Because data does not grow on trees, the first task is to identify main sources of information for the study. As it turns out, two very good resources provide datasets pertinent to the subject.

3.3(a) ICMA Economic Development Survey.

The *International City/County Managers Association* (ICMA) conducts an economic development survey every seven years. This survey asks general background questions as well as inquiries about how local general-purpose governments attract new businesses and retain existing firms. Thus, the survey results can be used to correlate characteristics of local jurisdictions—such as form of government—with indicators of interjurisdictional competition. Questions on the survey vary somewhat from iteration to iteration.

This study employs the 1994 ICMA Economic Development Survey. The survey was sent to all counties, cities and towns in the United States. Overall, there were 1781 responses. Depending upon the formulation of the research question in our study, preliminary analyses found approximately 325 to 625 useful observations.

The use of return-mail questionnaires can of course be criticized for self-selection of respondents (Fowler, 1988, pp 48-60; Kent, 2001, pp 56-59). Perhaps only certain types of communities respond. For example, the administration of a

strong-mayor city may be less likely to respond than that of a council-manager polity

because no one in the former wants to risk jotting down a response which might if

publicized embarrass the mayor. Alternatively, possibly larger bureaucracy makes

the task of conscientiously completing a survey more difficult in a city than a small

town.

Another reservation is that many survey questions measure perceptions as

opposed to more comparable realities. Question responses expressed in terms such as

frequency *('never, seldom, sometimes, usually, always')* or relative quantity*('few,*

many') are sometimes seen as nebulous because individuals' definitions of these

terms vary widely. Furthermore, respondents may answer more in terms of what they

think they should say rather than factually. The most notorious example is that in

survey after survey, almost everybody votes in all elections—a "fact" belied by

election statistics.

On the other hand, we will shortly see that the ICMA 1994 survey questions

we will use are well constructed to avoid the major pitfalls (Fowler, 1988, pp 74-98).

Furthermore, this dataset covers a substantial range and is not limited to one type of

community. Respondents represent 241 Urbanized Areas (UA)—almost 2/3 of the

total of 396 UAs identified by the United States Census. While the median UA

population of the survey sample is 115,041 versus 945,237 for the Census, the survey

sample entirely covers the range of UA populations, from the smallest (roughly

50,000 residents) to the largest (New York City/Northern New Jersey, at 16,044,493).

Median per capita income in responding polities was $17,840; the mean was

$22,195—very close to the national mean income of $22,979 (Bureau of the Census,

1997, Table 699).   Municipalities surveyed represented a good downtown/suburb

mix: 157 central cities and 490 suburban communities. The mean number of central

cities per UA was 2.75, with a range from 1 to 9 central cities. The city manager-

council form of government was used in 423 jurisdictions; mayor-council form of

government in 202; commission, 26; and some form of town meeting, 26. There

were 436 cities, 74 towns, 37 villages, 30 boroughs and 60 counties. Thus, the survey

appears to be a reasonable measurement instrument, allowing us to garner the value

of its responses as a natural experiment in collective action.

3.3(b)   1990 United States Census.

At the opposite pole from sampling concerns surrounding vehicles such as the

ICMA survey is the decennial United States Census, a nose-count of all persons as

well as much commercial and governmental activity. While basic data on urban

regions is a part of the Census, the researcher still has important decisions to make.

The Census publishes two types of information on urban clusterings. Best known is

the *metropolitan statistical area* (MSA) and its corollaries, the *consolidated

metropolitan statistical area* for extremely large metroplexes and the *primary

metropolitan statistical area* (a portion of a CMSA).   Definitions of these areas are

actually designed and revised by the Office of Management and Budget (OMB).

Terminology changes over time: The *MSA* is successor to the old *SMSA (standard

metropolitan statistical area)*, and in 1990 the Census Bureau introduced the term

metropolitan area (MA) as a generic term referring to MSAs, CMSAs and PMSAs.

And just to add more icing to the cake, New England local governance is sufficiently

unique that it merits its own method of MA accounting, the *NECMA (New England County Metropolitan Area).*

The other approach to assembling data on urban regions is the *Urbanized Area* (UA). This relatively lesser known measure has been published since 1950. The UA tends to encompass less area and fewer people. UAs and MAs will be described further below in choosing ways to operationalize the main independent variable, *urban area fragmentation.*

3.4   The Dependent Variable: Measuring *Interjurisdictional Competition*.

3.4(a)   Problems in Measurement.

At the outset, we defined IJC as *"the use by a government of tax, spending, zoning and/or other regulatory provisions as incentives to induce a specific firm—or firms in general—to locate (or remain) in its own jurisdiction as opposed to another city, state or nation* (page 1)*."* Like good art, we all know it when we see it. Operationalizing such a definition in a way which supports statistical research is unfortunately a much more difficult proposition. The components of the definition— tax, spending, zoning and/or other regulatory provisions—are not readily comparable. While tax relief and spending programs can be measured in dollar terms, how well can we capture the impact of a decision to loosen environmental standards for a new industry, or to change zoning of an area to allow radically increased traffic and a larger physical footprint? Putting together a composite assessment of IJC in a single case study would be difficult enough. Finding data to do so in a nationwide study is simply impracticable. Even one of the most impressively detailed studies of the economic impacts of IJC bemoans that *"[t]he data we have on city grant, loan, and*

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loan guarantee programs are not detailed enough to permit the creation of even the limited 'expert systems' that have been discussed (Fisher and Peters, 1998, p 93).*"*

The whole enterprise is further complicated by the lack of data series on the subject. Ideally, we would have comprehensive information on all instances of IJC, allowing us to contrast urban regions which are highly competitive with those that are cooperative in very precise quantitative terms. We would expect to see competitive regions engender substantial movement among firms as management and shareholders seek the best IJC offers in a constantly changing environment. Undoubtedly per capita IJC outlays would be greater in less cooperative areas than in more cooperative metropolitan areas.

Unfortunately, the data are not of this depth or quality. The packages of business incentives finally accepted by incoming firms are generally—although not always[1]--public knowledge. However, this only covers successful IJC bids. The incentive bids of unsuccessful suitors usually go unrecorded. Thus, an important part of the ideal dataset is automatically missing.

As was just noted, Fisher and Peters (1998) present a commendably detailed data set consisting of information on state and—with lesser resolution—local historical data on grants, loans, taxes and other programs to pinpoint maximum incentive awards. However, this data set does not capture items such as zoning variances and programs such as training new workers and employee screening. Even if it did, the data—while great for economic analysis—would not necessarily be the best for evaluating the collective action problem in the prisoner's dilemma setting: It makes no distinction between the extent to which tax and spending programs reflect

preferences of current residents and the extent to which these outlays represent actual competition for specific industries, the focus of our study.

3.4(b)   IJC Measurement with Additive Indices.

The 1994 ICMA survey contained questions which *are* specifically geared to competing for industries. These questions lead to six *additive indices* representing IJC. An additive index sums responses to a question to provide a measure of strength for an indicator. For example, the intensity of local tourism promotion efforts might be measured by the number of tourism promotional programs employed in by the local government and chamber of commerce. A town which maintains an Internet tourism site, provides brochures for interstate rest stops, and purchases advertisements in popular magazines might thus be considered to have a more intense tourism effort than one with only a website.[2]

Question 30 of the ICMA survey asks which incentives the local government offers prospective newcomer industries. Note that by focusing attention on incentives—hence IJC—the research gets at least partially around the problem of determining the extent to which programs and budgets are IJC rather than simply reflecting local tastes and preferences for government spending:

Q 30: Please indicate which of the following incentives you offer:	
a. Tax abatements	j. Training Support
b. Tax credits	k. Utility rate reduction
c. Enterprise zones	l. Zoning/permit assistance
d. Tax increment financing	m. Regulatory flexibility
e. Grants	n. Relocation assistance
f. Infrastructure improvements	o. Low-cost loans
g. Land write-downs	p. One-stop permitting
h. Subsidized buildings	q. Special assessment districts
i. Employee screening	

Presumably, the more a jurisdiction engages in IJC, the more likely it is to utilize a greater number of the measures in Question 30. Thus, this will be our first additive index. The complete set of questions useful in assembling additive indices are in Appendix 1 to this chapter.

Question 15 occasions a pair of somewhat more conventional indicators. This question asks: *What percent of staff time is devoted to: (a) Business Retention _____ , and (b) Business Attraction _____ ?* In a manner similar to additive indices, the answers to parts (a) and (b) are another measure of intensity of competitiveness for industrial location.

Additive indices can be controversial. Fisher and Peters (1997b) assert that the sum of different programs is not the same as competitive effort. On the other hand, additive indices (or *'summated rating scales'*) have been used for some years in psychology and have begun finding their way into political science research (cf: Alt, Lassen and Skilling, 2002). Paul Spector (1992, p 4) summarizes the case for additive indices:

> …[W]hy not just ask…a single, straightforward, yes or-no
> question? There are three good reasons why single yes-or-no
> questions are insufficient. They concern reliability, precision and
> scope. Single items do not produce responses by people that are
> consistent over time. A person may answer "yes" today and "no"
> tommorow. Thus single items are notoriously unreliable. They are
> also imprecise because they restrict measurement to only two levels.
> People can be placed into only two groups, with no way to distinguish
> among people in each group. Finally, many measured characteristics
> are broad in scope and not easily assessed with a single question.
> Some issues are complex, and several items will be necessary to assess
> them.

Spector's comments on surveys directed at individuals ring true for our use of the ICMA survey of local governments. While a single general question such as *'how*

intensely does your jurisdiction practice IJC?' is vague and would undoubtedly

produce unreliable results, asking questions about individual practices which we

would associate with incentives and IJC would yield results not only more reliable

but more precise (as these terms are defined in Spector's quotation). And asking for

responses on all aspects of IJC allows researchers to range the entire scope of such

competitive practices. Furthermore, statistical tests can help assess the internal

validity of additive indices (Spector, 1992, pp 29-36), and sensitivity analysis can

assess the usefulness of additional items in the scale (Chatterjee and Hadi, 1988, pp

58-70; Spector, 1992, pp 31-5). Section 4.2 of Chapter Four will present additive

indices for this study and assess their adequacy.

3.5   Main Independent Variable: *Urban Area Fragmentation*

3.5(a)   Choosing From a Variety of Fragmentation Measures.

Fragmentation has been implicitly defined by critics of home rule in terms of

"too many" governments in a metropolitan region. This coincides nicely with a study

of the Olsonian approach to the collective action problem in that it has a numerical

base. However, once again, operationalizing the conceptual definition can be

difficult.

For example, we might simply use the *number of jurisdictions* within an urban

region as the independent variable for fragmentation in our statistical study. The

greater the number of town, city and county governments within the area, the more

fragmented it is. But comparing urban areas using this approach quickly develops

major problems. Is a ten-jurisdiction urban area in which the central city contains

91% of the population and each other jurisdiction only 1% really as fragmented as

one in which each jurisdiction contains an equal share—10%-- of the populace? Intuition says no, but the raw number independent variable claims that the two are in fact equally fragmented and will tailor the statistical output accordingly. In a similar vein, is an urban area consisting of twenty communities necessarily twice as fragmented as an urban cluster of ten cities? Again, our statistic tells us in all cases 'yes', no matter the relative populaces of the component jurisdictions. Perhaps *number of jurisdictions* is not so good a measure of fragmentation. Operationalizing the concept turns out to be a more difficult proposition than anticipated.

Numerical indicators such as *number of jurisdictions* have the virtue of simplicity in collection and computation. At the opposite end of the complexity spectrum are *power indices.* David Miller (2002) computes a *"Metropolitan Power Diffusion Index"* (MPDI) as the sum of the square roots of the percentage contributions of each jurisdiction's budget to the sum of the budgets of all governments in the urban area.[3]

Paul Lewis (1996) presents a more complex power index: the *political fragmentation index* (PFI). The PFI first computes the probability that, within a given urban region, two randomly selected dollars of government expenditure were *not* spent by the same jurisdiction. It then multiplies this fraction by the total per capita expenditure of all local governments in the metropolitan area.[4]

A serious drawback of power indices is that because they utilize current expenditures, power indices measure *present,* not *potential,* strength. This is analogous to assessing the military power of a nation based upon the number of infantry and tank divisions the nation currently possesses. Unless a war ends quickly,

the nation will be able to translate other resources—manpower and industrial capability—into armies. Hence, potential power can be converted into actual power, and concentrating on present power alone can be very misleading.[5]

Given the shortcomings of the approaches above, this study will utilize a traditional indicator of relative strength which measures power potential, the *Hirschman-Herfindahl Index* (HHI). The HHI has been used for decades in industrial organization studies and anti-trust lawsuits to assess the *degree of concentration* in an industry. In other words, does a single firm (or do several large companies) dominate an industry and inhibit competition? Because concentration is the opposite of fragmentation, the HHI is a very good candidate to operationalize the concept of fragmentation.

The HHI formula is of midrange complexity (Scherer, 1970, pp 51-52). It can be used for either income or population numbers. The calculation takes each percentage share of the whole, squares the shares, then sums them. The result varies between 0 and 1, allowing a more precise comparison among urban regions than counting numbers of jurisdictions. As an example, consider an urban region of three cities. The largest has 70% of the population; the smallest, 10%; the third, 20%. To calculate the HHI: $0.7^2 = 0.49$; $0.1^2 = 0.01$; and $0.2^2 = 0.04$. Summing these, we get HHI = 0.54.

What if each jurisdiction had possessed equal shares of budget, income or population? $0.33^2 = 0.1089$. $0.1089 \times 3 = 0.33$ (with rounding). This follows our intuition—equal shares implies more fragmentation, just as in the previous paragraph one jurisdiction with a disproportionate share implies predominance, hence

fragmentation. Thus, the HHI measures two dimensions of fragmentation: the number

of jurisdictions and the relative differences in shares. Fragmentation increases when

(a) the number of jurisdictions increases and/or (b) the shares of population or income

become more equal.[3]

Thus, while all types of measures above have strong points, the ability to

measure and compare potential power, and the interesting distinction in components

between fragmentation as number and as relative shares, make the HHI the indicator

of choice for this study. The HHI works well with either income or population. This

study will employ both, creating a more robust set of indicators. In order to adapt this

concentration measure to a fragmentation basis, the HHI will actually be subtracted

from 1. Thus, an HHI of 0.98, reflecting high concentration, will become 1 – 0.98 =

0.02, which expresses low fragmentation. To avoid confusion, the *'HHI subtracted-

from-1'* will be referred to as the *fragmentation index* in subsequent sections of

Chapter Three and in all future chapters. Tables and charts will abbreviate the

fragmentation index as "FragI".

3.5(b)   Operationalizing "Urban Area".

Having selected the fragmentation index with income and population data as

the statistic to represent the concept *fragmentation,* we must now choose a dataset to

represent urban regions. Once again, several choices are possible.

An interesting first possibility is the Bureau of Economic Analysis' (U.S.

Department of Commerce) *economic area.* The economic area is focused on one or

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[3] Alternatively, given equivalent shares, the HHI returns an index number equal to the percentage
share of each jurisdiction. If shares are not equal, the HHI returns the percentage share if they had
been equal *plus* an additional increment.

more major cities and the surrounding region. Boundaries are determined by the

measured degree of economic interaction between the urban economic centers and the

suburban and rural economic hinterlands (Barnes and Ledebur, 1998). There are 172

economic areas in the United States. Thus far, the definition sounds appealing.

However, there is a problem: All territory of the United States is in one economic

area or another. Thus, we would be losing the urban-ness aspect of the study by

employing data from BEA economic areas. The Bureau of Labor Statistics' (U.S.

Department of Labor) *labor market area* has the same drawback. While these

definitions work well for regional economics, they would skew our study with too

much data from non-players in urban IJC.

The Bureau of the Census' (U.S. Department of Commerce) *metropolitan*

statistical area (MSA)—already mentioned—also is based upon economic

interactions among component parts of an urban region. The Census Bureau first

identifies a central city or cities comprising at least 50,000 persons in a county of at

least 100,000 persons (alternatively, an urbanized county of 100,000 persons).

Neighboring counties are included in their entirety based upon analysis of commuting

patterns and population density and patterns (Lavin, 1996). Thus, the MSA retains

the nice feature of measuring economic interactions while not including every part of

the nation—urban, suburban and rural.

Unfortunately, the MSA is generally county-based (except for New England)

and therefore still takes in a great deal of sparsely-populated and even rural territory.

A casual glance at an MSA map of the United States is sufficient to convince a

researcher that the geographically huge MSAs in states such as Nevada do not reflect

the urban area concept very precisely. Therefore, we will turn to the Census-designated *Urbanized Area* (UA). See Appendix 2 to this chapter for maps illustrating metropolitan areas and urbanized areas.

The UA was in fact designed to differentiate between urban and rural areas of MSAs. It requires an incorporated or Census-designated 'central place' of at least 50,000 persons. Additional territory is added based upon census blocks, which are the smallest census tracts and usually comprise 200 persons or fewer. Generally speaking, census blocks are added if they have a population density equivalent to 1,000 persons per square mile or more. Whole jurisdictions are added if over half their census blocks meet the 1,000 person per square mile standard. One complicating factor made apparent by this discussion is that a number of jurisdictions will be only partially in a UA. However, because it is a simple bookkeeping task to count only UA portions of such jurisdictions, this complication can be readily dealt with.

The Census UA population density standard also helps exclude low-density, high income residential boutique suburbs from the sample. The economic development strategy of these jurisdictions tends to be the attraction of more McMansions rather than participation in the IJC world of business incentives; hence, their inclusion might skew the statistical outcome. No other measure to preclude boutique communities proved practicable. As examples, Economic Census data on industries by SIC code knocked many observations out of the ICMA sample because specific data is not available for many jurisdictions, and geographic area devoted to residential (versus industrial) use is not available on a per-jurisdiction basis. Thus,

using UAs instead of broader entities such as MSAs is the best way to address the problem of boutique communities.

UAs retain the MSA feature of multiple central cities if necessary, but do not involve analysis of economic interactions and commuting patterns. The lack of economic interaction analysis should not constitute a major problem, however. Analytically, UAs are subsets of MSAs—as noted, this was their original purpose. Thus, significant economic interaction is implicit. UAs retain the aspects of MSAs which are favorable to our study while shedding sparsely populated terrain. The Urbanized Area is therefore the best data source to represent the "urban area" part of "urban area fragmentation", the best resource to which we can apply this fragmentation index. Our quest to operationalize the main independent variable is now complete.

3.6 Other Independent Variables: *Control Variables*

The basic hypothesis, *IJC = f(UA fragmentation),* is of course not sufficient for a rigorous scientific test. Other variables may well exert an influence on IJC. Such variables need to be included in the equation. The list of control variables follows, annotated with sources and comments as necessary.

- *Jurisdiction population.* Population is one source of leverage in raising taxes to pay for IJC. The greater the population, the greater the IJC effort affordable. This assertion is supported by a literature demonstrating a correlation between jurisdiction population and the range of services offered. More populous jurisdictions offer a greater range of services; even poor but populous large cities have zoos (hence the moniker *"the zoo effect"*). Thus,

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the importance of controlling for jurisdiction population. (Schmandt &

Stephens, 1960; Oates 1986) *Source: 1990 Census.*

- ***Income per capita.*** Income per resident is another source of power. A
  numerically smaller jurisdiction may still be able to afford a substantial IJC
  effort if it has a high per capita income. *Source: 1990 Census.*

- ***Property tax.*** The property tax rate is an underlying aspect of
  interjurisdictional competitiveness. It is a background factor businesses look
  at in location decisions, similar to quality of workforce, educational
  institutions, and business orientation of local and state governments. Thus,
  while jurisdictions establish property tax levels in part with an eye to
  attracting business, the property tax level is not employed in specific incentive
  deals for specific firms and should therefore not be a source of a statistical
  endogeneity problem. An endnote discusses this at further length.[6] *Source:*
  ICMA survey data includes responses to a property tax question, "What is
  your real property tax rate per $1,000 of assessed value?".

- ***Mayor versus council-city manager form of government.*** Popularly elected
  mayors may engage in more IJC in order to please constituent groups. City
  politics in mayoral cities may be more highly politicized, making economic
  development a more prominent public issue. *Source: ICMA data coded into*
  1994 Economic Development Survey by ICMA staff. The dummy variable
  developed for this study groups mayor and commission governments versus
  various professional manager forms of government.

- ***Racial Diversity.*** Racial and ethnic differences can impose barriers to effective cooperation in urban areas. Studies exemplifying difficulties include Elkin (1987), Reed (1987) and Stone (1989). Miller (1999, pp 262-3), examining the matter from a social justice perspective, summsarizes that *"The real challenge of multiculturalism, then, is not that it makes agreement about principles of social justice impossible to achieve, but that it makes it harder for people to see themselves as members of an inclusive community across which these principles are to be implemented… This will lead to a contraction of the ethical universe within which conceptions of justice are applied…"* In this study, racial diversity is assessed based upon HHIs computed from 1990 Census UA data. The American FactFinder at www.census.gov lists the racial compositions of all urbanized areas. These numbers can of course be transformed into HHIs. Unfortunately, as will be detailed in Chapter 4, Section 3, the HHIs were very colinear with UA population. For this reason, a 0,1 dummy variable was employed to denote whether the urban area had an above- or below-average racial diversity HHI. *Source: 1990 Census.*

- ***State IJC aid/programs.*** State IJC funding can be a particularly intense component of IJC in UAs spanning two or more states, as in the Marriott case related in Chapter One. *Source: Interstate IJC effects can be factored out by studying not only all UAs but also those falling entirely within a single state.*

- ***Urbanized Area population.*** This is essential to implement non-pure public goods theory as developed in Chapters One and Two, in which UA population determines the absorptive capacity for new industries. *Source: 1990 Census.*

- **Given all the above,** our operationalized hypothesis becomes:

$$IJC = f(\ UA\ fragmentation + control\ variables)$$

3.7 Major Implicit Assumptions

Implicit in the above study plan is an assumption that the opportunity for IJC *at local level* is roughly the same across all metropolitan regions. In other words, the Chapter One tale of raiding a television studio in the Portland, Maine Urbanized Area had an equal chance of an analogous opportunity among jurisdictions in the Portland, Oregon Urbanized Area… and indeed in all other UAs. Relatedly, in describing IJC as a prisoners' dilemma as well as in the discussion of the Metro Denver Network in Chapter One, we introduced the concept that some amount of IJC may be necessary to attract an industry to a UA, while an additional increment of incentives proves useful in bringing that business to one's own jurisdiction within the UA. The latter intra-UA IJC is the focus of this study. States, regional chambers of commerce and some jurisdictions may troll to attract industries in general, but the action of interest to this study takes place once a firm expresses interest in an urban region and individual jurisdictions compete for that business. In the Chapter One Boeing example, we are interested in Chicago-area and/or Denver-area and/or Dallas-Fort Worth area competition, not IJC among Illinois, Colorado and Texas.

3.8 Statistical Analysis

The equation *IJC = f (fragmentation + control variables)* will be evaluated by applying multiple regression analysis using the STATA statistics package (StataCorp, 1999). Given the exploratory nature of this first investigation into the collective

action nature of IJC and urban area fragmentation, the study identifies as statistically

significant all coefficients with t-value significance of .00 to .15.

3.9   Presentation of Results; Indicator Matrices

Interjurisdictional competition (IJC) effort will be measured by several

proxies, or indicators, based upon additive indices and other questions from the

ICMA survey. Generally, the regression equation for each indicator will also be

computed using fragmentation indices based upon population and income. This will

provide a robust series of perspectives on IJC and its causation—if one additive index

fails to pick up competition in an urban area, another can.

Marshaling this data will be challenging, but an analogous conceptual model

is available in the *indicators and warning* matrix method used by the strategic

intelligence community. Intelligence analysts compile lists of indicators of a possible

action (such as the launching of a war) by another nation, then add depth by detailing

each indicator, effectively creating its own list denoting the status of each indicator.

For example, preparation for an attack on a neighboring state might start years in

advance, with increased production of armaments and political preparations such as

propaganda and diplomatic efforts to seek allies. This would continue through

shipment of weaponry and ordnance to combat units, increased training and upgrades

to combat vehicles. In the final stages, communications, logistics and artillery

positions would be moved forward while infantry and armor units would occupy

forward assembly areas—jumping-off points near the border.   Matrices similar to the

following are constructed to assist with the analysis:

Table 3-1
Hypothetical Defense Indicator Matrix

	Armaments	Political	Artillery	Infantry	Armor
t - 1	ship ordnance to field units	attempt to provoke target nation	move to forward positions	occupy assemby areas	occupy assemby areas
t - 2	manufacture ordnance	seek alliance & diplomatic commitment	issue basic load of ammo	issue basic load of ammo	issue basic load of ammo
t - 3	design new ordnance	international propaganda campaign	complete training & maintenance	complete training & maintenance	complete training & maintenance
t - 4	manufacture vehicles & equipment	domestic propaganda campaign	issue new vehicles & equipment	issue new vehicles & equipment	issue new vehicles & equipment

Note: Vertical scale is time periods before attack

While the table above is extremely simple (actual indicator charts are far more detailed and specific to particular situations and geography) the strength of the system—its robustness in multiple indicators—is apparent. Available information on a number of matrix cells may be spotty or non-existent, but other indicators can allow an accurate appraisal of the government's intentions and progress. (Grabo, 2002, Ch 2; Heuer, 1999, Chs 7 & 8. A poignant recent example: Branigin, 2004, notes how the critical omission of the use of airliners as suicide bombs led to the lack of an indicator of 'terrorists learning to fly large aircraft' which would have tipped the intelligence community off to the 11 September 2001 attacks.)

The next two chapters of this study will employ a variant of this method. The various additive indices and other questions which are indicators of IJC effort will be listed horizontally. Vertically, cells will record coefficients and statistical significance of t-values for indicators based upon whether they are computed using population or income fragmentation. The absolute value of the t-value is displayed

directly beneath the coefficient and statistical significance. Here as an example is the

first such matrix from Chapter 4:

TABLE 4-2
Fragmentation-- Basic Regression Results

all urban areas:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
Fragl-	-1.81/.03	-1.74/.05	-1.94/.05	-1.47/.02	-12.2/.02	-----
population	|2.21|	|1.95|	|1.96|	|2.32|	|2.31|	
Fragl-	-2.00/.02	-2.01/.03	-2.23/.03	-1.55/.02	-11.3/.03	-6.76/.13
income	|2.41|	|2.23|	|2.22|	|2.42|	|2.15|	|1.51|
n =	**619**	**619**	**619**	**619**	**437**	**436**

urban areas within single states only:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
Fragl-	-2.12/.03	-1.87/.07	-1.76/.12	-1.34/.07	-15.3/.01	-----
population	|2.27|	|1.81|	|1.55|	|1.79|	|2.61|	
Fragl-	-2.21/.02	-2.02/.05	-1.94/.09	-1.41/.06	-14.1/.02	-----
income	|2.35|	|1.95|	|1.70|	|1.87|	|2.39|	
n =	**472**	**472**	**472**	**472**	**340**	**339**

Note: Fragl is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*
Note: Entries denote *coefficient/significance level & \|absolute value\| of 't'*

The table is split into two major subheadings, *all urban areas* and *urban areas within*

single states only. Entries show coefficient magnitude and significance level for the

main independent variable, *fragmentation.* For example, in the first cell

fragmentation has a coefficient of – 1.81 at t-value significance of 0.03. The

absolute value of the t-value is |2.21|. A series of dashes ("-----") indicates no

statistically significant coefficient.   While the complete list of all variables for all

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regressions is at the end of each chapter, the matrix motif facilitates focus on the main question far better than attempting to pick detail from twenty-four separate equations.

3.10   Follow-on Analysis

Thus far, we have described gathering and analyzing data to evalue the Olsonian explanation of collective action. As noted in Chapter One, subsequent theoretical investigation has consigned this free-rider explanation of collective action to non-pure public goods alone. This later research has also produced alternative explanations of success in collective action: potential returns to cooperation which players might expect, degree of communication among players, and leadership. Chapter Five will detail this literature and devise and implement tests for each in the non-pure public goods IJC world.

Despite the impressive power and results of statistical programs, key concepts are almost invariably represented by proxies. Reification of variables is a hazard, and much rich detail can be lost. As a doublecheck on Chapters Four and Five—and to add depth and texture to the study—Chapter Six will comprise a mini-case study of interjurisdictional competition. For example, Chapter Five will treat leadership statistically via civil society indicators while Chapter Six will present a case study asking in part, *"What do leaders do? What functions and results does leadership accomplish?"* The case study will be in Tidewater Virginia—Greater Norfolk/Hampton Roads—an urbanized area entirely within the Commonwealth of Virginia, precluding the complicating effects of cross-border competition. This mini-case study will examine both basic and alternative theories in the context of recent regional history and political affairs.

[1] In earlier research, I was informed by one chamber of commerce which received city funds to attract new businesses that the amount of incentives was proprietary information—privileged and not available to the public. In a separate interview, a journalist noted that he sometimes had to threaten Freedom of Information Act lawsuits to pry incentive information from jurisdictions.

[1i] Note that additive indices are essentially different from the issue of *additive separability* of utility functions in normative analysis. Briefly, the latter is the claim that social welfare is the sum of the utility levels of individuals, and individual utility levels are not interdependent. For more detail, see Sen (1973, pp 39-42).

[3] Miller gives this example (p 79): Consider two metropolitan regions. One has six jurisdictions; the other, twelve. The sum of the budgets in each region is the same: All the governments combined spend $1 million. Both regions have a single central city which spends $900,000 per year. The other jurisdictions within the urban area spend equal amounts-- $20,000 apiece for the six-jurisdiction region; $9,091 for the twelve-jurisdiction area.

Region A			Region B	
City A1	$900,000		City B1	$900,000
City A2	$20,000		City B2	$9,091
City A3	$20,000		City B3	$9,091
City A4	$20,000		City B4	$9,091
City A5	$20,000		City B5	$9,091
City A6	$20,000		City B6	$9,091
			City B7	$9,091
			City B8	$9,091
			City B9	$9,091
			City B10	$9,091
			City B11	$9,091
			City B12	$9,091
Totals:	$1 million			$1 million
MPDI:	*1.656*			*1.997*

At gut level, we'd probably consider the twelve-jurisdiction region more fragmented, even though each jurisdiction in the six-jurisdiction cluster has a somewhat bigger budget. The MPDI bears this out: $900,000 divided by $1 million is 90%. The square root of 0.90 is 0.949. This is the base figure common to both regions. The six-jurisdiction region's smaller municipalities each have 2% of the overall million dollar combined government spending. The square root of 0.02 is 0.141. Multiplied by 5, that's 0.707. 0.707 plus 0.949 equals 1.656, which is the MPDI for the six-jurisdiction region. Using the same method, we find an MPDI of 1.997 for the twelve-jurisdiction region. MPDI scores further from unity represent more fragmented regions, so the MPDI coincides with our impression that the twleve-jurisdiction region is more fragmented.

[4] Lewis' *political fragmentation index (PFI)* is calculated as (p 49-50):

$$PFI = TE\ (1 - SSP)$$

where

TE = total per capita expenditures (in thousands) by all local governments combined
SSP = sum of squared percentages of TE accounted for by each jurisdiction

The term (1-SSP) ranges between 0 and 1. It is essentially *"the probability that two randomly selected dollars of local public expenditure in a given metro area were not spent by the same local government* (p 49)*."* Mathematically, consider the case in which one city spends 90% of the government expenditures in a two-city region, while the other spends 10%. $0.9^2 = 0.81$, and $0.1^2 = 0.01$. $0.81 + 0.01 = 0.82 = SSP$. $1 - SSP$ in this example equals 0.18. Thus, there is only a slight chance—18% -- that two dollars of local government spending emanate from different governments. Given the vast size differential between the two localities' budgets, this certainly makes intuitive sense as well as mathematical logic.

The term $(1 - SSP)$ is an interesting fragmentation measure in its own right, but the PFI formula further weights $(1 - SSP)$ by TE. This means that an urban region with higher general spending levels gets a higher PFI. While somewhat disturbing, this aspect of the formula is justified because greater overall spending levels effectively magnify an existing level of fragmentation as measured by $(1 - SSP)$. This fulfills the author's goal because PFI *"distinguishes metropolises by their total levels of local per capita expenditure* (p 49)*."*

[5] As can be seen from the two endnotes above, another significant drawback is that power indices require difficult-to-obtain local budget data for all jurisdictions within the metro areas studied. Significantly, power indices have, to my knowledge, only been used for case studies comparing small numbers of urban areas, never for statistical analyses of all (or a large number of) urbanized areas in the United States.

[6] The property tax is a background factor (as would be level of educational spending or general road maintenance) which can have an impact on firms' location decisions. On the other hand, the property tax is set primarily to provide funding for the municipal budget, albeit with the knowledge that too high a tax rate will drive business away. Now, this dissertation focuses on the phenomenon of jurisdictions competing for specific firms with various targeted tools, such as an offer of publicly funded job training, water district fee reductions, or tax rebates over a specified period. Thus conceived, the property tax per se has an impact on IJC effort only in that a jurisdiction with low tax rates might try a lower IJC offer—the general property tax level is not a tool or component of specific fights to get specific firms. Using the Chapter One example, Fairfax County touted its generally lower tax level to tempt Marriott to relocate… but it did not say, *"We'll lower everyone's property taxes if you come to our jurisdiction."* Thus, IJC is a function of the property tax, but the property tax is not a function of IJC incentive deals. The causation is unidirectional, presenting no endogeneity problem.

Chapter 3 (Methodology and Plan of the Study) Appendix 1:
ICMA Survey IJC Questions

Q12: Please indicate which of the following sources of government revenue are used to fund your economic development programs:

a. Local revenues/general fund
b. Federal grants-in-aid
c. State grants-in-aid
d. General obligation bonds
e. Revenue bonds
f. Tax increment financing
g. Special assessment districts

Q13: Which of the following technology applications has your local government implemented as part of its economic development efforts:

a. Kiosks with touch-screen computers
b. Videos
c. Hand-held computers used in the permit and inspection process
d. On-line computer services (access to government services and information)
e. Interactive faxing (permits, forms, and applications for a fee)
f. Smart buildings (e.g., equipped with technologies that turn lights on and off, that read security cards, etc)
g. Intelligent vehicle highway systems (e.g., electronic toll collectors)

Q 19: Please indicate which of the following business retention activities your local government conducts:

a. Local government representative calls on local company
b. Local government representative calls on national company headquarters
c. Surveys of local businesses
d. Business roundtable
e. Revolving loan fund
f. Ombudsman program
g. Acheivement awards
h. Local business publicity program
i. Replacing imports with locally supplied goods
j. Export development assistance

Q21: Which of the following methods does your local government use to attract business?

a. Community resources databases
b. Promotional material
c. Media advertising
d. Direct mail
e. Participation in trade shows
f. Attendance at conferences
g. Local government representative calls on prospective companies
h. Hosts special events
i. Ambassador program
j. Trade missions abroad

Q 30: Please indicate which of the following incentives you offer:
    a. Tax abatements
    b. Tax credits
    c. Enterprise zones
    d. Tax increment financing
    e. Grants
    f. Infrastructure improvements
    g. Land write-downs
    h. Subsidized buildings
    i. Employee screening

    j. Training Support
    k. Utility rate reduction
    l. Zoning/permit assistance
    m. Regulatory flexibility
    n. Relocation assistance
    o. Low-cost loans
    p. One-stop permitting
    q. Special assessment districts

Appendix 2 (Chapter Three)
Metropolitan Area and Urbanized Area Maps

Note: Maps provided for general visual comparison of MSA and UA sizes, not for detailed analysis. For more detailed cartographic and tabular data for comparisons in specific urban regions, see source Census documents.

Map—MSAs, Western U.S. *(www.census.gov)*
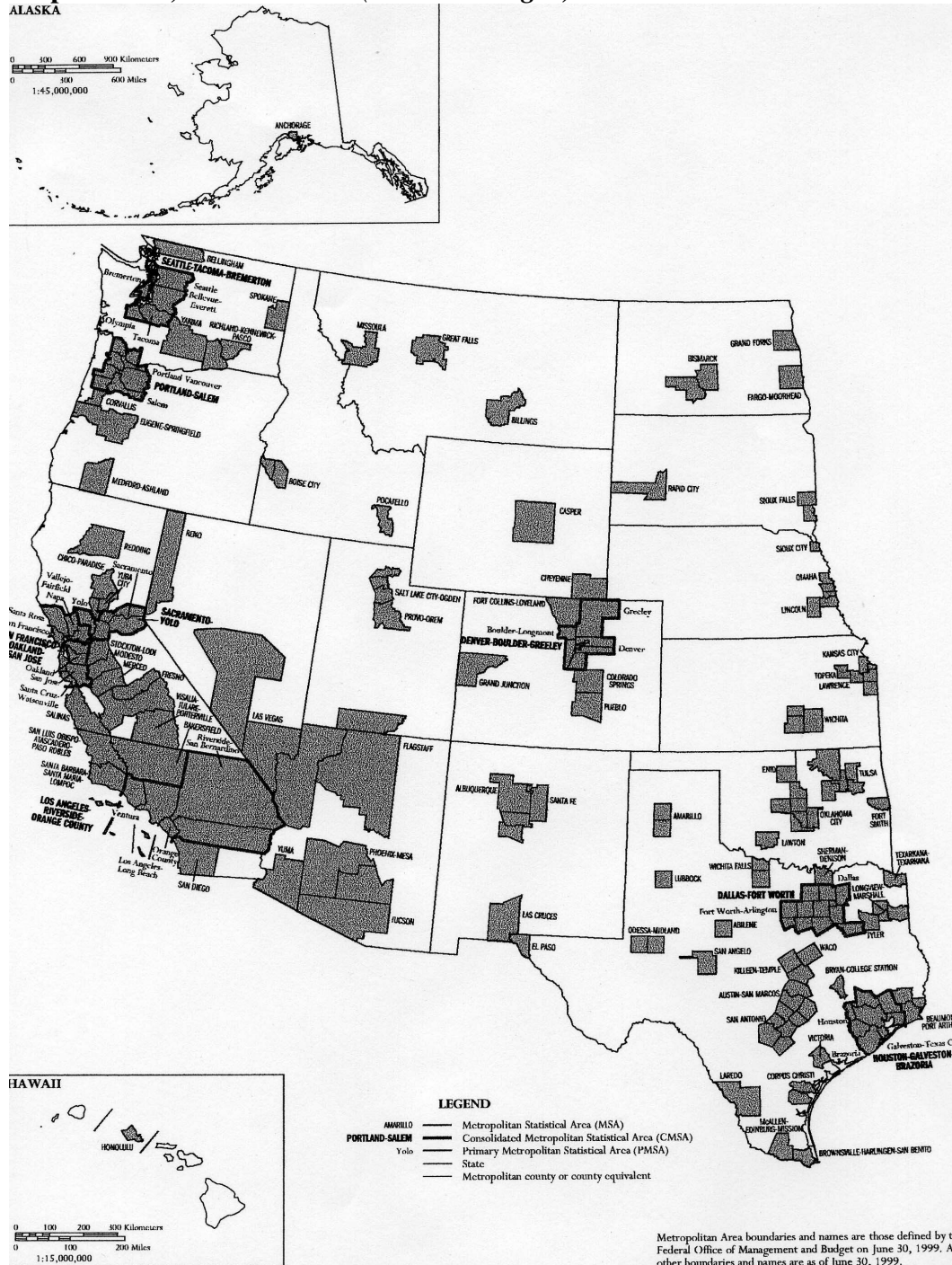
Map, Western UAs, U.S. *(Bureau of the Census: 1990 Census)*
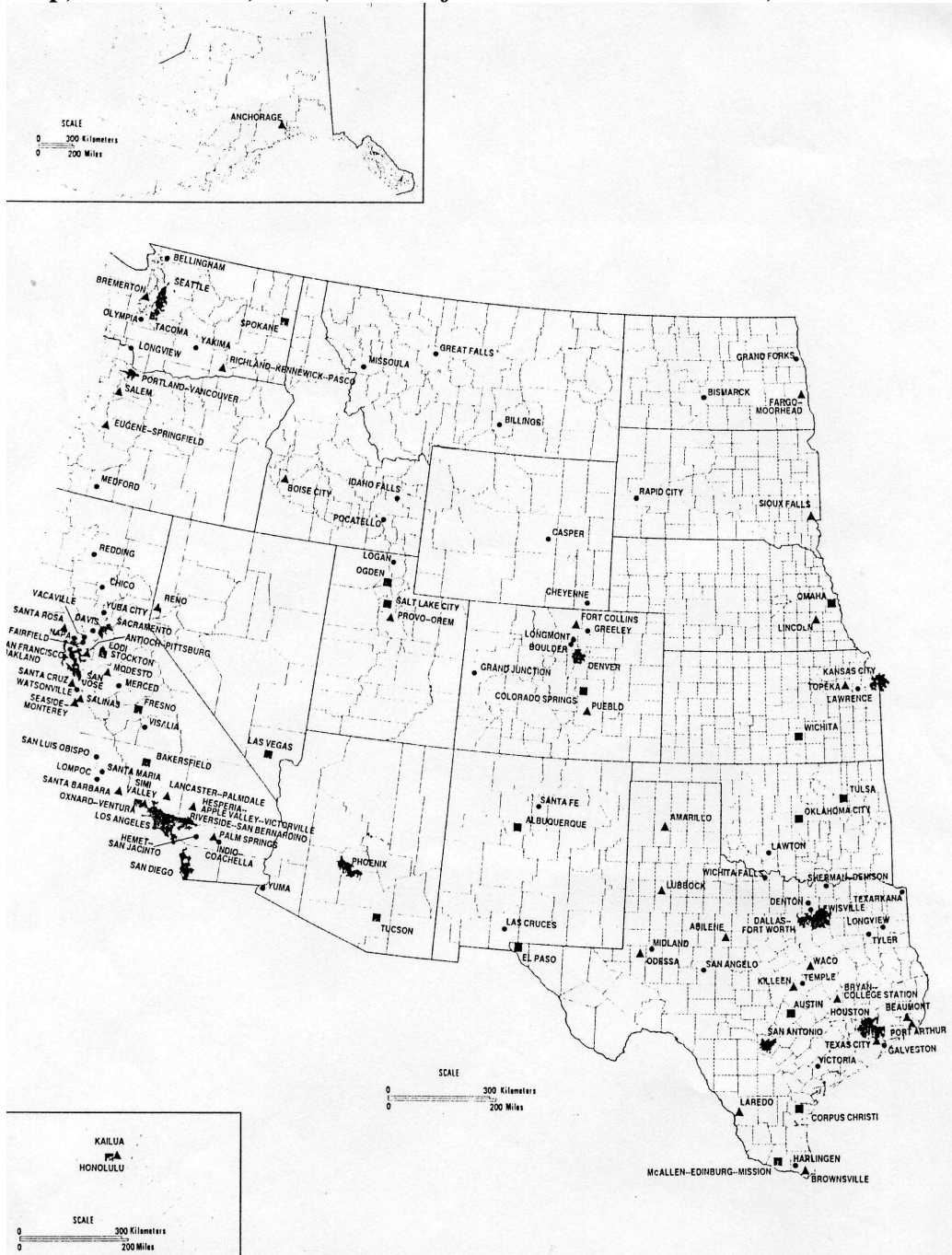
Map, Eastern MSAs, U.S. *(www.census.gov)*
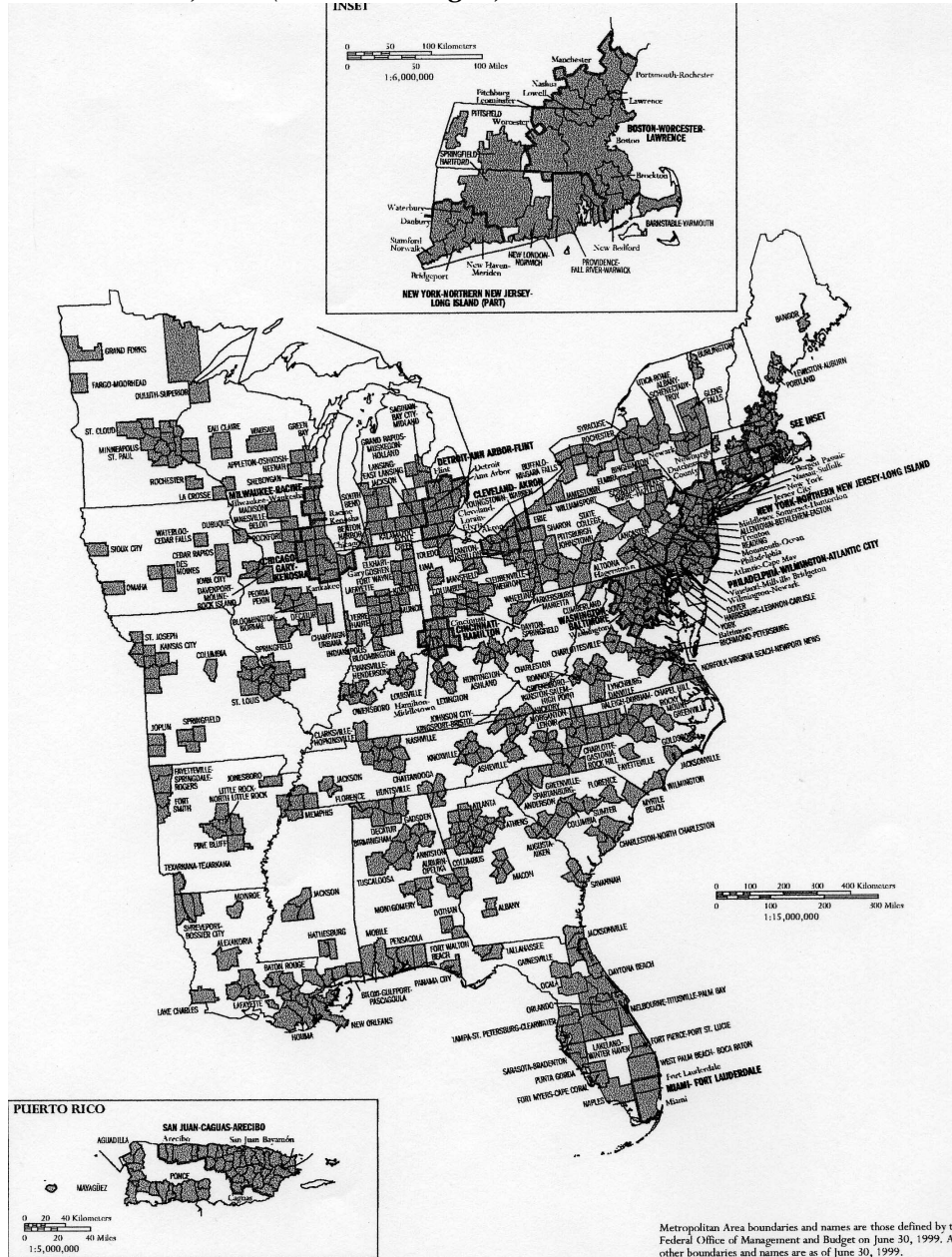
Map, Eastern UAs, U.S. *(Bureau of the Census: 1990 Census)*

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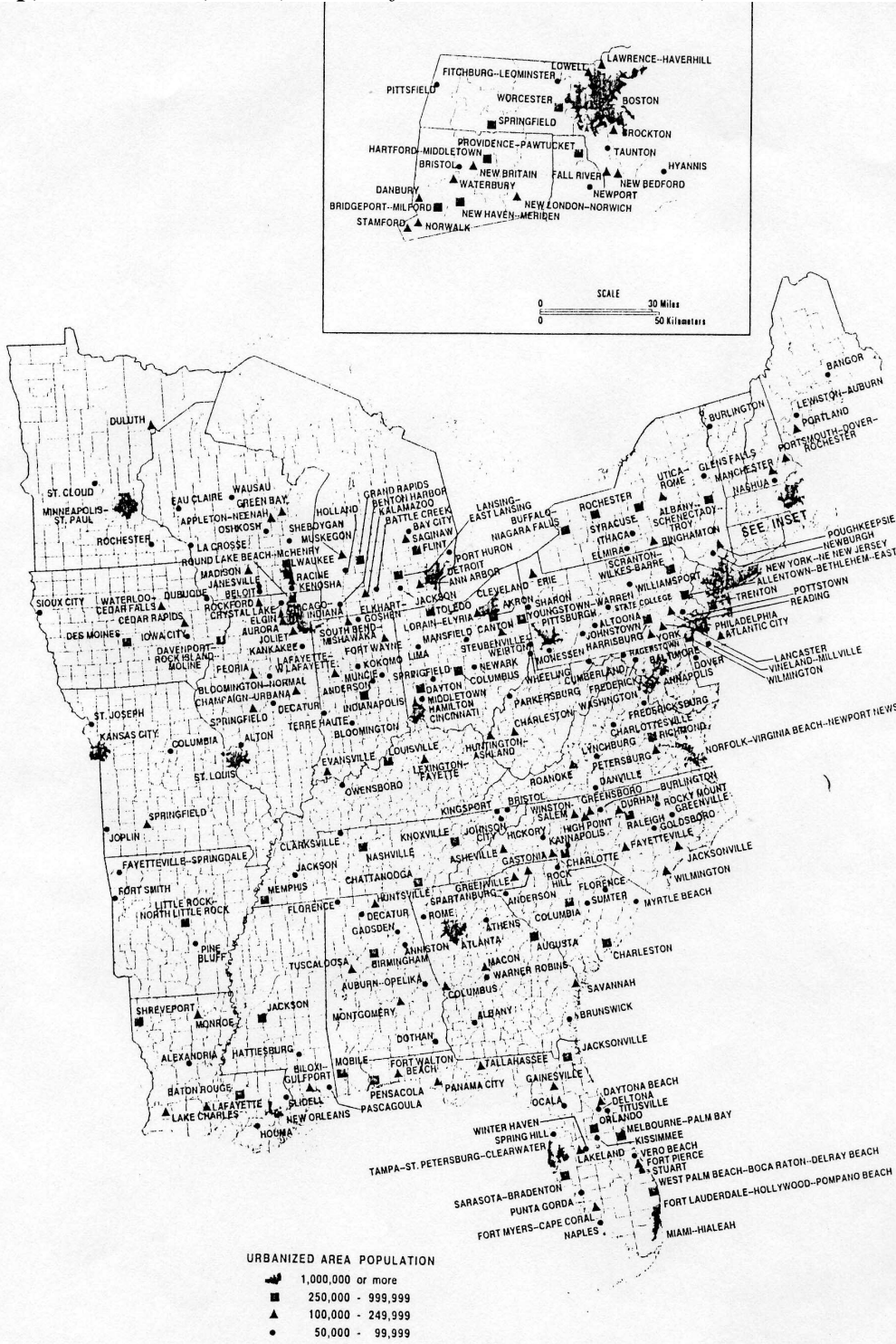
Chapter 4: Analysis I—Free Rider Hypothesis

4.1   Overview

This chapter applies the methodology of the last chapter to the free-rider explanation of collective action expounded in Chapter Two, *Theory*. We will first specify additive indices as proxies for IJC effort, then use those indices to evaluate the free-rider theory of collective action first enunciated by Mancur Olson in *The Logic of Collective Action*. The statistical analysis will not only fail to substantiate the free-rider theory; it will indicate an opposite direction of causation entirely counter to the intuition of that paradigm. We will next conduct some corollary investigations: *What is the effect of racial diversity? …of form of government (e.g., mayor versus city manager)?* The chapter will conclude by assessing the impact of the control variables (those other than *fragmentation*) on interjurisdictional competition.

4.2   The Free-rider Hypothesis—Additive Index Construction and a Test

4.2.1   Introduction

To synthesize the argument to this point: Mancur Olson asserted that political science had in effect selected on the dependent variable in developing its original explanation of collective action. Scholars had observed pressure groups and lobbies, then concluded that collective action is an inherent part of the democratic mode; indeed, of the spirit of liberty. Olson looked at a broader spectrum of groups, successful and ephemeral, and recognized that many attempts at collective action had failed. Collective action in this new paradigm was plagued by free riders. The rational individual response to calls for collective action was to defect from

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cooperation—to let the proverbial 'other guy' bear the burdens—dooming most

collective action attempts to failure unless the number of potential participants is

extremely small or the group leadership provides selective benefits to members.

These components of the collective action problem lead to the game theoretic

prisoners' dilemma model of free-rider collective action theory. As detailed in

Chapter Two *(Theory),* the IJC/urban area fragmentation world fits nicely into the

prisoners' dilemma structure, facilitating a testable hypothesis that interjurisdictional

competition is a function of fragmentation. If the free-rider theory is accurate, then

we would expect to see a positive correlation: an increase in fragmentation should

lead to an increase in IJC. However, in point of statistical fact, we actually observe

the opposite. An increase in fragmentation leads to a *decrease* in IJC.

The following three sections build to the full presentation of this finding and

the statistics behind it. Section 4.2.2 presents the additive indices which form proxies

for IJC effort. Section 4.2.3 very briefly assesses the adequacy of these indices, a

subject treated at length in Appendix Two to this chapter. Section 4.2.4 provides a

detailed explanation of the statistical output tables which were initially introduced at

the end of Chapter Three *(Methodology),* and shows what how such a table would

appear if the free-rider theory is substantiated. Section 4.2.5 presents the actual

computer output.

4.2.2   Questions, Answers and Indices

As noted in the previous chapter, additive indices have the advantage of

capturing information more precisely than a single question does, especially if the

choice of answers to the single question is either-or, *yes* or *no.* The multiple

questions involved in our additive indices are at the appendix to Chapter Three,

Methodology. They can be arranged to construct additive indices covering

promotional activities, incentives employed, funding sources and the like. The

following indices were constructed, based upon the questions listed in Appendix 1 to

Chapter Three:

- *Activities:* Comprising the answers to questions 19 and 21 *("Please indicate which of the following business retention {attraction} activities your local government conducts…"),* this indicator gives the jurisdiction a combined total of twenty possible responses ranging from visits to national corporate headquarters to export development assistance.

- *Activities and Technology (*in tables, abbreviated *act & tech):* This adds question 13 to the *Activities* additive index, enabling responding jurisdictions to choose up to seven technologies such as on-line computer services and videos used in economic development efforts.

- *Activities, Technology and Funding (*in tables, abbreviated *act, tech & funds):* This index completes this family of three related indices by including question 12 on funding sources. The seven answers to this question include local revenues to federal grants as well as revenue bonds and tax increment financing.

- *Incentive Types (*in tables, abbreviated *incntype):* The seventeen answers to question 30 *("Please indicate which of the following incentives your local government offers…")* in themselves constitute a

valuable additive index. Answers include several financial incentives as well as training support and regulatory flexibility.

Two other questions have been employed. While not strictly additive indices, questions 15a and 15b ask *"What percentage of your staff's time is devoted to [business retention and business attraction]?"* These questions constitute another perspective on the intensity of incentive efforts and hence interjurisdictional competition. In the tables, these variables are abbreviated as *Staff Time % --Retention* and *Staff Time % --Attraction.*

4.2.3   Index Testing

The adequacy of an additive index is assessed with two measures: *reliability* and *validity. Reliability* consists both of getting similar results over time and of *internal consistency*—the strong correlation of individual items within the index with each other. A reliable additive index undeviatingly measures a phenomenon… but there is no guarantee exactly what it is describing. Therefore, *validity* of the index ensures its consistent output is on the mark. *(Spector, pp 6-9.)* Ideally, a survey using additive indices would be pre-tested, revised and re-evaluated with test groups before being administered to the overall population sample. However, the same statistics and similar techniques can be used to assess the adequacy of additive indices derived from a previously-administered questionnaire, such as the ICMA survey in this study.

Appendix Two to this chapter employs these methods to substantiate the reliability and validity of additive indices within this study. In quick summary, *Cronbach's alpha* establishes the internal consistency of the additive indices.

Spearman's Rank-Difference Correlation and *Kendall's Tau* tests substantiate the

validity of the questions which comprise the additive indices: the rank-order of

answers remains the same whether the jurisdiction is highly competitive or less

competitive. Another test involving specific urban areas and data from Lexis-Nexis

news archives also underscores the validity of the additive indices by correlating high

(or low) additive index scores with high (or low) IJC effort in news or scholarly

accounts. Thus, a variety of perspectives and methods support the reliability and

validity of the ICMA survey additives indices with actual conditions in the American

metropolis.

4.2.4   Basic Regression ('Fragmentation' Independent Variable)

The basic operationalization of the hypothesis *IJC = f(fragmentation)* is the

regression equation:

*IJC = fragmentation measure + jurisdiction population + jurisdiction income
per capita + real property tax + UA population*

Symbolically,

$$IJC = a + b_1 FragI + b_2 jurispop + b_3 incomepercap + b_4 propertytax + b_5 Uapop + e$$

The effects of state IJC aid were compensated for by running the regressions

again, this time using only urban areas which are entirely within the borders of a

single state. Overall, this results in twenty-four regressions. Chapter appendix 1,

Table 4-A-1, presents each regression in detail. This chapter will highlight key

variables in matrix chart form. In this section, the key variable is *fragmentation*

itself. Results are entered only for statistically significant t-values for fragmentation

indicators. Coefficients with t-value significance greater than 0.15 are represented

with dashes ("-----"). Each entry in the matrix lists the fragmentation coefficient and

sign, then the significance level for the t-value. The *n* for an IJC indicator (such as

"activities" or "incntype") is listed on a separate row below each matrix. The

fragmentation indices (defined in Section 3.5(a)) along the left -hand side of the table

are:

- FragI-population: The fragmentation index based upon jurisdictional shares of urban area population.

- FragI-income: The fragmentation index based upon jurisdictional shares of urban area income.

If the free-rider explanation for cooperation holds, the matrix cells should

report a predominance of positively-signed results. The more fragmented the urban

area (controlling for urban area population size), the greater the competition among

jurisdictions… and the less likely is cooperation. Table 4-1 is a hypothetical

illustration of such a result:

TABLE 4-1
Example: Free-rider Theory Outcome

all urban areas:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
Fragl-population	+	+	+	+	+	+
Fragl-income	+	+	+	+	+	+

urban areas within single states only:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
Fragl-population	+	+	+	+	+	+
Fragl-income	+	+	+	+	+	+

Note: Fragl is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*

4.2.5   Statistical Output—'Fragmentation' Independent Variable

Table 4-2 reports the actual statistical output for fragmentation indices. There are *no* positive correlations of fragmentation with increased IJC effort. On the other hand, fully twenty-one regressions—87.5% —generated an inverse result:

		act & tech	act, tech & funds	incntype	Staff Time %	

TABLE 4-2
Fragmentation-- Basic Regression Results

all urban areas:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
FragI-population	-1.81/.03 |2.21|	-1.74/.05 |1.95|	-1.94/.05 |1.96|	-1.47/.02 |2.32|	-12.2/.02 |2.31|	-----
FragI-income	-2.00/.02 |2.41|	-2.01/.03 |2.23|	-2.23/.03 |2.22|	-1.55/.02 |2.42|	-11.3/.03 |2.15|	-6.76/.13 |1.51|
n =	619	619	619	619	437	436

urban areas within single states only:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
FragI-population	-2.12/.03 |2.27|	-1.87/.07 |1.81|	-1.76/.12 |1.55|	-1.34/.07 |1.79|	-15.3/.01 |2.61|	-----
FragI-income	-2.21/.02 |2.35|	-2.02/.05 |1.95|	-1.94/.09 |1.70|	-1.41/.06 |1.87|	-14.1/.02 |2.39|	-----
n =	472	472	472	472	340	339

Note: FragI is _"Fragmentation Index", defined in Sections 4-2 and 3/5(a)_
Note: Entries denote _coefficient/significance level & |absolute value| of_ 't'

This counter-intuitive result in the face of a prisoners' dilemma situation will motivate a search for other explanations of IJC behavior in the next chapter, using reasons suggested by alternative explanations of collective action.

What is the actual magnitude of the impact of fragmentation on IJC effort? Of course, the coefficients above show the impact of a one-unit change in fragmentation on the IJC indicator for that matrix cell. In the first cell of Table 4-2 above, for example, a change of 1 in FragI-population will cause IJC as measured by the _activities_ additive index to decrease by 1.81. This is a bit nebulous, given that fragmentation indices constitute a 0-1 scale and that each additive index and other IJC

measure comprises a different number of response options. A more intuitively

appealing way to envision the results—one which will be employed again to augment

key results tables in the next chapter—is to answer the question, *by what percentage*

does IJC change from the lowest to the highest value of the actual range of FragI?

Thus, in the first cell of Table 4-2, does the —1.81 coefficient translate into a large

percentage change in the *'activities'* IJC additive index, say, a 40% difference in IJC

effort from the least to the most fragmented urbanized areas? …a small change, such

as 1%? …or some change in the middle of the extremes? We can make the

calculation for the first matrix cell in the following manner:

$IJC_{Activities} = -1.81$
> The actual range of FragI-population is not 0-1 but from 0.05 to 0.99, thus 0.99—0.05 = 0.94. To standardize, ($IJC_{Activities}$ x FragI-population) is:

$(-1.81)(0.94) = -1.7014.$
> Finally, the $IJC_{Activities}$ additive index contains 20 responses; thus the maximum, 100% change would be 20. Instead, we have a standardized change of –1.7014. We need to compute what percent –1.7014 is of 20. Thus,

$-1.7014/20 = -9\%$

This result indicates that if we move from the case of the minimum

fragmentation to the maximum fragmentation as measured in the sample, there would

occur a change of approximately two of the twenty activities in the index. This

change represents a 9% decrease in IJC effort—not massive but certainly not at all

negligible. Table 4-2(a) summarizes the application of this formula to all other

matrix cells:

| | | TABLE 4-2(a) | | | | |
| | | *Basic Percentages* | | | | |

all urban areas:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
FragI-population	-9%	-6%	-5%	-8%	-11%	na
FragI-income	-10%	-7%	-6%	-9%	-11%	-7%

urban areas within single states only:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
FragI-population	-10%	-7%	-5%	-7%	-14%	na
FragI-income	-11%	-7%	-5%	-8%	-14%	na

Note: FragI is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*

The percentage decreases are not negligible, especially as the free-rider explanation would have the signs point in the opposite direction. The different IJC measures appear to be of similar magnitude, 5%-11% for additive indices and 7%-14% for staff time devoted to retention or attraction of firms.

This algorithm was run again for all regressions in Table 4-2(a) as well as for all similar charts in Chapter Five (Tables 5-2(a), 5-3(a), 5-4(a) and 5-5(a)), this time using observations within +/- 1 standard deviation of the mean fragmentation index. This range constitutes the middle 68% of jurisdictions based upon degree of fragmentation. All percentages remained within seven percentage points of the original percentages for Table 4-2(a) as well as for all but 7 of 48 cells in the Chapter Five tables. The largest difference in the Chapter Five tables was eighteen percentage

points. In 12 of 60 cells in Chapters Four and Five, the algorithm for +/– 1 standard deviation regressions generated a statistically significant result while the original computation did not, or vice versa. In sum, this indicates relative smoothness throughout the functions rather than an abrupt difference in the rate of change in the upper or lower reaches of fragmentation.

   Regression Diagnostics. Regression diagnostics indicated significant heteroskedasticity—the tendency for the variation around a variable's mean to change throughout the range of observation. For example, typing errors in a typing class may have a wide dispersion at the beginning of a school year but be far less dispersed later in the year. Heteroskedasticity can cause a regression to miss a relationship where one actually exists. Breusch-Pagan/Cook-Weisberg and Szroeter tests revealed the theoretically critical control variable *urban area population* to be heteroskedastic. White-Huber robust standard errors were therefore run with all regressions to offset this problem. This procedure does not affect the size or sign of coefficients.

   The major concern about the regressions is that the data are noisy; R-squareds are very low. However, scholarship of the past fifteen years has raised considerable doubt about the efficacy of R^2 (Brown, 1999; Cox and Wermuth, 1992; Lardaro, 1993; Nau, 2004).   Another statistic appraising regression equations, the *F-test*, will be reported in the detailed appendices to this and the next chapter.[1] The F-statistic measures *"the overall significance of the equation"* (Kennedy, p 65) by determining if any (or all) independent variables have an impact on the value of the dependent variable. The F-test is however free of the criticisms leveled at R^2. (Kennedy, pp 65-

7; Gujarti, pp 245-50.) The overwhelming majority of F-statistics in this study are significant at the .00 level of confidence. An endnote provides further detail.[2]

 4.3   Corollary Investigations: *The Effects of Racial Diversity and Form of Government*

As noted in Chapter Three, numerous scholars have commented on the impact of race on governmental processes, including American urban politics (see for example Elkin, 1987; Miller, 1999; Reed, 1987; Stone, 1989). A testable hypothesis is that outcomes are a function of racial diversity—the more ethnically fragmented a jurisdiction or region, the more fractious the politics. In our setting, the higher the racial fragmentation, the greater the interjurisdictional competition.

Urban political scientists have also frequently described a difference in responsiveness to citizens and powerful interests between more traditional strong mayor and commission government on the one hand and council-manager government on the other. Progressive Era reforms involving professional city/town managers and civil service (versus patronage) systems are frequently criticized as making government more remote from and less responsive to citizens (see for example Bridges, 1997). Given this difference between the more politically responsive mayor and commission forms of government, and given that business interests would presumably want to maximize tax breaks and public works which support their firms, we would hypothesize that mayor and commission governments would be associated with greater amounts of interjurisdictional competition.

These two hypotheses can be tested by adding appropriate variables to our regression, transforming it to:

IJC = f(fragmentation, race, form of government) + control variables

and reporting results in a table similar to that of the basic computer run.

Form of government was operationalized as a dummy variable in which mayor and commission governments were assigned a "1" score and council-manager a "0" score. The small number of town meeting governments in the sample were given a "0" score also because such governments generally rely on full-time managers.

Operationalizing racial diversity of an urban area proved immensely more challenging. Hirschman-Herfindahl Indices were constructed for each urban area based upon 1990 census data. Unfortunately, the 1990 Census did not directly account for Hispanic origin, which was a separate question. According to Bureau of the Census analysts, most Hispanics checked "white" for ethnic origin, so a separate Hirschman-Herfindahl Index of ethnic concentration was computed by adding 'Hispanic' while subtracting Hispanic from 'white'. In most urban areas, this modification did not significantly change the final HHI score by more than a few points, except for several urban areas in California, Florida and Texas. However, correlation matrices—a type of regression diagnostic—indicated that such HHIs were highly colinear with urban area population. The greater the UA population, the less homogenous the ethnic makeup of the region. Kennedy (p 184) notes this to be one of the circumstances in a data set which can give rise to multicolinearity: *"…there could in fact exist some kind of approximate relationship among some of the regressors."* Multicolinearity leads to high variance in OLS estimates of coefficients of the colinear variables; hence, to low confidence in the coefficients. Changing to a series of dummy variables denoting HHI-derived gradations of racial diversity did not

help. Neither did using the percentage of urban area population accounted for by the largest racial or ethnic group. Finally, employing a 0,1 dummy variable denoting whether an urban area had above-average racial fragmentation or not resulted in no significant multicolinearity during regression diagnostics. Accordingly, this racial diversity measure was adopted.

The results are summarized in Table 4-3:

| TABLE 4-3 |
| *Fragmentation-- Mayor, Race Regression Results* |

all urban areas:

	activities	act & tech	act, tech & funds	incntype	**Staff Time %** Retention	Activities
Fragl-population	-1.97/.02 |2.42|	-1.94/.03 |2.19|	-2.18/.03 |2.23|	-1.57/.01 |2.50|	-12.2/.02 |2.29|	-----
mayor/comm	-.99/.01 |2.84|	-1.25/.00 |3.34|	-1.23/.00 |2.91|	-0.43/.08 |1.76|	-----	-----
race diversity	-----	-----	-----	-0.39/.15 |1.45|	-----	-----
Fragl-income	-2.09/.01 |2.54|	-2.13/.02 |2.37|	-2.37/.02 |2.39|	-1.62/.01 |2.54|	-11.4/.03 |2.15|	-----
mayor/comm	-0.97/.01 |2.78|	-1.24/.00 |3.28|	-1.21/.00 |2.86|	-0.41/.09 |1.69|	-----	-----
race diversity	-----	-----	-----	-----	-----	-----
n =	619	619	619	619	437	436

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Activities
Fragl-population	-2.17/.02 |2.33|	-1.94/.06 |1.88|	-1.94/.09 |1.70|	-1.46/.05 |1.95|	-16.1/.01 |2.71|	-----
mayor/ comm	-0.72/.09 |1.72|	-1.01/.03 |2.22|	-1.07/.04 |2.10|	-0.49/.09 |1.72|	-----	-----
race diversity	-----	-----	-----	-----	-----	-----
Fragl-income	-2.21/.02 |2.36|	-2.03/.05 |1.97|	-2.01/.08 |1.79|	-1.49/.05 |1.98|	-14.9/.01 |2.51|	-----
mayor/ comm	-0.69/.10 |1.65|	-0.99/.03 |2.17|	-1.05/.04 |2.06|	-0.48/.10 |1.66|	-----	-----
race diversity	-----	-----	-----	-----	-----	-----
n =	472	472	472	472	340	339

urban areas within single states only:

Note: Fragl is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*
Note: Entries denote *coefficient/significance level & |absolute value| of 't'*

Of note,

- Once again, no fragmentation coefficient is positively signed. Twenty of twenty-four coefficients—83%--exhibit the inverse relationship.

- Race does not appear a significant factor in the IJC world. Only one of the two dozen regressions carried a statistically significant racial diversity coefficient.

- Mayor and commission government does appear to have an effect on interjurisdictional competition. Sixteen regressions (66%) carried statistically significant negative mayor/commission coefficients, while none were positively signed. Mayor and commission government is thus generally associated with a more cooperative IJC stance—opposite the predicted sign of the equation. Chapter Five will show that greater numbers of business,

political and professional groups tend to be associated with greater

cooperation and less IJC, offering an explanation for the reversed sign.

Mayoral and commission government is more responsive, but pressure groups

tend to favor cooperation.

- It is also important to ask what effect the inclusion of mayor/commission and

  racial diversity variables has on the strength of the basic fragmentation

  variable. Table 4-4 (below) provides insights.

TABLE 4-4
Coefficients Compared

all urban areas:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
FragI-population	-0.16/-.01	-0.2/-.02	-0.24/-.02	-0.1/-.01	.00/.00	-----
FragI-income	-0.09/-.01	-0.12/-.01	-0.14/-.01	-0.07/-.01	-0.11/.00	*see note

urban areas within single states only:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
FragI-population	-0.05/-.01	-0.07/-.01	-0.15/-.03	-0.12/-.02	-0.76/.00	-----
FragI-income	.00/.00	-0.01/.00	-0.07/-.01	-0.08/-.01	-0.8/-.01	-----

Note * : Statistic becomes insignificant at 0.17 level.
Note: FragI is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*
Note: Entries denote *coefficient/significance level*

Of twenty-one matrix cells which contained statistically significant scores, eighteen

coefficients became more negative with the addition of the mayor and race variables.

All but five also received higher significance levels. The others retained their original significance levels. Only one cell *(FragI-income, Attraction* for *'all urban areas')* became weaker (indeed, statistically insignificant) both in coefficient and significance when mayor and race were taken into account, and only one regression stayed the same. Thus, the addition of the two variables overwhelmingly made the inverse relationship between urban area fragmentation and competition stronger.

4.4   Comments on Control Variables

Although it is useful for summarizing key results, the indicator matrix method obscures full regression equations. This is unfortunate in that control variables are themselves of interest in various disciplines. The tables in chapter Appendix One list all statistically significant coefficients with the significance of their t-values. Summary comments on the two matrices (comprising 48 cells) follow:

- *Jurisdiction population* is always positive. Increased population of a jurisdiction (in a regression which controls for overall urban area population) clearly gives the jurisdiction more resources to devote to incentives and IJC activities. It also may put more pressure on municipal officials to use any means possible to expand the job base, including the use of IJC. Because the next control variable, *income per capita*, is not generally significant, the latter political (versus resource-based) explanation may be more compelling. The apparently small coefficients are somewhat deceptive: The +0.000009 coefficient in the first cell means that for every increase of one hundred thousand persons, the value of this IJC indicator goes up by almost a whole point on a scale of 1 – 20. Note that this result provides yet another

substantiation of the *zoo effect* mentioned in Section 3.6. (Schmandt &

Stephens, 1960; Oates 1986)

- ***Income per capita*** is, interestingly, not generally significant (12 of 48 cells),

  even though it should also be a source of financial strength facilitating higher

  levels of IJC.

- ***Property tax*** is inversely correlated with IJC in 29 of 48 cells, or 60%. The

  size of the coefficient is small but the sign reinforces the image of the property

  tax as another tool of IJC: Lower property taxes are an incentive to business

  location and in this survey are associated with more aggressive levels of IJC.

  The Chapter One example of Fairfax County, Virginia offering Marriott

  Corporation a smaller package of public works benefits combined with much

  lower property taxes than Montgomery County, Maryland is a case in point.

- ***Urban Area population*** is generally not significant. Overall, coefficient signs

  are mixed and significant only in 13 of 48 cells. Positive signs make up 6 of

  48 cells (12.5%) while negative coefficients account for 7 cells (15%).

4.5   A Comment on High- versus Low-IJC Polities.

While not answered by analysis of control variables, another interesting

question regards differences between jurisdictions which practice IJC very intensely

and those which do not. If we examine polities which score above average for IJC

and contrast them with communities which exhibit below average IJC effort, what do

highly competitive jurisdictions do that less competitive cities and towns do not?

The answer turns out to be that both above- and below-average IJC polities

use roughly the same tools. As detailed more extensively in Section 4.3* of

Appendix Two of this chapter, when the responses to the ICMA survey questions

underlying the additive indices are broken into two groups—the responses of above-

average IJC jurisdictions and the responses of below-average IJC jurisdictions—and

the responses are ranked according to frequency of use, the resulting prioritized lists

are remarkably similar. For example, on question 30—the variety of incentives

offered by jurisdictions—both high- and low-IJC municipalities displayed markedly

similar preference orderings. The top five incentives employed were the same, with

only one pair inverted between the rankings of high- and low-IJC polities:

TABLE 4-5
Top Five Incentive Offerings:
High- vs Low- IJC Jurisdictions
(question 30)

% using:	IJC Tool: *AV+*	IJC Tool: *AV-*	% using:
0.85	*Zoning/permit assistance*		0.379
0.814	*Infrastructure improvements*		0.192
0.532	*TIF**	*One-Stop**	0.154
0.5	*Tax abatements*		0.119
0.473	*One-Stop**	*TIF**	0.117

* Notes: "TIF" is "tax increment financing";
   "One-Stop" is "one-stop permit
    assistance".

Further, out of 18 incentives offered as options in this survey question, in only four

cases were the preferences of high- and low-IJC polities more than two rankings

apart. For example, for highly competitive communities *"Free land or land write-*

downs" ranked as the 7th most-used incentive while for the less competitive this

incentive was ranked 12th.

Thus, what works for one type of community evidently works approximately as well for another type. The efficacy of incentives, methods and funding sources appears to be much the same for communities whether or not they are highly competitive for new firms.

4.6 Conclusion

If the free-rider explanation is correct, then more fragmentation should doom cooperation in attracting industries to metropolitan regions. The greater the fragmentation, the greater the IJC effort. Instead, statistical analysis shows that more fragmented urbanized areas experience not more competition but rather greater cooperation. What might account for a result so counter-intuitive to free-rider theory? Chapter Five will test three major alternative explanations of collective action.

---

[1] Given the use of White-Huber robust standard errors to correct for heteroskedasticity, the STATA statistics package actually computes a Wald statistic in place of the F-statistic. Peter Kennedy (1998) notes that the Wald statistic is asymptotically equivalent to the F-test (p 60). The Wald test employs a chi-square distribution; however, for linear regression, the chi-square distribution approximates an F

distribution with degrees of freedom 1 and the residual degrees of freedom from the original model (Kennedy, p 60; STATA Reference Manual, p 235).

[2] Scholarship of the past fifteen years has raised considerable doubt about the efficacy of R^2. Cox and Wermuth (1992) observe that *"Much has been written in dispraise of the coefficient of determination R^2 as an overall summary of the effectiveness of a least squares equation."* Brown (1999) and Nau (2004) note that stock market predictions routinely have R^2 below 0.30. Lardaro (1993; p 186) includes a cautionary discussion of R^2 in his text:

> *…there are a number of potential pitfalls associated with using R^2 to judge the performance of a single equation or as a basis for comparing several equations: (1) Spurious correlations can produce large R^2 values…(2) Time series equations almost always generate higher R^2 values than cross-section equations… (3) Low R^2 values are not necessarily the result of including an incorrect explanatory variable in the sample regression function… [Available proxies may not adequately measure one or more independent variables.]*

McGuirk and Driscoll (1995) elaborate on this theme with examples based upon computer-generated simulation data. The first example in their paper features a model with an R^2 of 0.38 and yet *"the regression model is correctly specified (all statistical assumptions are met) and the (simulated) expected values of the estimated coefficients are all close to their respective population parameters."* Their second example generates a high R^2 but coefficients wildly off the mark: – 7.7 instead of +5; +47.2 instead of +0.5. Subsequent simulations demonstrate that R^2 can be a highly inconsistent measure.

Peter Kennedy summarizes in the fourth edition of his *Guide to Econometrics* (1998, p 27):

> *…a high R^2 is not necessary for "good" estimates; R^2 could be low because of a high variance of the disturbance terms, and our estimate of beta could be "good" on other criteria… In general, econometricians are interested in obtaining "good" parameter estimates where "good" is not defined in terms of R^2. Consequently the measure R^2 is not of much importance in econometrics. Unfortunately, however, many practitioners act as though it is important, for reasons that are not entirely clear…*

The *F-test* will be reported in the detailed appendices to this and the next chapter. The F-statistic measures *"the overall significance of the equation"* (Kennedy, p 65) by determining if any (or all) independent variables have an impact on the value of the dependent variable. The F-statistic is related computationally to R^2 in that it divides the numerator and denominator of R^2 by degrees of freedom based upon the number of variables and the number of observations, respectively. The F-test is however free of the criticisms leveled at R^2. (Kennedy, pp 65-7; Gujarti, pp 245-50.) The overwhelming majority of F-statistics in this study are significant at the .00 level of confidence.

Appendix 1 to Chapter 4 (Free Rider Hypothesis): *Control Variables*

					Staff Time %	
4-A-1						
all urban areas:						
	activities	**act & tech**	**act, tech & funds**	**incntype**	**Retention**	**Activities**
Fragl- population	-1.81/ 0.03	-1.74/ .05	-1.94/ .05	-1.47/ .02	-12.17/ .02	-----
juris pop	+.000009/ .03	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .00	+.00001/ .12
income per cap	-----	-----	-----	-----	-.009/ .07	-----
property tax	-.00002/ .05	-.00002/ .15	-.00003/ .05	-.00002/ .08	-----	-----
UA pop	-.00000007/ .13	-.00000008/ .07	-.0000001/ .04	-----	-----	-----
Prob > F	.00	.00	.00	.00	.00	.04
Fragl- income	-2.00/ .02	-2.01/ .03	-2.23/ .03	-1.55/ .02	-11.29/ .03	-6.76/ .13
juris pop	+.000009/ .00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .00	+.00001/ .12
income per cap	-----	-----	-----	-----	.009/ .08	-----
property tax	-.00002/ .05	-----	-.00002/ .06	-.00002/ .08	-----	-----
UA pop	-----	-.0000008/ .11	-.0000001/ .05	-----	-----	-----
Prob > F	.00	.00	.00	0	.00	.03
n =	619	619	619	619	437	436

urban areas within single states only:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Activities
FragI-population	-2.12/ .03	-1.87/ .07	1.76/ .12	-1.34/ .07	-15.34/ .01	-----
juris pop	+.000009/ .00	+.000001/ .00	+..00001/ .00	+.000005/ .00	+.00002/ .03	+.00001/ .08
income per cap	-----	-----	-----	+.001/ .02	-.01/ .03	-----
property tax	-.00002/ .06	-----	-.00002/ .07	-.00002/ .14	-----	-----
UA pop	+.0000001/ .14	-----	-----	+.0000001/ .02	-----	-----
Prob > F	.00	.00	.00	.00	.01	.19
FragI-income	-2.21/ .02	-2.02/ .05	-1.94/ .09	-1.41/ .06	-14.1/ .02	-----
juris pop	+.000009/ .00	+.00001/ .00	+.00001/ .00	.000005/ .00	+.00002/ .03	+.00001/ .08
income per cap	-----	-----	-----	+.001/ .02	-.01/ .03	-----
property tax	-.00002/ .07	-----	-.00002/ .08	.00002/ .14	-----	-----
UA pop	+.000007/ .14	-----	-----	+.0000001/ .02	-----	-----
Prob > F	.00	.00	.00	.00	.01	.14
n =	472	472	472	472	340	339

Note: FragI is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*

Note: Entries denote *coefficient/significance level (significance only for F)*

Note: *UA pop* is urban area population

TABLE 4-A-2
Control Variables—Mayor, Race

4-A-2						

all urban areas:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Activities
Fragl-population	-1.97/ .02	-1.94/ .03	-2.18/ .03	1.57/ .01	-12.2/ 0.02	-----
mayor:	-0.99/ .01	-1.25/ .00	-1.23/ .00	-0.43/ .08	-----	-----
race:	-----	-----	-----	-0.39/ .15	-----	-----
juris pop	+.000009/ .00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .00	+.000009/ .14
income per cap	-----	-----	-----	-----	-.009/ .04	-----
property tax	-.00002/ 0.02	-.00002/ .08	-.00003/ .03	-.00002/ .07	-----	-----
UA pop	-----	-----	-----	-----	-----	-.0000006 /.10
Prob > F	.00	.00	.00	.00	.00	.07
Fragl-income	-2.09/ .01	-2.13/ .02	-2.37/ .02	-1.62/ .01	-11.4/ .03	-----
mayor:	-0.97/ .01	-1.24/ .00	-1.21/ .00	-0.41/ .09	-----	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/ .00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .00	+.000009/ .14
income per cap	-----	-----	-----	-----	-.009/ .05	-----
property tax	-.00002/ .03	-.00002/ .08	-.00003/ .03	-.00002/ 0.07	-----	-----
UA pop	-----	-----	-----	-----	-----	-.0000005/ .13
Prob > F	.00	.00	.00	.00	.00	.05
n =	619	619	619	619	437	436

4-A-2 cont

urban areas within single states only:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
Fragl-population	-2.17/ .02	-1.94/ .06	-1.91/ .09	-1.46/ .05	-16.1/ .01	-----
mayor:	-0.72/ .09	-1.01/ .03	-1.07/ .04	0.49/ .09	-----	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/ .00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .02	+.00001/ .08
income per cap	-----	-----	-----	+.001/ .02	-.011/ .02	-----
property tax	-.00002/ .04	-.00002/ .12	-.00003/ .05	-.00002/ .12	-----	-----
UA pop	-----	-----	-----	+.0000001 /.02	-----	-----
Prob > F	.00	.00	.00	.00	.00	.30
Fragl-income	-2.21/ 0.02	-2.03/ .05	-2.01/ .08	-1.49/ .05	-14.9/ .01	-----
mayor:	-0.69/ .10	-0.99/ .03	-1.05/ .04	-0.48/ .10	-----	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/ .00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .02	+.00001/ .09
income per cap	-----	-----	-----	+.001/ .02	-.011/ .02	-----
property tax	-.00002/ .05	-.00002/ .13	-.00003/ .05	-.00002/ .12	-----	-----
UA pop	-----	-----	-----	+.0000001 /.02	-----	-----
Prob > F	.00	.00	.00	.00	.01	.25
n =	472	472	472	472	340	339

Note: Fragl is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*

Note: Entries denote *coefficient/significance level (significance only for F)*

Note: *UA pop* is urban area population

Appendix 2 to Chapter 4 (Free-Rider Hypothesis): *Additive Index Testing*

4.1* *Introduction:* The adequacy of an additive index is assessed with two measures: *reliability* and *validity*. *Reliability* consists both of getting similar results over time and of *internal consistency*—the strong correlation of individual items within the index with each other. A reliable additive index undeviatingly measures a phenomenon… but there is no guarantee exactly what it is describing. Therefore, *validity* of the index ensures its consistent output is on the mark. *(Spector, pp 6-9.)*

The procedure for assessing adequacy of the ICMA-derived additive indices must be modified from Spector's ideal in which an additive index is pre-tested on pilot groups, reliability refined until internal consistency is high, then gauged for validity… and redesigned/retested if necessary. In that beggars can't be chosers, consistency and validity of an already-administered survey must be assessed ex poste. Fortunately, means similar to Spector's can boost confidence in our additive indices.

4.2* *Reliability:* While re-administering the survey is clearly impracticable, internal consistency of the additive indices can be established using Spector's prescribed means, *Cronbach's alpha (Cronbach; Spector, pp 31-5).* Cronbach's alpha ranges from 0 to 1 and varies as a function of the number of items in the additive index and the degree of correlation they show with each other. An alpha of 0.70 or above indicates acceptable internal consistency. All four additive indices in this study scored well:

Retention/Attraction Activities:	*0.86*
Activities & Technology:	*0.85*
Activities, Tech & Funding:	*0.85*

Incentive Types: *0.77*

A computer program for Cronbach's alpha will list all index components and indicate which ones, if dropped, will raise internal consistency and by how much. This posed a bit of a dilemma in the ex poste setting: When would it be proper to drop an answer in one of the additive indices from a survey already administered, as opposed to one undergoing pilot testing? Fortunately, few responses would raise Cronbach's alpha by their elimination—and those so selected would do so by less than a hundredth of a point. The one response which was ejected was "Other:_____". In all four indices, "Other:_____" lowered internal consistency somewhat and once even varied in a different direction from all other index components. Given the different, catch-all nature of such an open-ended answer nestled among otherwise specified responses, omitting "Other:_____" seemed fully justified.

4.3* *Validity(1):* Might not one city engage in only one IJC practice to the tune of millions of dollars, yet receive a lower additive index score than another city which spreads only a few thousand dollars across a range of competitive mechanisms? This issue can first be addressed by inspection of the questions behind the additive indices. The efficacy of IJC practices should be constant, whether implemented by highly competitive jurisdictions or by those which only occasionally engage in IJC. Thus, competitive jurisdictions—those with high IJC additive index scores—would use about the same practices as do other jurisdictions… and in basically the same order of preference.

Four questions among the bases of the additive indices are displayed below (ICMA reports Question 21 only by overall total; it cannot be analyzed in this

manner.) These bear out the contention that jurisdictions above and below average

IJC intensity use similar means to attract and retain businesses. Question 30 is most

obvious, so the discussion will begin there and proceed in descending order.

Question 30: *Incentives Offered.*

Displaying the data from highest to lowest responses for both above- and

below-average groups produces the following chart:

Q30: AV+ / AV--

AV+			AV--
0.85	L	L	0.379
0.814	F	F	0.192
0.532	D	P	0.154
0.5	A	A	0.119
0.473	P	D	0.117
0.437	O*	J	0.061
0.365	G	O	0.055
0.365	J*	Q	0.052
0.341	M*	E	0.047
0.335	E*	R	0.047
0.314	C*	M	0.04
0.261	Q	G	0.032
0.197	B	C	0.026
0.177	I*	I	0.02
0.167	N*	K	0.015
0.147	K*	B	0.009
0.093	H*	N	0.009
0.087	R	H	0.006

The first five most popular responses are the same for jurisdictions with above-

average ("AV+") and below-average ("AV—") additive index scores, with third and

fifth places reversed—LFDAP versus LFPAD. Nine of the thirteen others were

separated at most by two places in the orderings, as denoted by asterisks in the AV+

column.

Question 19: *Business Retention Activities.*

Listing responses in the more conventional *'19a, 19b, …'* order, and noting

place number for the more popular responses (with asterisks now denoting ties):

	Q19	AV--	AV+		
19a	#1	0.24	0.91	#1	same
19b		0.01	0.26		
19c	#2	0.13	0.82	#2	same
19d	#4	0.08	0.52	#3	
19e	#3	0.09	0.45	#4	
19f	#6*	0.03	0.39	#6	same
19g	#6*	0.03	0.32	#7	same
19h	#5	0.07	0.42	#5	same
19i		0.007	0.08		
19j		0.01	0.23		

The first two places are the same. The third and fourth place preferences are

reversed. Fifth place is the same. There is a tie for sixth place on AV— which

corresponds to sixth and seventh place on AV+.

Question 13: *Technologies Used in Attraction/Retention.*

	Q13:			
		AV--	AV+		
13a		0.002	0.13	#5*	
13b	#1	0.2	0.8	#1	same
13c	#4	0.01	0.13	#5*	
13d	#3	0.05	0.54	#3	same
13e	#2	0.06	0.57	#2	same
13f	#5	0.005	0.14	#4	
13g		0.002	0.07		

The first three places are the same. Fourth and fifth places are reversed.

Question 12: *Funding Sources for Attraction/Retention Activities and Incentives.*

		Q12:			
		AV+	AV--		
12a	#1	0.88	0.58	#1	same
12b	#3*	0.42	0.01	#3*	
12c	#2	0.44	0.01	#3*	
12d		0.13	0.003		
12e		0.19	0.003		
12f	#3*	0.42	0.04	#2	
12g		0.17	0.003		

The first place is the same. Ties for third place make the chart difficult to visualize,
but note the closeness of the correspondence: None of the top half of responses has an
ordering deviation greater than one.

Several statistics exist for evaluating ordinal listings of this kind. Spearman's
Rank-Difference Correlation employs a multiple of the sum of the squared
differences between the rankings for an item (say, Group A ranked it as first while
Group B ranked it as fifth in preference). Kendall's Tau goes further by correcting
for differences in the range of responses between the two groups (Group A scores
might range from, say, 11 for the first place item to 7 for last place while Group B
scores cover a spectrum from 37 down to 1). It is also more sensitive to outliers. The
following chart lists confidence levels which reject the null hypothesis of complete
independence between the two rankings:

	Spearman	Kendall
Question 30:	.00	.00
Question 19:	.00	.00
Question 13:	.00	.00
Question 12:	.01	.04

Thus, in summary, visual inspection of rankings suggests a correlation which is confirmed statistically. The ICMA additive index responses appear internally consistent.

4.4* *Validity(2):* Another interesting cross-check involves a Lexis-Nexis search of local newspapers for instances of IJC. Several major urban areas have well-documented means of restricting intra-urban IJC, such as Denver's anti-raiding agreement, tax revenue-sharing in Minneapolis-St. Paul and regional government in Portland, Oregon. On the other hand, we have seen the Washington DC area engaging in significant IJC among its components, and Gary Miller's *Cities By Contract* would lead us to expect the Los Angeles area to be very competitive. A search on the terms *economic development* and *incentives* plus component city names for the decade of the 1990s revealed few instances of raiding or enticements for the Denver, Minneapolis-St Paul and Portland, Oregon urban areas. The same search uncovered significant competition among jurisdictions in the Washington, DC and Los Angeles regions:

Cooperative Areas & Incentive Use:

DENVER URBANIZED AREA

Firm/Year	Cities	IJC Type	Incentive Type	Incentive Total $$	Jobs #, $$/job
US West 1999	Lakewood Various Cities	Consolidation	Fee waivers, prop tax rebate	$327k	1000 jobs $327/job
Ryder 1995	Aurora Lakewood Denver	New facility	Sales tax waiver	$30k	125 jobs $240/job

MINNEAPOLIS-ST PAUL TWIN CITIES

Firm/Year	Cities	IJC Type	Incentive Type	Incentive Total $$	Jobs #, $$/job
Lawson Software	Minneapolis St Paul	Relocation		$31m	1000 jobs $31k/job
1997	**Comment:** Called "raid" by Minneapolis; Lawson president says it was he who initiated contact with St. Paul officials.				

PORTLAND OREGON URBANIZED AREA

Firm/Year	Cities	IJC Type	Incentive Type	Incentive Total $$	Jobs #, $$/job
--None--					

Non-Cooperative Areas & Incentive Use:

WASHINGTON, DC URBANIZED AREA

Firm/Year	Cities	IJC Type	Incentive Type	Incentive Total $$	Jobs #, $$/job
AOL Data Center	Loudoun County Pr William Cnty	New facility	Fee waiver, prop tax down	$4.062m over 10 yr	125 jobs $32.5k/jb
2000	*Comment:* Press reports this will be a $550m facility. Pr William subsequently gains other data centers as well.				
MCI Office 1998	Distr. of Columbia Fairfax County	Consolidation		"several $ million"	2000 jobs
Redskins Stadium 1990-97	Distr. of Columbia Pr Georges Cnty Alexandria	Relocation		$80m	
	Comment: Originally in District of Columbia				
Aspen Systems	Rockville Northern Virginia	Expanded Facility		$500k	150 jobs $3.3k/job
1996	*Comment:* $7.6m facility				
Wilson Wyatt 1996	Distr. of Columbia Bethesda Northern Virginia	Relocation		$800k ($280k-Va 'low'-DC)	200 jobs $4k/job
	Comment: Originally in District of Columbia				
Bureau of National Affairs 1996	Distr. of Columbia Various suburbs	Consolidation	Tax deferral; 10 years	$7.7m	1500 jobs $1.5k/job
British Aerospace Training Complex	Fairfax County Loudoun County	New facility + Relocation	Prop tax waived	$1.5m	
1988-96	*Comment:* Headquarters moved back to Fairfax County; training and simulator stay in Loudoun County				

Wang Federal	Bethesda Fairfax County	Relocation	Lower corp tax		250 jobs
1995	**Comment:** *Originally in Bethesda*				
American Type Culture	Rockville Pr William County	Relocation		$18m	
1995	**Comment:** *Biotech; Originally in Rockville*				
AT&T 1995	Distr. of Columbia Various suburbs	Consolidation		$1.1m	750 jobs $1467/job
	Comment: *Silver Spring loses 350 jobs; Fairfax County loses 200 jobs; Arlington loses 50 jobs; 150 new jobs added*				
Equal Access Phone Co 1995	Distr. of Columbia Various suburbs	Relocation	Loan at 10%	$400k principle	25 jobs
	Comment: *Possible expansion to 200 jobs in outyears*				
General Dynamics 1991	Distr. of Columbia Falls Church Maryland suburbs	New facility			250 jobs
	Comment: *Most jobs filled by personnel transfering in from elsewhere*				
Washing-ton COG 1991	Distr. of Columbia Various suburbs	Relocation	100% construc-tion financing; no prop tax-5 yr low prop tax-5 yr		
	Comment: *Incentives offered offset increased rent at original location*				

Non-Cooperative Areas & Incentive Use:
Los Angeles Urbanized Area

Firm/Year	**LOS ANGELES** Cities	IJC Type	Incentive Type	*Incentive Total $$*	*Jobs #, $$/job*
Art Center College 2000	Pasadena Los Angeles	Expansion & Relocation		not disclosed	
Dream-works SKG Studio 1996-99	Los Angeles Glendale Burbank Santa Clarita	New facility		$70m	
	Comment: LA was selected but financing problems ultimately precluded any new Dreamworks studio				
LPGA Tourna-ment 1999	Santa Clarita Simi Valley Yorba Linda La Habra Glendale	New venue		$160k	
Condor Systems 1999	Simi Valley Moorpark Newbury Park Various cities	Expansion & Relocation		$15k	100 jobs $150/job
MICOM 1998	Simi Valley Various cities	Expansion & Relocation		$226k	500 jobs $452/job
Microwave Monolithics 1997	Simi Valley Various cities	Expansion & Relocation		$32,750	65 jobs $492/job
Princess Cruises 1997	Los Angeles Santa Clarita	Relocation	Land bargain; no business tax		600 jobs
	Comment: Adds $2.74m to area with multiplier benefits				

Numerically, the cooperative urban areas have far fewer instances of intra-regional

IJC than do non-cooperative regions (Denver, 2; Minneapolis-St Paul, 1; Portland

Oregon, 0 versus Washington DC, 13 and Los Angeles, 7). Los Angeles is, of course,

a megaregion outlier both in terms of urban area population ('absorptive capacity',

from the theoretical chapter) and number of jurisdictions. Nonetheless—and despite

this being a small sample—a t-test supports a difference of means in the average

number of IJC incidents per jurisdiction per decade between the cooperative and non-

cooperative UAs:

UA	population	# of IJC incidents/ decade	# of jurisdictions	incidents/ jurisdiction/ decade
Denver	1.5m	2	30	0.07
Minn-St Paul	2.1m	1	95	0.01
Portland, OR	1.2m	0	6	0
Wash DC	3.4m	13	57	0.23
Los Angeles	11.4m	7	121	0.06
t = 1.7062 confidence level = 0.09				

In summary, the validity of the ICMA survey additive indices is supported by

a variety of perspectives and methods regarding actual conditions in the American

metropolis.

Chapter 5: Analysis II—Alternative Theories

5.1   Overview

Theoretical analysis in Chapter Two has shown interjurisdictional competition within urban areas to be based in the prisoners' dilemma and hence a collective action problem within the scope of Olson's logic for non-pure public goods, but Chapter Four demonstrated that the anticipated defection outcome did not result. Indeed, increased fragmentation leads to greater cooperation. What might explain this result, so at odds with earlier theory?

This chapter will apply three major alternatives to the numbers-based explanation of collective action: anticipated returns, communication and leadership. Each section will first summarize the explanation and theory, then propose a test in the IJC/fragmentation context and, finally, present the results of that test. We will find that while the evidence generally fails to support anticipated returns as an explanation for cooperation in this setting, it does support both communication and leadership theories.

5.2   Anticipated Returns

5.2.1   Theoretical Background.

A major critique of Olson came early with publication of Norman Frohlich and Joe Oppenheimer's 1970 article "I Get By With A Little Help From My Friends". The authors demonstrate that the free-rider effect is independent of group size. Free-riding is always a possibility in collective action. However, no matter what the group size, individuals who are rational, self-interested, and oriented on the expected value

of outcomes can get past free-riding motivations to achieve successful collective action.

Frohlich and Oppenheimer present a matrix arraying an individual's possible donations to a collective action attempt (no donation, $1, $2, $3, … $n) against all the amounts by which others' donations may fall short of providing the public good which the collective action is trying to fund. In other words, a group may be raising money to transform a rotting, rat-infested wharf area into a safe, appealing public park. If others' donations are just $100 shy of the amount needed for the restoration and Mr/Ms "J" donates $98, the effort fails. If J donates $100 or more, the effort succeeds. J receives the benefit of the public good he or she desired.

The expected value, V_D, of each possible donation by J is defined as the sum of the expectations-weighted possible donations levels for all others, plus J's donation. For example, J may consider donating $50 but estimate that there is only a small possibility others will donate the full renovation cost minus $50, a greater possibility others will donate full cost minus $100, a much greater possibility that others will donate full cost minus $200, and so forth. We can put numbers on this: Assume that J's estimate for others' cost-minus-$50 is 0.1, that his/her estimate for cost-minus-$100 is 0.3, for cost-minus-$200 is 0.4, and to round things out, assume that J considers one more possibility, others contribute the full cost minus $300, a 0.2 possibility. The calculation thus becomes (-$50)(0.1) + (-$100)(0.3) + (-$200)(0.4) + (-$300)(0.2) = -$5 + -$30 + -$80 + -$60 = -$175.   This anticipated shortfall combined with J's $50 still produces a shortfall of -$125. J thus tries other personal donation levels until his/her donation plus the probable donations of others raise

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enough to complete the maritime park restoration project. More precisely, J chooses the donation which maximizes V_D.

Frohlich and Oppenheimer show algebraically that the expected value of receiving the good must outweigh the cost of a donor's contribution to the collective effort. In fact, a greater donation increases the probability that the public good will be provided. The larger donation becomes in effect an insurance policy against the event that the donor has overestimated others' contributions by some amount. Frohlich and Oppenheimer summarize (p 117):

> *[Nontechnically, the individual] must estimate the probability that his donation will be efficacious. He must estimate the probabilities associated with the possible levels of donations by others. This allows an estimation of the efficacy of his donation in obtaining an increase in his own utility. For by making a larger donation the individual increases the probability that he will receive the good for any given set of probabilities he attaches to the behavior of others... [If the good is not "lumpy", like the waterfront park, but rather "nonlumpy" like quality and quantity of public radio airtime], larger donations merely bring larger amounts of the good.*

The anticipated returns approach finds corroboration in other studies. Elinor Ostrom notes that successful collective action depends crucially upon the benefits of cooperation outweighing the costs of monitoring individual compliance with group rules or norms. Once again, the number of potential beneficiaries is not the decisive factor in success of collective action. Rather, the ability of individuals to receive benefits greater than their costs (here, in terms of monitoring effort) is key. (Ostrom, 1990; a concise summary is in Dixit and Skeath, 1999, pp 375-377.)

A series of laboratory experiments tested the effect of remuneration to individuals versus number of individuals. These are referred to as *collective action*

experiments or *public goods experiments,* and the general set-up of such procedures will become clear after reading accounts below. A concise summary occurs in Frohlich and Oppenheimer (1997):

> *Prisoners' (social) dilemma game models of collective action problems are structured so that all players have a dominant strategy to defect (or withhold all their resources) from the collective action… [All such experiments] share some basic elements: (a) participants have resources to allocate, (b) participants then choose how to allocate resources between private savings and collective projects, (c) each participant most prefers that the others allocate their resources to the public activity while they keep their resources as savings, and (d) some level of collective project allocation leaves all players better off than would be the case if all the resources were allocated to the private projects. The dilemma consists of how to induce public-oriented behavior so that the group can be better off through the provision of enough public activity.*

Generally, these experiments find that the return to the individual at the margin (but not the number of individuals) has a strong effect upon experimental outcomes in collective action.

Marwell and Ames (1979) conducted an early experiment the results of which seriously questioned the near-universality of free-riding (or 'defection'). The authors conducted telephone interviews (with follow-up questionnaires) with 256 high school students in Madison, Wisconsin. Students were broken into groups of four, but half were deceived into thinking group size was eighty, allowing a test for group size effects. The subjects were then asked about how much money they would keep and how much they would contribute to the group. Different subjects faced different rates of return for contributing to the group. The result: Not only was group size an insignificant factor in determining donation levels, but a higher rate of return (the

authors use the term *'interest'* in the group outcome) produced more donations—a more successful collective action effort.

Isaac, Walker and Thomas (1984) studied University of Arizona students in a setting which minimized subject contact with experimenters: Students indicated their decisions to donate or keep tokens at a computer terminal; terminal carrels were separated by sideboards to ensure individual decisions were private. The 'small' group size was four; 'large' groups comprised ten individuals. The *marginal per capita return* (MPCR) to each student for donating a token varied between either $0.33 and $0.75 in different iterations of the experiment. A critical result is that the higher MPCR level resulted in far fewer defectors (Figure 3, p 135).

Kim and Walker (1984) emulated Marwell and Ames (1979) by inducing individuals in a numerically small group to believe they were in a group comprising 100 members. (The deception was accomplished by multiplying each participant's donation by twenty.) Subjects were given tables showing returns from various amounts donated to the group. The MPCR was increased on the fourth and eleventh rounds of the experiment. Donations during these periods increased significantly.

A final contribution from a year which produced a bumper crop of collective action experiments was Isaac, McCue and Plott (1984). This study involved college students' reactions inter alia to different payoff structures. Students were seated in a classroom but at a distance from one another and not allowed to communicate except in a later iteration of the experiment. Students with greater payoffs (higher MPCR) contributed more than those with lower payoffs.

Isaac and Walker (1988a) directly compared group size and MPCR. The authors studied University of Arizona students in the same minimal-contact computer setting described above in Isaac, Walker and Thomas (1984). Subjects twice underwent ten rounds of donate/retain decisions. In one series of rounds, the MPCR was 0.3; in the other, 0.75. The sequence was mixed—some groups faced the lower MPCR first; others, second. Groups were either 'small' with four persons or 'large' with ten participants. The low-MPCR groups uniformly had more free-riders than the high-MPCR groups. However, group size had an effect only in low-MPCR groups. Interestingly, the *smaller* groups experienced more free riding.

Subsequent studies by Brown-Kruse and Hummels (1988) and Fisher, Isaac, Schatzberg and Walker (1993) provide similar results. Frohlich and Oppenheimer (1998) found that altering payoffs had a substantial impact on calling forth contributions to a group goal. Ledyard (1995) reviews many of the studies above as well as other reports to conclude that while numbers have little to no effect, the marginal payoff the individual receives—in our terms, the return he or she can anticipate—is one of the most important causes for successful collective action in public goods experiments over almost a quarter century of research by a variety of scholars.

5.2.2 *A Test of Anticipated Returns*

Once again, the paucity of national data series precludes direct measurement. However, a statistical insight into anticipated returns in the IJC/fragmentation arena comes in the realm of home ownership rates. Homeowners tend to be far more politically active locally than renters (Fischel, 2001, pp 80-81). 77% of homeowners

vote in local elections as opposed to only 52% of renters (Rossi and Webber, 1996, p 23). Case studies in New Orleans and Columbia, Maryland further support Fischel's assertion (Moomau and Morton, 1992; Burkhardt, 1981).   An extensive literature on why individuals vote acknowledges a cost to voting—both in terms of becoming informed and in actual inconveniences and costs of missing work or transportation out of one's way—and frequently portrays the individual act of voting in a cost/benefit motif (Hinich & Munger, 1998, pp 144-152; Mueller, 1989, Chapter 18; Shepsle & Bonchek, 1997, pp 251-259). But there is evidence that the 77%-52% differential is not attributable to some huge difference in voting costs between renters and homeowners: Burkhardt found that Columbia's renters were far less active in homeowner association elections and offices than owners of similarly priced dwellings. Voting patterns combined with theory thus support the conclusion that homeowners have a higher anticipated return from local government activity. Thus, *homeownership rate* is a powerful proxy for anticipated returns to add to the right-hand side of the basic regression equation. A statistically significant negative correlation between this variable and IJC would constitute evidence substantiating the anticipated returns explanation for successful collective action. As homeownership goes up, we would expect that pressure for cooperation would increase and that IJC would perforce be diminished.

A possible objection to the above characterization of homeowners might come by way of research contrasting renter-voters with homeowner-voters. Econometric studies have established that renter-voters generally support significantly higher local government spending than homeowner-voters in the same income brackets.

However, in IJC terms, this *renter effect* would work in the same direction as the homeownership rate variable discussed above: Ceteris paribus, an increase in the homeowner rate would imply a decrease in the renter rate, and either leads to a decrease in local IJC spending.

Further, the renter effect is not a viable alternative to the homeowner rate in this hypothesis. First, no treatment of anticipated returns has been based upon Keynesian-esque illusions of players, yet fiscal illusion is one of several explanations posited for the renter effect. Renters might suffer from fiscal illusion ('renter's illusion') because they do not actually see the property tax bill which becomes part of their monthly fee. Equally possible, the amount of the property tax actually might not be fully passed from landlords to tenants, or renters might really receive more goods and services from local government than homeowners. Despite a number of studies, no one explanation has been widely and conclusively accepted by specialists in public finance (Oates, 1998). So unclear a causal mechanism seems unsuited for this hypothesis. Second, while we have established that the IJC phenomenon encompasses a variety of tools which are not dollar-denominated (zoning, administrative services, and pollution regulations, as examples), the renter effect is a relationship dealing only in dollar budgets. And of course our tool for measuring IJC effort in regression analysis is not a dollar measure but rather an additive index of program types. Third and finally, the studies which established the renter effect dealt either with entire municipal budgets or with components such as police, parks, and education (Oates, 1998, Table 1). None of these are the subject of prisoners' dilemma characterizations in either the press or policy literature. Thus, the renter

effect appears inapplicable to IJC. Even if it were applicable, causation would be complementary to the homeowner effect for reasons in the previous paragraph and because renters, like homeowners, in the specific budget area of incentives presumably do not like their tax dollars devoted to intergovernmental competition which could be avoided by local cooperation.

Thus, a testable hypothesis is that:

$$IJC = f(homeownership\ rate + control\ variables^4)$$

Presumably, the greater the percentage of homeowners in an urbanized area, the greater their perceived ability to foster cooperation and the greater their anticipated reward. Citizens in a UA with only 40% homeownership may find it difficult to rally others to the cause of cooperation and hence find probability-weighted rewards low. Citizens in a UA with 80% homeownership on the other hand should find it less difficult to bring about cooperation, raising their anticipated rewards because of lower cost of successfully organizing for collective action. Thus, the test should result in an inverse relationship between IJC measures and homeownership rates.

Homeownership rates can be readily computed at urbanized area level from Census figures on owner- versus renter-occupied housing. Control variables are the usual suspects: mayor versus manager government, racial diversity, jurisdiction population, jurisdiction income per capita, jurisdiction property tax rate, and UA population. Fragmentation measures are also included as control variables.

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[4] Per Section 3.6 and the development of the argument in Chapter 4, *control variables* in this chapter are *FragI, jurisdiction population, jurisdiction income per capita, real property tax rate,* and *UA population* as well as *mayor-vs-council/manager form of government*, and *racial diversity.*

5.2.3 Test Results

Regressions were conducted with robust standard errors because of heteroskedasticity. Regression diagnostics revealed no evidence of multicolinearity. Table 5-1 reports results for the homeownership variable (a full listing of regressions and variables is at Appendix Table 5-A-1 to this chapter). Entries in Table 5-1 are coefficients for homeownership given either FragI-population or FragI-income, as shown on the left of each results row:

TABLE 5-1
Anticipated Returns

all urban areas:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
FragI-population	-----	-----	-----	-----	-----	-27.1/.15 |1.43|
FragI-income	-----	-----	-----	-----	-----	-----
n =	619	619	619	619	437	436

urban areas within single states only:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
FragI-population	-----	-----	-----	-----	-----	-30.9/.15 |1.46|
FragI-income	-----	-----	-----	-----	-----	-----
n =	472	472	472	472	340	339

Note: FragI is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*
Note: Entries denote *coefficient/significance level & \|absolute value\| of 't'*

The regressions of staff time devoted to *attraction* using *FragI-population* contain the anticipated inverse relationship between homeownership and IJC. This is the only

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indicator tending to substantiate the anticipated returns explanation in the IJC environment. Thus, while the uniformity of *'attraction'* using FragI-population is tantalizing, it constitutes only 8% of the matrix and is uncorroborated by any other indicator. We cannot claim to have found substantial evidence of the anticipated returns thesis in this data.

5.3   Communication

5.3.1   Theoretical Background

Another top cause in Ledyard's hierarchy of reasons for successful collective action is the ability of experimental subjects to communicate with other participants. While some experimenters in section 5.2.1 above noted apparent attempts at signaling one's bona fides to others by dramatically increasing donations for a period or two (Isaac, McCue and Plott, 1984), most expressly forbade communication as part of experiment design. However, theorists stress that lack of communication, while part of the intrigue of the original prisoners' dilemma story, is not common to most interactions in the social and political world. Note that we are talking only about communication, not making binding agreements or contracts.

Dawes, McTavish and Shaklee (1977) conducted public goods experiments which allowed different participant groups differing degrees of communication. Some were forbidden to talk at all. Others could talk about subjects other than contributions to a public goods fund. This tested the effect on cooperation of simply getting to know others affected by one's cooperate/defect decision. Other groups were allowed to talk and make non-binding coordination; some were allowed to take non-binding roll call votes. Groups without communication or with communication

only about subjects not related to the donation decision experienced high rates of defection. No-communication was the worst, at 73% defection, while irrelevant-communication groups experienced a somewhat smaller rate of defection at 65% (p 5). Communication about the decisions improved the situation dramatically: Only 26% defected… and only 16% in groups allowed to conduct a non-binding roll call. This of course still meant that a number of subjects defected. Later analysis of a participant questionnaire revealed that a subject's general expectation of what others would do was an important predictor of defection. Those predicting most others would defect were themselves four times more likely to defect.

Chamberlin (1978) tested Olson's claims in a setting in which subjects increased their likehood of gaining a reward by contributing to a public good. The donation was subtracted from the reward, but the greater the contribution, the greater the chance of getting the (lowered) reward. Each group ran the experiment twice, once without communication and once with communication about everything except what participants actually donated. In this experiment, communication did not have a statistically significant effect. Ledyard (1995, p 158) attributes this result to the experiment's somewhat unusual *threshold* environment. Instead of a sliding payoff scale, this experiment provides rewards on an all-or-nothing basis. Depending in essence on the roll of the dice, the participant either receives the reward or does not. Greater contributions only load the dice more in the donator's favor. The argument is somewhat analogous to Frohlich and Oppenheimer's treatment of lumpy versus non-lumpy goods in section 5.2.1 above. Later, in 1983, Van der Kragt, Orbell and Dawes conducted an experiment with a threshold environment in which communication was

key to successful collective action. Groups allowed to communicate designated sufficient contributors to ensure the public good was provided, using means from soliciting volunteers to drawing straws. In these groups, the public good was invariably provided, usually at optimum levels. On the other hand, over a third of non-communicating groups did not must sufficient cooperation to produce the public good.

Isaac, McCue and Plott (1985), already described in section 5.2.1, relaxed the prohibition on communication in later phases of their experiment, allowing participants to discuss the experiment (but not their exact past or planned contributions) during one period. Even this slight communication increased the amount of cooperative behavior observed. Isaac and Walker (1988b) refined their familiar computer-based experiment method to allow most groups to communicate during some phase of the experiment. Unlike Van der Kragt, Orbell and Dawes (1983), they followed the standard practice of forbidding discussion of actual contribution levels. Communicating groups approached 100% of required donation levels for optimum public good provision while those not allowed communication started at 50% of optimum and rapidly declined. Tellingly, groups allowed communication in the first round and not in the second maintained a level of donations which did not slump below 85%. Changes in the environment concerning information and MPCR did not alter the increased effectiveness of communication in eliciting significantly higher cooperation levels. Orbell, Dawes and Van de Kragt (1990) conducted yet another experimental extension, finding that groups in which all members promised to contribute had donation rates of 84%, as opposed to 58% when

not all had promised cooperation. Ostrom and Walker (1991) implemented an essentially two-stage communications prisoners' dilemma: Participants first had to donate sufficient funds to be allowed a communications period, then they needed to tackle the public goods provision challenge—with communication if they had successfully resolved the first challenge; otherwise, without. While many times groups failed to obtain the communications periods because of this 'costly communication', donation levels as a percentage of the optimum level increased from 42% to 80% in these groups. Control groups which were allowed free communications had increased from 30% to 98%.

David Sally (1995) conducted a meta-analysis of communication-based prisoners' dilemma experiments conducted between 1958 and 1992. The meta-analysis combined results of thirty-seven papers, many of which had multiple iterations of a basic scenario, effectively providing a rich field of 130 observations and several thousand participants. Sally regressed the *cooperation rate* of subjects on independent variables such as participant characteristics, the payoff matrix, anonymity and communication. Many of the original studies pointed to the major impact the ability to communicate has on success in collective action efforts. And indeed, Sally's regression found that communication had the most important impact of all variables tested.

Rapaport and Diekmann (1995) found that rudimentary communication in the form of simple feedback summarizing the others' donation levels—provided not in person but via computer summary—helped most of thirty-two pairs of subjects to achieve and maintain the cooperate/cooperate solution to the basic prisoners'

dilemma. Also in 1995, Majeski and Fricks tested the effectiveness of communication in international relations using 414 participants in 79 iterations of a basic prisoners' dilemma experiment. Each iteration consisted of two groups of three participants who first made group decisions, then—in groups allowed to communicate with their paired group—selected a representative to deal with the representative of the other group. After representatives had reported back, groups made final decisions on allocation of resources. Majeski and Frick found that when inter-group communication was allowed, groups cooperated more often and earned more money ($73 versus $57).

Four studies in the latter nineties again substantiate the efficacy of communication. In a study of leadership we will revisit in the next section, Frohlich and Oppenheimer (1997) found communication to have a significant independent role in successful action. Receiving a message increased subjects' average contribution levels from 39.8% to 53.9%. A subsequent 1998 study by the same authors found that communication played a substantial role in successful collective action in the controversial environment of *incentive-compatible devices*—fiscal or tax incentives designed to optimize individual actions in an environment rife with opportunities to free-ride. Another 1998 Frohlich and Oppenheimer study (1998b) further substantiated the effectiveness of communication in prisoners' dilemmas and established a *'lingering effect'* of communication: Even after communication is shut down, groups which had been permitted communication earlier were markedly more cooperative than those which had never communicated. Finally, Frey and Bohnet compared the results of prisoners' dilemmas in which college students were allowed

communication versus those that were not. Communication doubled the number of subjects opting to cooperate.

5.3.2   Two Tests of Communication

5.3.2.1(a)   Geographic Distance Test

"Distance…is both a barrier to and a defense against social interaction (Knox & Pinch, 2000, p 266). Political and social geographers suggest the effect of geographic distance on communication; for example, the amount of communication between towns as a function of the distance between them. The greater the distance, the less the interaction because of *"the friction of distance… Distance imposes transactions costs…"* (Harvey, 1989, pp 220-2).

The established relationship between communication and distance allows a test using Census data on urbanized areas' areas in square kilometers. The UA area can be divided by the number of jurisdictions to get average square kilometers per jurisdiction. The larger the average jurisdictional area, the greater the average distance between population and governmental centers (assuming both to be located generally in the center of geographic mass of the political entity). And the sheer land area of a jurisdiction will tend to inhibit communication with members of neighboring jurisdictions. Thus, given the experimental evidence on the effectiveness of communication in collective action, the smaller the average size of jurisdictions within an urban area, the more we would expect cooperative IJC outcomes. More formally, the hypothesis is:

IJC = f(communication~average geographic area + control variables)

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Control variables remain the same as in the anticipated returns test above. If the

communications explanation of collective action is substantiated by this test, the sign

of the coefficient will be *positive:* the greater the average area, the less the

communication and hence the greater the IJC.

5.3.2.1(b)   *Geographic Distance Test Results*

Regressions were again conducted with robust standard errors because of

heteroskedasticity. There was no evidence of multicolinearity. Table 5-2 reports

results for the geographic distances variable (a full listing of regressions and variables

is at Appendix Table 5-A-2 to this chapter):

TABLE 5-2
Communication: Geographic Distance

Table 5-2						
all urban areas:					**Staff Time %**	
	activities	act & tech	act, tech & funds	incntype	Retention	Activities
Fragl-population	+.019/.00 |4.17|	+.021/.00 |4.07|	+.022/.00 |4.02|	+.006/.13 |1.48|	-----	+.064/.01 |2.71|
Fragl-income	+.019/.00 |4.10|	+.021/.00 |3.99|	+.021/.00 |3.93|	+.005/.15 |1.40	-----	+.062/.01 |2.63|
n =	619	619	619	619	437	436
urban areas within single states only:					**Staff Time %**	
	activities	act & tech	act, tech & funds	incntype	Retention	Activities
Fragl-population	+.022/.00 |3.98|	+.024/.00 |3.74|	+.024/.00 |3.58|	+.007/.09 |1.71|	-----	+.059/.04 |2.10|
Fragl-income	+.022/.00 |3.95|	+.024/.00 |3.70|	+.024/.00 |3.54|	+.007/.10 |1.67|	-----	+.057/.04 |2.04|
n =	472	472	472	472	340	339

Note: Fragl is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*
Note: Entries denote *coefficient/significance level & |absolute value| of 't'*

20 of 24 regressions—83%--found a positive relationship between IJC and the

average area per jurisdiction. Only staff time devoted to retention of businesses

consistently had no statistically significant relationship. Converting Table 5-2 to the

percentage change in IJC from the smallest average area to the largest (as done for

Table 4-2a in the previous chapter) yields the following table:

TABLE 5-2(a)
Geographic Distance Percentages

					Staff Time %	
5-2(a)						
all urban areas:						
	activities	**act & tech**	**act, tech & funds**	**incntype**	**Retention**	**Activities**
Fragl-population	**+31%**	**+25%**	**+21%**	**+12%**	**na**	**+21%**
Fragl-income	**+31%**	**+25%**	**+20%**	**+10%**	**na**	**+20%**
urban areas within single states only:						
	activities	**act & tech**	**act, tech & funds**	**incntype**	**Retention**	**Activities**
Fragl-population	**+35%**	**+29%**	**+23%**	**+13%**	**na**	**+19%**
Fragl-income	**+35%**	**+35%**	**+23%**	**+13%**	**na**	**+19%**

Note: Fragl is "Fragmentation Index", defined in Sections 4-2 and 3/5(a)

These percentages are substantially higher than the generally single digit percentages

for fragmentation in Chapter 4. Inspection of Appendix 2 of this chapter shows that

coefficients—and hence percentage changes—for fragmentation remain on the same

order of magnitude as those in Chapter 4. (Mayor and race indicators are dummy

variables; the percentage change method used here is not readily applicable. In any event, the percentage changes would be relatively quite small: $IJC_{Activities}$ contains a *'mayor'* value of -.748, which when multiplied by the maximum change of 1 for a dummy variable and then divided by 20 responses for $IJC_{Activities}$ produces a –4% change.) The geographic distance proxy for communication thus is stronger than fragmentation in explanatory power. This first test of communication provides impressive substantiation of the communication explanation of collective action in the IJC/fragmentation setting.

This result, by the way, makes sense in a more rigorous, formal way: Ceteris paribus, a more fragmented urban area will have geographically smaller jurisdictions, facilitating and increasing the expected number of interactions among members of different jurisdictions. The analogy would be to the frequent comparison of Europeans to Americans—because of smaller nations, Europeans are often said to be more internationally oriented and attain working ability in more languages than citizens of the United States.

5.3.2.2(a)   Civic Society Test

The civic society literature spawned by Robert Putnam's classic *Bowling Alone* (2000; also Putnam, 1995) emphasizes not only the leadership value of civic society but its contribution to communication as well:

> *When philosophers speak in exalted tones of "civic engagement" and "democratic deliberation", we are inclined to think of community associations and public life as the higher form of social involvement, but in everyday life, friendship and other informal types of sociability provide crucial social support. To be sure, informal connections generally do not build civic skills in the ways a club, a political group, a union or a church can, but informal connections are very important in*

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> *sustaining social networks. …we need to pay attention to trends*
> *in 'schmoozing'.* (Putnam, 2000, p 95.)

Putnam presented figures on sports clubs as evidence such 'schmoozing'; most famously, of course, the decline of bowling leagues since 1960. In subsequent examples (see his chapters seven and eight), he links membership in relatively informal social and sports clubs—as well as churchgoing and hosting friends at home—with propensity to become involved in community projects. Putnam also points out that informal networks help not only individual prosperity but a jurisdiction's economic development (p 323), increase a community's ability to enforce informal norms, foster a general sense of trust, and are effective in *"widening our awareness of the many ways in which our fates are linked"* (p 285). The communication aspect of civic society thus stands powerfully on its own.

Because civic society indicators thus measure communication, we should be able to compare urbanized areas on the basis of civic society. The stronger UA civic society, the stronger the communication and hence the less the IJC effort:

IJC = f(communication~civic society + control variables)

Control variables remain the same. We would expect a negative correlation between IJC and communication.

Putnam's data are national. Organizations listed in his study do not (in many cases, cannot) provide membership data for local chapters, precluding an exact replication of his study at urbanized area level. However, the 1997 Economic Census includes a *North American Industrial Classification System (NAICS—formerly Standard Industrial Classification, or 'SIC')* category 8134101: *"Civic and Social Groups, with Restaurants and Bars"*. The Census definition is in line with civic

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society concepts of informal connections, particularly in this category's specification

of restaurants and bars as opposed to 8134102, whose component organizations do

not offer such schmoozing facilities:

> ***NAICS 8134101: Civic and Social Organizations with Restaurants and Bars.*** *Establishments primarily engaged in promoting the civic and social interests of their members and offering bar and restaurants facilities for their members and their guests. [Examples include but are not limited to] alumni associations, book discussion clubs, booster clubs, ethnic associations, farm granges, fraternal associations or lodges, garden clubs, parent-teacher associations, poetry clubs, scouting organizations, social clubs, student clubs, university clubs, veterans' membership organizations, youth social clubs.*

In that NAICS data is available only for MSAs, not UAs, this test uses the

corresponding population and income data for the MSA which contains the urbanized

area in each observation.

5.3.2.2(a)   Civic Society Test Results

Regressions were conducted once again with robust standard errors because of

heteroskedasticity. Regression diagnostics did not indicate multicolinearity. Table 5-

3 reports results for the communication/NAICS 8134101 variable (a full listing of

regressions and variables is at Appendix Table 5-A-3 to this chapter):

TABLE 5-3
Communication: NAICS 8134101

Table 5-3						

all urban areas:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
FragI-population	-.005/.00 |3.05|	-.005/.00 |3.13|	-.006/.00 |2.88|	-----	-.035/.00 |3.49|	-.027/.01 |2.74|
FragI-income	-.005/.00 |2.88|	-.005/.00 |2.96|	-.005/.01 |2.73|	-----	-.035/.00 |3.45|	-.027/.01 |2.57|
n =	619	619	619	619	437	436

urban areas within single states only:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
FragI-population	-.003/.08 |1.76|	-.004/.05 |2.01|	-.004/.08 |1.73|	-----	-.029/.01 |2.67|	-.03/.01 |2.60|
FragI-income	-.003/.10 |1.66|	-.004/.06 |1.91|	.-004/.10 |1.64|	-----	-.029/.01 |2.67|	-.029/.01 |2.47|
n =	472	472	472	472	340	339

Note: FragI is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*
Note: Entries denote *coefficient/significance level & |absolute value| of 't'*

Once again, the figures support the communications explanation of success in collective action. 20 of 24 indicator matrix cells—83%--are statistically significant, all in the predicted inverse relationship.   Table 5-3(a) converts the coefficients to percentage change across the range of NAICS 8134101:

TABLE 5-3(a)
NAICS 8134101 Percentages

5-3(a)						

all urban areas:

| | | | | | **Staff Time %** | |
	activities	act & tech	act, tech & funds	incntype	Retention	Activities
Fragl-population	-13%	-10%	-9%	na	-18%	-14%
Fragl-income	-13%	-10%	-9%	na	-18%	-14%

urban areas within single states only:

| | | | | | **Staff Time %** | |
	activities	act & tech	act, tech & funds	incntype	Retention	Activities
Fragl-population	-8%	-8%	-6%	na	-15%	-16%
Fragl-income	-8%	-8%	-6%	na	-15%	-15%

Note: Fragl is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*

While of less magnitude than the percentages in Table 5-2(a) measuring communication as a function of geographic distance, these figures are still far from negligible.

Overall, then, the effectiveness of communication in reducing the collective action problem seems well supported in the IJC/fragmentation experience.

5.4   Leadership

5.4.1   Theoretical Background

In their 1970 article, "I Get By With A Little Help From My Friends," Frohlich and Oppenheimer conclude that self-interested persons must provide for themselves *"…some mechanism whereby they can coordinate their expectations regarding the*

probable actions of others…" in order to ensure successful collective action to procure public goods (p 119). While cultural traditions or ethical norms may support certain collective actions, they suggest political leaders as the major source of coordination in political society. For some type of remuneration, these *political entrepreneurs* will provide the leadership and management to ensure a supply of public goods without the vagaries of constant attempts at mass movements.

A little reflection provides numerous examples of political entrepreneurship. The institution of common law and civil lawsuits in American jurisprudence frequently becomes the engine of social change. Civil and economic rights are largely enforced not through criminal prosecutions but rather via laws allowing aggrieved parties to sue for restoration of rights and restitution of damages. This calls forth batteries of specialized lawyers as political entrepreneurs to manage this aspect of societal organization for the polity. In another example, private research firms promote their services to local governments and citizen groups to coordinate volunteer efforts and manage specialized aspects of policy, such as coordinating and implementing river clean-up, zoning and use among among interested communities and user groups over the miles of the river's course.

Frohlich, Oppenheimer and Young (1971) elaborate the nature and role of the political entrepreneur (p 25):

> *Whenever the members of a group find it worthwhile to*
> *contribute toward the supply of a collective good and perceive*
> *that a marginal-cost-sharing arrangement is possible, there may*
> *be potential profit for an entrepreneur. Such an entrepreneur*
> *can establish a collection organization, gather the contributions,*
> *and provide the public good…when there is scope for sharing*
> *the marginal costs of supplying the goods through the*
> *introduction of some mechanism for the pooling of resources.*

Formally, this insight allows the authors to algebraically describe the interactions between citizens and political entrepreneurs using concepts of utility and marginal analysis familiar from microeconomics. In essence, the following equation defines the political entrepreneur (pp 35-6):

$$U_A(L_A) = U_A(X_A) + \text{sum of } D_j(A) - C(X_A) - C(O_A) \quad \text{where}$$
        A is the political entrepreneur
        $U_A(L_A)$ is the utility the political entrepreneur receives from his/her labors
        $D_j(A)$ is a donation from citizen 'j'
        $C(X_A)$ is the cost of supplying public good X
        $C(O_A)$ is the cost of A's organization

Thus, when the political leader believes the return from the effort will outweigh the costs, he or she will undertake the organizational effort. Just as the private entrepreneur celebrated in economics organizes productive resources and ultimately pushes society to its optimal level of production at a given level of technology, so too does the public entrepreneur, marshaling collective rather than private resources and ensuring the socially most desirable levels of public rather than private goods (p 59).

To date, the sole public goods experiment to deal directly with political leadership is Frohlich and Oppenheimer (1997). 233 participants were designated members of various groups but sat anonymously behind computer terminals. Each group made seven collective decisions. An individual designated the leader was allowed to see what group members had donated and to send one-way computer messages to individual group members—for a price to be deducted from his/her own earnings. Members earned the standard fare of private savings plus payoff from any successful collective actions. Leaders earned these amounts, and one set of leaders was also paid 65% of the funds collected from group members, reflecting the

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theoretical definition of leader activities above. Inter alia, the authors found that leaders with the additional 65% profit incentive caused their groups to earn more. Much of the increase in group welfare went to the leaders; nonetheless, group members were better off than those whose leaders were not so compensated.

This was the only explicit leadership experiment. Implicitly, we can infer leadership attempts in various of the studies reported in sections 5.2.1 and 5.3.1 above. When an experiment subject signals a desire for cooperation through a spike in his or her donation level in an experiment in which communication is barred, he or she is incurring a cost—as in $C(O_A)$—in the attempt to bring about production of the public good. When in a costly communication experiment, the same person donates to allow discussion and then takes the ego risks attendant with publicly speaking for cooperation, our impression would be that this is leadership.

Ledyard (1995) summarizes studies in which *moral suasion* is tested by means of subjects knowing that the experimenters know who actually donated and who defected. Some experiment instructions have been framed to remind subjects of moral and ethical aspects of their decisions as well. Ledyard reports an *"…effect is apparently there but weak and difficult to replicate* (pp 143,167).*"* And of course, once again, moral suasion is an aspect of political leadership but not a full test.

5.4.2   A Test of the Leadership Explanation

A direct test of the leadership explanation would involve concepts so broad that no measurement of the many nuances of leadership, such as moral suasion or leadership by example as described in the preceding paragraphs, is possible. However, we can again lean upon the relationships established in the civic society

literature to postulate a strong correlation between civic society as manifest in numbers of civic groups on the one hand and the quality and capacity for civic and political leadership on the other.

Putnam (2000, pp 338-9) identifies leadership effects of civic group membership on local communities:

> *Voluntary associations and the social networks of civil society…contribute to democracy in two different ways: they have "external" effects on the larger polity, and they have "internal" effects on participants themselves. Externally, voluntary associations… allow individuals to express their interests and demands on government… {T]heir individual and otherwise quiet voices multiply and are amplified. …Internally, voluntary associations are places where social and civic skills are learned—"schools for democracy". Members learn how to run meetings, speak in public… organize projects, and debate public issues with civility. …Just as associations inculcate democratic habits, they also serve as forums for thoughtful deliberation over vital public issues.*

Thus, the number of such organizations in an urbanized area should be correlated with increased cooperation and reduced levels of IJC. Two civic society Census NAICS are appropriate for this purpose. First, the most general category— arguably overly broad because it includes not only strictly-defined leadership and interest organizations but a diverse range of religious, grantmaking, advocacy and other non-profits—is:

> ***NAICS 813: Religious, Grantmaking, Civic, Professional and Similar Organizations.*** *Industries in this subsector group establishments that organize and promote religious activities; support various causes through grantmaking; advocate various social and political causes; and promote and defend the interests of their members. The industry groups within the subsector are defined in terms of their activities, such as establishments that provide funding for specific causes or for a variety of charitable causes; establishments that advocate and actively promote causes and beliefs for the public good; and establishments that*

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have an active membership structure to promote causes and represent the interests of their members. Establishments in this subsector may publish newsletters, books, and periodicals, for distribution to their membership.

More specifically, *regime theory*—the examination of how coalitions (particularly involving economic interests and government officials) grow, acquiring and using power to shape local government policy—suggests attention to business and similar interest groups within a city or an urban area when exploring its politics (Knox and Pinch, pp 154, 423; Stone, 1989). Thus, the second NAICS is:

NAICS 8139: Business, Professional, Labor, Political and Similar Organizations. *This industry group comprises establishments primarily engaged in promoting the interests of their members (except religious organizations, social advocacy organizations, and civic and social organizations). Examples of establishments in this industry are business associations, professional organizations, labor unions, and political organizations.*

The hypothesis is:

$IJC = f(leadership + control\ variables)$

…with control variables remaining the same as in previous sections of this chapter.

At this point we should reinforce the distinction between the effects on IJC from these two NAICS (813 and 8139) on the one hand and NAICS 8134101 (Civic and Social Organizations with Restaurants and Bars) as used in the sections above on communication. The difference rests in their respective places within the civil society literature. As noted in previous quotations, Robert Putnam equates schmoozing with communication *("informal communications are very important in sustaining social networks… we need to pay attention to trends in 'schmoozing'.")* Thus, NAICS 8134101 is a proxy for such activity, which Putnam equates with communication.

From the alternative hypothesis on communication and collective action, an increase in communication tends to lead to increases in cooperation… and hence in the case of this study to a decrease in IJC. Similarly, Putnam sees voluntary organizations such as those in NAICS 813 and 8139 as critical to leadership in civil society *("voluntary associations allow individuals to express their interests and demands on government… [and] are places where social and civic skills are learned—'schools for democracy'.")* Thus NAICS 813 and 8139 become proxies for leadership, and from the relevant alternative collective action hypothesis, an increase in leadership brings about an increase in cooperation; in the context of our study, a decrease in IJC.

5.4.3   Leadership Test Results

Regressions were of course conducted with robust standard errors because of heteroskedasticity. Regression diagnostics did not indicate multicolinearity. Tables 5-4 and 5-5 present results for the leadership/NAICS 813 & 8139 variables (a full listing of regressions and variables is at Appendix Tables 5-A-4 & -5 to this chapter):

TABLE 5-4
Leadership: NAICS 813

					Staff Time %	
		Table 5-4				
all urban areas:						
	activities	**act & tech**	**act, tech & funds**	**incntype**	**Retention**	**Activities**
Fragl-population	-.0002/.14 |1.47|	-----	-.0002/.08 |1.76|	-----	-.002/.00 |3.12|	-----
Fragl-income	-----	-----	-.0002/.09 |1.69|	-----	-.002/.00 |3.07|	-----
n =	619	619	619	619	437	436

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TABLE 5-4(a)
NAICS 813 Percentages

5-4(a)

all urban areas:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
Fragl-population	-9%	na	-5%	na	-18%	na
Fragl-income	na	na	-5%	na	-18%	na

urban areas within single states only:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Staff Time % Activities
Fragl-population	na	na	na	na	na	na
Fragl-income	na	na	na	na	na	na

__Note:__ Fragl is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*

The overall NAICS 813 sector—while exceedingly broad for our purposes—
nonetheless has an interesting impact. 5 of 12 matrix cells—42%-- are significant
and inversely signed for '*all urban areas*' while none are significant for '*urban areas*

within single states only'. Apparently leadership exerted by all manner of not-for-profits is most influential in attaining noticeable cooperation in interstate urbanized areas, compensating to some degree for the lack of a single state government for the region.

TABLE 5-5
Leadership: NAICS 8139—
Business, Professional, Labor & Political

					Staff Time %	
		act &	act, tech			
	activities	tech	& funds	incntype	Retention	Activities
Fragl-population	-.0002/.09 |1.69|	-.0002/.11 |1.60|	-.0003/.05 |1.99|	-.0002/.14 |1.47|	-.003/.00 |3.29|	-----
Fragl-income	-.0002/.11 |1.62|	-.0002/.12 |1.54|	-.0003/.05 |1.93|	-----	-.003/.00 |3.23|	-----
n =	619	619	619	619	437	436

Table 5-5

all urban areas:

urban areas within single states only:

					Staff Time %	
		act &	act, tech			
	activities	tech	& funds	incntype	Retention	Activities
Fragl-population	-----	-----	-----	-----	-.004/.11 |1.62|	-----
Fragl-income	-----	-----	-----	-----	-.004/.11 |1.59|	-----
n =	472	472	472	472	340	339

Note: Fragl is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*
Note: Entries denote *coefficient/significance level & |absolute value| of 't'*

TABLE 5-5(a)
NAICS 8139 Percentages

5-5(a)						

all urban areas:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Activities
Fragl-population	-6%	-5%	-6%	-7%	-19%	na
Fragl-income	-6%	-5%	-6%	na	-19%	na

urban areas within single states only:

	activities	act & tech	act, tech & funds	incntype	Staff Time % Retention	Activities
Fragl-population	na	na	na	na	-25%	na
Fragl-income	na	na	na	na	-25%	na

Note: Fragl is *"Fragmentation Index", defined in Sections 4-2 and 3/5(a)*

NAICS 8139 comprises the groups one would expect to become part of the urbanized area's political regime, not only business but political, labor and professional leagues as well. As with the overarching NAICS 813, the biggest effect of leadership appears to be in the interstate urban area setting, bridging the gap left by state government borders. 9 of 12 matrix cells—75%--in that half of the matrix are inversely signed. The more the interstate leadership organizations, the less the IJC and greater the cooperation. Full regression results are at Appendix Table 5-A-5.

5.5   The Role of Fragmentation vis a vis Alternative Explanations

In this and the preceding chapter, statistical analysis has found fragmentation, communication and leadership to have substantial influence on IJC effort. As

alternatives to the numbers-based theory of collective action, communication and leadership are not surprise explanations of the increases in cooperation through decreases in interjurisdictional competition. However, as noted in the graphic below, a correlation also exists between fragmentation and IJC:

```
Fragmentation
                        IJC
Communication
Leadership
```
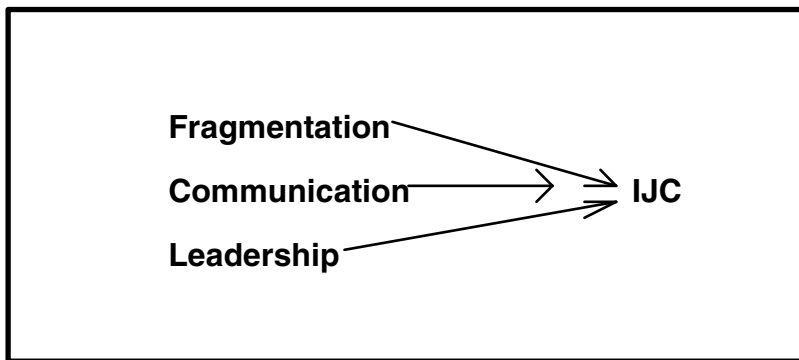
What is the nature of the fragmentation/IJC connection? Is there some theoretical reason to expect direct causation, or is there an intermediate mechanism at work? Our previous examination of communication (Section 5-2) noted that logically, a more fragmented urban area would be expected to have greater communication, as measured by the geographic distance proxy—ceteris paribus, increased fragmentation implies shorter distances between jurisdiction centers which in turn imply greater ease of communication. This mechanism of fragmentation giving rise to increased communication can be statistically substantiated, as can a similar relationship between leadership and IJC. Regression of communication and leadership proxies on fragmentation yielded the following results:

TABLE 5-6
Fragmentation and Alternative Explanations

	Geographic Distance	NAICS 8134101	NAICS 813	NAICS 8139
Fragl-population	-42.8/.00	+248.6/.00	+2015/.00	+1031/.00
Fragl-income	-46.9/.00	+262.2/.00	+2215/.00	+1170/.00

...percentages:	Geographic Distance	NAICS 8134101	NAICS 813	NAICS 8139
Fragl-population	-12%	+44%	+22%	+16%
Fragl-income	-14%	+48%	+24%	+18%

The coefficients are substantial in magnitude as well as statistically significant at the .00 level. Thus, the most plausible relationship among the four variables is:
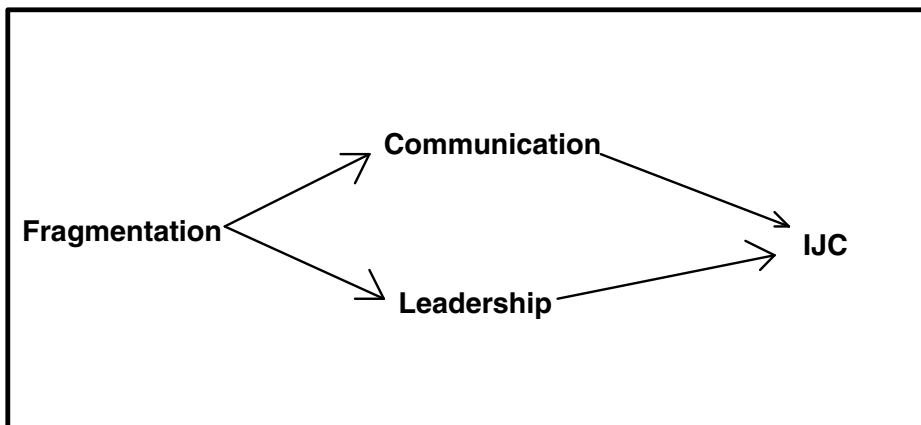
While nothing in theory would indicate that fragmentation would actually *'cause'* communication and leadership (although the facilitation of communication by decreased geographical distance comes close), communication and leadership appear to spring up to compensate for the void in formal regional governmental bodies. This should not be surprising. In numerous laboratory experiments, enhanced ability to communicate or lead has similarly arisen overcome the barriers to cooperation imposed by the prisoners' dilemma. Now, in this real world experiment, we see such political functions arise in reaction to fragmentation and the prisoners' dilemma.

5.6   Conclusion

In contrast to the statistical refutation of the numbers-based theory of collective action in the IJC/fragmentation world in Chapter Four, the analysis in Chapter Five has substantiated two of three major alternative explanations. Communication and leadership enhance cooperation in the IJC world. The result is doubly impressive in that these explanations were developed for pure public goods, yet explain the collective action problem better than the numbers-based exposition which theoretically better fits the non-pure public goods case.

The cases in Chapter One revealed instances and environments of both competition and cooperation among jurisdictions within various urban regions. The statistical analysis conducted on a national dataset substantiated the cooperative paradigm even in more fragmented metro areas. We will now return to the case study method to flesh out the detail of one urbanized area, Hampton Roads, Virginia in its response to interjurisdictional competition.

Appendix to Chapter 5 (Alternative Theories): *Control Variables*

	activities	act & tech	act, tech & funds	incntype	Retention	Attraction
TABLE 5-A-1						
Control Variables-- homeownership						
<u>all urban areas:</u>					Staff Time %	
home-ownership	-----	-----	-----	-----	-----	-27.1/.15
Fragl-population	-1.95/.03	-1.966/.04	-2.28/.03	-1.84/.01	-12.74/.03	-----
mayor:	-.985/.00	-1.26/.00	-1.24/.00	-.466/.06	-----	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/.00	+.00001/.00	+.00001/.00	+.000005/.00	+.00002/.00	+.00001/.10
income per cap	-----	-----	-----	-----	-.009/.04	-----
property tax	-.00002/.02	-.00002/.08	-.00003/.03	-.00002/.07	-----	-----
UA pop	-----	-----	-----	-----	-----	-.0000008/.04
Prob > F	.00	.00	.00	.00	.00	.06
home-ownership	-----	-----	-----	-----	-----	-----
Fragl-income	-2.09/.02	-2.18/.03	-2.50/.02	-1.89/.01	-11.8/.05	-----
mayor:	-.967/.01	-1.24/.00	-1.23/.00	-.446/.07	-----	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/.00	+.00001/.00	+.00001/.00	+.000005/.00	+.00002/.00	+.00001/.10
income per cap	-----	-----	-----	-----	-.009/.05	-----
property tax	-.00002/.03	-.00002/.08	-.00003/.03	-.00002/.07	-----	-----
UA pop	-----	-----	-----	-----	-----	-.0000007/.06
Prob > F	.00	.00	.00	.00	.00	.05
n =	619	619	619	619	437	436

Table 5-A-1 (con't)

**urban areas in single states only:** Staff Time %

	activities	act & tech	act, tech & funds	incntype	Retention	Attraction
home-ownership	-----	-----	-----	-----	-----	-30.9/.15
Fragl-population	-2.34/.02	-2.17/.06	-2.22/.07	-1.71/.04	-16.2/.02	-----
mayor:	-.735/.08	-1.03/.02	-1.09/.03	-.518/.08	+4.04/.18	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/.00	+.00001/.00	+.00001/.00	+.000005/.00	+.00002/.02	+.00001/.06
income per cap	-----	-----	-----	+.001/.04	-.011/.02	-----
property tax	-.00002/.04	-.00002/.12	-.00003/.05	-.00002/.11	-----	-----
UA pop	-----	-----	-----	+.0000002/.01	-----	-----
Prob > F	.00	.00	.00	.00	.01	.22
home-ownership	-----	-----	-----	-----	-----	-----
Fragl-income	-2.38/.02	-2.28/.05	-2.34/.06	-1.73/.03	-14.8/.03	-----
mayor:	-.709/.09	-1.01/.03	-1.07/.04	-.498/.09	+4.28/.16	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/.00	+.00001/.00	+.00001/.00	+.000005/.00	+.00002/.02	+.00001/.07
income per cap	-----	-----	-----	+.001/.04	-.011/.02	-----
property tax	-.00002/.05	-.00002/.13	.00003/.05	-.00002/.12	-----	-----
UA pop	+.0000001/.05	-----	-----	+.0000002/.01	-----	-----
Prob > F	.00	.00	.00	.00	.01	.19
_n =_	472	472	472	472	340	339

_**Note:**_Entries denote coefficient/ significance level (significance only for Pr > F)

			act, tech			
TABLE 5-A-2						
Control Variables-- geographic distance						
<u>*all urban areas:*</u>				**Staff Time %**		
	activities	act & tech	& funds	incntype	Retention	Attraction
square km (avg)	+.019/.00	+.021/.00	+.022/.00	+.006/.13	-----	+.064/.01
Fragl-population	-1.21/.15	-----	-----	-1.36/.04	-13.04/.02	-----
mayor:	-.749/.04	-.997/.01	-.959/.03	-.359/.14	-----	-----
race:	-----	-----	-.939/.05	-.476/.09	-----	-----
juris pop	+.000008/.00	+.000009/.00	+.00001/.00	+.000005/.00	+.00002/.00	-----
income per cap	-----	-----	-----	-----	-.009/.06	-----
property tax	-.00002/.03	-.00002/.08	-.00003/.03	-.00002/.07	-----	-----
UA pop	-----	-----	-----	-----	-----	-.0000005/.15
Prob > F	.00	.00	.00	.00	.00	.01
square km (avg)	+.019/.00	0.021/.00	+.021/.00	+.005/.15	-----	+.062/.01
Fragl-income	-1.27/.14	-1.23/.19	-----	-1.39/.04	-12.4/.02	-----
mayor:	-.738/.04	-.989/.01	-.949/.03	-.346/.16	-----	-----
race:	-----	-----	-.920/.05	-.457/.10	-----	-----
juris pop	+.000008/.00	+.000009/.00	+.00002/.00	+.000005/.00	+.00002/.00	-----
income per cap	-----	-----	-----	-----	-.0089/.07	-----
property tax	-.00002/.03	-.00002/.08	-.00003/.03	-.00002/.07	-----	-----
UA pop	-----	-----	-----	-----	-----	-----
Prob > F	.00	.00	.00	.00	.00	.01
n =	619	619	619	619	437	436

Table 5-A-2 (con't)

urban areas in single states only: **Staff Time %**

	activities	act & tech	act, tech & funds	incntype	Retention	Attraction
square km (avg)	+.022/.00	+.024/.00	+.024/.00	+.007/.09	-----	+.059/.04
Fragl-population	-1.54/.11	-----	-----	-1.25/.10	-16.2/.01	-----
mayor:	-----	-.719/.12	-.777/.14	-.408/.16	+4.04/.18	-----
race:	-----	-----	-.738/.16	-----	-----	-----
juris pop	+.000006/.00	+.000009/.00	+.00001/.00	+.000005/.00	+.00002/.03	-----
income per cap	-----	-----	-.001/.18	+.0009/.06	-.011/.03	-----
property tax	-.00002/.05	-.00002/.14	-.00003/.06	-.00002/.12	-----	-----
UA pop	-----	-----	-----	+.0000001/.02	-----	-----
Prob > F	.00	.00	.00	.00	.01	.13
square km (avg)	+.022/.00	+.024/.00	+.024/.00	+.007/.10	-----	+.057/.04
Fragl-income	-1.51/.11	-----	-----	-1.26/.10	-14.9/.01	-----
mayor:	-----	-.706/.13	-.766/.15	-----	-----	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000007/.00	+.000009/.00	+.00001/.00	+.000005/.00	+.00002/.03	-----
income per cap	-----	-----	-----	+.0009/.05	-.0107/.03	-----
property tax	-.00002/.06	-.00002/.14	-.00003/.06	-.00002/.13	-----	-----
UA pop	------	-----	-----	+.0000001/.02	-----	-----
Prob > F	.00	.00	.00	.00	.01	.11
n =	472	472	472	472	340	339

Note: Entries denote coefficient/ significance level (significance only for Pr > F)

	activities	act & tech	act, tech & funds	incntype	Retention	Attraction
					Staff Time %	

TABLE 5-A-3
Control Variables-- NAICS 8134101
all urban areas:

	activities	act & tech	act, tech & funds	incntype	Retention	Attraction
NAICS 8134101	-.005/.00	-.005/.00	-.006/.00	-----	-.035/.00	-.027/.01
Fragl-population	-1.74/.07	-----	-1.68/.14	-1.13/.13	-----	-----
mayor:	-.888/.01	-1.16/.00	-1.13/.01	-.381/.12	+3.84/.12	-----
race:	-----	-----	-.756/.11	-----	-----	-----
juris pop	+.000009/ .00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .00	+.00001/ .11
income per cap	-----	-----	-----	-----	-.009/.04	-----
property tax	-.00002/ .08	------	-.00003/ .08	-.00002/ .09	-----	-----
UA pop	-----	-----	-----	-----	-----	-----
Prob > F	.00	.00	.00	.00	.00	.01
NAICS 8134101	-.005/.00	-.005/.00	-.005/.01	-----	-.035/.00	-.026/.01
Fragl-income	-1.84/.06	-1.64/.12	-1.85/.11	-1.16/.12	-----	-----
mayor:	-.872/.01	-1.14/.00	-1.11/.01	-.369/.13	+3.98/.11	-----
race:	-----	-----	-.743/.11	-----	-----	-----
juris pop	+.000009/ .00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .00	+.00001/ .12
income per cap	-----	-----	-----	-----	-.009/.05	-----
property tax	-.00002/ .08	-----	-.00003/ .09	-.00002/ .09	-----	-----
UA pop	-----	-----	-----	-----	-----	-----
Prob > F	.00	.00	.00	.00	.00	.01
n =	619	619	619	619	437	436

Table 5-A-3(con't)

urban areas in single states only: **Staff Time %**

	activities	act & tech	act, tech & funds	incntype	Retention	Attraction
NAICS 8134101	-.003/.08	-.004/.05	-.003/.08	-----	-.029/.01	-.03/.01
Fragl-population	-1.97/.07	-----	-----	-----	-10.9/.10	-----
mayor:	-.628/.14	-.918/.05	-.975/.06	-.523/.08	+4.68/.12	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/ .00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .03	+.00001/ .05
income per cap	-----	-----	-----	+.001/.03	-.012/.01	-----
property tax	-.000002/ .12	-----	-.00002/ .12	-.00002/ .14	-----	-----
UA pop	+.00000006/ .07	-----	-----	-----	-----	-----
Prob > F	.00	.00	.00	.00	.00	.02
NAICS 8134101	-.003/.10	-.004/.06	-.004/.10	-----	-.029/.01	-.029/.01
Fragl-income	-2.01/.07	-----	-----	-----	-9.28/.17	-----
mayor:	-----	-.902/.05	-.959/.07	-.515/.08	+4.82/.11	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/.00	+.000001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .03	+.00001/ .06
income per cap	-----	-----	-----	+.001/.03	-.011/.01	-----
property tax	-.00002/.12	-----	-.00002/ .12	-.00002/ .14	-----	-----
UA pop	+.00000006/ .07	-----	-----	-----	-----	-----
Prob > F	.00	.00	.00	.00	.00	.02
n =	472	472	472	472	340	339

Note:Entries denote coefficient/ significance level (significance only for Pr > F)

	activities	act & tech	act, tech & funds	incntype	Retention	Attraction
TABLE 5-A-4						
Control Variables-- NAICS 813						
<ins>*all urban areas:*</ins>					**Staff Time %**	
NAICS 813	-.0002/.14	-----	-.0002/.08	-----	-.002/.00	-----
Fragl-population	-2.35/.01	-2.14/.03	-2.39/.03	-1.28/.07	-12.2/.04	-----
mayor:	-.937/.01	-1.22/.00	-1.16/.01	-.367/.14	+3.93/.12	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/.00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .00	+.00001/ .12
income per cap	-----	-----	-----	-----	-.009/.04	-----
property tax	-.00002/.02	-.00002/ .07	-.00003/ .03	-.00002/ .07	-----	-----
UA pop	-----	-----	-----	-----	-----	-----
Prob > F	.00	.00	.00	.00	.00	.19
NAICS 813	-----	-----	-.0002/.09	-----	-.002/.00	-----
Fragl-income	-2.47/.01	-2.34/.02	-2.58/.02	-1.31/.07	-10.9/.06	-----
mayor:	-.912/.01	-1.19/.00	-1.14/.01	-----	+4.10/.11	-----
race:	-----	-----	-----	-----	-----	------
juris pop	+.000009/.00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .00	+.00001/ .13
income per cap	-----	-----	-----	-----	-.009/.04	-----
property tax	-.00002/.03	-.00002/ .08	-.00003/ .03	-.00002/ .08	-----	-----
UA pop	-----	-----	-----	-----	-----	-----
Prob > F	.00	.00	.00	.00	.00	.13
n =	619	619	619	619	437	436

Table 5-A-4 (con't)

urban areas in single states only: Staff Time %

	activities	act & tech	act, tech & funds	incntype	Retention	Attraction
NAICS 813	-----	-----	-----	-----	-----	-----
Fragl-population	-2.60/.01	-2.23/.05	-2.19/.07	-----	-13.8/.03	-----
mayor:	-.719/.09	-1.02/.03	-1.06/.04	-.576/.06	+4.32/.15	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/.00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .03	+.00001/ .06
income per cap	-----	-----	-----	+.001/.02	-.012/.01	-----
property tax	-.00002/.04	-.00002/.11	-.00003/ .05	-.00002/ .11	------	-----
UA pop	-----	-----	-----	------	-----	-----
Prob > F	.00	.00	.00	.00	.01	.29
NAICS 813	-----	-----	-----	-----	-----	-----
Fragl-income	-2.69/.01	-2.37/.04	-2.34/.06	-----	-12.5/.05	-----
mayor:	-.692/.11	-.999/.03	-1.04/.05	-.565/.06	+4.48/.14	-----
race:	-----	-----	-----	-----	------	-----
juris pop	+.000008/.00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .03	+.00001/ .06
income per cap	-----	-----	-----	+.001/.02	-.012/.02	-----
property tax	-.00002/.04	-----	-.00002/ .05	-.00002/ .11	-----	-----
UA pop	-----	-.00002/.12	-----	-----	-----	-----
Prob > F	.00	.00	.00	.00	.01	.26
n =	472	472	472	472	340	339

Note: Entries denote coefficient/ significance level (significance only for Pr > F)

	activities	act & tech	act, tech & funds	incntype	Retention	Attraction
			TABLE 5-A-5			
			Control Variables-- NAICS 8139			
all urban areas:					**Staff Time %**	
NAICS 8139	-.0002/.09	-.0002/.11	-.0003/.05	-.0002/.14	-.003/.00	-----
Fragl-population	-2.38/.01	-2.18/.03	-2.44/.03	-1.31/.07	-12.6/.03	-----
mayor:	-.929/.01	-1.21/.00	-1.16/.01	-.353/.15	+3.93/.12	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/.00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .00	+.00001/ .12
income per cap	-----	-----	-----	-----	-.009/.04	-----
property tax	-.00002/.02	-.00002/.07	-.00003/ .03	-.00002/ .07	-----	-----
UA pop	-----	-----	-----	-----	-----	-----
Prob > F	.00	.00	.00	.00	.00	.18
NAICS 8139	-.0002/.11	-.0002/.12	-.0003/.05	-.0002/.16	-.003/.00	-----
Fragl-income	-2.50/.01	-2.38/.02	-2.64/.02	-1.33/.06	-11.3/.05	-----
mayor:	-.904/.01	-1.18/.00	-1.13/.01	------	+4.11/.10	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/.00	+.00001/ .00	+.00001/ .00	+.000005/ .00	+.00002/ .00	+.00001/ .13
income per cap	-----	-----	-----	-----	-.009/.05	-----
property tax	-.00002/.02	-.00002/.08	-.00003/ .03	-.00002/ .07	-----	-----
UA pop	-----	-----	-----	-----	-----	-----
Prob > F	.00	.00	.00	.00	.00	.13
n =	619	619	619	619	437	436

Table 5-A-5 (con't)					

	activities	act & tech	act, tech & funds	incntype	Retention	Attraction
NAICS 8139	-----	-----	-----	-----	-.004/.11	-----
Fragl-population	-2.56/.01	-2.19/.05	-2.15/.08	-----	-13.9/.03	-----
mayor:	-.712/.10	-1.02/.03	-1.05/.04	-.551/.07	+4.31/.15	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000008/.00	+.00001/.00	+.00001/.00	+.000005/.00	+.00002/.03	+.00001/.05
income per cap	-----	-----	-----	+.001/.02	-.012/.02	-----
property tax	-.00002/.05	-.00002/.12	-.00003/.05	-.00002/.13	-----	-----
UA pop	-----	-----	-----	-----	-----	-----
Prob > F	.00	.00	.00	.00	.01	.29
NAICS 8139	-----	-----	-----	-----	-.004/.11	-----
Fragl-income	-2.65/.01	-2.34/.04	-2.29/.06	-----	-12.5/.05	-----
mayor:	-.685/.11	-.992/.03	-1.03/.05	-.541/.07	+4.47/.14	-----
race:	-----	-----	-----	-----	-----	-----
juris pop	+.000009/.00	+.00001/.00	+.00001/.00	+.000005/.00	+.00002/.03	+.00001/.06
income per cap	-----	-----	-----	+.001/.02	-.012/.02	-----
property tax	-.00002/.05	-.00002/.13	-.00003/.06	-.00002/.13	-----	-----
UA pop	-----	-----	-----	-----	-----	-----
Prob > F	.00	.00	.00	.00	.01	.25
n =	472	472	472	472	340	339

Note: Entries denote coefficient/ significance level (significance only for Pr > F)

Chapter 6: Case Study—Hampton Roads, Virginia

PART A:
HAMPTON ROADS ORIENTATION

6(A).1 Overview

Because of the length of the exposition, Chapter 6 is divided into two parts. Part A constitutes an introduction to the geography and politics of Hampton Roads while Part B, building on the history in Part A, presents theoretical arguments.

Chapters 4 and 5 presented statistical support for communication- and leadership-based success in collective action while refuting the still-common assertion that—absent selective incentives— anything beyond a small number of players dooms collective action to failure. While Chapter 1 included a sketch of interjurisdictional competition and cooperation in metropolitan Denver, Chapter 6 comprises a far more detailed case study of the Hampton Roads urban region in southeastern Virginia. After presenting a brief orientation on Hampton Roads geography and history in Section 6(A).2, Section 6(A).3 develops a narrative of relevant Hampton Roads governmental and economic events since 1990. Part B will extend the Chapter 5 themes of leadership and communication, describing the roles of each in Hampton Roads regional cooperation while revisiting an element of Chapter 2 to argue that the theoretical possibility of a transition from the *prisoners' dilemma* game to the *assurance game* occurred in Hampton Roads as the cost of defection rose to a degree unacceptable to interested citizens. Essentially, both leadership (and leadership-engendered communication) and game transition reinforced each other to move the region to stable mutual cooperation.

A few words on methodology are in order: First, in order to fully tap the rich experience of fin de siecle and early new millennium Hampton Roads, the focus of the study will encompass not only cooperation to limit interjurisdictional competition but all cooperative efforts on regional economic development in general. IJC is after all logically an element of overall economic development strategy. More to the point, while Hampton Roads did adopt an anti-raiding agreement similar to that of greater Denver, the critical scholar may justifiably be concerned that this event might be a lonely single success in an environment awash in defection and doomed collective action attempts. The exposition in this chapter should dispel such doubts.

Second, interviews in the Hampton Roads area were conducted on a not-for-attribution basis. While this limits the ability to employ juicy quotations, it does facilitate far more frank and informative interviews. The question, of course, is how to report findings thus gleaned. Chapter 6 employs the typical journalistic standard of having a behind-the-scenes event confirmed by two or more observers or participants. Of course, where academic studies or newspaper articles can be used for reference instead, they are. In the rare instances in which individuals are cited, they have been explicitly asked for permission.

6(A).2 Hampton Roads Background

Hampton Roads comprises sixteen jurisdictions. The Census-defined Urbanized Area accounts for a dozen of these communities, ranging in population from Virginia Beach (389,533 residents in 1990) to Gloucester County (8,899 residents).

Hampton Roads 1990

Larger Jurisdictions-- Characteristics

(Census-designated Urbanized Area only)

Peninsula:

	Population	Income Per Capita	Square Miles
Newport News	170045	12711	119
Hampton	133793	13099	136
York County	30953	15128	108
James City County	16542	19355	143
Williamsburg	11530	11822	9
Poquoson	11005	16930	78
Gloucester County	8899	13875	217

Southside:

	Population	Income Per Capita	Square Miles
Virginia Beach	389533	15234	497
Norfolk	261229	11643	96
Chesapeake	146527	13838	351
Portsmouth	103907	11158	47
Suffolk	39076	11740	429

Sources: American Fact Finder, www.census.gov ; York County area from York County Ofc of Econ Development

Hampton Roads Urbanized Area

Source: www.census.gov

Two major features distinguish the social geography: First, the two-mile-wide James River forces most north-south traffic over two frequently congested bridge-tunnels. (An outlying bridge and a car ferry are located considerably further from main population and business centers.) Second, the urbanized area is frequently described as a *linear city*. Averaging 18 miles wide, built-up Hampton Roads is almost 65 miles long on a southeasterly axis jutting down the Virginia Peninsula to Chesapeake, its most southerly municipality[5].

Construction on the bridge-tunnels (tunnels being necessary to permit ships transit to harbor facilities) began in 1957 and was completed in 1992. Prior to this, transportation from the northern *Peninsula* (Newport News, Hampton and vicinity) to *Southside* (Norfolk, Virginia Beach, Portsmouth and environs) was by ferry. This resulted in the two parts of the present Hampton Roads area developing separately until relatively late in current history. Indeed, the two were different MSAs until 1983. The legacy of these years continued into the new millennium both in separate sets of subregional institutions (e.g., economic development cooperatives, chambers of commerce) for either side of the James and in the continued appellations *Peninsula* and *Southside.* Tellingly, the region's two major daily newspapers still circulate in and cover mainly their respective subregions: the Peninsula for the *Daily Press* and Southside for the *Virginian-Pilot.* Additionally, residents frequently refer to the subregion in which they are not as *"the other side of the tunnel [or bridge]."* The region is also known as *Tidewater, Peninsular Virginia, Southeastern Virginia* and—generally to Norfolk residents—as *Greater Norfolk.* A well-known sub-subregion

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[5] Width of the urbanized area excludes Gloucester County in the northeast across the York River. Average width for the Peninsula north of the James River is 12 miles; average width south of the James is 22.5 miles. Figures are based upon author's mapspotting.

also exists: the *Historical Triangle* comprising Williamsburg, York County and James City County.

The name Hampton Roads is derived from one of the original royal land grants in Virginia, *Southampton Roadstead—* a *roadstead* (later contracted to a *roads* or *road*) being a coastal area less enclosed than a harbor but still safe for anchored ships *(Babcock, 1998)*. Similarly colorful etymologies attend to other place names, such as *Newport News*, originally named for the location where, in the early seventeenth century, colonists could come to receive the latest updates on world events from the ships crews of explorer Christopher Newport.

Norfolk became the longstanding financial and industrial center of Southside; however, a series of defensive city-county mergers in the mid-1900s limited its annexations of adjacent lands. One of these mergers—between the City of Virginia Beach and Princess Anne County — set the stage for the rise of Virginia Beach to become the region's most populous jurisdiction and latter-day rival to Norfolk for regional dominance throughout Hampton Roads. (An endnote provides the interesting perspective of changes in Census terminology regarding Virginia Beach and the MSA.[1]) Thus, whatever success regional cooperation enjoys in Hampton Roads is achieved against a historical background of rivalry, separation and, at times, intrigue.

Contemporary Hampton Roads nonetheless also exhibits a certain complementarity among jurisdictions. Norfolk retains a large role as home to high-rises and headquarters. Outlying cities and counties have developable land at lower prices. Virginia Beach has the ocean frontage and recreation. Norfolk, Newport

News and Portsmouth host heavy manufacturing. The Williamsburg-centered historical triangle offers national-park-based tourism.

At a more general level, the Hampton Roads economy is an interesting blend of themes. Defense spending in this traditional Navy region—site of the famed Civil War battle between the ironclads *U.S.S. Monitor* and *C.S.S. Virginia* (formerly *U.S.S. Merrimac*)—comprises 31% of gross regional product *(Regional Studies Institute 2003, Graph 2).* Major installations include three major naval activities in Norfolk (56,500 military, 3100 civilian employees), Fort Monroe and Langley Air Force Base in Hampton (10,000 military, 3100 civilian employees), Fort Eustis in Newport News (5810 military, 1950 civilian employees), and Fort Story, Amphibious Base Little Creek and Naval Air Station Oceana in Virginia Beach (24,000 military, 1900 civilian employees) *(HRPDC 2004, Table 5).* Analysts frequently attribute Hampton Roads' relatively milder economic recessions (when the national economy catches cold, Hampton Roads sneezes or at worst gets a sniffle) to military spending cycles historically offsetting the business cycle *(e.g. HRPDC 2004, p 5).* However, troop deployments can also have an initially depressing effect on the regional economy *(HRPDC 2004, pp 23-28).*

Shipbuilding contributes to a large manufacturing base which produces roughly a quarter of regional income *(Bureau of the Census: 1997 Economic Census).* Higher education (including the College of William and Mary; Hampton and Old Dominion Universities) and high tech (such as NASA's Langley Research Center) provide a cutting edge modern component, while Colonial Williamsburg, Jamestown and Yorktown Victory Center hark back to the nation's earliest days. The following

charts list (a) major industries and (b) a percentage breakout of payroll by North

American Industrial Classification System (NAICS; successor to the Standard

Industrial Classification system). The second graphic also provides a comparison to

two MSAs which Hampton Roads elites track as benchmarks for Hampton Roads

progress.

Hampton Roads-- Largest Employers
(excluding State and local government)

	Jurisdiction	Employees	Activity
U.S. Government	All	50000	Govt, Military
Northrup Grumman	Newport News	18000	Shipbuilding & Repair
Sentara Healthcare	Norfolk	14500	Healthcare
Norfolk Naval Shipyard	Portsmouth	7000	Shipbuilding & Repair
Riverside Health System	Newport News	5000	Healthcare
Busch Gardens/ Water Country	Williamsburg	5000	Theme Park
Portsmouth Naval Hospital	Portsmouth	4770	Hospital
Naval Medical Center Portsmouth	Portsmouth	4028	Hospital
Old Dominion University	Norfolk	4000	Education
Bank of America	Norfolk	3600	Banking
Smithfield Foods	Smithfield	3223	Meat Processing
Colonial Williamsburg	Williamsburg	3200	Museums, Historical
Ford F-150 Plant	Norfolk	2500	Automotive Manufacturing
NASA Langley Research	Hampton	2300	Aerospace Research
Amerigroup	Virginia Beach	2300	Medicaid Insurance
U.S. Marine Repair	Norfolk	2200	Shipbuilding & Repair
Cox Communications	Chesapeake	2100	Cable Calling Center, Telecoms

Source: Hampton Roads Economic Development Alliance, www.hreda.com

Hampton Roads Income Sources *1997 NAICS Percentages* Compared to Benchmark MSAs			
	Hampton Roads	*Charlotte NC*	*Jackson-ville FL*
Utilities	1	4	1
Manufacturing	24	26	13
Wholesale	7	13	9
Retail	14	9	11
Transportation, Warehousing	5	5	7
Finance, Insurance	8	14	20
Real Estate	3	2	2
Professional, Science	10	8	9
Waste, Remediation	7	6	7
Education	1	1	1
Health Services	10	6	11
Arts & Entertainment	1	1	1
Hotels & Food	6	3	4
Other Services	4	2	3

Source: 1997 Economic Census, www.census.gov
Note: Columns do not add to 100% due to rounding

6(A).3 Economic Development in Hampton Roads from 1990—A Narrative

6(A).3.1 Troubled Beginning.

The fifteen years from 1990 through 2004 eventually saw a renaissance of regional economic development cooperation with the birth of new regional organizations and revitalization of existing entities. However, this renewal of regionalism had its origins in a spasm of bad news and unfavorable auguries for the Hampton Roads economy. Many persons interviewed pointed in particular to five major events: regional per capita income falling as a percentage of the national

average, regional income per capita falling vis a vis similar nearby MSAs, the 1991-2 recession, military downsizing after the end of the Cold War, and bank deregulation. A newpaper headline and initial sentence best capture the malaise of the times:

"Looking Back At 1990: The Year The Going Got Tough. '*It was the year the economy finally went thud in Hampton Roads.' (Mayfield, 1990)"*

        Regional Per Capita Income Falling vs National Average: The release of the 1990 Census highlighted the fact that after steady growth in the early 1980s, per capita income in Hampton Roads had fallen as a percentage of United States per capita income:
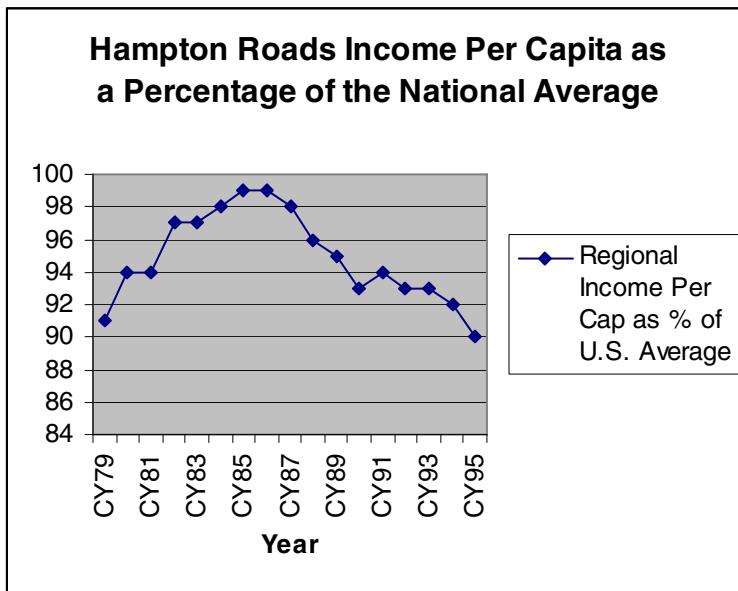
Source: Bureau of Economic Analysis (BEARFACTS, www.bea.gov)

Having climbed in 1985 and 1986 to within one percentage point of the national average, by 1990 Hampton Roads per capita income had plummeted below its 1980 average—from 94% in 1980 to 93% in 1990. Five years later, it had fallen below its 1979 mark—from 91% in 1979 to 90% of the national average in 1995.

Comparative Regional Indicators: Hampton Roads elites frequently compare their region to two other southeastern MSAs of similar population. Hampton Roads was always ahead of benchmarks Charlotte, North Carolina and Jacksonville, Florida on per capita income until the 1990 census:
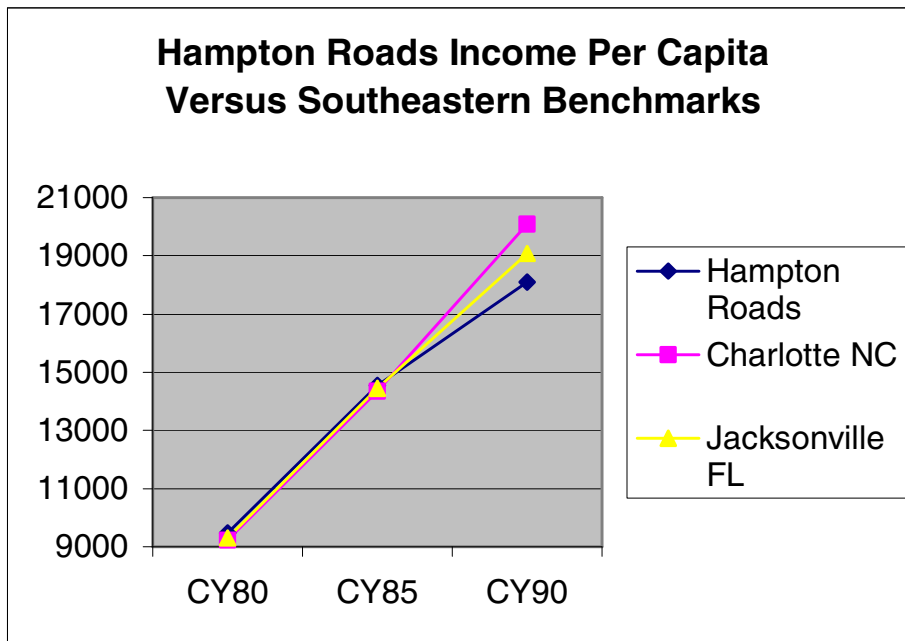
Hampton Roads Income Per Capita Versus Southeastern Benchmarks

MSA	CY80	CY85	CY90	1990 Population	Rank Among MSAs
Hampton Roads	$9471	$14544	$18091	1,457,079	32nd of 361
Charlotte NC	$9236	$14356	$20092	1,030,945	42nd of 361
Jacksonville FL	$9315	$14450	$19087	932,169	47th of 361

Source: Bureau of Economic Analysis (BEARFACTS, www.bea.gov)
*Note: In current dollars.*

While not explicitly mentioned as benchmarks by regional leaders interviewed for this case study, two other nearby MSAs almost undoubtedly influenced Hampton Roads decisionmakers, at least at gut level. These are Richmond, Virginia—just up I-64—and Raleigh, North Carolina. The bad news continues when the region is contrasted with these similar MSAs which started the decade slightly in front of Hampton Roads and then pulled significantly ahead:
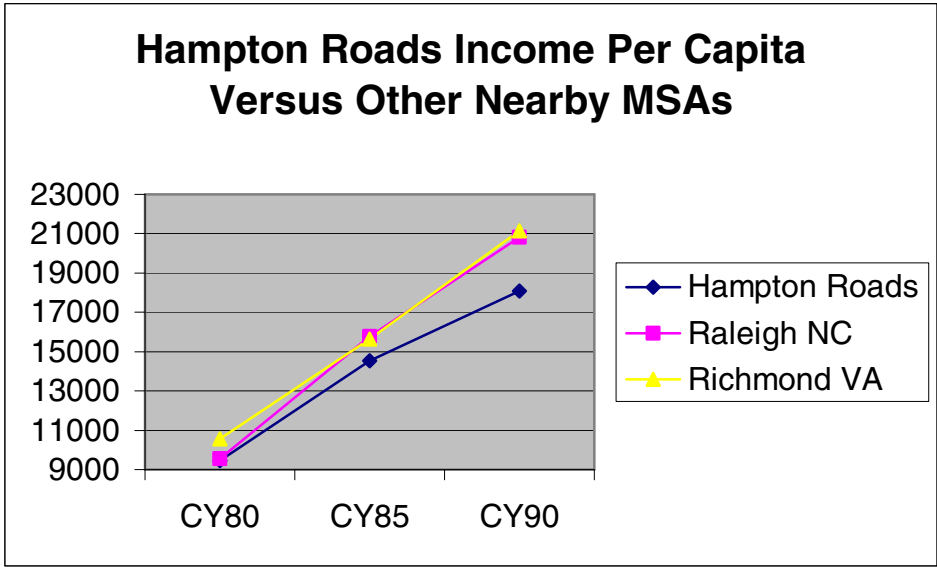
Hampton Roads Income Per Capita Versus Other Nearby MSAs

MSA	CY80	CY85	CY90	1990 Population	Rank Among MSAs
Hampton Roads	9471	14544	18091	*1,457,079*	*32nd of 361*
Raleigh NC	9546	15760	20821	*548,874*	*76th of 361*
Richmond VA	10561	15648	21145	*954,380*	*46th of 361*

Source: Bureau of Economic Analysis (BEARFACTS, www.bea.gov)
*Note: In current dollars.*

The contrast is even more dramatic in terms of income per capita of the five

MSAs versus the national average:

**Hampton Roads versus Benchmarks:
%age of National Income Per Capita**
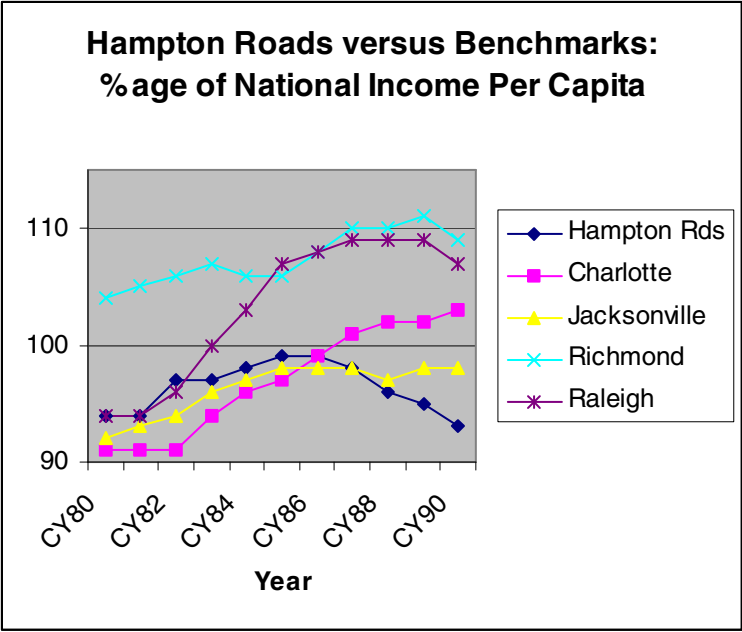
Source: Bureau of Economic Analysis (BEARFACTS, www.bea.gov)

Thus, not only was Hampton Roads declining in comparison with national averages, it was losing steam in comparison with Southeastern rivals as well. Many of those interviewed remember these as the sharpest of the several wake-up calls: Hampton Roads was in trouble, falling behind the competition on all fronts.

1991-2 Recession: Just as Hampton Roads communities and decisionmakers were absorbing 1990 Census data, the 1980s economic boom came to an end in the nation's first 'white collar recession'. Although buffered by defense employment, the Hampton Roads economy suffered along with the rest of the nation:
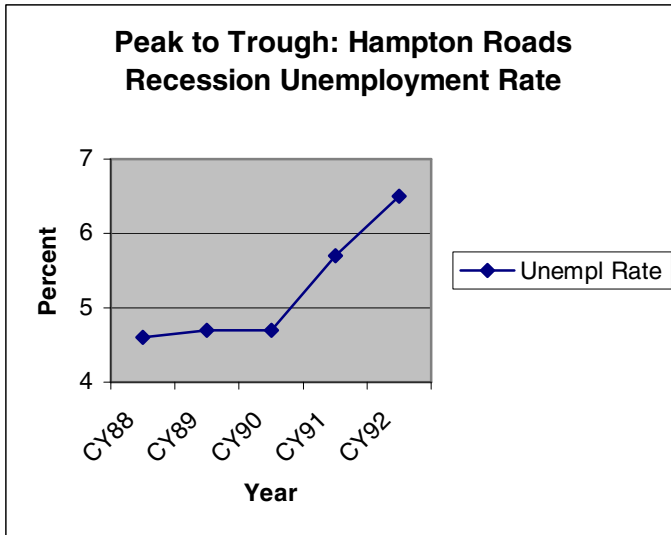
Peak to Trough: Hampton Roads Recession Unemployment Rate

Possible Military Base Closures: Granted, the recession was not as severe in Hampton Roads as in other parts of the nation. Ironically but understandably, its lack of severity in this instance made the perception of Hampton Roads future even gloomier: In this as well as past recessions, the major military presence in Hampton Roads had on balance buoyed the economy in economic downturns even in the face of troop deployments for the Gulf War and the concomitant temporary loss of local income. However, with the fall of the Soviet Union, end of the Cold War and promises of a "peace dividend" from cuts in the national defense budget, how much longer could Hampton Roads continue to rely upon military spending to buttress its economy?

The answer came in the form of the Base Closure and Realignment Act of 1988, which inaugurated the first of a series of Base Realignment and Closure Commissions (BRAC). Each Commission recommends a list of base closings which—if accepted in toto by the Secretary of Defense—must be implemented unless disapproved within 45 days by a Joint Resolution of Congress. There is no room in

the process for negotiation or amendment once a list is submitted to the Secretary of

Defense by a Commission. Hampton Roads to date has not suffered as greatly as

some feared initially: The Naval Aviation Depot in Norfolk was closed by BRAC

(Virginian-Pilot, 3/26/95) and Oceana Naval Air Station threatened with a closure

abated by the restationing of six F/A-18 Hornet squadrons from Cecil Field, Florida

(Dorsey, 1999). However, concerns continue—the longevity of Oceana NAS is again

imperiled in the upcoming round of base closings by encroachment of housing

developments near the airstrip approach; the demise of Fort Story is reportedly under

consideration *(Dolan, 2003; Addis, 2004).* Very certainly such worries were

prominent in the thinking of local leaders in the years around 1990. *"The shrinkage*

of the nation's military—specifically the closing of some naval installations—…is

focusing Hampton Roads' attention…" noted one journalist *(Virginian-Pilot,*

1/25/94). Indeed, the BRAC process provided an impetus to regionalism during the

study period: Hampton Mayor James Eason supported regional efforts because of the

local economy *"move from [a] defense to non-defense economy" (Mangalindan,*

3/19/95).

   Bank Deregulation: The Commonwealth of Virginia was caught flat-footed

by Federal banking deregulation in the early 1990s, and Virginia-chartered banks

suffered. Virginian law encouraged competition among state-chartered banks by

limiting their ability to open branches in adjacent communities. While useful in

previous eras, this state regulation was superseded by new Federal regulations

encouraging multi-state banking mergers and acquisitions. A Virginia-chartered bank

still could not acquire branches or merge with banks in adjacent communities, but

out-of-state banks could… and did. North Carolina banks in particular took over

once-powerful Virginia banks. Hampton Roads businesspersons, accustomed to

quick responses from local bankers vested with decisionmaking authority, now found

themselves in the less reassuring position of petitioners at branches of out-of-state

banks, filling out applications for approval at headquarters in distant cities… such as

Charlotte. *(Levinson, 1994.)*

6(A).3.2   Regional Institutions

> *The Hampton Roads economy, heavily dependent upon*
> *military and maritime-industry dollars for its health, has been*
> *drifting into uncharted waters. Thanks to the Hampton Roads*
> *Chamber of Commerce, the region is well on its way to plotting*
> *safe passage through the unknown. …This month the Hampton*
> *Roads Chamber completed the first step toward formulating its*
> *“Plan 2007” (2007 will be the 400th anniversary of the settling*
> *of Jamestown).*
> (Virginian-Pilot, 1/25/94.)

Plan 2007, finalized in 1993, inter alia recommended the creation of the

Hampton Roads Partnership, a public-private entity envisioned to become the overall

coordinator of economic development. The Partnership would replace the Forward

Hampton Roads—the marketing arm of the (Southside) Hampton Roads Chamber of

Commerce—and its Peninsula counterpart, the Virginia Peninsula Economic

Development Council. While attributed above to the Southside’s Hampton Roads

Chamber of Commerce, Plan 2007 also saw the involvement of the Virginia

Peninsula and Williamsburg Area Chambers of Commerce, along with numerous

other organizations, for a total of 430 individual participants *(Virginian-Pilot,*

1/25/94; Mangalindan, 3/19/95).

The Hampton Roads Partnership was inaugurated in May, 1996 with funding from the recently passed state Regional Competitiveness Act. The law allowed the Virginia General Assembly to *"establish a fund to be used to encourage regional strategic planning and cooperation…[by making grants to] regional partnership[s] [which] include as broad a representation as practical of local government, elementary and secondary education, higher education, the business community, and civic groups… Each regional partnership shall develop a regional strategic economic development plan… [and address areas such as] job creation or economic development, regional revenue sharing or growth sharing agreements, education, local land use, housing, transportation, law enforcement, solid waste, fire services and emergency medical services…"* (Code of Virginia, 15.2-1306 to -1310). Hampton Roads communities decided to allow the Hampton Roads Partnership to retain all Regional Competitiveness Act funding as seed money for its programs.

The Hampton Roads Partnership ultimately did not encompass all roles foreseen in Plan 2007: Southside and the Peninsula retained their own subregional marketing agencies (of which more below). However, the Partnership was instrumental in initiating a series of combined Southside/Peninsula marketing trips to Detroit, Los Angeles and Toronto. The Partnership identified eight issue areas, such as port activities, regional identity, technology, workforce development and transportation. Several have been closed out and the issue area list is under revision, with probable new areas in industry clusters and natural resource enhancement. The Hampton Roads Partnership has also spun off several regional development organizations, such as *Smart Region Hampton Roads* (creating a 'virtual region'

through innovative information technology) and the *Hampton Roads Technology Council* (working with regional economic development agencies to attract high-tech firms) *(Smart Region Hampton Roads; Probsdorfer, 2001)..*

The regional revival of the mid-90s included the subregional marketing organizations of the Southside and Peninsula Chambers of Commerce. Southside's Hampton Roads Chamber of Commerce had promoted its share of the regional economy under its client division *Forward Hampton Roads.* This allowed some degree of regional promotion; however, as a purely private entity, Forward Hampton Roads could not achieve a truly cooperative subregional marketing function without participation of local governments, each possessing its own economic development department. In 1996, the regional marketing function was removed from Forward Hampton Roads and placed in a new public-private entity, the *Hampton Roads Economic Development Alliance (HREDA).* HREDA is supported by jurisdictional contributions of one dollar per resident as well as by donations from participating businesses. Its board comprises both local economic development agency officers and private businesspersons. Through advertising, direct contacts and trade missions to other states and countries, HREDA claims credit for numerous new businesses coming to Southside.

The *Peninsula Alliance for Economic Development (PAED)* was founded under similar circumstances in 1997. Its predecessor organization, the *Virginia Peninsula Economic Development Council (VPEDC)*, had received both public and private funding but had developed too unwieldy and farflung a range of activities for effective and coherent management *(Probsdorfer, 2001).*   PAED did however retain

VPEDC's very successful workforce training program in addition to the subregional marketing function. The training program is the major difference between PAED and HREDA.

As noted above, HREDA and PAED have engaged in several joint marketing trips which were financially supported in part by the Hampton Roads Partnership. However, economic development officers for the various cities and counties in Hampton Roads often volunteer the problem created by the existence of two subregional marketing boards within what is now regarded as one region. Many prospective new firms have reportedly been openly perplexed when, after a productive tour sponsored by one of the two agencies, they are in effect dropped off *"at the bridge"* for a separate tour by the other agency. Problems such as this and the general tide of support for regional cooperation in Hampton Roads led to proposals for merging HREDA and PAED. The daily Virginian-Pilot called for consolidation as early as November of 2000: *"Destructive rivalry among Hampton Roads' localities inevitably commands more notice than lower-visability cooperative efforts to improve the fortunes and raise the incomes of the region and its inhabitants. But not all the news is bad. Next step: How about merging the Peninsula and South Hampton Roads business-recruitment agencies?" (Virginian-Pilot, 11/8/00).* Major stumbling blocks included how the existing staffs were to be combined and the disposition of the highly regarded PAED workforce training program. However, merger talks were ultimately successful and the two alliances became one truly regional entity retaining the name *Hampton Roads Economic Development Alliance*

on 1 March 2005. Section 6(B).4.4(a) below contains details. (Batts, 2005; Snider, 2005b)

While not a regional organization, the *anti-raiding agreement* is a regional institution which was approved by all local city and county councils. Its origin in 1994 lay with community activist and then-chair of First Virginia Bank, James Babcock of Virginia Beach. Mr. Babcock was concerned about the use of tax dollars to lure Hampton Roads firms from one local jurisdiction to another. Indeed, Babcock's own tax dollars as a Virginia Beach resident had recently been used to lure the Ernst & Young accountancy from Norfolk to Virginia Beach-- $100,000 to remodel offices. *"That's not economic development,"* one local official told the Virginian-Pilot, *"That's musical chairs!" (Murray, 1994).*

Babcock wrote a memorandum criticizing wastefulness of local resources in such competition and showed it to his vice-chairman, Mason Andrews, who was also mayor of Norfolk. Andrews liked the idea, showing it to others who joined him in asking Babcock to develop the idea. The banker researched the details of incentives and various ethics of incentives use with local development officials. What should incentives be offered for? What is a definable boundary to prevent plundering of neighbors' businesses while allowing competition for firms which are going to move anyhow? Babcock approached the Mayors and Chairs Caucus— a monthly meeting comprising all regional mayors and city councils chairpersons—with the completed proposal. *(Interview, James Babcock; Mangalindan, 1995b.)*

Consideration by city and county councils took place amid press and public clamor over recent incentive deals cut by one local jurisdiction at the expense of

another. The $100,000 Ernst & Young deal mentioned above was rehashed.

Ferguson Enterprises, a national leader in plumbing supplies, had become the object

of a bidding war between current host Newport News and York County. Newport

News retained the 250-employee firm (average salary: $56,000) by subsidizing

Ferguson's new site land costs as well as purchasing the new building and leasing it

to the firm. The minimum cost for the land subsidy alone was $500,000. York

County and Newport News were also vying for a new site for Newport News'

Contemporary Cybernetics And Newport News offered ValuJet Airlines a package

of almost $2 million to fly out of Newport News-Williamsburg International Airport

instead of Norfolk. *(Murray, 1994; Mangalindan, 1995b).*

The era's business community concern over regional economic cooperation in

general was exemplified by the widely reported keynote address to a day-long

meeting in Norfolk of two hundred business, government and civic leaders convened

to consider economic decline in Virginian urban regions. Norfolk Southern Railway

chairman David Goode singled out lack of regional cooperation as the key problem in

taking the Virginia urban economy to the next level *(Virginian-Pilot, 1995c)*—and, as

a Norfolk resident and businessperson, cited Hampton Roads as the worst example of

the problem:

> *Many factors go into competitiveness… [Metropolitan*
> *Virginia has] geography…a port that is the envy of the*
> *world…proximity to the nation's major population centers…*
> *lifestyle…[and] a moderate cost of living…*
> *What we don't have is regional cohesion…a regional*
> *identity…that we can rally behind and market to the world.*
> *Nowhere is that more evident than here in Hampton*
> *Roads… The state's largest metropolitan area has a weak*
> *regional identity…*

*Regionalism is much discussed, however—increasingly so.
That's encouraging… We do see real regional cooperation with
such efforts as Forward Hampton Roads. But it's piecemeal…
What is needed… is fundamental change in the way city
governments work together, in the way they are willing to work
together, and in the way they are allowed to work together.
(Goode, 1995).*

City and county councils deliberated on the anti-raiding pact throughout 1995.

Each passed a separate resolution embodying the key elements of the proposal:

- jurisdictions will not approach companies from other jurisdictions
- if a firm from another jurisdiction approaches your city, you will inform the current host city before speaking further
- a jurisdiction will not approach an out-of-region prospect recruited by and engaged in negotiations with another jurisdiction
- if negotiations with an out-of-region firm fall through, a jurisdiction will refer that company to other jurisdictions within the region.

 The Virginian-Pilot reported some concern among Virginia Beach councilors about

details of the wording of the proposal; however, a check of city council minutes for

major jurisdictions reveals only one adverse comment (from a citizen, not a

councilor) and unanimous votes in favor of the anti-raiding agreement.

(Mangalindan, 1995b; Council Minutes).

Interviews with municipal economic development officials, mayors and

regional organization officers during case study research furnish a unique perspective

on the impact of the anti-raiding agreement on Hampton Roads civic culture almost a

decade later. Even among economic development officials, there can be significant

vagueness about the pact. Some were uncertain of all the details. Others didn't know

that both Southside and Peninsula communities had adopted it—or that all

jurisdictions had signed. A couple even thought that it was literally an unwritten

'gentlemen's agreement'.

However, the impact today of the anti-raiding debate and resolutions passed a decade ago was still very evident in responses to a hypothetical situation questionnaire administered during the interviews[6]. The vast majority of responses—especially among economic development professionals—was in line with the anti-raiding pact. (The results charts will also be used as references in later sections of this chapter.)

The questionnaire began with this scenario: *You are in an urban area like Hampton Roads, but it is not Hampton Roads. There is no anti-raiding agreement in place among cities in the urban area. A firm located in a nearby town is said to be considering moving its plant. The firm is a good one for any jurisdiction: light industry, well-paid jobs, no significant pollution or adverse effects of production. Which of the following are okay for your city's officials to do?*

Here are the specific questions and results (because of time constraints on interviews, some did not complete the survey):

- *1(a) [It is okay to] Initiate contact with the firm and point out the advantages of moving to your city:*

	Yes	Under certain circumstances (please elaborate)	No	Total
Econ Dev Officials	1	1 -- "it's happening now…"	8	10
Mayors	0	1 -- "if they're not whipsawing you…"	1	2
Regional Officials	2	1 -- "if their host city okays it…"	0	3
TOTALS:	3	3	9	15

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[6] The questionnaire was administered at the end of the interview. This ensured that respondents were oriented on the subject. All respondents were seasoned professionals or politicians with strong experience and opinions, so the responses should not be tainted by the previous discussion. N = 15; not all interviewees had time for the questionnaire.

- *1(b) **Follow on** …Should they tell the firm's current locale about their contact?*

	Yes	Under certain circumstances (please elaborate)	No	NA*	Total
Econ Dev Officials	2	0	0	8	10
Mayors	1	0	0	1	2
Regional Officials	3	0	0	0	3
TOTALS:	6	0	0	9	15

* Not Applicable: Individuals answered "no" to Question 1(a)

- *2(a) Respond to the firm if it should inquire about relocating to your city:*

	Yes	Under certain circumstances (please elaborate)	No	Total
Econ Dev Officials	10	0	0	10
Mayors	1	0	0	1*
Regional Officials	3	0	0	3
TOTALS:	14	0	0	14

* one individual did not respond

- *2(b) **Follow-on** …Should they tell the firm's current locale about the firm's approach?*

	Yes	Under certain circumstances (please elaborate)	No	Total
Econ Dev Officials	10	0	0	10
Mayors	1	0	0	1*
Regional Officials	1	2-- "if the firm agrees…"	0	3
TOTALS:	12	2	0	14

* one individual did not respond

- *3 Do staff and market research for the firm on what conditions would be like in your city:*

	Yes	Under certain circumstances (please elaborate)	No	Total
Econ Dev Officials	10	0	0	10
Mayors	2	0	0	2
Regional Officials	3	0	0	3
TOTALS:	15	0	0	15

A final question was apparently subject to multiple interpretations:

- *4 Make an offer on tax or fee breaks, or rezoning and the like, as incentives for relocation?*

	Yes	Under certain circumstances (please elaborate)	No	Total
Econ Dev Officials	0	7-- "only if necessary to get the firm…"	3	10
Mayors	0	0	1	1*
Regional Officials	3	0	0	3
TOTALS:	3	7	4	14

* one individual did not answer

Counting the seven economic developers answering *"under certain circumstances"*

as *"yes"* answers because of their elaboration that they would offer such incentives if

necessary—hence, yes, it is okay to make an offer—the matrix becomes:

	Yes	Under certain circumstances (please elaborate)	No	Total
Econ Dev Officials	7	0	3	10
Mayors	0	0	1	1*
Regional Officials	3	0	0	3
TOTALS:	10	0	4	14

* one individual did not answer

Overall, then, officials' values tend to reflect the anti-raiding agreement. Critically and interestingly, this is especially pronounced among economic development professionals—those officials who deal with the subject most frequently. Eighty percent of the economic development professionals indicated that it would be wrong to initiate contact with a neighboring firm rumored to be considering a move (question 1a)—a higher percentage than that of mayors or regional officials. All economic developers asserted that a city should tell the host locality of an approach by one of its businesses (question 2b) while a majority of regional officials did not. Thus, despite some vagueness about pact details in verbal comments, officials have absorbed the spirit of the agreement. And perhaps that is an even more important assessment of its enduring impact.

A final regional institution developed during this period is worth mentioning. Hampton Roads, Virginia is one of only two regions to have a regional flag. The Regional Identity Task Force—one of the first priority areas of the Hampton Roads Partnership—initiated a contest in the 1997-1998 academic year for public school students to design a flag for the region. The Task Force—interestingly chaired by James Babcock—saw a regional flag as one of the building blocks for getting people to think regionally. Cox High School (Virginia Beach) student Andrew Wall, a 16 year old junior, submitted the winning design, a green, blue and white design symbolizing land and sea with sixteen stars, one for each municipality:

The flag was first flown over Portsmouth Civic Center in a ceremony at 11 a.m. on 2 December 1998. It is now a common sight throughout Hampton Roads and the wavy blue-over-green motif has shown up on Hampton Roads Transit buses and the Paddlewheel Ferry. *(Knepler, 1997; Virginian-Pilot, 5/22/98 & 12/2/98; image from flagspot.net; Hampton Roads Transit and Ferry information from their website, www.hrtransit.org.)*

6(A).3.3   Frictions and An Alternative View

The image of progress in regional cooperation portrayed in Section 6.3.2 above would seem overly optimistic to some who work daily in the nitty gritty of Hampton Roads economic development and have seen their aspirations for more extensive cooperation dashed. For example, then-doctoral candidate Dr. James Probsdorfer surveyed nineteen specific proposals brought before five major regional Hampton Roads bodies. Only eight had been adopted. *(Probsdorfer, 2001.)* On the other hand, while 42% appears to be an unfavorable track record, two mitigating factors must be considered: First, several of the remaining 58% are still under consideration. Second, a number of the unsuccessful programs required out-of-region

decisionmaker support. These include attracting new sports teams and changing state laws which hinder regional cooperation.

Sometimes local perogative has constrained the freedom of action regional decisionmakers would like to enjoy. Several who have been behind the closed doors of HREDA meetings confidentially cited the behind-the-scenes furor created when HREDA brokered the move of Doughtie's Foods, recently purchased by SYSCO Foods, from Portsmouth to Suffolk. *(Shean, 1999; Kruse, 2000.)* HREDA officials believed that Doughtie's would abandon its Portsmouth facility and saw the issue as finding a place within the region for this meat-packing operation. Portsmouth representatives believed they had not been adequately consulted; that HREDA had in effect been party to a raid on Portsmouth. The divisions created by this controversy were severe enough to reportedly generate at least one boardroom shouting match. In any event, the HREDA staff was thenceforth forbidden to assist in intra-regional moves of local firms.

The anti-raiding agreement per se has not been without controversy since its regionwide adoption. It is generally acknowledged that the 'gentlemen's agreement' can be effectively circumvented by constructing a municipal business magnet building, then hiring a private firm to recruit firms from neighboring cities or counties. In private conversations, several jurisdictions are accused of doing so. Furthermore, at least two major possible breaches of the basic agreement have been reported in the press in ensuing years. In 2002, Johnson and Wales University was planning to move its culinary institute out of Norfolk. Norfolk offered incentives and attempted to attract Johnson and Wales to a then-vacant hotel complex. Virginia

Beach officials—allegedly without prior coordination with Norfolk—tried to interest Johnson and Wales in establishing an enhanced restaurant and hotel management program along that city's resort beach ocean frontage. Virginia Beach officials maintain that their Norfolk counterparts had been notified and that the Virginia Beach approach came only after Johnson and Wales had signaled their consideration of a very generous Charlotte, N.C. incentive offer, which the school eventually accepted. *(Virginian-Pilot, 2002; Dinsmore, 2002.)*

In 2004, the tables turned: Norfolk offered Trader Publications—the co-owner of which also owns the Virginian-Pilot—an incentives package worth almost $14 million to consolidate regional offices in Norfolk, vacating its present Norfolk office in favor of a to-be-constructed twenty story office building adjacent to land the city is purchasing for parking. The consolidation would move offices housing 400 jobs from Virginia Beach to Norfolk. The Virginian-Pilot editorial board, historically pro-regionalism and anti-IJC, admitted its interest in the outcome in its column supporting the deal. Virginia Beach authorities gloved an insinuation of possible raiding in a carefully parsed comment: *"I'm happy [Trader won't move out of the region]…but I have a concern with incentives being given,"* said Virginia Beach economic development director Donald Maxwell *(Minium, 2004).* However, Virginia Beach had also offered incentives for consolidation of Trader facilities within its environs *(Minium, Glass & Dinsmore, 2004.)* Interestingly, both Trader and Norfolk spokespersons maintained that the deciding factor in the location decision was not incentives but an internal Trader survey indicating that its employees preferred to

downtown Norfolk to a Virginia Beach site. *(Messina, 2004; Minium & Batts, 2004;*

Virginian-Pilot, 8/21/04 & 8/24/04.)

Finally, some leadership figures and influential businesspersons find

regionalism to be at best unattractive or—at worst—a stalking horse for the

domination of certain cities or areas, typically either Norfolk or the Southside in

general. They might point to another line in Norfolk business leader David Goode's

speech in Section 6.3.2 above for confirmation: that advocacy of regionalism

ultimately *"brings us to the central issue…: the health of our urban centers (Goode,*

1995)." Early in his tenure, Virginia Beach's Donald Maxwell found himself

temporarily the editorial poster child for anti-regionalism for saying *"The potential*

growth of Virginia Beach is tremendous. I'd like to be part of that, but I don't want

to be part of the region's growth (Virginian-Pilot, 4/30/95)." His boss, Mayor

Meyera Oberndorf, was suspicious of the predecessor of the HREDA:

> *Besides, Oberndorf adds, Virginia Beach isn't always*
> *treated fairly by the agency charged with promoting regional*
> *economic development, a privately funded spinoff of the*
> *Hampton Roads Chamber of Commerce called Forward*
> *Hampton Roads. "I wish that everything were done on an equal*
> *playing field, but I haven't been convinced that Virginia Beach*
> *ever gets an equal shot," she said. "When people come to the*
> *region, we usually are the last ones on the list and only given*
> *time to show a very limited portion of our city." (Murray,*
> *1994.)*

The Virginia Beach position today is usually less bluntly stated—roughly,

"We're now the biggest economy in the region, so investment in Virginia Beach is

good for the whole region because a rising tide lifts all boats… and the tide rises first

in Virginia Beach." Still, several interviewees throughout the region feared that

greater regionalism would—intentionally or in the natural course of events—benefit

primarily Norfolk as historical central city or Southside at the expense of the

Peninsula. Mayor Oberndorf's comments above are illustrative of the former point of

view. Additionally, in 2003 several Virginia Beach city councilors agitated for

withdrawing Virginia Beach support from HREDA and devoting the funds saved to

the Virginia Beach business attraction effort. Interestingly, Donald Maxwell wrote to

the City Manager that without HREDA, *"our overall program would be greatly*

diminished." (Virginian-Pilot editorialists found this Maxwellian sentiment

commendable.) While ultimately unsuccessful in their goal, this group of councilors

did prompt an Old Dominion University review of the relative gains of constituent

jurisdictions in HREDA *(Virginian-Pilot, 2003b).* The report found that while land-

rich Chesapeake and Suffolk have gained the most from HREDA efforts (measured as

the ratio of either *new taxes* or *new payroll income* to *jurisdictional HREDA*

contributions), Virginia Beach was roughly at the average of the other four HREDA

communities *(Virginan-Pilot, 2003c; Koch, Agarwal & Yochum, 2003)..*

Interestingly, Virginia Beach city clerk records contain three constituent emails on the

subject, all from local businesspersons and all favoring continued support of HREDA

(Thompson, 2004)..

  The latter fear—that regionalism would draw Peninsular economic vitality to

Southside—is reflected in concerns voiced by several Peninsula business and political

leaders. The exemplar of their fears is the 1980s state-mandated unification of the

three local ports in Norfolk, Portsmouth and Newport News into one, called *Virginia*

International Terminals. While the consolidation has led to increased growth for

Hampton Roads *(House Document No. 39, 2000)*, critics allege that the Peninsula was

denuded of shipping agents and other maritime-related businesses which moved to Southside to be closer to the center of action. And they worry that too much regional cooperation could lead to another wave of consolidations in which Southside's greater mass would naturally once again attract Peninsula firms as well as the majority of new firms entering the region, creating a vicious cycle of decline for political influence and economic vitality north of the James.

Nonetheless, the overwhelming majority of those interviewed maintain that regionalism revived and became a potent force within Hampton Roads in the wake of the crises of the early 1990s. New institutions were generated and old organizations revamped for greater effectiveness and inclusion of both public and private resources, expertise and perspectives. Significantly, even skeptics among those interviewed did not want to be the one who pulled out of HREDA or scotched its proposed merger with PAED. Most interviewees considered the anti-raiding agreement permeable but valuable and generally honored by economic development departments.   Indeed, perhaps part of the proof of the pudding is that blatant violations are rare, with press and public criticism founded not only in the specific instance but in the breach of the anti-raiding pact and the general principle of regionalism. And the questionnaire results reported in Section 6.3.2 above showed that the values of the agreement have become the predominant values of officials interviewed, especially economic development professionals. These values apparently include keeping firms in the region even if they leave one's own jurisdiction. Norfolk economic development director Roderick Woolard supported the move of AmeriComm marketing from Norfolk—where it had been for forty years—to Chesapeake because the alternative

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was a site in North Carolina: *"We worked closely with AmeriComm to find a solution to keep them in Norfolk. We simply did not have a suitable existing building with the future expansion requirement needed by the company. We are pleased Chesapeake was able to keep them in Hampton Roads (Dinsmore, 2003; Virginian-Pilot, 2003d)."*

The sensitivity for regionalism being co-opted to benefit one city or subregion is palpable among some. However, thoughtful reflection indicates that differences in treatment are inevitable given that local economic development goals differ: Virginia Beach, for example, targets high-end firms with high pay scales—a difficult match for regional entities to find when most jurisdictions gladly settle for less. Some Peninsular critics of regionalism actually emphasize not the subregion's weakness in numbers but its strengths in industry (Northrup Grumman shipyard), innovation (the Jefferson Laboratory accelerator beam facility, NASA Langley) and attractions (Colonial Williamsburg, Yorktown and Jamestown), exuding confidence that the Peninsula can hold its own while dealing constructively with Southside interests. The cause of regional cooperation remained a vital force in Hampton Roads as the fifteen year period under study drew to a close.

6(B).1 Overview: Game Transition, Transactional Transition—Game Theory and Leadership in Hampton Roads

Chapter Two noted that while raiding neighboring jurisdictions' firms was always a prisoners' dilemma (Section 2.3), courting new firms which will move into the region even if no incentives are offered can be either a prisoners' dilemma or an assurance game, depending on the level of costs relative to benefits (Section 2.4). Relatively higher costs push the game from the prisoners' dilemma to assurance. Chapter Five empirically demonstrated the efficacy of communication and leadership in increasing cooperation on IJC, thus substantiating those tenets of the modern theory of collective action. Leadership is often explained in terms of *transactions* among leaders and followers, part of a general theory of leadership initiated by James MacGregor Burns (1978), of which more later.

This Part of the chapter will present an argument combining game theory with leadership theory. In brief, game transition was reinforced by leadership and communication in Hampton Roads during the period of the case study. In a nutshell, costs associated with circa 1990 turbulence pushed the overall IJC/economic development game from prisoners' dilemma to assurance. This created a stable equilibrium for mutual cooperation. Leadership elites were also motivated by the problems and increased costs of the era, and their reactions brought about a variety of responses which pushed the equilibrium from mutual defection to mutual cooperation—not an automatic or even easy move, as will be discussed in the next section.

Part B will begin by recounting elements of game theory in Chapter Two. It will then discuss relevant points from leadership theory. This theoretical background sets the stage for an argument that the economic development history of Hampton Roads during the case study period is an example of game transition and the reaction of leadership elites complementing each other, as illustrated later in this chapter.

6(B).2 Theory: From Prisoners' Dilemma to Assurance-- Game Transition

To begin by anticipating a critique: It might be argued that the analysis is complicated by the fact that not just one but three gaming scenarios are being played in IJC in any urban region (Chapter Two, *Theory*). These games are distinct, not susceptible to analysis as *nested games* per Tsebelis *(1990)* as discussed in Chapter Two. However, part of the complex web of regional interactions in Hampton Roads produced the anti-raiding agreement, and this pact largely or entirely eliminates the predominance of the *raiding scenario* described in Chapter Two. The remaining two scenarios deal with firms coming to the region from the outside. Firms which intend to locate in the region generate the IJC game described above, with the possibility of either a prisoners' dilemma or an assurance game. When firms might locate either in Hampton Roads or another region, the resultant game generates constant defection, given the most basic assumptions.. However, as pointed out in Section 2.5(D), if jurisdictions assume that at least some firms are bluffing in order to extort incentives packages—a very reasonable assessment according to anecdotal evidence—then the game can become essentially the same as if all firms intend to move into the region even if incentives are not given. Thus it is not an unreasonable stretch to depict

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Hampton Roads during the case study period as dominated by the IJC game described in Section 6.5.1 above.

The balance of this section will summarize by combining the narrative of chapter Section 2.4(A) with mathematical appendix Section 2.4(A)*:

- The **Temptation** to defect is: D — B
- The **Reward** for cooperating is: ½ D
- The **Penalty** for defecting is: ½ (D — B)
- The **Sucker's payoff** for cooperating
  when someone else defects is: 0

where:

- **D** = **D**irect benefits of a firm locating in one's own jurisdiction
- **B** = Incentive '**B**id' for a firm

… and the game matrix is:

	No Bid	**Bid**
No Bid	1/2D, 1/2D	0, D-B
Bid	D-B, 0	1/2(D-B), 1/2(D-B)

The prisoners' dilemma would have one Nash equilibrium: mutual defection in the *Bid/Bid* lower right-hand cell. The assurance game retains that Nash equilibrium and adds another: mutual cooperation in the *No Bid/No Bid* upper left-hand cell. An inspection of the matrix confirms this IJC example and points out the key factor giving rise to two games with the same matrix. First, consider the *Bid/Bid* cell. By the *Rationality Assumption* in Section 2.2, D > B. Thus, in all cases, ½(D — B) > 0. Getting half of even meager net benefits is better than getting nothing. Second, consider the *No Bid/No Bid* cell. Here the comparison is between *'D — B'* net benefits and *'½ D'*. For the prisoners' dilemma, the situation must be that *(D—B) > ½D*. This is the case if:

$$D — B > ½ D$$
$$½ D > B \quad \text{or}$$
$$B < ½ D$$

If the bid is small relative to direct benefits (i.e., less than half of direct benefits), the net benefit 'D — B' of the *temptation* is greater than the *reward* for cooperating, not bidding and just sharing direct benefits 'D'.

On the other hand, for the second, *No Bid/No Bid* equilibrium in the assurance game to hold, it must be the case that *½ D > (D — B)*. This is so if:

$$½ D > D — B$$
$$B > ½ D$$

If the bid is large relative to benefits, the *temptation* payoff becomes less than half of what a jurisdiction would get through mutual cooperation. Thus, through increasing costs the possibility of a stable *No Bid/No Bid* solution is opened.

An earlier generation of game theorists sometimes saw the assurance game as a no-brainer: Why opt for an individually and socially inferior defection equilibrium when a stable and superior mutual cooperation equilibrium is available? *(Taylor, p 18.)* These preliminary appraisals attributing simplicity to the assurance game proved unrealistic, however. Much social intercourse begins in an atomized, *sauve qui peut* environment. Who wants to be the first to risk the *sucker's payoff* in an attempt to inspire mutual cooperation? As Dennis Chong illustrates, the practical translation of the question is: Who wants to risk imprisonment or physical harm marching for civil rights in the fifties and sixties? … to risk being thrown permanently out of work in a company town by being the first to walk out in a wildcat strike in the nineteenth century? *(Chong, Ch 6)* The move from mutual defection to mutual cooperation is

not necessarily easy. The stable cooperative equilibrium, once established by game transition, must somehow be attained. That role can be fulfilled by leadership.

6(B).3 Theory: Leadership and Transactional Transition

Too often, political studies use leadership as a default option: If no other cause can be found for a phenomenon, then it must be the result of successful leadership. Yet in point of practice, leadership is a deep mine with many rich veins of inquiry and thought. James MacGregor Burns in his seminal <u>Leadership</u> *(1978)* draws the distinction between power and leadership *(p 18):* naked *power* uses force on behalf of the purposes of the power holder; *leadership* mobilizes resources and people themselves and is oriented on the needs of constituents.

Burns is concerned with the role of leadership in historical causation. Initially analyzing in terms of *goals,* Burns makes a crucial distinction between two types of leadership: *transactional leadership,* in which leaders and led strike *"a bargain to aid the individual interests of persons or groups"* which are seeking their individual, separate goals, and *transforming leadership,* which pursues higher, collective goals *(p 425-6).* In order to further clarify the difference, Burns looks beyond goals, adding the dimension of *values.* Transactional leadership is concerned with means, or *modal values—"honesty, responsibility, fairness, the honoring of commitments—without which transactional leadership could not work (p 426)."* Transformational leadership deals with *end values*, including liberty, justice and equality. Only transformational leadership brings about historically significant, *"real change"* through *"collectively meaningful causation"(p 434).*

However, rather than clarifying the argument, the addition of a second dimension complicates the definitions. Fortunately, it also raises the possibility for a third kind of leadership which we will define below. First, an examination of the two dimensions, beginning with a matrix:

Burns' Leadership Dimensions

		GOALS:	
		Individual:	*Collective:*
VALUES:	**Modal:**	*transactional leadership*	?
	End:	?	*transforming leadership*

Burns has introduced two dimensions, goals and values. Leadership appealing to individual goals and modal values is transactional. Leadership invoking collective goals and end values is transforming, capable of historic significance. This leaves two cells in the matrix undefined. Are either conceivable forms of leadership? In the case of individual goals and end values, arguably not. End values relate to the collective identity. Liberty is definitely a good for an individual in the context of society but it is meaningless in relation to the self alone, say, for a person stranded on an island. Similarly, how is justice or equality meaningful in a context of one? Can I be unequal to myself, or can I raise my equality with reference to myself?[7]

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[7] A common comment which might provide a superficial counterexample is *"You're not being fair to yourself"*. However, this saying is actually invoked with reference to others: Either you are being unfair by judging yourself more harshly than you would others (or than others would you) or you are being unfair by working ten times harder than anyone else, then giving the additional harvest to ungrateful others, all the time denying yourself the benefits of your labors.

Modal values can fit well with collective goals, however. Certainly a leader can call followers to forego individual rewards to satisfy collective goals because attainment of the collective goals gives each follower more as an individual (or as a group or, in the case of this study, as a jurisdiction) than would have been obtained individually. The goal is thus collective, but the values are not end values. (And of course note that the terminology bears more than a passing resemblance to solving a prisoners' dilemma or assurance game—from the defection equilibrium to mutual cooperation, which is the second equilibrium in the assurance game.) In this case study, leaders in Hampton Roads called upon jurisdictions and their movers and shakers to forego the rewards of individual pursuit of firms and marketing of individual cities and counties in order to reap the rewards of joint cooperation, which in the long run are greater than jurisdictions can achieve alone. To follow Burns' naming convention, we can call this *transactional transition leadership.* (While cumbersome, the term has the virtue of resembling verbiage used above in the game theory section. On the relationship posited between the two, more shortly.) The matrix thus becomes:

Burns' Leadership Dimensions		
	GOALS:	
	Individual:	*Collective:*
VALUES: *Modal:*	transactional leadership	transactional transition leadership
End:	ruled out	transforming leadership

Thus we have *game transition* and *transactional transition leadership.* What is the relation between the two? It is not a one-for-one correspondence, a direct mapping. Rather, both have the potential to propel societal arrangements from one state to another: from a prisoners' dilemma to an assurance game; from a hodgepodge of individuals (or groups) separately seeking their particular goals to a collective effort to attain goals which benefit all. And, as suggested in the introductory paragraphs of section 6(B).1, both types of transition can reinforce each other. The game transition from prisoners' dilemma to assurance game effects the possibility of a stable equilibrium of mutual cooperation while transactional transition leadership provides the impetus and organization to get to that equilibrium.

As discussed in Chapter 5, Putnam sees a variety of civic organizations as a source of civic society and leadership. This section will focus on governmental and regional organizations as well as on a particular subset of civic society, the business community. *Regime theory (Stone, 1989)* amply justifies this approach. An urban regime comprises *"the informal arrangements by which public bodies and private interests function together in order to be able to make and carry out governing decisions (p 6)."* Business interests are important to governance because, at a minimum, they make investment decisions which can either help a community or region prosper, or, alternatively, can funnel resources elsewhere, disrupting a previously anticipated regional growth path. Business interests possess resources important to politicians, from jobs to campaign donations *(pp 7-9).* The evidence developed in previous sections—e.g., the regional chambers of commerce *Plan 2007* for regional development, replete with a complement of over 400 mainly business

community participants; Norfolk Southern Railway Chairman David Goode's speech on regional cooperation; business involvement in organizations like HRP, HREDA and PAED as equals to representatives of local governments—certainly substantiates the existence of business involvement in an emerging regional governance regime.

Finally, a discussion of business involvement leads to consideration of the endowment of groups by wealthy individuals or entities. Jack Walker (1991) found that many U.S. national-level interest groups were substantially funded by such *patrons*. Typically these are individuals or foundations established by the wealthy or by business or labor institutions (pp 48-51), but government itself may also be a patron. Walker credits the Kennedy Administration with financial assistance which proved a critical impetus to the growth of the women's movement, for example (p 31). He values the funding as in the millions of dollars, including for White House conferences and for State Commissions on the Status of Women in all fifty states. We will consider whether Hampton Roads business elites function as patrons for the regional cooperation.

6(B).4 The Argument: Hampton Roads as an Example of Cooperation via Game Transition and Transactional Transition

This subsection will provide evidence to substantiate the causal pathway outlined at the beginning of section 6(B).1. Rising costs lead to a game transition from prisoners' dilemma to the assurance game as well as stimulating activity among leadership elites. The two theories—game and leadership—at this point complement the effects of each other. The assurance game provides the possibility of a stable cooperative equilibrium while leadership helps the overall community move from

defection to mutual cooperation, which of course has an effect on the use of business incentives and IJC.

The exposition of the argument has a number of steps, so it is probably best to update a previously presented diagram to illustrate the links, then utilize it in succeeding subsections as a road map. The diagram is from the end of Chapter Five:
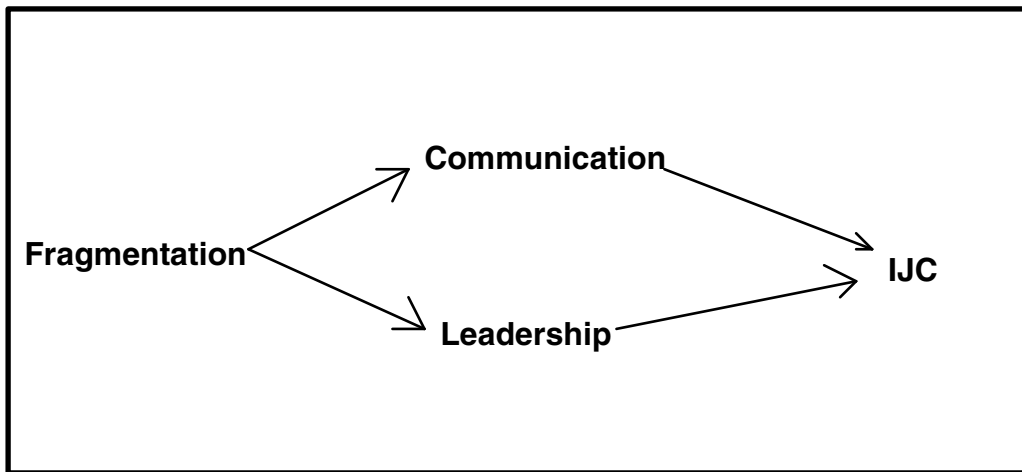
The diagram will retain the original lines of causation but will be updated to include:

- links in which increased costs lead to game transition, thence to the possibility of stable mutual cooperation and finally to regional cooperation and new IJC outcomes,
- a link in which increased costs stimulate a leadership reaction,
- a link in which leadership affects communication, and
- links in which leadership and communication contribute (with game transition) to regional cooperation and new IJC outcomes.

Here is the initial diagram (the line from *stable cooperation possible* to *regional cooperation* is dashed to show that while game transition makes stable cooperation possible, it does not necessarily mean that the cooperative equilibrium will be successfully attained):
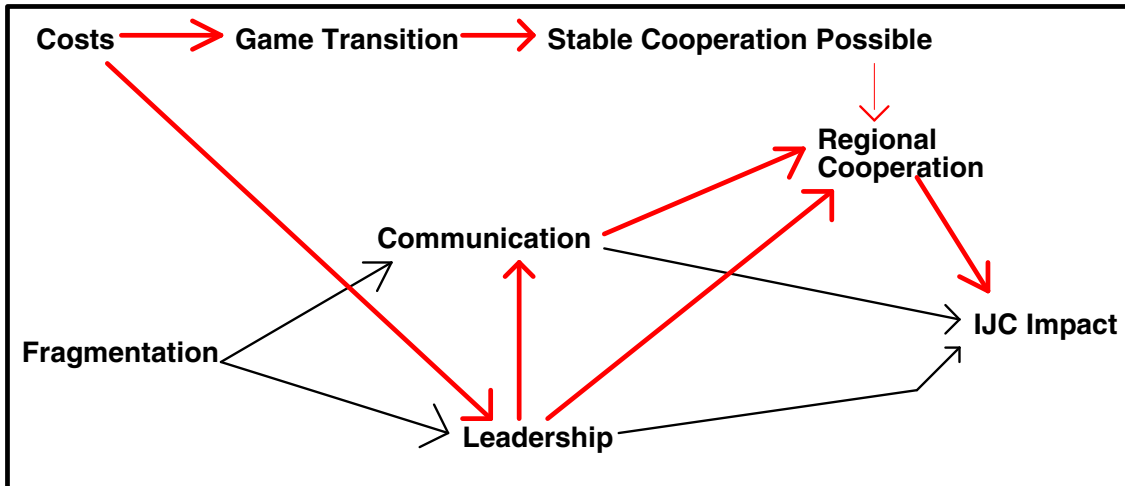
As links are substantiated by elaboration upon the case history, they will be re-colored from red to blue.

The superimposition of the game transition and leadership transactional transition on the existing fragmentation chart may be complicated visually but is more fully illustrative of a very rich social environment. Several collective action phenomena are possible simultaneously. As shown in Chapter Five, fragmentation itself can be associated with increased leadership and communication, hence with lower IJC. As will be demonstrated in this part of the case study, an increase in costs can lead to a transition to the assurance game, making possible a mutual cooperation equilibrium. If that equilibrium is realized (through leadership), then the result is regional cooperation and a lessening of IJC.

Chapter Five built the argument leading from fragmentation to lower IJC via leadership and communication. This causal pathway is represented by black lines in the diagram. The current chapter will concentrate on links from increasing costs to game and transactional transitions—the colored lines in the diagram. The concluding chapter will inter alia treat all these phenomena together.

6(B).4.1 Baseline Conditions

While the diagram begins with increasing costs which motivate transitions in game and leadership, it is appropriate to comment on the regional environment in Hampton Roads prior to the study period. Section 6(b).4.5, *Increasing Regional Cooperation,* will document and detail several metrics showing that cooperation had notably increased from the period just prior to the study period. At this point, suffice it to note that:

- The number of regional economic development agencies formed in the 1990s to date exceeds those formed in the late 1970s and the 1980s.

- A previously predatory IJC environment was replaced during the 1990s by a regime in which an anti-raiding agreement was adopted by city and county governments in the region.

- Relatedly, controversial intra-regional IJC deals were minimized during the study period.

- New subregional economic development agencies—the Hampton Roads Economic Development Alliance and the Peninsula Alliance for Economic Development—were implemented on both sides of the James River. These alliances improved upon previous arrangements by combining business interests with local governments, both in terms of financial support and membership on boards of directors.

- At the end of the study period, all indications point to the merger of the two economic development alliances to create the first-ever regionwide development agency.

6(B).4.2   Increasing Costs

As detailed in the narrative Section 6.3.1, Hampton Roads entered the case study period with multiple shocks in the early 1990s. One theme of these shocks was the perceived diminishment of Hampton Roads economic well-being. Banks were being swallowed up by out-of-state giants, the great defense apparatus which had cushioned the region in downturns past was being reduced and local bases might be closed, per capita income in the region had slipped in comparison to other, benchmark regions as well as the national average, and to really underscore the point, the nation was in recession. Many of those interviewed enumerated these factors as important impetuses to regional cooperation, emphasizing the impact on elite morale at the time.

Logically, when real income per capita falls, each dollar spent becomes dearer. The real cost rises even more for goods which have substitutes which have not increased in cost (i.e., the opportunity cost has risen *(Mansfield 1970, pp 156-7)*). Interjurisdictional competition for businesses is such a good, given that cooperation is essentially financially costless while incentives generally involve substantial outlays from the municipal fisc. (To be strict, both involve costs such as administrative time, transaction and policing costs. The argument here abstracts away from such common costs and concentrates on dollars.) Thus, as is critical in the theory, the cost of bidding for firms—the cost of incentives—has risen. (More metaphorically, the increased cost of incentives is compounded by the perception that the region is falling behind others which often take a more regional approach. This point was made most explicitly by Brookings analyst and former Albuquerque mayor David Rusk at a 1994

luncheon: *"Rusk told a lunch gathering that Hampton Roads has fallen behind smaller regions in the Southeast because the cities here don't work as one. 'Now Charlotte has the Panthers,' Rusk, referring to the pro football franchise, admonished the crowd. 'And you don't!' (Murray, 1994).*)

6(B).4.3 Game Transition

As detailed in Section 6(B).2 above, a sufficiently large cost relative to benefits can trigger the transition of the game from prisoners' dilemma to assurance game. Unfortunately—as noted in previous chapters—no empirical means exists to reliably measure most IJC deals and costs in a specific jurisdiction, let alone all those which occur in an urbanized area or nationwide. Faced with this situation, we are forced to look at the overall course of events, see if it seems to fit a scenario in which a previous fractious situation appears to have generated sufficiently widespread regional cooperation to warrant assuming that a stable mutual cooperation equilibrium has been generated, then ex post infer the existence of an assurance game where previously had been a prisoners' dilemma. The weight of the overall argument in these subsections will be that the pattern of previous fractiousness followed by rising costs followed by increased regional cooperation warrants the inference of game transition. (A possible objection—that the events herald not a transition to assurance but rather a solved prisoners' dilemma—will be addressed in Section 6.4.3(f).)

Thus, at this point, the argument has substantiated the following links (in blue):
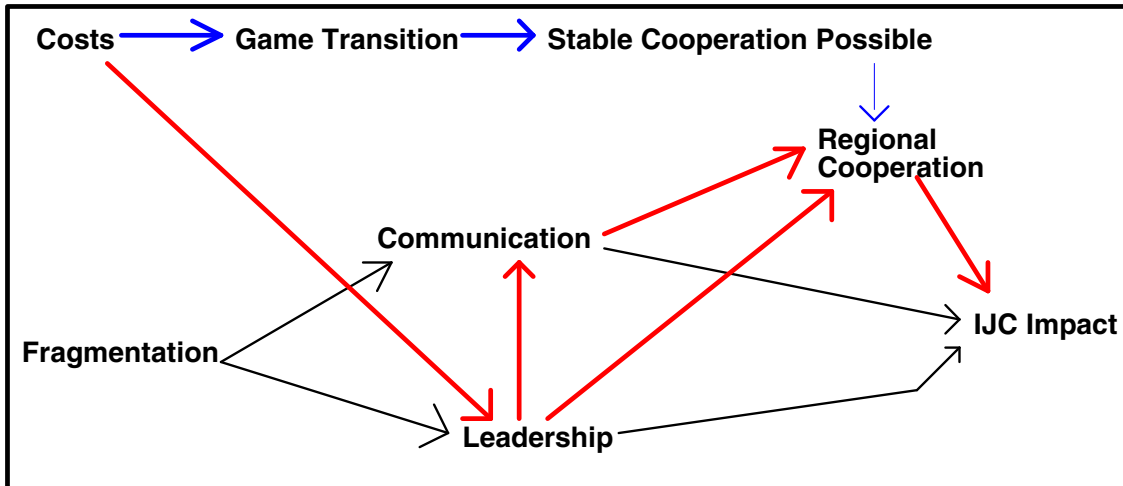
6.4.4 Leadership Recognition and Reaction

This subsection will be divided into two segments. The first will treat leadership in terms of transactional transition leadership and patron leadership—essentially, the 'leadership' link in the diagram above. The second will describe leadership's shaping of the environment to enhance communication in such a way as to facilitate regional cooperation—the 'communication' link.

6.4.4(a) Leadership.

As reported in Section 6(A).3.1, many of the regional figures interviewed cite the economic problems circa 1990 as stimulating reactions on the part of business elites. Follow-on interviews substantiated that many business figures in Hampton Roads operate throughout the region and tend to view Hampton Roads as a single entity rather than a collection of jurisdictions. The narrative in Part A of the chapter contains several examples of the leadership link which will be employed and elaborated as necessary in the argument below. These examples are: Plan 2007 and the Hampton Roads Partnership (HRP), HRP and HREDA-PAED joint trips, HREDA-PAED merger negotiations, HREDA transactional leadership, HREDA

founding, the anti-raiding agreement, and general interviewee descriptions of regional

leadership and regime in Hampton Roads. Because this segment inter alia considers

examples of tactics and resources, we will conclude with consideration of the

applicability of Jack Walker's patron theory in Hampton Roads.

Plan 2007 and HRP Founding: Plan 2007, with a genesis in 1992-3, is a

good example of business impetus producing regional policy and organizational

outcomes. Participants in the initial Hampton Roads Chamber of Commerce

discussions leading to the formation of the 400+ member effort recall the threat of

Department of Defense base closures and the falling position of Hampton Roads vis a

vis other benchmark MSAs as very important factors leading to Plan 2007 study

group formation. Key figures in the group—including Chamber of Commerce chair

Jim Babcock—tapped into a nascent statewide public-private urban development

effort initiated by the mayors of Virginia's largest cities. This effort prevailed upon

the state Chamber of Commerce to lobby the state legislature to enact the Regional

Competitiveness Act, ensuring state government funding for efforts such as Plan

2007.

Local government involvement in Plan 2007 was very light, however.

Business executives interviewed for the case study frequently commented that the

business community—particularly at the outset of the Plan 2007 process—sees

Hampton Roads as a single, integrated economy while politicians often see only their

own electoral districts[8]. This bothered drafters of the Plan, who included language

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[8] Reportedly, only one businessperson worried during the formulation of Plan 2007 that "we're importing my next competitor." Shipyard executives reportedly expressed concern that wages inflated by economic development would diminish already shaky profits. However, most private sector leaders reportedly embraced regional development on the principle of a rising tide lifting all boats.

which supported creation of a regional body, a council which by design would include representatives of the jurisdictions. Indeed, the Plan 2007 Vision Statements and Strategies exemplified the spirit of the twin goals of business leadership and governmental regional cooperation:

> *"PRIVATE SECTOR LEADERSHIP: The private sector, representing the region's rich history and diversity, will generate strong leadership which will work cooperatively to achieve the [Plan 2007] Vision for Hampton Roads.*
> *"GOVERNMENT: A partnership of local governments will help make the vision of achieving global competitiveness a reality."*
> (Plan 2007, p 11)

In November of 1994 the Plan and Chamber of Commerce leaderships invited mayors and city council chairpersons ("mayors and chairs"), other local officials and the local naval command to a meeting in the twenty-story Norfolk Southern Railway headquarters in downtown Norfolk to discuss institutionalizing the cooperation and enthusiasm shown for Plan 2007. Participants recommended formation of what would become the Hampton Roads Partnership. The mayors and chairs embraced the idea and tasked their legal departments to draw a charter. State funds granted to Plan 2007 under the Regional Competitiveness Act endowed initial HRP programming. Thus did an originally almost all-business effort come to involve elected officials and government resources, a la regime theory.

HRP and Joint HREDA-PAED Trips: HRP funds were used to establish a number of issue task forces and regional entities, as reported in Section 6.3.2. In addition, $95,000 was used to incentivize HREDA and PAED to undertake two joint marketing trips. The allocation was proposed by the Port Committee, then sent to the Board of Directors for approval. As is documented in Section 6(B).4.4(b) below, the

Committee and the Board have heavy business and local government involvement. The majority of the Board and a plurality of the Committee are from the private sector. Local government officials are the second largest component of the Board and a close third—just behind regional bodies—on the Ports Committee. Committee membership encompassed several key figures in the history of Hampton Roads regional cooperation, including Jim Babcock, Norfolk mayor Paul Fraim, and the presidents of HREDA and PAED.

On the surface, the trips to Detroit and Los Angeles were to contact those who shipped through Hampton Roads in order to persuade some to relocate to Hampton Roads. The trips were successful in identifying over seventy-five prospects, although none have yet moved. However, the process showed enough promise that HREDA and PAED launched a third, self-funded mission to Toronto in February of 2000, visiting forty-two firms, one of which did change locations to Hampton Roads.

At a deeper level, case study interviews revealed an ulterior motive germane to regional cooperation; a goal which turned out to be even more successful: HRP leaders hoped that HREDA PAED cooperation on these trips would lead to further, entirely self-financed joint trips (it did generate the Toronto mission), and that the trips would build sufficient confidence in mutual dealings that HREDA and PAED boards of directors would seriously consider and eventually approve a merger. Of course, merger talks ultimately materialized and produced a combined region-wide alliance.

HREDA-PAED Merger Negotiations: The process of HREDA-PAED merger negotiations showed that regionalism advocates were sensitive to the need to

meet transactional leadership demands—protection of individual territories and perogatives—in order to ensure political success in transactional transition.[9] The on-again, off-again process leading to the probable merger began in 2003 when two members of the PAED executive committee initiated a series of informal meetings with two members of the HREDA. This was an independent initiative, and when the members reported conceptual terms of merger back to the PAED executive committee, several members of the committee condemned the meetings as unauthorized. Various committee members were, at any rate, opposed to merger, fearing domination by the more populous and wealthy Southside.

The process stalled, was revived briefly but seemingly fell apart in January 2004 when a majority of the PAED executive committee voted against funding a law firm to draft a formal merger proposal. At this point, the public sector component of the regional regime proved crucial. An initiative by Newport News Mayor Joe Frank put the negotiations back on track. In July 2004, Mayor Frank convened a meeting of the Peninsula mayors and chairs with several PAED executive committee members *(Snider, 2005)*. The meeting revived the negotiation process, and merger talks were again reported in the press *(Batts, 2004a & 2004b)*.

On the 17th of November, 2004 the Peninsula Alliance board voted unanimously to prepare merger documents. Sources reported that a law firm had been engaged by both alliances to finalize a Memorandum of Merger. The expenditure on legal fees was taken as a strong omen that merger talks were very serious and that consolidation of the two agencies would occur. A majority of

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[9] James McGregor Burns continues to see a role for transactional leadership in supporting change. Speaking of Franklin Roosevelt in a 2003 interview, Burns observed, *"He made his transactions serve the purposes of his transforming leadership." (Hogan & Zaleski, 2003.)*

Peninsula jurisdictions voted for the merger, including mandatory approval by the two largest cities, Newport News and Hampton. Hampton Mayor Ross Kearney remained guardedly skeptical of the merger: *"I'm going to support it, but if I don't like it, I'm going to withdraw the funding* (Scanlon, 2005)*."* The PAED board approved the merger on 26 January 2005. The HREDA board approved on 3 February. The merger was effective 1 March 2005. (Batts, 2005; Snider, 2005b)

Recall that the Peninsula Alliance administered an award-winning workforce development program capitalizing on business contacts and local technical schools and community colleges *(Dolan's Virginia Business Observer, 2003)*. Not only did merger advocates need to address the mechanics of merging two staffs, they had to provide a blueprint for keeping the Peninsula's workforce development plan viable. They did so by concluding arrangements for the program to be spun off as an independent Peninsula entity, the *Peninsula Council for Workforce Development* (Batts, 2005).

Merger advocates also had to address the concern that the merger would focus efforts on Southside while paying only minimal attention to the smaller Peninsular constituency. This was accomplished by two means. First, while the main office is in the current HREDA headquarters in Norfolk, a major supporting office with significant staff operates on the Peninsula—in Hampton, home of significant merger skepticism. Secondly—and very boldly—despite more populous Southside contributing about 2/3 of the resources to the merged alliance, the Executive Committee is ½ Peninsula and ½ Southside. This was a major concession by

Southside interests to consummate the merger. In sum, transactional leadership

supported the transition. (Batts, 2005)

HREDA Founding: The very founding of Southside HREDA is another

example of business-initiated regional cooperation. Recall from Section 6(A).3.2 that

the predecessor effort was an entirely private arm of the Southside subregional

Hampton Roads Chamber of Commerce. The earlier operation had allowed for some

general advertising and promotion of Southside, but a true subregional marketing

effort would have to involve local governments to integrate private resources and

perspectives with the development goals of constituent jurisdictions. Business

interests in the Chamber led a transactional transition in proposing a public-private

partnership to replace the old private arrangement. Local governments literally

bought into the Chamber's divestiture of regional marketing, paying a head tax of a

dollar per resident in order to reap the rewards of a cooperative, coordinated

marketing approach.

HREDA Transactional Leadership: The original Southside HREDA itself

provides two other examples of paying attention to transactional leadership to ensure

continuation of the transition from pre-HREDA arrangements to the public-private

HREDA. First, HREDA had to ensure that its benefits were well distributed among

component jurisdictions. This has not been an easy job, given differences in local

economies (jurisdictions close to high value ports and existing industries tend to be

largely built out, while jurisdictions with developable low-priced land are too far

from critical facilities for some prospective businesses) as well as differences in

municipal development goals (Virginia Beach pursues higher end firms than most).

The insurgency against HREDA on the Virginia Beach city council was abated by

commissioning an Old Dominion University study which in turn showed differential

but significant returns on investment in HREDA for all Southside communities.

Tables 4 and 5 of the ODU report list the ratios of additional tax revenues and of new

payroll from HREDA efforts to each jurisdiction's financial contribution to HREDA.

The following graphic combines the two tables:

Benefits of HREDA to Component Jurisdictions

	Ratio Of:	
City or County:	New Taxes to HREDA Support:	New Payroll to HREDA Support:
Isle of Wight	8.2	49
Chesapeake	16.9	96
Norfolk	3.9	22
Portsmouth	7.5	42
Suffolk	23.1	131
Virginia Beach	5.4	31

While the two land-rich suburbs of Chesapeake and Suffolk have markedly higher

ratios of benefit, proportions for other jurisdictions are much more similar: from 3.9

to 8.2 in tax ratios; from 22 to 49 in payroll.

Finally, behind-the-scenes board dealings show that HREDA knows when to

limit transitional change.   A more power-aggrandizing HREDA could carve out roles

in growth management, sprawl and other areas by pursuing an aggressive policy of

involvement in siting decisions as firms consolidate (or expand) and relocate to other

jurisdictions within the region. But this could bring about defections of dissatisfied

jurisdictions which 'lost' firms through 'HREDA interference', crippling or dooming

the organization. HREDA leadership remains mindful of the Doughtie's Foods

internal controversy. Its attention to transactional needs ensures continuation of the transformation which produced their agency.

Anti-Raiding Agreement: A final specific example is of course the anti-raiding agreement. The history of the agreement was extensively detailed earlier in Section 6(A).3.2; the theme of the story is again business community initiation of and pressing for an idea which picked up editorial and political support, finally being adopted by all city and county councils.

Interview Insights on the Regional Regime: Regime theory is borne out in more general observations during interviews. When asked how pro-regionalism business firms and business persons promoted their agenda, most interviewees noted behind-the-scenes buttonholing at cocktail parties and other events hosted by businesspersons to which political leaders are invited. Politicians interviewed were very aware that the business community controls jobs for their electorates. Most credited their personal involvement ensuring individual businesses had their needs met for the success of their individual community economies. And, of course, the incentive offers already recounted to ensure businesses remained in current host communities during consolidations or growth dramatically underscore the power of the business community because of its job creation.

Thus, as noted in Section 6(B).3, business interests possess resources important to politicians. And another resource of note in the Hampton Roads case is expertise and reputation. Business speakers are a staple of civic organization meetings in Hampton Roads. Norfolk Southern Chairman David Goode's 1995 address on regionalism was not only covered by local news organizations but

extensively excerpted under a separate headline in the Virginian-Pilot. (Mr. Goode's

public commentary on Hampton Roads since then have included his remarks before

the World Affairs Council of Hampton Roads *(Goode, 2001)* and his acceptance

remarks when awarded the 2004 *Downtowner of the Year Award* from the *Downtown*

Norfolk Council (Pappa, 2004).) The perception of a need for business expertise is

also manifest in the heavy private sector involvement in boards such as the Hampton

Roads Partnership, HREDA and PAED.

Astute politicians can develop this into a symbiotic relationship. One mayor

effectively employed a business roundtable forum to vet and develop his ideas, then

present the more controversial ones to the press, taking the initial public heat. Some

businesspersons interviewed saw this as a conscious, acceptable role for business

leaders who wished to influence policy—with no political constituency to constrain

them, they can leverage their greater flexibility to present opinions unpopular at the

time but hopefully successful in the longer run.

Business Elites as Patrons: The regional cooperation bodies we have

examined receive funding from private sector dues and from local—sometimes

state—government. If business is to play a patron role, the avenue left is to

systematically fund city and county elected officials who are supportive of

regionalism. Interestingly, a review of campaign donations in the recent rounds of

city council elections for the largest Peninsula and Southside jurisdictions revealed

little of the cross-jurisdictional donating which could be expected from businesses

wishing to influence regional policy. The city clerks of the two most populous

jurisdictions on both the Peninsula and Southside—Newport News and Hampton,

Virginia Beach and Norfolk, respectively—provided photocopies of campaign

finance report Schedules A and B, which cover all monetary and in-kind donations

over $100. Donors not affiliated with a corporation, labor or political group (such as

retirees and homemakers) were excluded, although tables in an endnote show that

percentages remain essentially constant when non-corporate-affiliated donors are

included. Donors were included in this chart if they were (a) a corporation or (b)

listed as working for a corporation, labor or political group. The latter were included

because many employees are executives or owners and thus presumably reflect

corporate interests. The following two charts show the sources of corporate or

corporate-affiliated funds for Peninsula and Southside candidates—whether funds are

from the candidate's own city, from another Hampton Roads city on its side of the

James River, from a non-Hampton Roads Virginian jurisdiction, or from out of state.

The first chart presents raw numbers of donations; the second, percentages:

HAMPTON ROADS CAMPAIGN DONATION SOURCES
by RAW NUMBER; corporate-affiliated donors

Source of Donation:

	Own City	Peninsula City, Not Own	Southside City, Not Own	Virginia, Not Hampton Roads	Out of State	Totals:
Peninsula	656	39	12	14	21	742
Southside	2160	9	316	28	42	2555
Totals:	2816	48	328	42	63	3297

HAMPTON ROADS CAMPAIGN DONATION SOURCES
by PERCENTAGE; corporate-affiliated donors

Source of Donation:

|	Own City	Peninsula City, Not Own	Southside City, Not Own	Virginia, Not Hampton Roads	Out of State	Totals:
Peninsula	88.41%	5.26%	1.62%	1.89%	2.83%	100%
Southside	84.54%	0.35%	12.37%	1.10%	1.64%	100%
Totals:	85.41%	1.46%	9.95%	1.27%	1.91%	100%

As can be seen, the vast majority of donations come from a candidate's own city. The second largest source is from the candidate's own subregion (Peninsula or Southside) but from a different city. Here, interestingly, Southside candidates tend to attract about twice as many donations from other subregional jurisdictions, 11.72% to the Peninsula's 4.81%. This may suggest a somewhat greater degree of regional political integration in Southside than on the Peninsula, but in any event, donations across boundaries are not large. Alternative methods of computing the charts derive essentially the same results[2]. As an interesting case in point of the general trend, Norfolk Southern's David Goode—Norfolk resident, regionalism advocate and keynote speaker at the 1995 conference on regional economic problems (quoted in Section 6.3.3 above)—made five local campaign donations during this period, entirely to Norfolk council candidates.

Of 248 firms which made three or more campaign donations, only eighteen had in turn donated to three or more candidates in more than one jurisdiction. Representatives of these firms were asked the criteria they used to determine which candidates to support. The response was disappointingly small; however, tellingly,

none volunteered *'support for regionalism'* as a reason for donations. Typical responses dealt with *'support for free markets'* or *'supports good government'*. No spokesperson was willing to go beyond these general characterizations. In sum, despite a great deal of activity using other means to impact policy, the regional business community does not employ campaign donations to influence government policy. While individual business figures involved in the regional regime and regional movements act as political entrepreneurs to achieve state funds (as in the case of Plan 2007 and HRP) or to regularize per capita fees per jurisdiction (HREDA and PAED), they do not fit Walker's definition of patron. However, the Virginia General Assembly's passage of the Regional Competitiveness Act did put the state government into the patron role in Hampton Roads—and other Virginia communities. State funding allowed HRP to create eight issue-oriented task forces, spin off organizations such as the Hampton Roads Technology Council and incentivize HREDA-PAED joint trips as a confidence building measure partially responsible for the eventual merger of the two alliances.

This section has examined the leadership link. We saw at the outset that intense concern about the prognosis for the regional economy stimulated business activity. These business activities produced further regional cooperation. Thus, the diagram can be filled in accordingly:
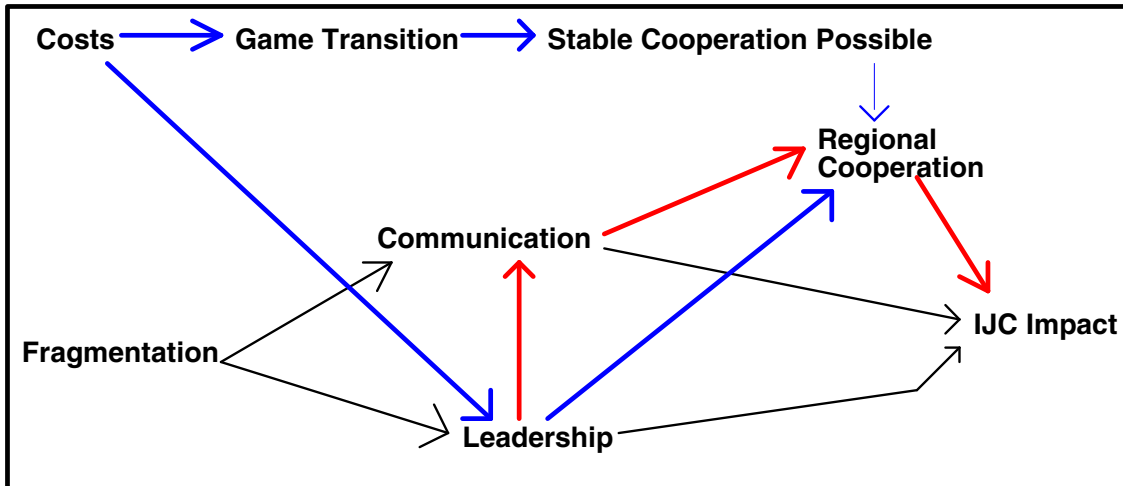
6(B).4.4(b) Communication

Getting key players to communicate and interact regularly has been implicit in much leadership activity as invoked in the argument above (Section 6(B).4.4(b): Leadership) and in the narrative of Section 6(A).3.2. Recall for example that the Hampton Roads Chamber of Commerce brought together over 400 key business and, to a lesser extent, public sector personalities to produce Plan 2007. To institutionalize and expand that degree of regional cooperation, the business leadership proposed formation of the Hampton Roads Partnership as an effort to bring elected officials together with the business elites to produce an organization which could capitalize upon the advantages of both.   HREDA had a similar founding principle, enlisting local governments in what had been a Chamber of Commerce undertaking in order to produce a consensus for a truly authoritative Southside economic development endeavor. Successful leadership sets the stage for key actors to communicate.

The composition of the initial HRP Board of Directors as well as of the HRP Ports Committee which initiated funding for joint HREDA-PAED trips underscores the success of the effort to keep the public-private partnership well balanced:

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	Business	Local Gov't	Higher Education	Regional Bodies	State Gov't	Military	Other	TOTAL
HRP 1997 Board of Directors & 1998-9 Ports Committee _Composition by Sector_								
HRP Board	30	15	6	3	0	0	3	57
		53%	26%	11%	5%	0%	0%	5%	100%
Ports Comm	22	9	4	11	5	6	1	58
		38%	16%	7%	19%	9%	10%	2%	100%

HREDA and PAED trade missions included not only their own staffers but officials from jurisdictional economic development departments. The repetition facilitates *'policing'* or *'monitoring'* of cooperation *(E. Ostrom 1990, pp 17-21, 44, 90):* Informal norms are that a department or departmental official who regularly violates the anti-raiding agreement or put his/her municipality's interests ahead of advertising the region in general could not expect much support from others on a mission… or (in the case of an individual) even to be invited again. Trade missions and board meetings are regular events, so cities, counties and individual actors are assured of repeated dealings.

Thus, successful leadership attempts to produce healthy patterns of communication and interaction among key individuals and organizations. The extent of agreement on the anti-raiding pact values revealed in the interview questionnaire in Section 6(A).3.2 is arguably a manifestation of the success of this strategy: Economic development professionals were more likely to avoid competitive practices in questions 1(a) and 2(b) than others… and they (or their officemates) met monthly at HREDA or PAED.   Thus, the validity of the causation arrow from leadership to communication. And clearly, with the successes of HRP in developing new spinoff

organizations with public private directors and formal liaisons (such as the Hampton

Roads Technology Council) and in engendering sufficient trust through joint trade

missions between HREDA and PAED to bring about their merger, causation can

extend from communication to regional cooperation. Finally, given the successes of

regional cooperation—spurred both by communication and by leadership—

generating the anti-raiding agreement and a lower number of controversial business

incentives offers, we can also substantiate the link to IJC:
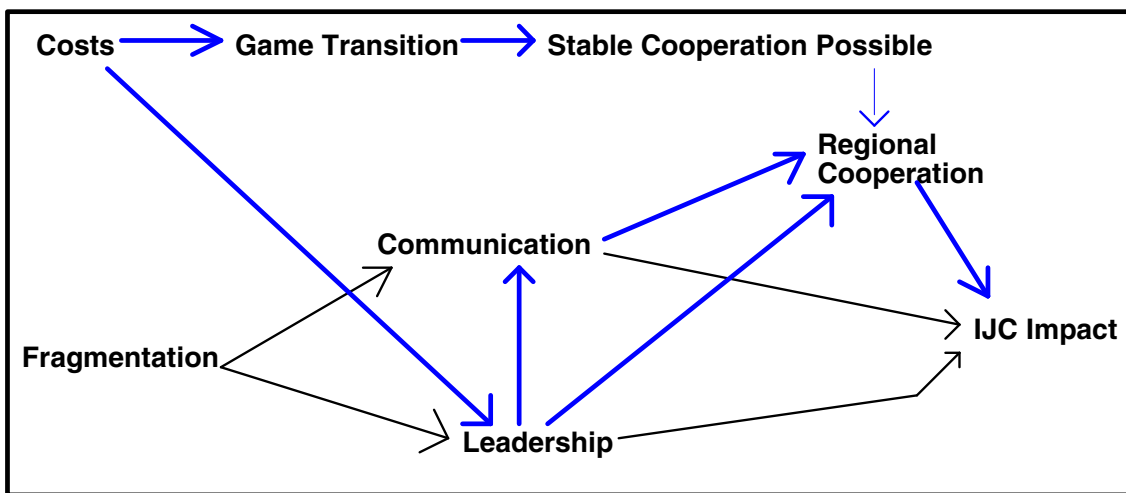
Before leaving the leadership-communication link, it is appropriate to mention

one last observation. While it is not the result of a deliberate move by regional

leaders, many economic development officials interviewed noted that they had

worked in other cities or counties within the region prior to assuming their current

duties. Most of these volunteered that the working relationships—in more than one

case, enduring friendships—thus formed made serious, repeated violation of anti-

raiding and cooperative norms unthinkable. It also made cooperation and trust in

interdepartmental dealings more readily conceivable.

Noted Hampton Roads figure James Eason is an exemplar. A native of Hampton, Eason graduated from Hampton High School in 1960. After majoring in accounting in college, he built a firm he founded into Hampton's largest public accounting enterprise. Concurrently Eason became a Hampton School Board member from 1978 to 1982. In 1982 he became Hampton's first directly elected mayor. He was one of the few elected officials to participate in Plan 2007. Eason resigned as mayor to become President and CEO of Hampton Roads Partnership in 1998. He left that post in the summer of 2004 to return to Hampton as director of economic development.

6(B).4.5 Increasing Regional Cooperation—More Theory; Empirical Insights

Thus we see increased cooperation. Specificly to IJC, the anti-raiding pact is unanimously adopted. Existing regional cooperative institutions are upgraded (to HREDA and PAED) and new ones formed, such as the Hampton Roads Partnership and its progeny.

Note that this part of the argument has included not only financially costless IJC abatement via the anti-raiding agreement but also new regional cooperation organizations which are not without financial costs. Can these be justified within the strict game theoretic framework in Section 6(B).2 above, or is the argument drifting into game-theory-as-metaphor? The answer is that regional organizations do fit within the theoretical framework. They provide the rewards of cooperation—with a financial cost—which can certainly be greater than the *defect/defect* equilibrium in the following way: First, recall the argument for the second equilibrium in the assurance game. For the *cooperate/ cooperate* equilibrium to exist:

$$\frac{1}{2} D > D - B$$
$$B > \frac{1}{2} D$$

Now consider the case in which ½D is obtained at cost 'C'. The cooperative

equilibrium still holds if the bid increases at least commensurately by 'B* '. Thus,

$$\frac{1}{2} D > D - B \text{ (original statement)}$$
$$\frac{1}{2} D - C > D - B \text{ and}$$
$$B > \frac{1}{2} D + C \text{ if}$$
$$B + B* > \frac{1}{2} D + C$$
$$\text{where } B* >= C$$

Thus the bid—now somewhat more than half of direct benefits —still more than

offsets half the direct benefits. This is true even though the direct benefits in the

cooperate/ cooperate cell are now net benefits because of the financial costs of

establishing and maintaining cooperative agencies like HREDA and HRP which have

a business-attraction components in their agendas (in the case of HREDA, of course,

business attraction is the sole mission). In this manner we can legitimately include

regional cooperation agencies in the strict theoretical discussion.

Another aspect of regional bodies can be included in the model. Recall, for

example, the assertions in the press and the ODU study that HREDA returns a

multiple of jurisdictional payments of a dollar per resident. What effect does this

have analytically? Expanding on the model by adding not only costs 'C' but a

synergistic return for regional organization 'R', we get:

$$\frac{1}{2} D + R - C > D - B$$
$$B + R - C > \frac{1}{2} D$$
$$\text{add } B* >= C$$
$$B + B* > \frac{1}{2} D + C - R$$

Thus, we get to the assurance game sooner if there are additional returns for regional

cooperation, especially as such returns become larger.

Empirically, the basic portrait above can be substantiated by examination of

two lists of regional economic development organizations by outside sources.

Probsdorfer (2001, pp 21-34) makes five regional bodies the focus of his study:

1. Hampton Roads Planning District Commission (HRPDC): *founded 1990*
2. Hampton Roads Partnership (HRP): *founded 1996*
3. Hampton Roads Economic Development Alliance (HREDA): *founded 1997*
4. Peninsula Alliance for Economic Development (PAED): *founded 1997*
5. Hampton Roads Technology Council (HRTC): *founded 1997*

All of Probsdorder's five were created in during the study period.

The Virginian-Pilot (2003, 8/24/03) published a similar list:

1. Hampton Roads Partnership (HRP): *founded 1996*
2. Hampton Roads Chamber of Commerce (HRCC): *founded 1984*
3. Hampton Roads Economic Development Alliance (HREDA): *founded 1997*
4. Peninsula Alliance for Economic Development (PAED): *founded 1997*
5. Hampton Roads Planning District Commission (HRPDC): *founded 1990*
6. Future of Hampton Roads (FHR): *founded 1982*

Again, a majority— 4 of 6 organizations— were founded in the 1990s.

It might be argued that the lists camouflage earlier cooperation in the form of

predecessor organizations of the HREDA (*Forward Hampton Roads,* founded as an

arm of the Chamber of Commerce in 1984) and the PAED (*Virginia Peninsula*

Economic Development Council, established 1979). True, lists so expanded would

add one organization each to the tally for the decades of the 1970s and 1980s. The

counterargument would be (a) that the 1990s would still be the dominant decade for

new group formation, (b) that predecessor organizations had fewer resources and

responsibilities (HREDA brought public sector funds, officials and board members;

PAED was streamlined for attracting business and for workforce development) and

(c) that if lists are to be expanded to include predecessors, then perhaps other regional

economic organizations might also be included, such as *Hampton Roads Technology*

Incubator (established 1998), *Hampton Roads Sports Authority* (formed 1996) and

Hampton Roads Transit (consolidated 1999). Also, the major regionalism measure

achieved in the 1980s—the consolidation of Hampton Roads ports—was mandated

and administered by the Commonwealth of Virginia.   It was not a home-grown

move.   Thus, by any measure and from any perspective, the study period is one of

singular growth in regional bodies.

The more advanced theory dealing with the synergistic returns through

regional organizations also finds support in the form of the Old Dominion University

study of HREDA *(Koch, Agarwal & Yochum, 2003).* As noted in Section 6(B).4.4(a)

above, Tables 4 and 5 of the ODU study list the ratios of additional tax revenues and

of new payroll from HREDA efforts to each jurisdiction's financial contribution to

HREDA. These can be combined in the following table from Section 6(B).4.4(a):

Benefits of HREDA to Component Jurisdictions		
	Ratio Of:	
City or County:	**New Taxes to HREDA Support:**	**New Payroll to HREDA Support:**
Isle of Wight	8.2	49
Chesapeake	16.9	96
Norfolk	3.9	22
Portsmouth	7.5	42
Suffolk	23.1	131
Virginia Beach	5.4	31

Although the study did not compare these outcomes with potential returns if funds had instead been expended solely by local economic development departments, the magnitude of the ratios constitutes strong evidence of synergy in the regional HREDA business attraction operation.

      6.4.3(f) Possible Objections. A possible objection to this comparative static portrayal of events is that is an example of the *ex hoc ergo propter hoc* logical fallacy: An upsurge in regional cooperation *occurred after* the shocks of the early 1990s, *therefore* it occurred *because of* the shocks of the early 1990s. But the statements of so many persons interviewed should allay this concern: Participants in those and subsequent events testify to the story as recounted in this section. Thus, history in Hampton Roads appears to unfold in accordance with the prediction of game transition.

      Of course, the analysis to this point has begged a question: Was the situation a prisoners' dilemma prior to 1990? Unfortunately, the subject is not one which can be put in a petri dish, cultured, placed under a microscope and counted. However, evidence exists that the Hampton Roads environment was much less cooperative in earlier years. First, note the prevalence of IJC in the form of raiding prior to the anti-raiding agreement. As noted in Section 6.3.3, this included Ferguson Enterprises, Ernst & Young, Contemporary Cybernetics, and ValuJet. Second, the increase in regional cooperation organizations during the study period suggests a less cooperative, more competitive earlier period.

      Why is this not a solved prisoners' dilemma as opposed to evidence of an assurance game? Admittedly, it could be a prisoners' dilemma solved. However,

Hampton Roads history shows a rich flowering of a number of regional cooperative efforts rather than simply a carefully targeted solution to one problem. The prevalence of cooperation across so broad a spectrum of regional economic development—for just one example, consider HRP's list of not one or two but *eight* broad issue areas—certainly seems to imply the existence of a new, cooperative equilibrium more than a one-off prisoners' dilemma solution.

6.5 Conclusions

Previous chapters have drawn conclusions from national data sets. This method has the virtue of evaluating sweeping hypotheses based upon national experience. However, the depth of the approach is limited by the degree of resolution of the data. The less detail available, the fewer the specific knowledge claims that can be deduced.

A case study, on the other hand, offers rich detail and intuitive texture. Part A of this chapter sketched Hampton Roads history and described IJC, economic development and regional cooperation in Hampton Roads since 1990. The study period began in the midst of shocks such as threatened defense cutbacks and a nationwide recession. The decennial Census showed Hampton Roads economic performance falling behind comparable Southeastern urban regions. Despite Hampton Roads' fractious history and fragmented political geography, these initial setbacks ushered in an era of unprecedented increases in regional cooperation. New regional bodies and agreements were formed, older institutions were revamped and as this chapter was being drafted, Southside and Peninsula economic development alliances were on the verge of merger.

Part B shifted attention first to theory, then to an argument. The text gave a capsule description of the possibility for game transition from prisoners' dilemma to assurance if costs rose sufficiently. It then introduced leadership theory and set forth the possibility of transactional transition. The balance of the chapter substantiated how in Hampton Roads game transition and leadership transactional transition reinforced one another. Game transition provides a mutual cooperation equilibrium. Leadership and communication induced by leadership can facilitate successful collective action by moving participants in an assurance game to that stable cooperation equilibrium.[10]

Thus, in studying Hampton Roads economic development competition and cooperation from in the 1990s to present, we have found that indeed, per the national dataset, leadership and communication are powerful tools for those who seek regionally cooperative approaches to economic development challenges. Combining the argument in this chapter with that of the previous chapter, we see that leadership and communication can produce regional cooperation either by solving a prisoners' dilemma or by moving an assurance game to mutual cooperation. Hence the diagram in which the assurance game causal pathways were superimposed in color on the Chapter Five prisoners' dilemma-based chart. Part B of this chapter has concentrated on game transition and leadership transactional transition. The final chapter will conclude the dissertation by bringing the different causal pathways together, discussing implications of previous chapters for various theoretical and policy

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[10] Somewhat more speculative but nonetheless arguable is a role for *anticipated returns*—Note Donald Maxwell's statement during the Virginia Beach City Council uprising against HREDA that the Virginia Beach economic development effort would be substantially diminished without the Alliance, a claim substantiated by the ODU study.

perspectives other than the collective action problem, and proposing an agenda for

future research.

[1] The 1950 Census termed the MSA the *"Norfolk-Portsmouth MSA"*. (Generally, the most populous jurisdiction is the first-named.) Princess Anne County was a component but Virginia Beach was not part of the MSA environs until the 1960 Census. By 1973, Virginia Beach had grown sufficiently to become part of the title: the *"Norfolk-Virginia Beach-Portsmouth MSA"*. (Redefinition of MSAs based upon the most recent Census usually occurs about three years after the decennial.) In 1983 sufficient economic interaction took place across the James River for the MSA to be combined with the *Newport News-Hampton* MSA, producing the new *"Norfolk-Virginia Beach-Newport News MSA"*. Finally, beginning with the 2002 Economic Census, the ascendancy of Virginia Beach was acknowledged by the Bureau of the Census with the new MSA title, the *"Virginia Beach-Norfolk-Newport News MSA"*.

[2] These patterns hold when non-corporate affiliated groups such as housewives and retirees are included. The percentages become:

HAMPTON ROADS CAMPAIGN DONATION SOURCES
by PERCENTAGE; all donors (n = 3978)

Source of Donation:

	Own City	Peninsula City, Not Own	Southside City, Not Own	Virginia, Not Hampton Roads	Out of State	Totals:
Peninsula	89.85%	4.81%	1.39%	1.71%	2.24%	100%
Southside	85.31%	0.30%	11.51%	1.31%	1.58%	100%
Totals:	86.38%	1.36%	9.13%	1.41%	1.73%	100%

Alternatively, the corporate affiliation could be more strictly defined as donations either directly from corporations or those who are evidently owners (identified by "owner" or same last name as that of the business firm in the applicable blocks on the Schedule A or B form). The results are again essentially the same:

HAMPTON ROADS CAMPAIGN DONATION SOURCES
by PERCENTAGE; corporate-affiliated donors
alternate compilation (n = 2253)

Source of Donation:

	Own City	Peninsula City, Not Own	Southside City, Not Own	Virginia, Not Hampton Roads	Out of State	Totals:
Peninsula	88.35%	5.05%	1.76%	2.42%	2.42%	100%
Southside	84.26%	0.22%	12.57%	1.45%	1.50%	100%
Totals:	85.09%	1.20%	10.39%	1.64%	1.69%	100%

Chapter 7: Conclusions

7.1   Overview

This chapter will summarize the analytical effort in our account of interjurisdictional competition and urban area fragmentation, tie up several unresolved issues, discuss the implications of study findings for collective action theory and other relevant paradigms, and sketch an agenda for future research. Section 7.2 provides the brief summary of the work. Section 7.3 discusses the two models concerning leadership and communication posited in Chapters Five and Six. Section 7.4 completes the discussion in the Chapter One Appendix of theories other than collective action by discussing implications of this study for these debates. Section 7.5 proposes a research agenda for future inquiry into interjurisdictional competition and urban area fragmentation.

7.2   Summary of the Study

Interjurisdictional competition is the use by a government of tax, spending, zoning and/or other regulatory provisions as incentives to induce a specific firm—or firms in general—to locate (or remain) in its own jurisdiction as opposed to another city, county, state or nation. This study has focused on competition among cities, towns and counties within urban areas in the United States. Anecdotal evidence related in Chapter One highlights the considerable magnitudes of incentives— arguably over $62,000 per job in the case of Maryland's Marriott corporate headquarters expansion—as well as its pervasiveness as a local (as distinct from interstate or international) phenomenon. Specific instances of IJC also underscore the

possibility of cooperation in attracting new firms to an urban area, as is the case with the Metro Denver Network.

Various theoretical perspectives address the IJC phenomenon, including public finance and urban policy studies. This study utilized IJC to evaluate the theory of collective action in political science. A model of the collective action problem still often invoked four decades after its conception is Mancur Olson's *Logic of Collective Action* (1965), in which free-riding dooms most efforts at collective action unless the group size is relatively small or active members receive selective benefits unavailable to the group of potential beneficiaries at large. IJC is frequently described in these terms. The large numbers of communities which comprise so many American metropolitan regions make this assertion attractive. And the substantial variation in numbers (from two to hundreds per urban area) makes statistical analysis tenable.

IJC is often more specifically described as a free-rider phenomenon in terms of the prisoners' dilemma in game theory. Because the term *prisoners' dilemma* is sometimes employed loosely and metaphorically, Chapter Two and its appendix rigorously evaluate this claim. In fact, different IJC situations give rise to different games. However, at their core all have the prisoners' dilemma problem: a strong incentive toward an equilibrium of mutual defection rather than cooperation.

To evaluate collective action theory using urban area IJC as a natural experiment, the study employed two major data sources: (a) the 1994 International City/County Managers Association economic development survey, and (b) 1990 Census data, especially population and income figures for jurisdictions comprising urbanized areas. The former provided data to construct additive indices assessing

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IJC; the latter, inputs for Hirschman-Herfindahl-like indices measuring

fragmentation. The basic hypothesis was:

IJC = f(fragmentation)

Contrary to the received free-rider wisdom, the relationship was not positive.

IJC did not rise with increased fragmentation, even when control variables for racial

diversity and form of government were added. Neither was IJC uncorrelated with

urban area fragmentation. In point of fact, IJC actually *decreased* with increases in

fragmentation.

These results led to evaluation of alternative hypotheses based upon

alternatives to free-rider theory. Anticipated returns, communication and leadership

are the major alternative explanations for the success or failure of collective action.

A further set of regressions substantiated both communication and leadership as

effectual within the IJC world. In sum, Chapters Four and Five demonstrated a

statistically significant inverse correlation between IJC and fragmentation, leadership

and communication. Follow-on statistical analysis led to a model in which

fragmentation is linked with increases in leadership and communication, which in

turn are connected inversely with IJC effort. The assertion is not so much that

fragmentation *causes* more active leadership or better communication but that

leadership and communication arise to compensate for the absence of formal regional

governmental mechanisms.

In order to explore the IJC world in greater depth, we turned to a case study of

the Hampton Roads, Virginia urban area. The Hampton Roads regional economy

suffered a number of shocks around 1990, including a recession, the threat of losing

part of its very substantial military sector and secular decline vis a vis other Southeastern metropolitan areas. The study combined *game transition*—a topic introduced in Chapter Two, *Theory*—with leadership theory to argue that the nature of the Hampton Roads game had in fact changed from prisoners' dilemma to assurance, and that leadership reinforced by communication had moved the polity from mutual defection to the cooperative equilibrium thereby created.

7.3   Unresolved Issues (I): Models of Leadership and Communication

As noted directly above, Chapters Five and Six developed models of the effects of leadership and communication on IJC effort. In Chapter Five, leadership and communication had the effect predicted by alternatives to the free-rider theory of collective action: Increased leadership and communication were associated with decreased IJC. Working back through the chain of events, higher levels of leadership and communication were associated with greater fragmentation of urbanized areas. This does not mean that fragmentation causes leadership and communication but rather that both apparently increase to compensate for the lack of formal coordinating mechanisms. Thus the model:
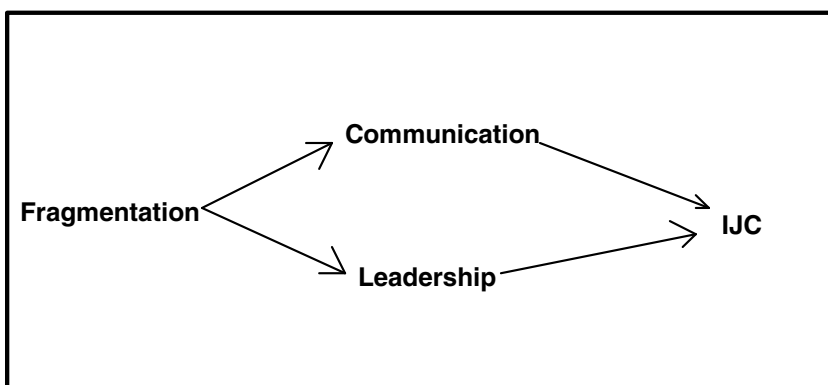

Chapter Six then overlaid a model of game transition and leadership transactional transition. Harking back to an element of game theory in Chapter Two,

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the new model traces an increase in costs (bids for firms) relative to direct benefits of

a firm locating in one's own jurisdiction. A sufficient increase in costs can bring

about game transition from prisoners' dilemma to an assurance game, creating an

additional equilibrium for mutual cooperation. Simultaneously, on the leadership

theory side, increased costs can stimulate a leadership reaction in which elites can

prompt the development of regional cooperation mechanisms as well as

communication which further facilitates regional cooperation, thus moving the region

from mutual defection to stable mutual cooperation and impacting IJC. Here is the

model without the Chapter Five underlay:
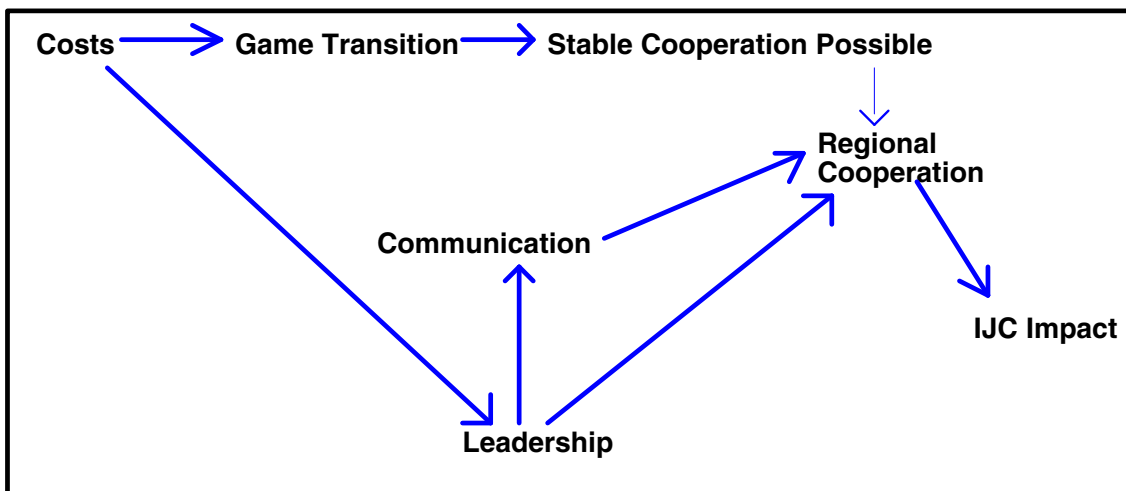
and here is the familiar diagram of both models:
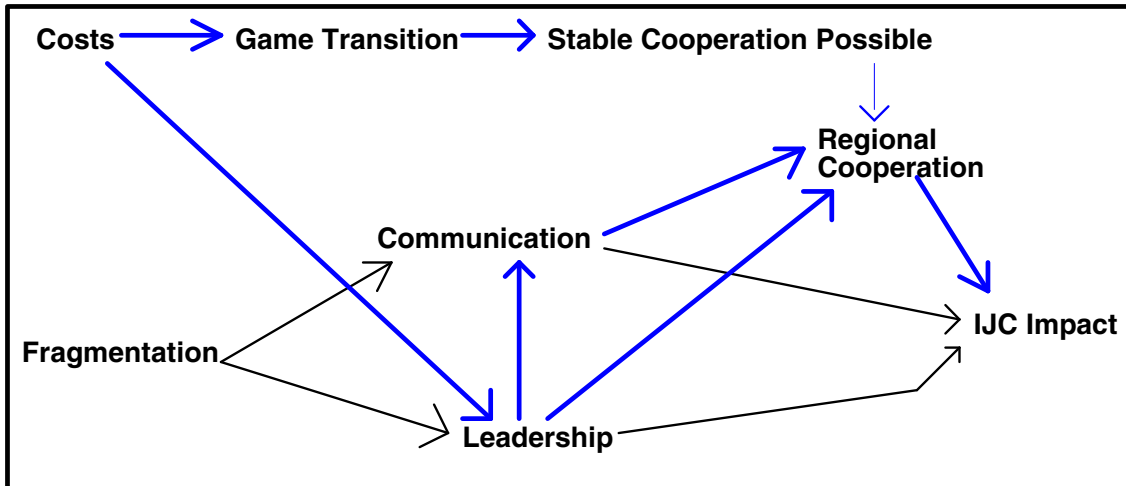
The Chapter Six argument focused solely on the game transition/leadership transactional transition model—the colored links—via the contention that the game in Hampton Roads had changed by observing newfound cooperation across a spectrum of regional activities and concerns. This leads to further issues. First, can the two models (in Chapter Five and Chapter Six) of leadership and communication both be at work at the same time in the same urban region? The answer would seem to be affirmative in three of four possible combinations. To begin with the Chapter Five mechanism, as noted in the chart below, while the alternative theories of leadership and communication were developed for the prisoners' dilemma paradigm, there is no reason they cannot work equally well for its cousin, the assurance game. Both leadership and communication work to overcome the prisoners' dilemma mutual defection equilibrium. If a second, cooperative equilibrium appears, so much the better.

MODELS SUPPORTING REGIONAL COOPERATION		
	Chapter 5 Mechanism	Chapter 6 Mechanism: *game/leadership transactional transition*
Prisoners' Dilemma	yes	no
Assurance	yes	yes, as costs rise vis a vis direct benefits

The game transition/leadership transactional transition model works in a somewhat more complicated manner. If the game is originally a prisoners' dilemma and bid costs rise sufficiently, then the situation becomes an assurance game. This was the case argued in Chapter Six for Hampton Roads. Thus, the game/leadership transactional transition model can be at work in the assurance game. However, if the polity is already in the assurance game mode and costs fall sufficiently relative to direct benefits, the game transition could presumably work in reverse. Given the reversion to the underlying prisoners' dilemma incentives to defection, the decrease in the cost of bidding would remove the link stimulating elites to seek regional cooperation, leaving only the Chapter Five mechanism.

Of course, there could be a Keynesian downward stickiness to regional cooperation efforts. Once established, institutions—both organizations and practices—tend to have a resilience which ensures a high degree of longevity. The extent to which regional cooperation would vanish is an empirical issue for follow-on study. If there is no stickiness downward, then another possibility needs to be theoretically modeled and empirically investigated: Do the relative-costs based pressures of the prisoners' dilemma on one side and the assurance game on the other

constitute a rough band of equilibrium behavior, a social state defying definitive description as either prisoners' dilemma or assurance game but rather eternally flitting back and forth between the two? And might such a social state help break vicious cycles?

Empirical measurement itself is the second issue to follow from the two models. Is there a way to generate adequate metrics to statistically measure direct benefits and bid costs in order to get better resolution on a test of game transition? In the Hampton Roads case study, the argument was more intuitive and based upon breadth of cooperation being more likely to reflect the assurance game than a series of solved prisoners' dilemmas. This is a valid first cut at testing the theory in the metropolitan context; however, as an agenda item for future research, a numerical test of some sort would constitute a more rigorous evaluation. In the IJC realm, a future test might involve two ICMA economic development surveys (they are conducted at roughly seven year intervals) to generate additive indices and Census data on urbanized area per capita income. Falling per capita income could be taken as a sign of increased bid costs for business incentives in a manner similar to the argument attributing rising costs to Hampton Roads in Chapter Six. The statistical test would then ascertain if rising costs (falling income per capita) are associated with greater cooperative behavior in additive indices.

Even this test has its shortcomings, however. Chief among them is that, unlike the case study, the statistical test cannot get a handle on breadth of cooperative behavior to infer an assurance game. Perhaps a cleaner test of game transition would take place not in government and politics studies but rather in the economics of cartel

behavior. The analysis could first identify markets in which cartels formed or, having been in existence, lost members or dissolved. In this scenario, costs are not bids but costs of production and are probably constant across all firms. However, direct benefits vary, changing the gap between direct benefits and costs. When this gap is small enough (as predicted by the theory in Chapter Two), the game should change from prisoners' dilemma to assurance and we should see an increase in cartel stability as cooperation becomes an equilibrium position. When the gap widens sufficiently, we should observe defection as firms in the market try to undercut cartel prices as the cooperative equilibrium disappears and the game changes from assurance to prisoners' dilemma. Note that the cartel context should also generate much more precise estimates of 'T' ('temptation'), 'R' ('reward'), 'P' ('penalty') and 'S' ('sucker's payoff'), thus allowing a more certain diagnosis of what game is being played.

7.4   Unresolved Issues (II): Debates in Other Literatures

While the focus of this study has been the collective action problem, the Appendix to Chapter One sketched other theories germane to the phenomenon of interjurisdictional competition. Two major debates were covered, one on the nature of IJC, the other on the outcomes of fragmented versus unified regional government.

The debate within the public finance community of economics centers on whether IJC is beneficial in steering firms to jurisdictions in which they are most productive or whether the competition over incentives is destructive, progressively impoverishing jurisdictions as mobile firms move successively from community to community in search of the best deals. In the first argument, local governments

compete by offering incentives which ensure a firm's overall taxes are no greater than the marginal cost for the jurisdiction to produce the public goods consumed by the firm. Thus, all business taxes are benefit taxes—a normatively desirable goal within welfare economics. In the second argument, jurisdictions bid for firms in order to lower the tax bills of ordinary residents. This works for a while but eventually gets out of hand. Firms find that they can bargain for lower and lower taxes by moving from jurisdiction to jurisdiction. Jurisdictions are reduced to effectively cutting corporate tax payments to almost nothing and shifting the burden onto the residents IJC was intended to help.

The results of this study tend to support the IJC-as-benefit-taxation school by refuting destructive competition claims about the inexorable nature of jurisdictions undercutting each other. Greater fragmentation is associated not with further defection but instead with greater cooperation and less IJC. The downward spiral is broken. This is especially reinforced by game transition: If costs rise too greatly relative to direct benefits, the change to assurance game should make regional cooperation a more attainable outcome.

The second debate pits polycentricity against monocentricity. Is a metropolitan region with many local governments more responsive to its citizenry, or does it become a series of feuding petty fiefdoms, grossly inefficient and incapable of cooperative action on issues of regional concern?

Unlike the two different approaches IJC, this debate covers a number of phenomena—IJC, sprawl, public goods provision, equity in health care, education and other services. From the perspective of IJC, this study tends to support the

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polycentrists. Fragmented regions tend to develop more leadership and better communication, leading them to exhibit not more but less IJC. The 'wasteful IJC spending' predicted by monocentrists is not in evidence in these statistical outcomes.

7.5 A Research Agenda

Just as this study has employed different research techniques, future research on interjurisdictional competition and urban area fragmentation should similarly employ a variety of research techniques and theoretical perspectives. Most obviously, given the administration of the ICMA Economic Development Survey approximately every seven years for more than two decades, the national data component can be rerun using multiple years. This would allow analysis not only of cross-sectional but panel data. Compiling such data is hardly a trivial endeavor. The project would involve some critical decisions—such as how to define comparable additive indices given changes in survey questions over the years—and laborious generation of fragmentation indices from Census data. However, the enhanced analytical capacity from such a dataset would be very rewarding. The multi-year component would facilitate another perspective on the effects of changing degrees of fragmentation within urban regions over time as well as statistical estimation of game transition as outlined in Section 7.3 above. However, empirical evaluation of game transition should also include testing more data-rich venues, such as cartel behavior, as also mentioned in Section 7.3.

Another major research method used in this report is the case study. The Hampton Roads case study was a very interesting and productive exercise which generated not only a firm intuitive handle on the subject but also new insights, such as

the game transition/leadership transactional transition model for regional cooperation. In that the folk theorem has it that the plural of case study is 'data', other case studies can assess the conditions which lead to cooperation or defection on IJC and in regional economic development. The comparative case study method (Lijphart, 1975; King et al, 1994) requires a theoretical paradigm to orient the research in the various urban areas studied; thus, positing a model of urban regional cooperation would be a necessary intermediate goal of further case study research. However, the paradigm is intended as guidance to allow researchers to compare specific case studies across specific variables. It is not a straitjacket; indeed, some very interesting research using the comparative case study method has ultimately recommended substantial modifications to the original paradigm (c.f.: Leland & Thurmaier for such scholarship in cases of city-county consolidation referenda). After specification of an initial model of IJC cooperation, a group of scholars could collaborate on a compendium of case studies.

Relatedly, the Hampton Roads case study also uncovered an organization which may in itself be of interest for comparative case studies. The history and development of the subregional (ultimately, regional) economic development alliances like HREDA and PAED turned out to be a rich and enlightening tale of cooperation in the midst of an environment which is competitive in multiple dimensions—both in the marketplace and among governmental jurisdictions. Hampton Roads is particularly interesting because of the Southside-Peninsula differences. While the James River provided a physical (and, for many generations, economic) barrier, other urban areas may have similar distinctions among subregions

based upon historical development (say, two conurbations which grow and become one). The merger of sub-regional alliances in these cases may also contribute to the study of various perspectives in political science.

Finally, the reservations about interjurisdictional competition expressed by opponents of the practice (Section 1.1, Chapter One) should be engaged by theory and research. For example, does IJC frequently transfer tax dollars to politically well-connected supporters of politicians who influence or determine business incentive allocations? This ultimately leads to a full consideration of the ethics of IJC. One ethical concern is the welfare economics principle of *equity:* similar entities in similar circumstances should be treated in the same way (Due & Friedlaender). Is IJC equitable? The question is not easy: From the first public finance school noted above, IJC promotes equity by ensuring that all taxes are benefit taxes. Yet on the other hand IJC means that newcomers to the region are treated differently from established entrepreneurs. A related conundrum involves Kantian versus utilitarian analysis. The Kantian analysis would call for all businesses to be treated in the way the owners would prefer to be treated themselves, and presumably the average entrepreneur would rather not see his or her taxes used to subsidize the relocation of potential competitors, so IJC is not an ethical practice. Yet as noted in the case study, many businesspersons support the use of incentives to attract new businesses, anticipating a more robust economy which will help all businesses, theirs included— in effect, the ethics of the self-refilling cookie jar (Schmidtz) which likens a growing economy to a cookie jar in which every time you take a cookie, two appear in its

place, making taking a cookie a morally good act instead of extracting a resource to the exclusion of others.

While the ethics of self-refilling cookie jars may have a playful tone, the goal of ethical analysis of interjurisdictional competition is hardly detached erudition. As with so much in science, the ability to predict IJC in specific instances or particular urban regions remains limited. Our descriptive analysis can give voters and policymakers guidance but—especially in the absence of complete and detailed predictions—solid ethical analysis needs to be an important part of public decisionmaking.

The End

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City Council Minutes

City of Hampton
City of Newport News
City of Norfolk
City of Virginia Beach

Campaign Finance Records
(Schedules A & B—Monetary and Non-monetary Donations)

City of Hampton
City of Newport News
City of Norfolk
City of Virginia Beach

Case Study Interviewees

Regional and Subregional Organizations:

James Babcock	Former Chair, Forward Hampton Roads
Arthur Collins	Director, Hampton Roads Planning District Commission
Perry DePue	Former Chair, Hampton Roads Mayors and Chairs Council
C. Jones Hooks	Director, Hampton Roads Economic Development Alliance
Matthew James	Workforce Development, Peninsula Alliance for Economic Development
Donna Morris	Director, Hampton Roads Partnership

Private Sector

James Babcock	Former President, First Virginia Bank (also interviewed for *Regional and Subregional Organizations*)
Edward Forlines	Owner, Antique Store; Member, Portsmouth Partnership
Herbert Kelly	Partner; Jones, Blechman, Woltz & Kelly (law firm)
Ike Prillaman	Vice Chair (Marketing), Norfolk Southern Railway

Journalists

Christopher Dinsmore	Virginian-Pilot
Philip Newswanger	Dolan's Virginia Business Observer
Jodi Snyder	Daily Press

Chesapeake
Thomas Elder   Assistant Director, Economic Development

Hampton
Michael Yazkowsky   Staff, Economic Development
The Honorable Ross Kearny   Mayor

Newport News
Samuel Workman   Assistant Director, Development
The Honorable Joseph Frank   Mayor

Norfolk
Samantha Jones   Executive Assistant to the Mayor
Charles Rigney   Assistant Director, Economic Development

Portsmouth
Steve Lynch   Director, Economic Development

Suffolk
Steve Wright   Assistant Director, Suffolk Economic Development Agency

Virginia Beach
The Honorable Meyera Oberndorf   Mayor
Donald Maxwell   Director, Economic Development

Williamsburg
Jodi Miller   Assistant City Manager

York County
James Noel   Director, Economic Development