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**From Lived Experience to Economic Models: a mixed
methods analysis of competitive policies in Gioia Tauro
and Genoa, Italy**

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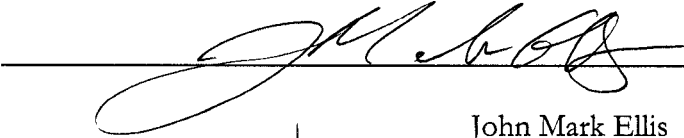
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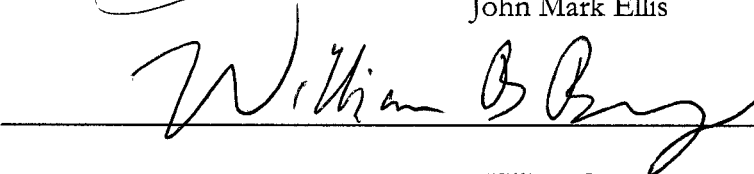


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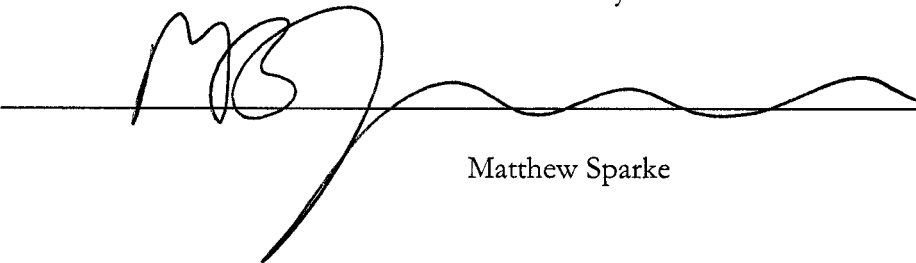
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Abstract

From Lived Experience to Economic Models: a mixed methods analysis of
competitive policies in Gioia Tauro and Genoa, Italy

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Competitive policies represent a major resource allocation within the local economic development budgets of cities. Nevertheless, the outcomes of these policies have received only a cursory analysis related to their effects on the positions of cities within global economic networks. Detailed case studies of competitive policies in two ports: Gioia Tauro and Genoa, suggest that competitive policies are closely tied to a much broader range of economic outcomes and demonstrate significant local variation in terms of the distribution of costs and benefits. Although current models developed within geographical economics have proved insufficient for theorizing this complexity, there is evidence that models built around an agent-based framework are capable of representing this complexity while providing a testing ground for hypotheses developed within the case studies. Broadening our understanding of competitive policies and improving our methods for judging them represents an important policy goal given the ubiquity of these policies and their uncritical implementation in cities across the world.

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Prologue

I read Thomas Friedman's "The World is Flat" on a train ride from Rome to Rosarno, a small seaside town in Calabria, southern Italy. I was going to Rosarno to conduct fieldwork related to the Port of Gioia Tauro. On paper, Gioia Tauro epitomizes the flat earth theory proposed by Friedman: it is in the economic periphery, but location, the changing dynamics of global trade, and a labor history that is vastly different from that of Northern Italy have put it in an advantageous position to act as a transshipment hub in a critical global network. Friedman's thesis is that a port area like Gioia Tauro is now on a level playing field with ports in the global North, that place no longer matters--only competitiveness, and that market forces need to be understood as dominant in deciding how one location fares *vis-a-vis* another.

Gioia Tauro seems to support this thesis, rising from nothing in 1995 to be one of the top twenty-five container ports in the world by 2004 (AAPA 2004). As the story goes, Gioia Tauro has succeeded because it has been market-oriented from the start. Begun by a prominent businessman based out of Genoa, Gioia Tauro was built, in part, to get away from the constraints of history so prominent in the north—most significantly, the history of labor organization. The port faces no competing uses for space on the waterfront or for warehousing areas inland. Furthermore, local, federal and even European political institutions will support job growth in southern Italy at almost any cost, so the port faces little or no resistance to any of its proposals for growth.

I selected Gioia Tauro as a research site because it is the competitive ideal that many ports around the world strive to emulate. Over and over in port research, one comes across ports proposing changes that will make them more competitive. Invariably these ports believe that by overcoming some structural, historical, or political shortcoming, they will unleash the power of the free market and skyrocket to prominence like Gioia Tauro. I wanted to look beyond the banal, but ever popular throughput statistics and catalogue for myself the ways that Gioia Tauro was promoting its competitiveness within global networks and the degree to which these pursuits were returning benefits to the port and its environs. Furthermore, I wanted to measure the degree to which other alleged benefits of these competitive policies were visible in the region surrounding the port.

I also chose Gioia Tauro because it most closely resembles the models of trade relationships that certain economists, or as Paul Krugman has named them, “pop internationalists” (1996), have used to justify competitive policies pitting one city against another. I intended to compare Genoa’s rich history, with its benefits and constraints, to Gioia Tauro’s clean slate. Through this comparison, I hoped to understand how history read broadly could modify the competitive games that the pop internationalists claim we are all playing. In short, I wanted to see Friedman’s flat earth at work and compare it to the bumpy hierarchy of a lengthy Italian pedigree.

All of the aforementioned goals were based on my taking a “production function” view of Gioia Tauro, that is to say an assessment of labor costs and regulatory freedom, of capital inputs and flexible response to global conditions. I

came to Gioia Tauro intent on examining the ways that competitive policies were advancing Gioia Tauro's place in the global economy and how these policies affected material conditions in Rosarno and Calabria more generally. As so often happens when undertaking work 'in the field,' I had to radically alter my approach when confronted with my research subject.

Within forty-five minutes of beginning my research in Gioia Tauro, I witnessed a man shot to death in the street. Later, his home (or at least the building where he was shot) went up in smoke. The building burned for most of the evening and night, but I never heard a siren. The event was not mentioned in the local paper the following day, despite occurring in a town of only 13,000 inhabitants.

Wherever I walked in Rosarno, I saw evidence of the stranglehold that the Calabrian mafia holds over this region. I was later to learn that an estimated 30% of the region is thought to be employed either directly or indirectly by the Mafia. When I went to the port itself, the evidence suggested that the Mafia hold extended significantly into this supposed bastion of unhindered competition. For example, there were unconfirmed but consistent reports of a tithe paid to the local mafia don for each container handled at the port; there were the obvious inconsistencies of who was allowed into the port quickly and who was not; and I observed several other things at the port that I am still not comfortable putting into writing.

The port of Gioia Tauro was not as it had been represented to me. The single interview I completed before fleeing the town was full of the language of competitiveness and free markets. Nevertheless, the reality I observed was not free-

market capitalist but tightly controlled feudalism. The free market was respected to the extent that it disciplined the workforce and held regulation in check but rejected violently when it presumed to impose on the profits of the mafia don observing the port from his house perched on a hill directly above. Competition and competitive policies were used *discursively* in Gioia Tauro; this discourse had powerful effects on individuals' *perceptions* of policy goals and outcomes. A competitive discourse could keep regulators from the federal state and the European Union not only at bay, but actively praising the “achievements” of Gioia Tauro. The framing of Gioia Tauro as building off its competitive advantage drew attention away from the extreme exploitation of human and natural resources that are at the bottom of much of its success, reframing this exploitation as natural.

The identification of a discursive use of competition does not mean that Gioia Tauro does not meet many of the criteria that Thomas Friedman would find so laudatory—it has a powerful geographic advantage, it has the benefit of room to expand, and it has lower labor costs than elsewhere in Italy. Nevertheless, the way that competition was discursively represented in Gioia Tauro affected who paid for the competitive policies enacted there, and who benefited from them. It affected the relationship between the port and its region. Furthermore, this representation interacted with the structural components of the economy that make up the traditional production function view of competition to produce a complex set of outcomes. These outcomes call into question the conclusions of economists that competition will eventually raise living standards and lead to convergence in standards of living across

the globe. The models used by economists to predict these outcomes rely on very strict assumptions that cannot begin to accommodate the complexities represented by discursive uses of competition found in Gioia Tauro. Both proponents and opponents of competitive policies have missed the importance of these discursive effects; this absence needs to be remedied. The meaning of competition is presented as value-neutral, invariant across space, and securely based in the 'science' of economics, but it is none of these. To treat it as such, even in opposition, ignores its real power: its capacity to naturalize and make acceptable policies that benefit the few at the expense of the many.

This is the message behind this dissertation. Competition as it is invoked in policy debates is not natural, it is not beneficial, it is not even competitive. Until now, the policy debate has been between those who envision a competitive, market-driven world economic order and those who wish for something more egalitarian and more communitarian. This is a debate over which two reasonable individuals could honestly disagree. But while this debate rages on, the policies being put into place have very little to do with creating either of these visions and everything to do with advancing the interests of whatever group can mobilize the discourse of competition effectively. In the following pages, I will demonstrate that a new way of assessing these policies is both desirable and possible.

Chapter 1: Introduction

In its current incarnation, globalization has led to an increased level of economic interconnection among cities and a commensurate pressure on these cities to be competitive in attracting economic development and retaining existing economic activity in their environs. Nevertheless, questions remain as to whether this emphasis on competition leads to an efficient, market-driven world economic order or a “race to the bottom” where cities sacrifice their long-term interests for fleeting, short-term gains. Debates over policy competition in cities have focused on an ideological battle between those who believe in the beneficial power of the market and those who see market operations as flawed and counter to social welfare goals. Furthermore, the effects of these policies have been assessed almost exclusively in terms of their effects on cities’ positions within global networks. Lost in this debate is evidence that the policies being enacted in the name of competition have little resemblance to the market-driven ideology that they supposedly codify and little effect on the long-term comparative advantages of cities. Both supporters and opponents of competitive policies for cities assume a clear link between the economic structures laid out in mainstream economic theory and local economic development policy outcomes. Detailed case studies in two Italian port cities, Genoa and Gioia Tauro, provide an alternative ontology for grasping the complexities of competitive policies. These case studies reframe competitive policies in terms of the age-old battle over local resource distribution rather than a policy response to globalization. Thus reframed, competitive policies represent a complex and multi-scalar object of study

with both discursive and material effects. Existing models of competition are entirely inadequate for expressing this complexity; however, agent-based models built expressly on the ideas put forward in the case studies represent a significant improvement. In light of this finding, both proponents and opponents of competitive policies need to consider the material effects of discourses of competition in shaping the local distribution of costs and benefits associated with competitive policies.

Thomas Friedman's (2005) breathless declaration that "the world is flat" is emblematic of a broad range of literatures that represent cities and regions around the world as being in direct competition with one another as a key outcome of globalization. For Friedman, advances in technology, particularly in communications, now permit companies to disaggregate their supply chain to take advantage of locational advantages in lower cost or higher quality factors of production, labor in particular. This flexibility, he argues, is leading to a radical restructuring of capital investments world-wide. Friedman provides a dire warning that regions in the global North need to heed these changes and adjust their economic investments in such a way that they may retain their high standards of living in the face of ever-increasing competition. Friedman argues that the global North must not attempt to resist globalization—a project doomed to failure—but should accept its dictates in order to preserve some measure of advantage into the future.

While there is much to disagree with in Friedman's book, it is incontrovertible that communications, transport, and other technologies have advanced substantially in recent years and are permitting corporations to spread their supply chains much more

broadly (Hesse and Rodrigue 2006). While several authors have argued convincingly that capital is more tightly bound in particular places because of the increased importance of local networks (Cox 1997b), these findings are dwarfed by the literatures emphasizing a dense and hierarchical network of cities and the importance of adding to and maintaining growth industries in a region (Abu-Lughod 1999; Beaverstock, Doel et al. 2002; Porter 1990; 2003; Sassen 2000; Taylor, Catalano et al. 2002a).

Not surprisingly, given the barrage of information insisting on the need to be competitive, there is no question that city and regional governments are feeling pressure to enact relevant legislation for their jurisdictions. Although the scale at which a given entity may seek to compete is dependent on a range of factors, officials from the smallest townships up to the largest urban regions are envisioning their economic development prospects in these terms (Hubbard and Hall 1998).

Many authors whose works have been influential with policy makers treat the idea of competing for economic development as a natural and desirable outcome of an increasingly market-driven world economy (Frankel 2001; Friedman 2005; Ohmae 1990; 2001; Reich 1990; Schmidt and Berri 2004). While not addressing competitive policies in particular, these authors frame competition as natural and unavoidable. The opposite of competition, protectionism, is represented as both futile and selfish. This representation of competition has opened up room for a host of policy-oriented gurus to propose actual competitive policies geared towards giving specific regions a competitive advantage, or at least aligning a city's policy with market forces. These

policy proposals have largely centered around developing export-oriented production capacity by creating a “business-friendly environment” through reductions in tax loads and regulation, or focused on productivity increases in existing industries. These policies take as given a basic economic structure in which location decisions are made based on labor and regulation costs and seek to lower these costs and thereby attract additional investment. More recently, image and cultural attributes have received much greater attention as the rise of a service-driven economy has caused cities’ representatives to worry about the capacity to attract highly skilled workers. Nevertheless, the basic underlying assumptions about location decisions still hold and the presumption is that competitive policies will affect these location decisions and thereby bring benefits to the local region.

Critics of the competitive paradigm argue that the rosy picture painted by authors such as Friedman ignores the unequal power relations between core and peripheral economies and the important ways that these relations perpetuate inequalities. Authors such as Leitner and Sheppard (1999) have pointed out the ways that geographic location, existing infrastructure, and the transfer of best practices can maintain structural advantages held by particular regions or cities regardless of policy incentives. In terms of competitive policies, this group of critics focuses on the tension between providing services to the local population or using those resources to attract outside capital. Given evidence that structural inequalities will inhibit the free movement of capital in response to competitive policies, this broad group of scholars has generally concluded that competitive policies do not work. In purely economic

terms, competitive policies do not sufficiently alter wage levels, regulation costs, or other structural elements of the economy to have a significant effect on the distribution of capital.

The debate over implementation of competitive policies at the level of the city or region is essentially a debate over ideology related to economic theory. Both parties focus on the production function faced by firms in passing judgment on the efficacy of these policies. Proponents believe in a more perfectly functioning market in which marginal changes can make all the difference in the distribution of resources. Opponents see barriers to free competition that distort or inhibit the desired effects of these policies. Common to both camps, however, is a belief that competitive policies are modifying these key economic structures and changing the relations among cities within global economic networks. The two sides differ as to whether these changes are positive or negative, but they both treat them as the goal of policies geared towards improving competitiveness.

A broader analysis of competitive policies can reveal far more at play than the narrow scope of analyses based on economic theory would suggest. Competitive policies are intricately involved in local political struggles where the idea of competition is used as a powerful discursive tool to gain advantages in the distribution of scarce local resources. The debate over competitive policies needs to be reframed so that it captures these important effects. Discursive representations of competition have material effects on the economy that are not related at all to a city's position within global networks or its relative competitive advantage. By looking only

at the ways that these policies have changed competitive relationships, much of the work being done by the idea of competition has been overlooked. Competitive policies purport to change labor regulations to bolster a city's competitive position within global networks, but the effects of these changes may at times extend no further than the bottom line of a key local employer. Competition serves as a justification for investment in port infrastructure, but that infrastructure may simply justify the continued employment of port personnel without changing the connectivity of the port to global trade flows. A careful treatment of the costs and benefits associated competitive policies draws attention to the limited nature of current methods of cost-benefit analysis.

An exception to the general tendency to overlook competition's discursive power is the broad literature aimed at critiquing neoliberalism. Scholars examining the effects of neoliberal policies have paid attention to the particular ways in which competition is mobilized to naturalize the redistribution of resources to elites and to discipline consumers, governments, and firms into behaving more 'rationally.' What is notable about this literature is that it expressly examines the costs and benefits of competitive policies and seeks to show how these values are shaped by a discursive construction, not simply through direct action on the wages and capital costs of a local economy. For example, David Harvey has pointed out how economic theory is used selectively to justify reducing the social safety net without reducing the safety net provided to corporate interests. If economic theory was truly guiding policy, then the safety net would be reduced equally for both capital and labor; instead these ideals

are applied selectively. In this case, competition is used as a smokescreen to hide the reallocation of wealth to elites (Harvey 2005).

An examination of competitive policies in terms of neoliberal discourse is a necessary but not sufficient addition to the debate over the effects of competitive policies. While the benefits that neoliberalism has captured for local, particularly business, elites has received much of the attention, other political constituencies have also discursively mobilized competitive policies in their own interests. For example, labor groups have framed competition as a threat to particularly local practices as a way of attracting financial support from state and federal sources. Environmental groups have used the competitive construction of manufacturing and resource industries as outmoded to promote greener economic development. Focusing, as critics of neoliberalism have, only on the machinations of elites disempowers alternative mobilizations of competitive discourse which are also significant in terms of their material effects (Gibson-Graham 2006). In developing an understanding of competitive policies that includes discursive effects, it will be important to consider a wide range of local groups that may be mobilizing the idea of competition for their own ends.

Considering a wider range of actors and effects associated with competitive policies requires additional theoretical tools. First, there is much to be taken from work within political and urban research that has looked at the shifting alliances that constantly form and reform local governing coalitions (Filion 2001; Harvey 1989b; Molotch 1976; Tickell and Peck 1995). These literatures can point towards the kinds

of groups that may be mobilizing competitive policies for their own ends, thereby telling us where to look as we attempt to measure the additional effects that these mobilizations have on policy outcomes. At a more individual level, poststructural readings of the power of discourse suggest that individual perceptions and beliefs will affect how people behave and in turn materially affect the economy (Cowen and Bunce 2006; Foucault 1980; Gibson-Graham 1996). We can better gauge their effectiveness by incorporating these additional tools into the analysis of competitive policies.

This dissertation represents the early steps in an ambitious project to not only broaden the frame of analysis by which competitive policies are judged, but to completely overhaul the ontology with which research on this subject is undertaken. This project begins from the premise that what matters with regards to competitive policies is a relative unknown. I try to avoid making *a priori* assumptions about who the relevant actors are and the nature of the structural enablements and constraints that they face. Instead, I begin with detailed case studies, primarily interviews and archival research, and call on this empirical engagement with actual competitive policies to define the hypotheses that, in turn, define my theoretical framework.

The theoretical framework that results from direct engagement with the complexities of real-world policy formation is itself incredibly complex. The case studies suggest an important role for individuals, class structures, and local governance regimes in creating the conditions under which the positions of cities within global economic networks are subtly altered. The resulting theoretical

framework must therefore account for the interactions among multiple types of actors, within a range of structures across at least four scales of analysis. To aid in working through the various relationships, I have elected to use the techniques of mathematical modeling, specifically agent-based models. These models embrace complexity and indeterminate outcomes while still allowing for some generalization of results and offering compelling visual representations. Additionally, the programming environment in which these models are specified allows for a flexibility in choosing assumptions that far exceeds those available within deductive models more commonly employed in economics. The choice of a mathematical model for exploring theory does not imply any privilege being afforded mathematical representation, but reflects its usefulness in communicating and exploring the complex interactions that are of primary interest within my research agenda (Barnes 1996; Plummer and Sheppard 2001; Sheppard 2001).

Part I of this dissertation begins the process of reconsidering competitive policies within a broader analytic framework. It reports on the results of a detailed analysis of the implementation of competitive policies related to the ports of Gioia Tauro and Genoa, Italy. This analysis involved in-depth interviews and extensive archival research targeted at unpacking the complex ways in which the reality and discursive constructions of competition have interacted in the application of policy related to these ports. The research considers the typical measures of competitiveness for ports (mainly throughput and jobs created), and compares gains and losses in these measures to the port's status within global shipping networks. More

substantively, the detailed interviews conducted in Genoa identified a complex set of interrelated competitive discourses that variously combined and clashed in order to implement or block a range of policy measures discursively associated with competitiveness.

Ports represent an excellent opportunity to examine competitive policies because they exist in a clearly defined global network where competitive advantage leads to easily discerned increases in throughput (Fowler 2006). Unlike many other networks where lag times and fixed capital may delay or entirely overwhelm the effects of competitive policies, container ports exist in a state of constant competition where slight changes in price or service can lead to significant changes in throughput. Furthermore, international trade, such as that which drives container traffic, is at the heart of the globalization narrative that is itself intricately tied to notions about competitiveness. Competition and competitive policies are widely publicized within port literatures and are at the forefront of almost all port policies measures. As a result of these twin factors, both the causes and effects of the problem under consideration (competitive policies and their outcomes) are readily examined in the context of container ports.

While port authorities often frame their business in terms of a free-for-all among ports, there is no denying that the nation-state is a prominent actor in advancing the fortunes of nearly all of the most significant ports. The prominent role played by national actors led to my decision to conduct case studies in Genoa and Gioia Tauro, where two very different ports could be examined within the same

national context. Although subsequent research has shown that the Italian federal government plays a different role in the two ports, this difference is more easily accounted for than it would be across national borders.

Although they share a similar geographic position within the Mediterranean trade routes and a similar political position within the Italian state, Genoa and Gioia Tauro could not be more different. Gioia Tauro is the gold standard by which competitiveness is measured in global shipping networks; its performance based on throughput measures sustains this point of view. Nevertheless, the abbreviated research trip to the port revealed some key insights into the ways in which Gioia Tauro differs from its burnished competitive image. For all that Gioia Tauro has seen incredible growth, it has had no observable effect on living conditions in the region where it is located. At the same time, competitiveness appears to be even more important to Gioia Tauro in discursive terms than it is in a structural sense. While market ideals are hard to locate in the mafia-run port, the din of competition discourse ably masks exploitation and extracts praise and resources from higher levels of government.

Standard measures for competitive policies give a somewhat mixed impression of Genoa's performance with substantial gains in the initial years after a major policy change that privatized the port and a gradual, but steady return to its previous position within the network thereafter. From this baseline, the privatization of the port is subsequently considered in light of several key themes that emerged from interviews and archival work conducted there. In the details of qualitative

fieldwork one finds that competition is universally acknowledged as necessary for the city's development, but that the meaning of competition varies widely based on the individual class positions of the interviewees. With each individual viewing competition through a slightly different lens, there are areas where goals overlap and policy is possible; there are also areas where goals are at odds and policy can only be implemented with aid from outside the region or not at all. The heterogeneous conceptions of competition among individuals in Genoa has meant that institutions that can bring together similar interests are key to determining the allocation of costs and benefits just as they are key in developing specific policy measures. The experience in Genoa suggests that there is nothing neutral or scientific about the formation of competitive policies or their outcomes.

Clearly competitive policies extend far beyond the structural adjustment of labor costs, production practices, and government regulations that have been the focus of previous analyses. There is no denying that competition between cities can have material effects on local economies in exactly the ways predicted by economic theory, but this is a very partial view of policy costs and benefits. Discursive representations of competition have important material effects on economic conditions at the local level that may or may not have connections to global trade networks. A broader frame of analysis is needed to understand these interactions and to judge the merits of competitive policies. If competitive policies are judged solely on their impact vis-a-vis global trade networks, there is a great deal of work that is not being measured.

More concretely, the detailed case studies in Genoa and Gioia Tauro provide the basis for a series of hypotheses about how competitive policies work. In particular, the case studies show how individual preferences rather than economic rationality drive policy at its most basic level. Furthermore, the case studies suggest key roles for institutions in shaping and constraining individual preferences and actions. Finally, local governing coalitions appear to be important for defining who pays and who benefits from competitive policies. These hypotheses diverge markedly from the neoclassical framework that is the principle driver of work on competitive policies. This divergence is significant enough to consider the models suggested by these hypotheses as operating under a different ontology.

Part II of this dissertation begins the process of developing tools that can more successfully analyze the impacts of competitive policies when discursive effects are considered and competition is treated as a powerful signifier rather than a basis for explaining economic relationships. Modeling the locally specific ways in which competitive policies are implemented requires careful consideration. As demonstrated in Part I, the straightforward models of structural changes in the economy are insufficient for grasping the complexity of policy outcomes related to competitiveness. In fact, if Part I tells us anything, it is that the costs and benefits of competitive policies are distributed in a uniquely local way that defies generalization. Nevertheless, competitive policies continue to be implemented in a wide range of locales and it is therefore necessary to try to understand how these policies will affect global economic networks, let alone the cities that operate within them.

Part II begins with a consideration of one of the best models economists currently have to explain the spatial distribution of economic activity. This model, most closely associated with Paul Krugman (1991), examines the movement of workers and firms in a simplified, multi-regional economy. Although this basic model has been extended in numerous ways, it has not been extended to examine the specific impacts of competitive policies on the distribution of economic activity (although see Baldwin and Krugman 2000). Part II considers the possible application of this model to the task of theorizing the interactions of cities within global networks.

The model of inter-city competition developed by Krugman is not able to manage the requirements of theorizing heterogeneous firms, labor, or cities. More importantly, the entire paradigm of general equilibrium appears poorly adapted for the dynamic, overdetermined, analytical framework or the diversity of workers, firms, and institutions that might populate it. The strict assumptions necessary to solve the equations for equilibrium prevent the model from taking on the difficult problems posed by the analysis of competitive policies in Part I. While there is still much that is useful in the deductive equilibrium models such as Krugman's, they are not sufficient for examining the current problem.

Chapter 6 begins the process of building a model that can not only cope with, but can thrive on the complex ontology of inter-city competition. The model suggested in Chapter 6 is based on the hypotheses developed in Part I and focuses on the multiple scales (from individual to global) at which competitive policies are

implemented and at which their outcomes are felt. Testing the model represents an entire research program in and of itself as each element of the model permits any number of plausible assumptions. As an initial step in this program, this dissertation uses insights drawn from complexity theory to set out guidelines for an agent-based model of city competition. The model incorporates overdetermination, bad choices, and institutional effects all modeled outside of equilibrium constraints. Although these factors represent only a small sample of the many elements that could be tested, this process is insightful from a methodological perspective because it emphasizes the subjective nature of the modeling process.

Competitive policies are a key element of local spending, yet little effort has been devoted to analyzing the costs and benefits they offer cities. A careful examination suggests that local economies are materially affected by discourses of competition associated with these policies and that a wider frame of analysis is necessary to grasp both the direct structural and indirect discursive implications of efforts to promote local competitive advantages. In the following chapter, I set out the theoretical justification for this project by discussing the importance of these policies, what is missing from current debates, and what kinds of tools will be useful in advancing our knowledge of their outcomes. Part I contains a brief introduction and methodological explanation followed by two chapters: Chapter 3: The flat earth of Gioia Tauro, and Chapter 4: "Genoa has been a port since Roman times." In these two chapters, I examine both the direct structural effects of competitive policies implemented with respect to these two container ports and the discourses of

competition that permeate and drive much of the policy debate. I begin Part II by reviewing the lessons learned from the qualitative research in Genoa and Gioia Tauro and devote some time to explaining methodological considerations associated with both the deductive and agent-based models employed in Chapters 5 and 6. Chapter 5 presents a detailed comparative analysis of Krugman's model of competitive regions with my own fledgling attempts at re-imagining competitive policies as being enacted at the individual scale. While this chapter provides little in the way of useful results, it highlights the shortcomings of the deductive general equilibrium models favored by mainstream economics. In Chapter 6, I introduce the framework for a more useful model of competitive policies and ground this model in the literature on complexity theory. In the final chapter, I reflect on the strengths and limitations of the framework I have proposed with particular emphasis on the hazards of reductive modeling techniques and the economistic approach I have taken with regards to policy outcomes. I make an argument for critical and cautious quantitative modeling as an important step forward in this key aspect of local economic policy.

Chapter 2: Theories of Competition

Competitive policies now appear in the economic development plans of almost every city in the world irrespective of the political ideology of the governing party (Hubbard and Hall 1998 p.6). Their prevalence and the important role they play in allocating local resources make them a critical object of study if we are to understand the economic and political development of cities. Fundamental to the ubiquity of competitive policies is the perceived support lent to them by economic theory and broader narratives of economic globalization. Competitive policies are framed in economic terms and assessed based on their capacity to affect a city's place within the global economy. Much of the academic debate for and against the implementation of competitive policies accepts this economic framing and focuses on the degree to which these policies will lead to a convergence of living standards or persistent inequality. Critics focusing on neoliberalism have sought to change the framing of this debate somewhat by pointing out the ways that economic theories of competition are not neutral but promote the interests of elite groups. While this criticism is encouraging for having moved the debate away from a discussion of economic theory and assumptions, it does not go far enough in identifying the ways that competition has been mobilized in the service of diverse local groups, not just the powerful. A multiscale frame of analysis is necessary to capture the ways that individuals exist within classes which come together in political coalitions governing cities and are in turn set in the context of regional, state, national, and international governance regimes. All of these scales of analysis influence the ways that

competitive policies are implemented and thus the patterns of distribution for the costs and benefits of such policies. By broadening the frame of analysis to incorporate these multiple levels of complexity, we are better able to see the ways that competitive policies have empowered a range of groups as diverse as business elites, labor interests, and environmentalists. Furthermore, it is possible to characterize the outcomes of competitive policies in ways that allow for inequality at some scales and egalitarian effects at other scales.

This purpose of this dissertation is to move towards a more complex and thorough understanding of competitive policies. To achieve this goal, I must lay out the broad set of literatures that have addressed competitive policies to date and then link them with an even broader body of work (including work on identity, class politics, and local governance) that I argue needs to be incorporated into our theoretical consideration. The theoretical framework I lay out here is complemented by the methodological innovations I undertake throughout the rest of this dissertation, but particularly the theory-testing model proposed in Chapter 6. The focus of this chapter is on demonstrating the need for a new theory of how competitive policies function and on pulling together some of the disparate ideas that might be applied to such a theory; the actual building of such theory is left for a later time.

This chapter begins by justifying the attention being paid here to competitive policies and the distribution of costs and benefits stemming from them. Next it turns to the series of economic arguments that have moved competition to the forefront of local policy options and discusses some of the policy formulations that have emerged.

The third section presents the arguments that have been leveled for and against competitive policies beginning with those that accept the relationship between policy and economy and concluding with critics who see competitive policies as a reflection of the advancement of a neoliberal policy agenda. These critics have accomplished important work by moving debate away from a focus on the merits of free-market capitalism and towards a theorization that acknowledges the role of policy in advancing the interests of the powerful. The penultimate section extends this critique by identifying ways in which groups other than powerful elites have also participated in the negotiations over policy implementation thereby investing these policies, at least partially, with their own interests. The final section presents a re-theorization of competitive policies using a multiscalar framework that starts with heterogeneous individuals and connects them to classes and institutions in a web of power that distributes costs and benefits in a differentiated manner across multiple scales rather than a purely global one.

What are competitive policies and why are they so important?

Competitive policies represent a critical element of local policy making. The term encompasses a range of economic development practices from offering subsidies to attract new firms to marketing efforts that seek to promote a city's "brand" as desirable. Competitive policies have risen to prominence in tandem with discourses of globalization that emphasize the vulnerability of cities in the context of increased mobility for capital and labor. The belief that cities are responsible for their own economic fate has caused policymakers to increasingly focus on the economy at the

expense of other local responsibilities. Competitive policies therefore play an increasingly important role in affecting continuing conditions of inequality within cities.

Competitive policies are those policies enacted by local governments to maintain or improve the status of a locality within global or regional economic networks. Such policies assume that capital and labor are relatively free to locate anywhere within these networks. Moreover, these policies assume that capital and labor will actively seek to locate in places where profits or well-being can be maximized. In theory, competitive policies consider the range of factors that affect the location decisions of these mobile factors and seek to alter them advantageously to attract more or better investment and productive immigration. In practice, competitive policies are much more complex, but this is the principle argument of this paper and will be discussed in much greater detail below and in subsequent chapters.

Although firms and individuals choose to relocate based on a wide range of possible criteria, competitive policies have tended to focus on a fairly limited set of offerings (Tickell and Peck 1995). Principle among these choices are direct subsidies to businesses, followed closely by general efforts to create a “good business climate” or an entrepreneurial milieu. Beyond these attempts at direct influence on location decisions lie a series of policies aimed at creating intangible value in a place through name recognition or “branding” achieved as a result of hosting high profile events such as the Olympics, or through the construction of mega-projects. Finally, two key inspirations for many competitive policies have been the recommendations of

Michael Porter with regards to the development of industry clusters (Porter 1985; 1997; 1998; 2003) and Richard Florida with regards to attracting highly skilled workers from the “creative class” (Florida 2002; 2004).

Direct subsidies have been a popular way for cities to attract capital to their locales (Egan 2004). For example, Seattle and over fifty other cities competed in a bidding war for the privilege of being the home of a new Boeing aircraft factory in Seattle. In the end, Seattle was selected in part due to a \$4 million tax subsidy as part of a broad incentive package (Timmerman 2003). Direct subsidies have come under substantial critique as the most blatant form of resource redistribution. While the costs can often be justified using methods such as input-output models that calculate direct as well as induced benefits, there is increasing concern that these policies represent too great a concession to business interests that can simply move on when the subsidies run out or are bettered by another locale.

A second, more general set of policies operate within the context of creating a “business-friendly environment.” At the state level, this has often meant changes in labor policy such as the passage of right-to-work legislation (Peck 2001); while at the city level, policies have centered around the creation of liaison offices that ease a business’ entry into the city. Individual attention is central to these policies with potential new arrivals paired with a range of local services and locally knowledgeable individuals. Some policies have even extended to the implementation of competition and indirectly business friendly policies within educational funding (Hankins and Martin 2006). More important from a policy standpoint, however, are policies that

have blanket effects on local regulations such as planning and zoning codes. The general tenor of these policies is that by reducing the costs of starting up and conducting business in a particular region, the region will be made more attractive to capital. The general nature of these policies has been a source of particular concern to critics of competitive policies. Tickell and Peck point out that these policies have significant benefits for capital already located in a particular place, but that the nearly universal application of these policies across cities has meant that no city gains any real advantage over its neighbors (Baldwin and Krugman 2000; Chau and Kanbur 2006; Leitner and Sheppard 1999; Tickell and Peck 1995).

A third area where competitive policies have played an important role is in efforts to add value to a city's "brand." These efforts range from the construction of high visibility projects such as waterfront redevelopment or major sports stadiums to the pursuit of prestige international events such as the World's Fair or the Olympics (Berelowitz 2006; Richards and Wilson 2004; Swyngedouw, Moulaert et al. 2002; 2003). Recently, these efforts have also coalesced around more traditional attempts at marketing with cities developing their own slogans and purchasing advertising slots in media sources they think relevant. The idea behind these policies is that if a city has an international presence, it will be more likely to make the lists of possible relocation sites. Branding is also defended as a way of creating a sense of cosmopolitanism for a city, a trait that Florida (described below) has identified as key for attracting highly educated labor (Florida 2004).

One of the most prominent pathways to establishing competitive advantage through policy is the idea of promoting industrial clusters as put forward by Michael Porter (Porter 1985; 1990; 1998; 2003). Porter's work argues that local competition among firms will strengthen those firms by necessitating innovation and efficient production processes. Having competed successfully at a local level, these companies will have an advantage in international competition against companies that have not faced a similar crucible at home. Porter's conclusion is that cities should promote industry clusters that are already well established within their cities. By attracting additional firms to their cluster and by promoting the competition and health of a specific sector, they can foster the kind of firms that will provide a successful international presence. In practice, cities often seem to focus more on the clusters they would like to have than on already existing clusters leading to a seemingly endless supply of locally promoted biotech and IT clusters (Cumbers and MacKinnon 2004).

A final area in which competitive policies have been widely implemented has developed in response to the work of Richard Florida (Florida 2002; 2004; Gertler, Florida et al. 2002). Unlike the policies mentioned previously, Florida's work contends that the pathway to successful international competition and overall economic growth lies in attracting the right kinds of highly creative, well-educated employees who provide much of the value added in a knowledge-based economy. Florida's research emphasizes the importance of a vibrant nightlife and arts sector as well as strong investments in a park system and a clean environment that will attract

these desirable employees. While there are some interesting proposals contained within Florida's work, it is difficult to surmount the problems associated with directing resources set aside for local economic development towards the wealthiest and best educated people within a region rather than towards the least fortunate.

The policies listed above cover a large portion of the competitive policies being invoked by cities today. In fact, one of the strongest arguments leveled by critics of these policies is that a "race to the bottom" is inevitable when all cities are engaging in such a limited set of policies alternatives (Baldwin and Krugman 2000; Chau and Kanbur 2006; Leitner and Sheppard 1999; Stewart and Webb 2006; While, Jonas et al. 2004; Woods 2006). It is hard for any one city to gain more than a temporary advantage over its neighbors with such a narrow set of options for being competitive. As Peck and Tickell write:

"In selling themselves, cities are therefore actively facilitating and subsidizing the very geographic mobility that first rendered them vulnerable, while also validating and reproducing the extralocal rule systems to which they are (increasingly) subjected. The logic of interurban competition, then, turns cities into accomplices in their own subordination, a process driven--and legitimated--by tales of municipal turnaround and urban renaissance, by little victories and fleeting accomplishments, and ultimately also by the apparent paucity of "realistic" local alternatives" (Peck and Tickell 2002 p.393).

Nevertheless, competitive policies have been framed in such a way that the alternative to being competitive is seen as being uncompetitive (Hubbard and Hall 1998); this has, to date, proved a strong enough compulsion to ensure wide adoption of these policies. Having answered the question 'what are competitive policies?', we

can now turn to a consideration of why such a narrow set of actions has become so central to local policy making.

Globalization, economism and the success of competitive policies

The near universal implementation of the policies described above has occurred in the context of two important and linked developments driving policy formulation at virtually every scale and location: a powerful focus on the globalization of economic networks and a broader turn towards the economic as an object of policy. Globalization has arisen in the post-Cold War period as a dominant narrative for explaining everything from the economy to culture and social formations. This narrative has been shaped and sustained by an increasing willingness to imagine the world in economic terms. Together these two trends can provide a partial explanation for why competitive policies have come to dominate policy discourse across the world.

Globalization is routinely identified as an explanatory factor in the broad application of competitive policies (Cheshire and Gordon 1995; Dicken 1998). The role of globalization is not, however, straightforward. A distinction needs to be made from the start to distinguish between the discursive power of the idea of globalization and its actual effects. As Piven has pointed out, these two ways of thinking about globalization are interrelated such that “the concept of globalization itself has become a political force, helping to create the institutional realities it purportedly merely describes” (Piven 1995 p.108 cited in Dicken et. al 1997).

The key structural changes that make globalization such a powerful force in the present day are changes in communications, transportation, and information technologies that have simultaneously brought the world closer together and increased the demand for interaction among places (e.g. Janelle 1969). Cox provides a generalized and widely accepted litany of the effects of these changes that includes:

“the growth of multinational and transnational corporations, the expansion of trade and foreign investment, the New International Division of Labor, the enhanced mobility of money capital across international boundaries, intensified international competition with the rise of the Newly Industrializing Countries, and the globalization of markets for consumer goods.” (Cox 1997b p.1)

Other authors have identified equally important if somewhat less directly related outcomes of globalization:

“increasing centrality of financial institutions, importance of ‘knowledge structure’, internationalization of technology, importance of transnational oligopolies, [and] transnational economic diplomacy.” (Amin and Thrift 1997)

The most significant of these changes with respect to the implementation of competitive policies is undoubtedly the “enhanced mobility of money capital across international [and intra-national] borders.” Facing increased competition and a global market for many kinds of goods, producers are no longer secure within the sanctity of a local hinterland as once dependent customers can now source goods from virtually anywhere on the planet. The possibility of movement has led capital to be increasingly mobile, while local regions have felt an increasing pressure to hang on to existing enterprises while also attracting new ones.

The very real changes brought on by globalization are, however, generously augmented by a discursive representation of globalization that idealizes the free movement of capital and labor. Dicken et. al are careful to differentiate this “absolutist, untenable definition of globalization” from the empirically verifiable changes listed above, but many authors are less cautious in their proclamations (Dicken, Peck et al. 1997 p.162). Ohmae’s “borderless world” is one of the most prominent strawmen to have contributed to this narrative, but he is joined by legions of others who have overstated the free movement of capital and the extent of globalization’s influence (Beaverstock, Doel et al. 2002; Chiu and Lui 2004; Ohmae 1990; Sassen 2001; Taylor 2004).

However open to critique the work of Ohmae and others may be, their work has had a profound effect on how we think about the world, and therefore how we think about affecting it through policy (Spain 2002). The globalization narrative is powerful because it draws a wide array of observable phenomena together into a single pattern that appears to make sense. It permits us to see certain kinds of activities that fit this pattern and makes it harder to recognize others that do not fit the pattern (Gibson-Graham 1996; 2006). This is most clearly evident in the attention paid to issues such as the movement of capital and the movement of jobs overseas (e.g. Friedman 2005). These issues drive newscasts and political campaigns and are powerful instigators of policy.

Somewhat more subtle is the scalar focus brought on by the globalization discourse. With so much attention being paid to globalization, it is not surprising that

we now seek to measure policy outcomes at a global scale. Where benchmarks for policy success may have once been set at the scale of the neighborhood, the globalization discourse draws our attention outward so that we focus instead on how a city performs vis-a-vis a battery of global competitors. Of course, the benchmarks we choose to measure success will be better met by some policy choices than others, again favoring seemingly outward-looking competitive policies over the narrow foci of policies directed closer to home. Policymakers respond to the issues that the globalization narrative makes visible and thus recursively provide further proof of globalization's power.

Intricately tied to the narrative of globalization is an increased focus on the economic as an object of policy. This policy trend is most explicitly covered in the literature on neoliberalism and particularly neoliberal governmentality. The literature on neoliberalism has pointed out the ways in which economic policy is increasingly geared towards a framework that emphasizes competitive markets (Larner 1998). The literature on neoliberal governmentality has shown how this emphasis has extended into all facets of life within western society today (Rose 1999). Under these conditions, economic narratives are given a great deal of credence and increasingly used to explain a wide range of conditions. This in turn translates into a greater reliance on policy that affects the economy.

If we are to understand how competitive policies are sustained by and implicated in the move towards a more economistic policy environment, then we must understand the role that competition plays within economics. Competition is

central to a neoclassical conception of the economy. Competition drives most of the processes within a capitalist system. It determines which firms sell their goods (price competition) and as a result, it is an important element in determining the mix of factors of production, the quantity of goods produced, and the location of industries. Within economic theory, all producers and consumers act competitively to maximize their own self-interest (either utility or profit maximization). Competition is also critical because it keeps prices at a minimum and innovation at a maximum so that consumers are able to purchase the best goods for the lowest price. This last conclusion is essential to competition's widespread application within policy. In this representation, competition provides the rising tide that lifts all boats and does so in the context of a seemingly value-free meritocracy where rewards are commensurate with effort and skill. Once this idea of how competition works is accepted, then the implementation of competitive policies becomes a logical and proactive political move.

Competitive policies build on the belief that competition is a necessary part of participation in the economy, and that globalization has remade the economy into a vast, earth-spanning network of linked localities. Globalization tells a story of cities enmeshed in an economic system without borders while economic theory is understood to demand competitive behavior for cities to be successful within this environment. Furthermore, as more and more cities implement competitive policies, the perception—and perhaps the reality as well—that there is actually competition among cities is reinforced and the discourse of globalization grows ever stronger.

Further examination of the effects of these policies, both theoretically and empirically, is long overdue.

Gaps in the theorization of competitive policies

Despite the broad implementation of competitive policies and the increasing share of local resources allocated to them, their impacts remain under-theorized. For the most part, discussion of competitive policies has been framed within debates about the desirability of free-market policies. Proponents of competitive policies have argued that they can improve the efficiency of the market thereby generating significant benefits, while opponents see them as a misapplication of economic theory that only promotes inequality among cities. Although this is a critical debate, it takes competitive policies too much at face value and assumes that their stated goals of making a place more competitive will principally affect that place's position within global economic networks. The focus is too closely tied to the idea that competitive policies principally modify the production function of firms seeking to maximize the profit on their investments. Little effort has been directed at examining just how effective these cost reductions are for attracting additional investment. Furthermore, the scale of analysis for these policies focuses on relative changes in status within global economic networks. Many of these policies have significant local effects as they shift the allocation of resources among local constituencies. These local effects are critical to judging the overall costs and benefits of these policies but have been almost completely ignored. Focusing only on the relative merits of competitive policies within a framework provided by international trade theory and debates over

free-market economics misses much of what is actually accomplished under the rubric of competitiveness.

The call for movement away from a purely global and economic treatment of competitive policies is not in and of itself a rejection of the policies themselves. A focus on local and discursive effects of competitive policies is bound to complicate the simple message put forward by authors such as Friedman, thereby strengthening the case of those who have opposed such views. Nevertheless, the focus on discourse and local political action opens up a space in which the idea of competitiveness can be adopted and redeployed by any number of progressive groups. The intent of this work is not to condemn competitive policies outright, but to examine their ramifications more broadly.

Vitally linked to the effort to examine the broader ramifications of competitive policies is the need to add to research that attempts to quantify or qualitatively assess the effects of specific policy implementations. Not only has the theoretical focus of research on competitive policies been too narrowly focused on the global economic effects of their implementation, there has been little effort made to thoroughly trace out the costs and benefits of these policies as experienced by the communities where they are put into practice. Over fifteen years ago, Leitner noted that there was “a pressing need for assessments of the ‘real’ costs and benefits of entrepreneurial policy among different geographical areas and social groups in the city” (Leitner 1990). Ten years later, Sunley (2000) again called for research that went “beyond neoclassical gymnastics and single case studies.” Despite these

exhortations from prominent authors within geography, there is little work that has explicitly examined costs and benefits associated with these policies in both a local and broader economic context (but cf. Althubaity and Jonas 1998). The following section introduces the theoretical debate over competitive policies as it has developed to date and sets the groundwork for examining the two gaps in the literature identified here.

Proponents and opponents of competitive policies

The widespread implementation of competitive policies has sparked a great deal of debate within academic literatures. These policies are widely hailed within circles promoting an economic model based on free-markets and neoclassical economic theory. Conversely, those critics who have sought to criticize the free-market model have often used competitive policies as a point of departure for cataloguing the inequality that such an economic worldview can promote. This section begins by laying out the arguments put forward by proponents of competitive policies and concludes with an assessment of the counterarguments.

As detailed above, neoclassical economists have played a key role in promoting the idea that competitive policies will improve the functioning of markets and lead to increased economic well-being for all participants in these networks (Frankel 2001; Reich 1990; Schmidt and Berri 2004). These authors simply extend the basic theories of neoclassical economics to imagine cities as firm-like actors within global networks and construe competitive policies as a way to limit the interference of government and institutions in the free movement of capital. For these

authors, competitive policies function best when they remove barriers to market operations. As such, competitive policies that promote a “business friendly climate” are of principal interest with direct subsidies (that subvert market decisions) being tolerated but less admired.

Proponents: “pop internationalist”

The most important group of proponents of competitive policies are those that Paul Krugman has labeled “pop internationalists” (Krugman 1996). Krugman adopts this term as a catch-all for individuals whose work is touted as building on economic theory, but which uses economics only partially. This group of individuals, typified by the business guru Michael Porter, have accepted the economists’ framework of a competitive global network of cities but seek to proactively change relations within that network (Cumbers and MacKinnon 2004; Kresl 1999; Porter 1985; 1990; 1998; 2003; Rondinelli 1998). Rather than promoting the idea that “the market knows best,” these scholars seek to selectively advantage particular places within the network through policies that will at least temporarily alter market conditions to favor places implementing their ideas. Specifically, Porter’s work sees competitive advantage arising from productivity increases which are spurred on by local competition. In a twist on neoclassical theory, he has called for policies that promote clusters of industries in a local area, thus spurring firms within the cluster to be competitive. Porter’s work thus promotes competition in a way that is familiar to neoclassical economists. Porter, however, is not content to have such industry clusters form by

chance or based on some existing advantage. Porter's work calls for cities to create conditions (through policy) that will attract industry clusters.

The form of policy promoted by Porter relies on an appreciation for the layering of successive rounds of accumulation (Massey 1984) such that an advantage earned even temporarily in the present may positively influence subsequent investment. Porter's intent is not to continuously maintain the advantage of one city over another through policy, but to create conditions that will encourage capital to invest in a region. He believes that "the enduring competitive advantages in a global economy lie increasingly in local things—knowledge, relationships, motivation—that distant rivals cannot match." His policy recommendations attempt to create conditions where these local 'things' can take root (Porter 1998 p.1).

Richard Florida is another prominent proponent of the idea that cities need to actively promote themselves through competitive policies. Florida's work represents cities as existing within a competitive global network, but sees competitive advantage stemming from the existence of highly educated "creative" workers rather than from productivity. Florida argues that in the present economy, value added is most closely associated with knowledge production and that this knowledge is produced by a relatively small portion of the workforce. Florida goes on to suggest that these individuals are only loosely tied to existing production networks, giving them the freedom to locate their expertise wherever they please. Florida concludes that cities need to create environments where these creative individuals will want to work, thereby attracting the workers and eventually the

companies that employ those workers. He identifies a set of characteristics such as tolerance, an active nightlife, and high quality outdoor amenities as key attributes for cities (Florida 2002; 2004; Florida, Atlas et al. 2001).

Proponents: world cities/global cities

A final group that has at the very least implicitly given support to the idea that cities must be competitive is the broad literature on Global Cities/ World Cities. Beginning with Geddes (1915) and extending prominently through Sassen (1984; 1991; 2000; 2001; 2002), this research agenda is now closely linked to the outpouring of work associated with the Global and World Cities (GaWC) group (Beaverstock, Doel et al. 2002; Beaverstock, Smith et al. 2000; 2003; Derudder, Taylor et al. 2003; Smith and Timberlake 2002; Taylor 2001; 2002; 2004; Taylor, Catalano et al. 2002a; 2002b; 2004). The premise of the Global Cities/ World Cities literature is that a city's economy is dependent on the city's links with other cities throughout the world. The networks that connect these cities are understood to be hierarchical such that the best connected cities can capture the economic activity with the most value added. An important contribution of this literature is the near dismissal of national context as a factor determining a city's success. The research sustaining this literature maps the location of firms and the movement of individuals across networks where cities are the nodes and communication and transportation modes provide the connective tissue.

The key role of the Global Cities/World Cities literature in supporting competitive policies is to emphasize the role that cities play and to define a series of metrics with which cities can keep score of their progress in competing one against

the other. These metrics, such as the existence or non-existence of corporate headquarters, are driven by data availability, but they have the effect of presenting a very narrow playing field within which cities can appear to affect their place within global networks. While some authors within this literature have adopted a poststructural approach meant to move away from the hierarchical framework that has driven this literature for so many years, this move has led to a relational frame of reference without addressing the role this literature continues to play in representing cities as existing in direct competition with one another (Doel and Hubbard 2002). This literature is notable for arguing that successful city characteristics are the product of city relations with other cities rather than the result of competitive victories. The authors claim that city success will be increased when cities cooperate and interact rather than trying to boost their own local conditions. Nevertheless, the literature continues to imagine local economic success purely in terms of international position thereby reinforcing, at least partially, the globalization narrative and broad metrics that underlie the rest of the World Cities literature.

To summarize thus far, there is a broad set of literatures that have adopted the idea that cities exist in competition with one another and that cities need to be proactive within these relationships in order for their economies to flourish. These literatures either directly or implicitly adopt ideas about competition taken from neoclassical economics that represent competition as a natural part of the global environment. These literatures also operate within the narrative paradigm of an increasingly powerful globalization that adds a degree of urgency to the competition

among cities. The narrative presents cities as vulnerable within global economic networks and demands that they compete at this global scale or perish. Finally, the policy choices that result from accepting these ways of framing the world broadly accept the idea that the movement of capital and labor can be influenced through competitive policies and that this influence will affect a city's long term standing within global networks. As will be discussed in the following paragraphs, opponents of these literatures have largely accepted the terms of engagement put forward here but they see a very different upshot resulting from competition and therefore see inequality as an outcome rather than market efficiency and overall welfare gains.

Opponents: neoclassical economists

While much of the literature supporting competitive policies in cities draws on the authority of neoclassical economics, even mainstream economists are not unified in their support of these policies. One prominent example is Paul Krugman. In Pop Internationalism (1996), Krugman outlines the ways in which cities are distinct from firms. The differences include the impossibility of unprofitable cities ceasing to exist in the way that unprofitable firms are assumed to do. A second key difference is that cities and regions are far more dependent on internal production than is a company. As an example, he points out that the employees of GM would have to buy 90% of GM's cars if the parallel between city and firm was to be maintained as that is the average amount of a city's production consumed locally by residents. Another way in which Krugman stands out among opponents of competitive policies within economics is the work he has done explicitly modeling expected outcomes from

instituting these policies. In his work with Richard Baldwin, the two economists examine the consequences of tax competition among cities. Supporters of tax competition argue that the need to keep tax rates competitive will reduce government waste and increase government efficiency by limiting government expenditures to only those services that are truly necessary. Opponents of these policies see competition as a way of enforcing a “lowest common denominator” standard that will eliminate the social safety net and promote inequality within local communities. Baldwin and Krugman’s (Baldwin and Krugman 2000) addition to this debate is to show that tax competition is not particularly beneficial, but neither is it a race to the bottom. They show that cities with existing advantages can maintain higher tax rates than cities without those advantages. They conclude that tax competition sustains inequality among cities rather than particularly affecting conditions within cities.

Krugman’s voice as an economist opposing competitive policies is not alone. Several other authors within the neoclassical rubric have also written in opposition to the claims that competitive policies have a basis within economic theory (Ottaviano 2003; Ottaviano and Van Ypersele 2002; Turok 2004). Furthermore, several authors have examined competitive policies from an economic viewpoint and found the results to be mixed. Baldwin and Okubo have found that there can be a link between the development of industry clusters and productivity, but that the causal relationship is often unclear and that competitive policies may also cause increased inequality (Baldwin and Okubo 2006). Justman and Thisse have found that competitive policies can work if they develop differentiated infrastructure, but that even when successful,

these policies lead to inefficient outcomes for the global economic system (Justman, Thisse et al. 2005). At this point, the contribution of neoclassical economics to sustaining competitive policies is at the very least contested.

Opponents: economic geographers

The broadest opposition to competitive policies within geography has come from geographers who have generally accepted the important role competitive policies play in shaping global economic outcomes, but who see the impact of competitive policies as promoting inequality among and within cities. This group of scholars has focused on the role that competitive policies play in promoting a “race to the bottom” where cities fruitlessly undermine their own social, economic, and cultural infrastructures in an attempt to provide the lowest cost location for mobile capital (Rubin and Rubin 1987; Storper, Chen et al. 2002). Foremost among the critics of competitive policies within geography is Eric Sheppard (Sheppard 2000). Sheppard and others have focused on the particularities of place and the weight of history which confound the level playing field assumptions of economics (Leitner and Sheppard 1998). Many of the arguments raised in these critique also mirror issues raised by economists like Paul Krugman: that cities cannot move in the way firms can, that they cannot control who enters and exits from them, that governments interact with cities in ways that are very different from their interactions with firms, and so on (Leitner and Sheppard 1999; Sheppard 2000). Despite their assertions that competitive policies are leading to inequalities within cities as well as between them,

this group of scholars has done little to examine the local impacts of competitive policies outside of theoretical claims.

Another set of critiques leveled against competitive policies by geographers concerns the failure of policy proponents to include the effects of institutions in mediating policy. Bathelt, for example, details the ways in which institutions partially determine the efficacy of cluster-promotion policies (Bathelt 2005). On a broader scale, Leitner, Pavlik, et al. focus on the key role that institutions play in mediating the degree of competition between cities (Leitner, Pavlik et al. 2002). Institutions are a key source of difference for the distribution of costs and benefits stemming from competitive policies. Nevertheless, there has been little empirical work targeting the specific role that these institutions play in shaping outcomes in specific locations.

A significant point that needs to be made about the critical literatures described up to this point is that they all more or less accept the thesis that globalization has created a playing field in which cities exist in some sort of competition with one another. They also either explicitly or implicitly accept that competitive policies are directed at changing the competitive positions of cities within these networks. They do not think that competitive policies are an appropriate tool to act in this regard, but they accept that the basic assumption that cities exist in global networks and must struggle to advance their own agendas. In this focus, these critics are very much in agreement with the proponents of competitive policies. The two sides seem to agree on the terms of engagement; they only disagree as to what kinds of outcomes we can expect from the implementation of such policies.

A second point regarding the literatures in favor and opposed to competitive policies is that these literatures have done very little to address the costs and benefits of actually implemented policies. Some writers have examined the large-scale outcomes of inter-city competition (Florida 2004; Rubin and Rubin 1987), while others have examined the impacts of competition in the abstract space of formal modeling (Baldwin and Krugman 2000; Paez 2004). Nevertheless, there has been little effort to undertake studies that attempt to gauge how some of these policies perform on the ground.

Opponents: critics of neoliberalism

The growing literature on neoliberal policy moves the debate over competitive policies forward in three important ways. First, critics of neoliberalism have sought to point out the ways that competitive policies affect local conditions in ways that have nothing to do with the stated aims of advancing the competitive position of a city. Second, critics of neoliberalism, under the impetus of a call to search out “actually existing neoliberalisms” (Brenner and Theodore 2002), have begun to look closely at how competitive policies have been implemented in particular cities and what the impacts of those policies have been. Finally, these authors have demonstrated that it is important to deconstruct narratives, such as the competitive cities paradigm, rather than simply argue that the paradigm is incorrect (Sparke 2001).

One of the most important insights brought to bear against neoliberal policy is the extent to which these policies favor powerful interests. Authors such as David Harvey have pointed out that neoliberal policy not only favors the interests of

business interests over all others, but it often does so in ways that are in direct contradiction of the stated aims of these policies (Harvey 2005; Raco 2003). For example, Harvey points out that increased competition is held to be an important condition for proper market function and that all sorts of institutions and individuals are remade as competitive subjects within neoliberalism. At the same time, the policies promoted under this agenda have consistently favored the consolidation of business power into fewer and fewer companies. Likewise, while market discipline is used as a justification for limiting the social safety net available to individuals, such discipline takes place in an environment where government has frequently extended resources to limit market impacts on business ventures through bailouts and other interventions (Harvey 2005). Rather than accepting the terms of the debate (e.g. the performance of cities within a global economic network), Harvey and numerous others have pointed out the important ways in which neoliberal, and by extension competitive, policies are having effects on the local distribution of resources.

Brenner and Theodore's call to examine "actually existing neoliberalism" has sparked a real interest in looking at the complexity surrounding the implementation of neoliberal policies (Brenner and Theodore 2002). Their work has highlighted the degree to which policy is shaped by local context. Their work also draws attention to the ways in which this local context creates a policy environment where outcomes are path dependent. As with so much good critical scholarship, however, Brenner and Theodore's work contains within it indicators as to how inadequate the neoliberal lens really is for examining these policies; once one begins to look at the complexity

within policy implementation, it quickly becomes clear that the neoliberal lens is not nearly broad enough to encompass all of the myriad processes that are implicated within the implementation of competitive policies.

The deconstruction of neoliberal policy has become a cottage industry within certain areas of human geography; it is now commonplace for authors to set the privations caused by neoliberal policy within a local context that emphasizes the complexity and contradiction within these policy implementations. Scholars have begun to resist the temptation to construct neoliberalism as a monolithic and uniformly negative force, focusing in part on the ways that neoliberal policy is incomplete in its scope or subverted in practice (Gibson-Graham 2006; Larner 2004; Stenson and Watt 1999). While this process of deconstruction is valuable, this particular effort has not extended specifically to competitive policies yet.

Extending the critique of competitive policies.

Neoliberal criticisms of competitive policies do not go far enough in explaining the complex ways in which local conditions shape policy outcomes. Neoliberal critics have found neoliberalism within the competitive policies implemented by cities, but they have overlooked much that is important about what these policies do. To fully comprehend how these policies affect communities, we need to extend our analysis of these policies to incorporate some important actors and institutions that are skipped over somewhat in neoliberal treatments. At the most basic level, critiques of competitive policies have not incorporated the substantial body of work questioning *homo economicus* as the basic unit of analysis for defining

the role of the individual. At a broader scale of organization, neoliberal critiques have failed to consider the role of labor organizations who often have powerful voices within the local economic development debates and who should not be summarily stripped of their power to act in policy creation. Of even greater importance is the incorporation of a clear understanding of the governance structures within which competitive policies are formulated. There is a broad literature on the institutional arrangements for democratic governance which has much to say about the ways in which policy is developed and implemented, particularly when it comes to discussions of the distribution of scarce local resources. The debate over competitive policies has become too focused on the economics of policy implementation and this limitation needs to be remedied. Finally, competitive policies need to be understood as having a discursive power that is separate from the effects they have on factors of production. The impact of a policy is not limited to the degree to which it lowers the cost of labor or the time it shaves off regulatory processes for capital. The existence of a competitive policy can affect the perceptions of all parties connected with a locality and can influence a broad range of decisions even if it has no direct material effect at all.

The role of the individual

Competitive policies assume that individuals act rationally, using perfect information, to maximize their personal utility. This is the microfoundation on which theories of competition rest. The literature on neoliberal governmentality has gone a long way towards critiquing this idea, and critiques of *homo economicus* are implicit

if not explicit in much of the work written against neoliberalism. However, too much of the focus to date has been on the ways in which neoliberalism constructs and disciplines subjects so that they behave more like “economic man” (Burchell 1996; Giroux 2004; Hindess 2002; Luke 1996). This work has demonstrated the power of neoliberalism to create that which does not already exist, but it overlooks the ways in which individuals continue to construct themselves in alternative ways, thereby making the assumption of rationality within economics that much more problematic. In contrast, authors such as Gibson-Graham (Gibson-Graham 1996; 1997; 2006) and Larner (Larner 2000; 2001; 2004; Larner and LeHeron 2002; Larner and Walters 2004) have consistently worked to re-write neoliberal critique in a way that undermines the presumed monolithic identity of neoliberalism primarily because of the continued diversity of individual subjectivities. Most work on competitive policies has taken the rationally acting subject for granted. Critiques of neoliberalism have problematized “economic man,” but by emphasizing the way that policy creates rational action have failed to subvert the idea that all subjects act rationally. Further work needs to be done to actively specify an alternative to *homo economicus*.

Labor, class and competitive policies

One of the most critical elisions in writings on competitive policies is the role that labor organizations play in supporting and driving them. From Porter’s perspective, labor plays a role only in so far as it responds acceptably to the changes in management practice that are generated by intense local competition (Porter 2003). In this representation, labor has no stated interest in the outcomes of global

competition. Similar work that has fleshed out concepts such as the importance of the “creative class” clearly focuses explicitly on the importance of making labor happy, but it focuses on the needs of highly skilled white collar workers and represents them as mobile and picky in much the same way that capital is represented (Florida 2002; 2004). The opponents of competitive policies do little more to incorporate labor’s agency in the development of these policies. Harvey, for example, repeatedly represents labor as a “disposable commodity” in his book on neoliberalism; his only mention of labor acting positively for change is a discussion of the Tiananmen Square massacre, hardly a source of inspiration or hope (Harvey 2005 pp.153,157,164,167-71).

In response to the view of city competition that excludes a meaningful labor component, Harvey’s earlier work provides a formulation of the role that labor plays in supporting local growth policies that is extremely helpful (Harvey 1982; 1989b). For Harvey, local growth is clearly in the interest of local labor groups and they rightfully contribute to the strengthening of their local region; they are not irrelevant and they are not powerless. What is problematic in Harvey’s work, however, is that it points to a valid justification for labor’s continued support of the competitive city framework. It seems likely that labor has not gotten full measure in return for its contributions to “business friendly environments” in recent years. The careful examination of specific competitive policies being implemented within cities will provide an important basis for extending our understanding of how labor is implicated in the development of these policies.

Labor is also absent from city competition research that deals at the global scale with systems of cities and the networks that connect them. These literatures frequently use the work habits and travel patterns of individuals to explain the relationships among cities, however, this focus is once again aimed at elites. For example, the City of Orlando, Florida is represented as a key regional economic hub in Keeling's work on city networks because he focuses on airline travel which consistently overstates the importance of places that function as international tourist destinations (Keeling 1995). Likewise, Manuel Castells writes at length about the importance of airport lounges as part of the "spaces of flows." While he sees a great deal of importance in how a limited number of "transnational elites" link different parts of the global economy together, he does not mention the flows of immigrants that have reshaped labor markets across the globe (Castells 1996). One of his only references to immigrant populations refers to their location in urban ghettos as unproblematic because of "strong family ties" (Castells 1996 p.433).

Outside of the literature on competitive policies, there is a great deal of work that deals with the changing strategies of labor in the context of global supply chains. Andrew Herod works hard to report on the successes of labor unions in jumping scales from local activism to national and even international strikes (Herod 1995; 1997a; 1997b; 2000). His work is particularly interesting for the contrast that its labor-centric viewpoint brings to subject matter that often constructs capital as powerful and labor as reactionary. For example, many writers have seen the decentralization of unions as sign that mobile capital has been successful in breaking

up the union power that developed under Fordism. Herod, on the other hand, submits that this decentralization may also represent the preferences of unions to negotiate at local scales (Herod 1997b). Along similar lines, Chris Benner has identified the ways in which labor is reorganizing itself away from the traditional union model into a guild system that is better suited to accommodating workers in multiple plant locations with numerous employers. Benner's work provides real insight into the ways that labor can meaningfully respond to the changing technological realities of globalizing supply chains without succumbing to the myth of an all-powerful, agency-eliminating capitalist world order.

Generalizing from the importance of labor as an actor in shaping competitive policy outcomes, it is useful to imagine multiple classes of individuals that would have an interest in the distribution of resources through these policies. Business groups and "creative class" workers are two classes of individual who are widely acknowledged as important in shaping these policies to their own goals, but other groups clearly have interests as well. The elderly, the young, environmentalists, sports fans: the list of possible groups who might have an interest in driving local policy so that it favors their interests is endless. Gibson-Graham's excellent notion of class membership as multiple and fluid is helpful in thinking about these issues (Gibson-Graham 2006). In their detailed research on out-of-work utility workers in Australia, Gibson-Graham found that individuals might be members of a union but also members of a right-wing political party. Each class membership gave the individual some kind of power and in turn influenced the range of beliefs they held.

Moving forward to re-theorize competitive policies, it is necessary to incorporate more than just a place for labor to influence policy outcomes, it is necessary to make a place for multiple class formations.

Governance and political institutions in the formation of competitive policies

The focus on classes and coalitions described above naturally leads to an important set of questions about how these classes come together in institutions to negotiate policy outcomes. This process is completely overlooked in most work on competitive policies which simply jump scale from individual preferences to global outcomes. Similarly, the neoliberal critique of competitive policies has made the limited range of policy alternatives into a crucial part of its argument for why competitive policies are bound to fail. This characterization, however accurate on the surface, has the unintended effect of discounting the subtle variations that are possible even within the limited range of named policies. Work in political geography and elsewhere that has focused explicitly on the ways that coalitions form and govern within local political institutions can greatly enhance our appreciation for how the costs and benefits of competitive policies get distributed.

At the local scale, there are a number of possible frameworks that might be used to better understand how competitive policies come into being and how their costs and benefits are distributed. Molotch's conception of the "growth machine," Harvey's ideas about entrepreneurialism, and the broad literatures on regime theory all appear to be fruitful theoretical representations for developing a better understanding of competitive policies.

Molotch's work on the "Growth Machine" was significant, not because of the governing coalitions that it posited, but for its claims as to how these coalitions operated on a local level in order to achieve goals at a broader scale (Molotch 1976). The core element of Molotch's "Growth Machine" argument is that local government will legislate for growth in opposition to the interests of the majority of their constituents. Molotch bases this theory on the power of a wide range of elites who all stand to benefit from a local growth agenda and the assumption of relatively low opposition by the non-elites. By presuming a link between growth and jobs, the business elite is able to allocate a greater share of local resources to their interests.

Molotch's basic thesis has been updated and modified extensively since it was originally published. In the intervening time period, it has combined with some of the strongest points of Regulation Theory and Harvey's Entrepreneurialism such that both theories are heavily cited in a book reflecting on Molotch's work 20 years later (Jonas and Wilson 1999). The concept of a local growth machine is no longer so much a theory of city government as a shorthand term for the coalitions of stakeholders that come together in support of a locality.

Harvey's examination of entrepreneurialism is based on one of the most compelling arguments in political or economic theory. Harvey posits that labor and capital have a shared interest in local growth. Labor will support local growth policies because it desires more local jobs that will drive wages up (technically reduce exploitation) and allow them to take advantage of investments they have made in local social networks. Capital wishes to make its local environment prosperous to

attract further capital investment. This further investment can provide agglomeration and urbanization economies for existing capital investments as well as engaging more capitalists in the project to keep the locality profitable. Individual capitalists face “creative destruction” when a place they have invested in becomes unprofitable. At this point, they must either reap lower profits or abandon fixed capital and move to a more profitable location. For Harvey, whose world is strongly shaped by ideas of class struggle, this instance where capital and labor act in concordance provides theoretical support for the widespread empirical evidence that class struggle is often muted (Harvey 1989a).

Harvey’s work is strongest in its simplicity and clarity; these strengths are also probably its greatest weaknesses. His explanation of the conjunction of interests in supporting local growth is much stronger than Molotch’s assumption that elites simply have the power to dominate the rest of the community; it helps to explain the relatively slow development of resistance to local boosterism (why oppose something that is seemingly in your own interest?). However, as Painter has pointed out, Harvey’s argument is unrepentantly based on the essentialist concept of labor power (Painter 1997). This basis gives his argument a fixed and unchanging element that, while enviable in a first cut explanation, comes up wanting when the theory is wrestled with at a greater depth. Harvey is willing to acknowledge that both labor markets and labor power are “themselves socially conditioned and produced” (Painter 1997 p.101); however, he sees this as an influence on an unchanging core truth rather than an indication that labor power as a concept is temporally and spatially specific.

Empirically, this essentialism can be problematic in unpacking messy and divergent local political conditions. Harvey's theory does not allow for this messiness, and so must serve as a starting point for enquiry rather than a theoretical underpinning for understanding the role of local governments in an interdependent system.

Regime theory appears to have the most promise as a way of theorizing the ways that class interests come together in institutions of local governance. Regime theory is based on the idea that governance is always the result of coalitions of class interests coming together to accomplish particular goals (Imbroscio 2003; Stoker 1995). As long as a mandate exists for a certain kind of goal (maintenance of status quo, development, middle-class progressive, lower class opportunity expansion), then the coalition driving a particular regime will stay in power. As the mandate begins to waver or fail, then there is an opportunity for new coalitions to come together defining policy to new ends (Stoker 1995). Regime policy usefully combines the ideas put forward by Harvey and Molotch as special cases of coalitions coming together but exceeds its predecessors because it does not place any particular limits on what kinds of regimes might form or what kinds of mandates they might operate under.

What binds the above theoretical frameworks together is the recognition of the politics and class interests that come together in institutions as a necessary step in the creation of policy. These institutions, however we imagine them to represent different constituencies, have material effects on how resources are distributed. These effects are loosely incorporated within economic theorizations such as those put forward

within the subdiscipline of institutional economics (Alt and Shepsle 1990; Keune, Kiss et al. 2004; North 1990), but they have not been applied at all in either supportive or oppositional research on competitive policies.

Beyond the aforementioned local institutions, there must also be a consideration of state, federal, and supranational forms of government in the implementation of competitive policies. Most work on competitive policies is based on the view that these institutions have been superseded in the new world order as cities become more independent of national context and embedded in international networks. The neoliberal view of city competition largely discounts higher levels of government since their role in that ideology is to intervene as little as possible. In practice, however, state and national governments play a critical role in the competitiveness of cities. In addition to government programs that function in a relatively spatially neutral way (such as Social Security or Medicare), there is a long history of district-specific federal allocations (so called “pork”) that are often explicitly related to the efforts of cities to distinguish themselves in a competitive environment.¹ Given the realities of continued state involvement in the local conditions of cities, a substantial literature has developed to protest the focus on networks of cities and to reassert the continued importance of the nation state. Kevin Cox’s work, and particularly his edited book Spaces of Globalization (Cox 1993;

¹Of course Federal programs like Medicare and Social Security are not spatially neutral in their effects; payments into the system come from states with young populations and go to the State of Florida, but calling the intent of the program spatially motivated seems like a stretch, particularly in comparison to things like highways and military bases

1997a; 1997b; 2002; Cox and Mair 1988), is an excellent example of this vein of writing. In these pieces, Cox convincingly argues that national context remains important, and that globalization and unfettered competition represent a changed discourse rather than a set of changed conditions.

Towards a multiscalar theory of competitive policies

Scale has been largely unexamined in the literature on competitive policies.

The global scale is, of course, well represented in the literature, but it is not problematized nearly enough. Adding a greater concern for local scales of impact can vastly improve our understanding of what competitive policies do. Of even greater interest, however, is the possibility of examining competitive policies as multiscalar. Ideas of competition are linked (through neoclassical economics) to the scale of the rational individual. Although it is necessary to re-theorize this individual, individual preferences play a key role in shaping policy outcomes. Individuals with similar preferences can be thought of as having shared class interests, suggesting that we must think of individuals as organized within classes as a precursor to forming coalitions for local governance. Scaling up a little further, there is evidence that the institutions that govern cities represent an important frame for analyzing the distribution of costs and benefits. Finally, regional, state, national, and even international organizations all intervene in the distribution of resources to member cities. The complexity of the interactions among these scales and the differentiation they provide among cities highlights the inadequacy of analyses that focus simply on

a narrative of globalization and neoclassical economics to understand competitive policies.

In many ways, a multiscale theory of competitive policies is a far more convoluted representation of how these policies function. It lacks the simplicity of neoclassical or even anti-neoliberal framings and threatens to lose functionality because of the vagaries of the relationships specified across scales. To this end, a multiscale theory lends itself well to a theoretical model specified in mathematical terms. The clarity of mathematical language forces the theoretician to be clear about the relationships under consideration and allows for extensive specification that might be burdensome in a less efficient form of representation. Although this specification will cause the model to lose some of its flexibility, it should allow us to examine pieces of the theory that are of greatest interest (without necessarily telling us which pieces are of greatest importance). The following section contains two case studies in which the various pieces of the theoretical model are drawn into focus and considered. Subsequently, Part II begins the work of constructing a theoretical model from these disparate pieces, trying to force order on a disorderly set of relationships and using a mathematical modeling environment to tie these scales together. This process is intended as a theory building exercise and is intentionally left open so that the mask of objectivity usually associated with mathematical modeling is completely removed and the art of theory building can be seen for what it is.

This chapter has defined the areas of contention that drive this dissertation as well as the theoretical models already available for explaining various aspects of

competitive policy outcomes. It has pointed out gaps in both supportive and oppositional literatures while turning the focus away from global scales of action and towards a multiscale view of how policy is implemented and how its costs and benefits are distributed. In the remaining two sections, I begin the process of taking these gaps seriously and rebuilding a theory of policy implementation and outcome from the ground up. Detailed case studies represent the starting point for this project as I identify the ways that competitive policies in Gioia Tauro and Genoa both conform to and contradict the expectations we have about them. These case studies also provide a variety of hypotheses about the roles of individuals, institutions, and local governing coalitions that may be incorporated into the larger theoretical model.

Part I: Topographies of Competition

Work on competitive policies requires more than the filling of a theoretical gap; this research demands a new ontology. Competitive policies are functioning in ways that go far beyond the theoretical framework scholars currently employ for their analysis. If we are to improve our understanding of these policies, we must begin anew, starting with a reassessment of what matters. To date, researchers have employed an ontology entirely dominated by economics. Researchers formulated, judged, and studied competitive policies entirely based on their large-scale economic outcomes. The policies themselves were assumed to operate entirely within an economic sphere dominated by the tenets of neoclassical economics. The theoretical gaps identified in the previous chapter cannot, however, be adequately filled within this ontology. Conceptualizing competitive policies in terms of a persuasive discourse utilized by individuals and institutions without any necessary reference to economic rationalities represents too extensive a break from existing theoretical models.

This dissertation represents the first steps in a project to revise the way we understand competitive policies and the way we judge theories about their operation. Part I begins this process by starting from scratch and carefully examining competitive policies in the wild. These policies are messy and complex; it is no easy task to ascertain, even provisionally, what really matters in a given context. Nevertheless, the case studies that follow engage with specific competitive policies and draw hypotheses from them. These hypotheses relate to specific ways in which competitive policies appear to be operating on the ground. They are preliminary,

uncertain, and contingent but they may also be useful as we begin to build a theory of competition from the ground up.

The hypotheses put forward at the end of each of the next two chapters play an important role in formulating a new theoretical model for competitive policies in Chapter 6. As such, they represent an unusual combination of qualitative and quantitative methods wherein the detailed findings of qualitative research are taken into the abstract realm of mathematical modeling. This is not, however, a one-way street. It is my intention to test the models built in this way and then relate them, dialectically, back to the original case studies and to other case studies already underway in Vancouver, B.C. and Seattle, WA. Placed as they are at the end of a rich description of competitive policies in action, the hypotheses may appear arid and obvious, but the reader is asked to be patient and keep them in mind as they are brought forward into Part II.

Part I reports on the results of four months of research into the complexities of competitive policies implemented in two Italian port cities: Genoa and Gioia Tauro. These port cities offer a critical case test for the argument that competitive policies can affect a city's position within global economic networks. They also offer important insights into the role that institutions organized at a range of spatial scales can have on the outcomes of competitive policies. Genoa offers a case where a long history of port development has inextricably entwined the fates of the city and the port creating a complex set of institutions that participate in the policy decisions affecting the port. Gioia Tauro represents a port created seemingly out of nothing

where there is little role for institutions and “the market” appears to drive policy.

Despite their apparent differences both case studies offer insights into how competitive policies are shaped by their geographic, historic, social, and cultural contexts. They also offer a rich set of hypotheses about what might matter in determining the distribution of local resources in the context of competitive policies. These hypotheses will then be carried over into Part II which reports on efforts to formally model the implementation of competitive policies.

Why container ports, why Genoa and Gioia Tauro?

Competitive policies are frequently called upon in cities that sustain even a minor container port operation. Unlike many areas of policy where competition has rather uncertain justifications and consequences, the consolidation of the container network is an observable phenomenon. Measuring competitive success across ports is relatively easy with each port reporting yearly throughput totals (number of containers handled). Throughput is not a perfect proxy for competitive success, but it provides a widely accepted benchmark from which to begin our consideration of competitive policy effects. Another important reason for studying competitive policies at ports is that there are prominent examples of significant port cities being dropped from the network for failing to provide competitive levels of service; this demonstrates the justifiable urgency with which some ports are participating in this competition (Fowler 2006). While the pressure to be competitive is strong across a range of policy debates, there is clear empirical evidence in the case of container

ports that 'being competitive' can change a port's position within the network, even if the effect is only temporary.

The reason for the container port network's consolidation lies in the continuing technological advances of the transport mode. The efficiency of containerization has reduced the cost of shipping goods both on land and at sea—changing the economic reality of how cities are connected within trade networks (Fleming 1989; 1997; Fleming and Baird 1999; Hayuth 1981; Hayuth and Fleming 1994). Prior to the recent drops in transportation cost, it was reasonable to imagine ports as controlling defined hinterlands with limited overlap; each port had a defined territory within which it was the uncontested node for connection with global trade networks (Taaffe, Morrill et al. 1963). More recently, however, dropping inland costs have muddied the once clear hinterland boundaries such that shippers located in Milan might reasonably be expected to utilize the ports of Rotterdam, Le Havre, Genoa, and Gioia Tauro. Depending on the service and the overseas source or destination, these ports may all vie for Milanese business. The extreme amount of choice in ocean ports gives the ocean carriers tremendous flexibility to choose the ports of call that best suit their needs.

Ocean carriers' flexibility in choosing ports of call has opened the door for these companies to benefit from economies of scale by doing more business at fewer ports. Bigger ships can greatly reduce the cost per container. For example, after factoring in capital, labor, and fuel costs, a ship capable of carrying 1000 containers would face a cost of \$328 per container for a typical trans-Pacific trade route while a

ship eight times as large would face a cost of only \$174 per container on the same route (Fowler 2006). Ocean carriers have pursued these economies of scale aggressively and the economics of filling these massive new ships is currently an important driver in the distribution of container traffic across ports.

With port cities now able to vie for traffic outside of their traditional hinterlands and ocean carriers seeking to consolidate their services into fewer port calls with larger ships, the network of container ports can truly be understood as a competitive global network. This claim can be observed in the decreasing number of ports participating in the container network and also in the rapidity with which ocean carriers move services from one port to another to chase the best deals and services (Fowler 2006). Ports are constantly working to make themselves more desirable to the selective ocean carriers. Improvements in infrastructure, discounts in port fees, and numerous other approaches are constantly in play to retain existing ship calls and to attract new ones. For their part, the ocean carriers play to this behavior by working hard to maintain flexibility in their routes and services so that they can come and go from ports whenever it is most advantageous. The result is a competitive environment for container ports that is becoming increasingly costly. In many ports the inexpensive methods of improving productivity and lowering costs have already been made. As subsequent rounds of competitive behavior arise, ports are more and more turning to their surrounding regions to request financial assistance. In many places the regions have responded favorably, leading to a bevy of competitive policies directed at container ports and the source material for the following chapters.

Examining competition at the ports of Genoa and Gioia Tauro represents something of a critical case approach to the study of competitive policies: competition is clearly evident in the container freight network and there is little doubt that the economy of Genoa (if not Gioia Tauro) will be affected by its success/or failure in this competition with its Mediterranean rivals. Where the appropriateness of competitive policies might be called into question in any number of urban policy contexts, this particular case demands competition; the question then becomes how well do competitive policies such as the move to privatize the port of Genoa meet the needs of the port as it tries to compete.

As a specific case comparison, Genoa and Gioia Tauro offer an excellent opportunity for analysis. Both ports are ranked in the top fifty container ports world wide, though neither is in the top twenty. This ranking puts them in the heart of the competitive battle within the network: neither port is so large or critical geographically that it is indispensable to the ocean carriers, but both are large enough to merit service by some of the largest ships whose demands on port infrastructure have driven the recent rounds of competitive investment. A second important link between the ports is their shared national context within Italy, and also within the European Union.

Although there are important similarities, the differences between Gioia Tauro and Genoa are what make these two case studies particularly compelling. Genoa is rooted in millennia of port tradition. A port since Roman times, Genoa once vied with Venice for naval superiority in the Mediterranean, but long ago surpassed its rival to

become the most important port in Italy. Although Genoa is no longer the shipping power it once was, centuries of engagement with maritime activities have left their mark on the city as Genoa continues to play host to a large portion of the maritime related services for Italy and also for the Mediterranean as a whole.

In contrast, Gioia Tauro was created seemingly out of nothing in 1995. Gioia Tauro was the idea of a prominent Genovese maritime interest; from the start it was built with competitiveness and market-oriented design in mind. Located on the coast of the impoverished region of Calabria, Gioia Tauro came into being in a region where maritime activity had been limited since the collapse of the Greek city-state of Thrace three thousand years prior. Gioia Tauro has none of the advantages of an embedded local maritime industry, but it also has none of the restraints posed by Genoa's fully developed waterfront and longstanding maritime labor organizations. Gioia Tauro exists in a seeming regulatory vacuum with regional and national governments unwilling to restrict any kind of capital investment that might bring a wisp of prosperity to the troubled Mezzogiorno.

Genoa and Gioia Tauro present an opportunity to look closely at the role institutions play in negotiating these policies and distributing their costs and benefits in examining the implementation of competitive policies. Given their status as container ports, we are also able to trace the impacts that competitive policies have on a city's status within broader global networks even as we focus on the more local effects that these policies often have. Although Italian port cities may seem an

unlikely starting point from which to build a critique of competitive policies, there are compelling reasons for choosing these two case studies.

Part I continues with a discussion of the methodology employed to examine competitive policies in Genoa and Gioia. Then, Chapter 3 reports on the results of the research conducted in Gioia Tauro. Although brief, this case study offers strong evidence that the grounding of competitive policies in neoclassical theory is inappropriate. Even in this most capitalist, market-driven setting, the precepts of competitive market operations do not appear to operate with much regularity. Chapter 4 presents a much more detailed case study based on work conducted in Genoa. The Genoa waterfront underwent privatization in the mid 1990s under the auspices of a series of competitive policies. The archival and interview research there suggests, however, that the idea of “being competitive” was mobilized by a wide range of groups during this time period and that privatization was far more than a neoliberal blow to a government and labor-led enterprise. The competitive policies associated with this action powerfully illustrate the negotiated nature of policy formulation and the extent to which stated and actual effects can diverge widely.

Methods I

The research in Part I is based on a qualitative assessment of conditions relevant to the implementation of competitive policies in the port cities of Genoa and Gioia Tauro. This assessment is based on extensive interviews and archival research conducted over a four month period. The intent of this research was to unpack the complex set of relationships that underlie the development of policy and to try and

link those relationships to the distribution of costs and benefits arising out of policy implementation. This research represents a break from most qualitative research because it seeks to identify hypotheses for abstract testing in the modeling environment in Part II rather than seeking to generalize results from the case studies.

The research that follows is based on four months of data collection. It reports on the results of twenty interviews, nineteen conducted in Genoa and just one in Gioia Tauro. These interviews spanned a wide range of subject positions although most had some direct relationship to the local port. Included were port employees, union representatives, politicians, journalists, economists, a teacher, and a number of individuals selected nearly at random² based on their willingness to speak briefly with a researcher while they ate their lunch in the water-side piazza on Genoa's reclaimed waterfront. All but one of the interviews was conducted in Italian and the quotes in this dissertation represent translations by the author.

Interviews typically lasted about an hour with the shortest cut short (by the imminent arrival of a mafia representative) at only fifteen minutes and the longest extending over four hours. The questions posed to each interviewee were different based on their particular area of expertise or involvement with the formulation of competitive policies at the ports. So, for example, a teacher whose contact with the

² In order to find interview subjects with no particular connection to the port, I approached numerous individuals in the public square next to Genoa's waterfront. This public square attracts a broad cross-section of the population, but the sample cannot be said to be truly random because certain types of individuals, most notably women, always refused my request for an interview. To interview women with no particular connection to the port, I had to make contacts through my network of Genovese friends, again a less than perfect substitute for random selection.

port was incidental was mostly questioned about the perception of the port by city residents. An employee of the port received mostly questions about the implementation of policies and the specifics of how these policies came into existence. For consistency, however, I asked each interviewee to comment on the competitive environment in their city, always leaving them the opportunity to dismiss its importance. Once it was established that they believed competitiveness was important, I would ask them what the port and the city had to do in order to be competitive. The third line of questioning that was consistent across interviewees had to do with the relationship between the city and the port and how it had changed over time.

The research below also incorporates archival work consisting of over five-thousand pages of primary documents related to competitive policies at the two ports. The materials, again largely in Italian, included books, articles, newspaper clippings, magazines, planning documents, an oral history recorded on compact disc, presentations, statistical analyses, photos, and maps. These materials tell the story of Gioia Tauro and Genoa's relationships with their environs with a particular emphasis on the discourse that surrounded the privatization of the port of Genoa in the mid 1990s and on plans for improving port infrastructure at both locations. Many of these documents were identified for one of three reasons:

- they represented a snapshot of public or official opinion during or after the negotiations over implementation of a competitive policy,
- they represented an official attempt at marketing the competitiveness of a the port or city, or

- they represented the official documentation of policy implementation such as planning documents, statutes, or official statistics.

There are many reasons for doing qualitative research. While there is now significant agreement that qualitative research is an appropriate method of analysis, there is substantial disagreement on what its goals should be and consequently what steps must be taken to ensure “good” research practice. On the one hand, there are unapologetically positivist approaches that attempt to mimic the conditions of a controlled scientific experiment as closely as possible (King, Keohane et al. 1994). In King et al.’s view, interview subjects need to be selected entirely at random and the questions posed to them need to be neutral and uniform. Interview transcripts are then coded and the results quantified in terms of recurring themes and responses. The larger goal is to use these interviews to add to the existing body of theoretical knowledge by developing generalizeable results. Within geography, qualitative research typically focuses much more on exploring the uniqueness and specificity of place (Peck 2003). Case studies are chosen for the interesting conditions that they suggest and themes are drawn from these cases to support theoretical arguments. There is some disagreement as to whether this approach leads to “fuzzy” concepts (Markusen 2003) whose lack of clear definition is a necessary outcome of the unwillingness to generalize from observed results. Nevertheless, it is probably fair to characterize the goal of the best qualitative research in geography as aiming for an expression of complexity rather than uniformity.

The qualitative research conducted for this project is squarely aimed at illustrating the complexity associated with the formulation and implementation of competitive policies. This focus lends weight to the theoretical arguments raised in Chapter 2 that critiqued assumptions of uniform preferences and economic rationality as the underlying drivers of competitive policy outcomes. Of particular relevance is the capacity for the research presented below to illustrate the important role competition and competitive policies play as discursive tools for advancing a wide range of policy goals.

However, critiquing the existing theory is only part of the research program being reported in this dissertation; the second half of this project begins to build a new theoretical model based on an ontology that recognizes the complexity and heterogeneity of actors and actions related to competitive policies. To support this goal, the qualitative research is also explicitly geared towards identifying the relationships that may be important in modeling policy outcomes. These include:

- the range of actors involved in the formulation and implementation of policies,
- the range of institutions involved in the same,
- relationships among different actors,
- relationships between actors and institutions at different scales,
- the relationships between beliefs about competition and policy support, and
- the role of path dependency in shaping the range of policy solutions under consideration.

These relationships are represented as hypotheses and put forward at the ends of each of the following chapters. These hypotheses need to be understood as distinct from the kinds of propositions that are typically presented in a paper related to modeling.

They are not intended to represent definitive statements, but rather claims about how the world appeared to work in one place at one time. The intent is not to say what is happening in every city, only to give direction as to what might be expected to happen given assumptions of complexity rather than uniformity. Although testing these hypotheses exceeds the scope of the research presented here, these tests and the theoretical developments that will ensue represent an important line of future research that explicitly blends qualitative and quantitative research together.

Chapter 3: The Flat Earth of Gioia Tauro

Gioia Tauro presents itself as the exemplar of competitive policies in action. The port sells itself as driven by rational, market-led decisions without institutional context resulting in competitive advantage and thus rapid economic expansion. To some degree this representation is true; by the most typical measures, Gioia Tauro has succeeded through policies that affect the bottom line of the companies that do business there, thus allowing the port to gain business from other ports in the region. Nevertheless, the market-driven milieu idealized in the port's promotional materials overlooks the particular institutions and culture that govern Calabria where the port is located. Although it is difficult to develop a concrete analysis, Gioia Tauro cannot be understood without reference to the mafia that is deeply involved with every facet of life and commerce that takes place in the region. Once the developments at Gioia Tauro are put into this institutional context, the port appears as a fascinating case of competitive policies in action. Competitive policies do come into being here in much the way that economists predict they would, but this implementation is not neutral. Competitive policies at the port also provide a screen that hides mafia activity and turns a steady profit for the local don. Gioia Tauro provides a difficult case study for illustrating the role of institutions in formulating policy because the dominant institution is illegal and secretive. What can be understood about the interplay between policy and institution provides a cautionary tale about assuming purely economic motives behind the formulation of competitive policies even when no local interaction is publicly visible.

On the surface, Gioia Tauro represents a very compelling case for the benefits of free-market economics. With great competitive success attributed to low labor, capital, and regulatory costs and geographic advantage, the port is everything that Thomas Friedman could want it to be. A typical economic analysis focused on the costs of doing business at the port strongly suggests that the port's success is built on a strong foundation of competitive economic conditions which adequately explain the rapid growth and competitive success of the port. Competitive policies have been an important part of this success, with the early implementation of the Container Security Initiative (CSI) requirements and efforts to implement a free trade zone in 2004 both designed to set the port apart from its competitors and improve the bottom line for companies doing business through the port.

However, the economic narrative of Gioia Tauro's success overlooks a critical fact: Gioia Tauro is controlled by (or at the very least operated in collaboration with) the Calabrian mafia. The market practices that have given the port its competitive advantage also serve the interests of this criminal element. In re-examining the basic conditions under which the port operates, we can see how the narratives of competitiveness and the apparently free-market practices protect the mafia from police scrutiny and draw attention away from the exploitation perpetrated on the local community.

The coexistence of these two Gioia Tauros provides a powerful example of why purely economic analyses of competitive policies are insufficient. The economic view of the port is partial and must be augmented with an analysis of institutions and

individuals to gain a broader view of the port's relationship with the region. If the port is analyzed entirely on the basis of production function attributes, it appears to be divorced from the local milieu. In my own experience attempting to study the port, however, this local milieu is absolutely essential to understanding how the port functions.

Gioia Tauro presents a very particular challenge for the analysis of competitive policies because the individuals and institutions that influence the implementation of these policies and affect the distribution of costs and benefits are hidden. Archival research on Gioia Tauro turned up little evidence of institutional or political actors engaged in negotiating competitive policies there. The experience of Gioia Tauro, however, suggests that these institutions and actors are not absent, just operating outside the law. This chapter is largely suggestive rather than conclusive because of the difficulty of gathering information about an organization like the mafia. Nevertheless, the chapter provides enough evidence to call into question the view of Gioia Tauro as a purely competitive space and points to the importance of detailed local information in representing the motives behind competitive policies and the distribution of costs and benefits that are their outcomes.

This chapter proceeds in four sections. In the first section, I analyze Gioia Tauro in purely economic terms. I look at the port's advantages vis-a-vis production function costs (such as labor and capital costs). I also discuss the efforts to implement two competitive policies in and around the port and their effects on the port's competitiveness. Finally, I use the metric of container throughput to put Gioia

Tauro's competitive success in the context of the global container freight network. In the second section, I revisit the port's actions in light of the institutional influence of the local mafia. I demonstrate that Gioia Tauro's narrative of competitive behavior also supports the goals of the local mafia and perpetuates inequality and exploitation in the port's immediate environs. Consequent to these findings, I re-evaluate the presumed benefits of implementing competitive policies at the port given the institutional constraints posed by the mafia. In the third section, I place the research conducted in Gioia Tauro in the context of theoretical and methodological goals of this dissertation.

Gioia Tauro offers clear evidence of the importance of going beyond homogenous economic rationality in the analysis of competitive policies. In particular, the case studies support my assertion that there is a key role being played by institutions in shaping the distribution of costs and benefits of competitive policies. Although the criminal nature of the individuals and institutions most closely associated with the management of the port made detailed research untenable, what could be ascertained will prove valuable in the latter part of this dissertation. The final section is an epilogue to this case study reflecting on the very recent changes in labor relationships and competitive advantage that are altering the port's position in the container trade; this epilogue considers the ephemeral nature of competitive advantages such as those possessed by Gioia Tauro and the hazards of using a narrative of global competitiveness to drive policy and behavior.

Gioia Tauro's competition on a "flat earth"

The characterization of Gioia Tauro as exemplar of the economists' market-driven operation is set within a very particular origin myth. This myth represents Gioia Tauro as a purely economic space with no connection to its setting on the Calabrian coastline. The port is represented as a place where global businesses conduct transactions in the certainty of free-market conditions. Figure 1 is an advertisement taken from port promotional material (Autorita Portuale di Gioia Tauro 2002). Several things stand out in this graphic. First, it emphasizes the barren flatness of the area prior to the port and the rich complexity of the port less than ten years later. This sense is heightened because the image on the left is printed in black and white while the one on the right is presented in brilliant color. The barrenness of the image on the left emphasizes that the port area is a blank slate with no local connections; it is even taken from the northwest so that the small settlements of Gioia Tauro and Rosarno are obscured from view, leaving virtually no signs of settlement in the image. The image on the right proclaims the vibrancy and success of this enterprise where even the nearby fields appear to have thrived along with the port. Secondly, the advertisement itself is printed in English, unlike any of the other advertisements in the document. English is the universal language of shipping, but the use of English in this setting also subtly serves to pull Gioia Tauro out of its local context on the Calabrian coast and into the global economic network where it strives to compete.



Figure 1 Gioia Tauro rises from a flat plain in a promotional advertisement

The choice to represent Gioia Tauro as rising up without any local context is important to its image as being globally competitive. Both within Italy and abroad, the Mezzogiorno (Southern Italy) is known as an underdeveloped and corrupt location. Gioia Tauro's act of separation from this history not only affirms its allegiance to the global economic order, but it also denies any connections to its Mezzogiorno locale. Place marketing has become an important tool in the arsenal of cities looking to compete in the global economy. For Gioia Tauro, this place marketing focuses on the representation of Gioia Tauro as essentially placeless. With placelessness, we are led to believe, comes freedom from local constraints and

freedom from the limitations of fixed capital. This placelessness then plays directly to the idea that Gioia Tauro is, above all, competitive.

A second narrative expressed in the flat-earth representation of Gioia Tauro is a narrative of failed government enterprises finally being replaced by free-market private practices and entrepreneurialism. The piers that serve the port of Gioia Tauro were built in the mid-1970s by the Italian state to support a steel foundry that was to be an important growth pole within the struggling economy of southern Italy. This steel plant saw a great deal of federal investment, but by the time the most basic foundations had been laid, the allocated money had already been (mis)spent. At the same time, the steel industry in Italy went into rapid decline and the existing steel mills in the north did not have enough work to operate. The federal government refused to allocate additional funds and the project came to a halt with only a few piers and some cleared ground to show for the effort.

Several years after the steel plant idea failed, the state returned to Gioia Tauro with a new plan, a coal-fired electrical plant. Again, this effort was entirely a state-led, industry investment aimed at promoting economic growth and providing jobs within the southern Italian economy. Once more, this proposal was for naught. Environmentalists are given credit/blamed for halting the electrical plant investment. Several prominent national groups successfully argued that a coal plant stationed along the pristine Calabrian coast would be anathema to the tourism industry, the only established industry in that region. After much investment and little construction to show for it, this piece of land was again unoccupied and the state moved on.

It was not until 1994 when Angelo Ravano, a businessman from Genoa, convinced the state to sell him the property at “firesale prices” that the Port of Gioia Tauro came into being (Genova#6, 2005). Ravano had already developed a successful container port at La Spezia³ in a move to counter the power of the dockworker unions in Genoa. In many ways, Gioia Tauro was an extension of that same urge to distance the unloading and loading of containers from the established ports and their historical constraints. The market-driven narrative tells us that once private interests replaced the inefficient investments of the state, they released the power of the free-market and things have gone well ever since.

A third point that needs to be understood in thinking about the narrative constructed around Gioia Tauro’s history and its relationship to global economic networks is the importance attributed to geographic advantage. A big part of Gioia Tauro’s strength is that it lies at the tip of the Italian peninsula which juts into the Mediterranean. Gioia Tauro is located roughly twenty-five miles north of the major east-west trading routes traversing the Mediterranean. In the current business model, ocean carriers often use their largest ships in round-the-world services that travel through the Panama and Suez canals in an endless east-to-west or west-to-east loop. This continuous loop is designed to take advantage of the economies of scale discussed previously. As such, the number of stops made by each ship is minimized and the number of full containers moving between ports is maximized. To

³ La Spezia is located in northern Italy just East of Genoa.

accommodate this strategy, much of the cargo is collected and distributed using smaller feeder ships that operate out of transshipment hubs like Gioia Tauro. The fact that Gioia Tauro is so closely located alongside the route that the ships will be taking anyway has given Gioia Tauro a powerful geographic advantage vis-a-vis more distant ports. The largest ships have operating costs in excess of \$2,500 an hour, a powerful incentive to minimize distances where possible. Gioia Tauro's geographic advantage is shared by several other ports: Malta, Algeciras, and more recently Port Said are three prominent examples. These ports have also been highly successful in recent years.

Geographic advantage is important to the story about Gioia Tauro's development because it provides a natural explanation for the question "why here?" Part of the flat-earth narrative is that globalization is equalizing labor, technology, and information across the globe. In this narrative, there is no room for historical conditions, political maneuvering, or simple chance that might predispose one site as a location over others. The question becomes why would a port form in one location rather than another if all places are equal? A geographic advantage, which Gioia Tauro has, provides a powerful, ahistorical, acultural explanation for why it is so successful.

A fourth element in the economic narrative of Gioia Tauro relates to the port's context within the underdeveloped South. One of the powerful themes that neoclassical economists build on is the role that wages play in the production function of industry and the crucial role that low wage areas are playing in the global economy

now that capital is understood to be mobile. Calabria has had a very high unemployment rate. For example, in 2003, the rate was 23.4%, and among the very highest in the European Union (Bautier 2004); its wages are the lowest in Italy (Eurostat 2006). Calabria also has a relatively limited history of labor organization, particularly compared to the rest of Italy or to competitor ports like Barcelona or Marseille. Taken together, Gioia Tauro's labor market represents a relatively unique situation: a location within a stable G8 country that coexists in a region with high unemployment, low labor organization and very low wages. The story of Gioia Tauro's success is ultimately framed in economic terms and so it is no surprise that the advantages of Gioia Tauro as a low wage area are a major part of the explanation for the port's existence.

The importance of the port as a (potential) local growth pole is the final key piece of the economic narrative used to represent the port. Access to high-quality, low-cost transportation is an important characteristic for companies operating a global commodity chain. As a result, the port is represented as a significant attractor for capital investment in the region. In apparent contradiction to the larger narrative that places the port outside any local context, the potential for the port to attract new investment to Calabria is an important selling point for the port. Given the high unemployment in the region, it is not surprising that the possibility to attract jobs linked to the global economy is the foremost benefit cited in port promotional materials (Autorita Portuale di Gioia Tauro 2002; 2004; 2005a; 2005b). While the Port of Gioia Tauro primarily sells itself based on the logic of free-market

competition, competitive policies often diverge entirely from free-market principles as the previous chapter demonstrated. Consequently, attracting government investment for its competitive policies (a move that runs counter to the economic conception of competitiveness) may be assisted by presenting a normative argument for government support.

The stark divide in prosperity between northern and southern Italy is a critical component of Italian politics. Parties such as the *Lega Nord* (Northern League) have gained enough support to be major players in the governing coalitions of the center right (which held power for most of the past decade) on a platform centered around secession of north from south. The mainstream political approach, however, has been an aggressive investment campaign geared at improving the economic infrastructure of the south to bring it more in line with national norms. This investment campaign faces frequent setbacks as the nightly news reports repeated instances of misspent funds, corruption, and little progress towards equalization. In this context, Gioia Tauro stands out as a potential site for government investment due to its location in the poorest region of the country and its discursive separation from the local corruption that plagues so many other projects. Indeed this is exactly what has occurred in recent months as the port secured 50 million euros in the 2007 federal budget for infrastructure (Lloyd's List 2007a). This investment comes at a time when funding for port infrastructure in Italy is severely limited. Nevertheless the opportunity to direct resources towards job growth in southern Italy at a site with a proven track record for growth and competitiveness earned substantial largesse from

the federal treasury. In short, a normative project of local economic development is a part of the dominant narrative presenting Gioia Tauro, but this thread exists in contradiction to much of the port's image as objective, free-market institution.

The narratives described above come together in a way that frames the existence of the port of Gioia Tauro in purely economic terms. In so doing, the port is divorced from its local milieu except for the quantification of labor statistics which are alternately used to sell the port as a good place to do business, and as a place in need of economic development funds. The economic framing has material effects on how policies are implemented at the port. Limiting the view of the port to the purely economic justifies competitive policies that also focus on this narrow economic representation.

The narratives presented above refer to the ways in which competition is generally presented in the discourse surrounding Gioia Tauro. A more specific view of the role of competitive policies can be expressed in a consideration of the current debate over implementation of a free trade zone at the port. In 2002, a member of the Italian Parliament circulated a bill that would have instituted a free trade zone in and around Gioia Tauro. As of October 2006, this bill and its variants were still being debated in Parliament (*il Domani della Calabria* 2006). The free trade zone is a classic competitive policy. It would reduce the taxes collected by the federal government in the port region and also reduces the amount of customs paperwork for businesses operating in this region. The policy principally would act as a direct subsidy in terms of taxes not collected, but would also affect regulatory costs as

businesses would spend less time and effort filling out paperwork. Gioia Tauro would be the third free trade zone in Italy; Trieste and Venice are the other two. A number of Gioia Tauro's competitor ports are already classified as free trade zones including Malta, Barcelona, Hamburg, and Bremen.

The free trade zone policy might someday be an excellent test case for quantifying the costs and benefits of competitive policies at ports. As it has not yet passed in Parliament, it is obviously premature to speculate on this distribution. Nevertheless, the policy bears further examination principally for the ways in which it can be interpreted in both purely economic terms, and in terms of the local institutional context in which it is proposed. Like many competitive policies, the institutional context in which they are implemented is often as important as the stated economic goals.

A second competitive policy relates to Gioia Tauro's early adoption and certification for heightened security standards in response to the U.S. Container Security Initiative (CSI). In the post 9/11, world security discourses are ever-present in ports and exist in curiously woven narratives in tandem with ideas of competitiveness. The U.S. is the largest recipient of containerized cargo and U.S. trade regulations drive security arrangements within many container ports world wide. Particularly with the announcement of the CSI in 2002, security has moved to the forefront of much trade promotional material. U.S. customs agents are now stationed in a number of container ports throughout the world to scan and manage cargo before it leaves the dock for U.S. destinations. The U.S. has a very real fear

that, among other threats, a bomb could be shipped in a container and detonated in the port causing tremendous destruction. CSI includes a number of standards for certification related to employment screening, port perimeter security, and particularly the pre-screening of potentially threatening cargo (U.S. Customs and Border Protection 2006). Gioia Tauro was one of the first ports in Italy to implement all of the requirements of CSI. Gioia Tauro received certification after Genoa and La Spezia but was ahead of most of the rest of its Mediterranean competitors.

Gioia Tauro's implementation of the CSI standards is marketed as just another competitive advantage offered by the port. While the standards do not directly affect the costs of companies doing business through the port, they have long term benefits in terms of improving the throughput times of U.S. bound cargo once it reaches the United States. The process of "certification" sets the port apart from other ports where insufficient political will, economic demand, extensive costs, or even operational criteria have prevented compliance. The port's advantageous location apart from any major population center was a key element in the port's early success in this area. Additionally, the port's self-image as a haven where commerce operates free of institutional constraints has made it possible for the port to implement the necessary protective measures in a rapid response to market demand for the CSI participation.

Knowing the context within which the Port of Gioia Tauro operates is a key starting point for analyzing the competitive success of the port. The narrative described above is represented as a partial history because other research conducted as part of this case study suggests this partiality. Nevertheless, this same narrative is

presented unproblematically in any number of port documents, academic articles, conference materials, and in the lone interview conducted at the port (Autorita Portuale di Gioia Tauro 2002; 2004; 2005a; 2005b; Baldoni 2005; GioiaTauro#1, 2005; Isofort 1998; Program 2005; Ridolfi 1996b; 1999). This narrative, however partial, sets the context in which Gioia Tauro has been analyzed to date and the context for the analysis that follows here.

Analysis of Gioia Tauro's competitive position

This section provides a limited quantitative analysis of Gioia Tauro's position vis-a-vis other competitor ports on the principal axes of economic competition: labor costs, land rents, capital costs, regulatory costs, and productivity. This analysis lays the groundwork for examining the results of the port's competitive behavior in the next section.

Given its importance in the economistic narrative of Gioia Tauro's origin myth, labor costs are an excellent point with which to begin an analysis of the port's competitive position. Disappointingly, research on labor in Gioia Tauro turned up surprisingly little and contacts with other researchers working there revealed that they had encountered a similar lacuna (Slack 2007). The port did not have any publicly available statistics on the number of employees, their wages, or their levels of union membership. Even general statistics related to labor in Calabria are of little use as there is a radical and inexplicable shift in the data for Calabria between 2004 and 2005 that defies reason as the data shows Calabria's unemployment rate dropping by approximately 2/3 despite a decline in transportation jobs (Eurostat 2006).

The second variable worth examining is labor organization. Labor organization on the docks in Gioia Tauro is handled by the national labor unions affiliated with the major political parties. These party-based unions bear little resemblance to the dockworker unions in the United States, or even the traditional docker *companionie* in Genoa. First, the unions operate at a national scale of negotiation within the same industrial classification, but do not negotiate for the entire labor force at any one location. It is the norm to have multiple unions operating at a single facility. Workers who belong to a particular party will belong to the same union and will work side by side with workers of a different party and thus a different union. Union membership, then, has nothing to do with a closed shop or with a workplace-wide contract and much more to do with political organization. This is a practice that is fairly common within Europe, but is very different from the role of union membership in the U.S. The labor unions negotiate contracts for the employees they represent on the docks at Gioia Tauro just as they do in Genoa, but the contracts are not exclusive; there is none of the control over work that the old *companionie* had in Genoa, or the longshore unions have in the United States. The unions negotiate wages and benefits but they are not negotiating from the position of power granted by a closed shop. If the terminal operators refuse to grant them some of the concessions, there is very little that they can do outside of organizing a national level strike, or much less frequently, a coordinated strike joined by multiple political parties. The primary scale of operation for these unions is related to influencing national labor policy rather than meeting the needs of individual workers or work sites. As a result,

the threshold for collective action is much higher and the latitude of individual employers to set their own terms is increased.

The main difference between Gioia Tauro and its competitors within Italy and in the port network more broadly is that Gioia Tauro does not have a history of labor organization on its docks. The *companie* that controlled the docks in Genoa up until the mid 1990s first came into existence in the middle of the thirteenth century.

Although privatization ended the power of the *companie* to control the workforce on the docks in Genoa in the mid-1990s, most other competitor ports continue to operate in association with powerful labor unions. Dockworkers in Barcelona have been active in promoting solidarity among docker unions internationally, while the union at Marseille has received a great deal of publicity in recent years as it fights to retain control there. Undoubtedly, the absence of a dock-wide contract in Gioia Tauro has reduced the cost of labor at that port. The extent of the difference is not known, nor is it readily available, but on a range of factors (workforce availability, cost of living, standards in comparable industries), Gioia Tauro would appear to have an advantage in terms of offering a low cost workforce. Conversely, the lack of a longshoreing tradition may negatively affect productivity on the docks at Gioia Tauro, but the standardization of labor practices affected by the move towards containerization will likely have mitigated much of this difference.

The cost of land is likely the strongest point of differentiation between Gioia Tauro and its Mediterranean and Northern European competitors. The absence of any significant urban presence near the port means that land is both plentiful and

inexpensive. Whereas expansion in other prominent ports runs into the competing waterfront demands of high-rent activities such as housing and entertainment, Gioia Tauro is able to purchase farm land in an area where the major crop has become unprofitable due to competition (Lawrence 2006). Almost every other major container facility in the world is located within the boundaries of a major urban center. Gioia Tauro's position in a lightly developed agricultural area represents a tremendous competitive advantage. The president of Gioia Tauro was quite clear about the differences in capital costs between Gioia Tauro and Genoa:

We don't have the same problems that Genoa has. We are not located in a city. No, no points of friction...no we are different from Genoa. The port and Genoa were born together. Here no. The port is the port, we don't have a city (GioiaTauro#1, 2005).

In addition to the low cost of the land itself, capital costs associated with construction are also significantly lower in Gioia Tauro than elsewhere. New construction in Gioia Tauro involves a bulldozer to clear the orchards and minimal, uncomplicated investment in supporting transport and utility infrastructure. In contrast, Genovese have an ongoing joke about the talent of the Genoa Port Authority for locating Roman ruins. Almost every infrastructure project begun by the port in the last twenty years has had to contend with the complications posed by priceless Roman ruins discovered in the opening phases of construction. This alone is enough to greatly increase the cost of construction as extensive planning and monitoring requirements are required for even the most mundane efforts.

The fourth element of the production function that is usefully considered in an analysis of Gioia Tauro's competitive position is regulatory costs. These include taxes, planning costs, and other transactional fees brought on by government oversight at all levels. For the most part, the structure of port operations in Italy means that these costs are equalized across ports. Tariffs and taxes are typically collected by each port, turned in to the federal government and then redistributed among the ports and other national accounts based on political negotiations. This nationalization of the main regulatory costs means that there is little opportunity for competitive advantage within the Italian port system.

The free trade zone pursued by Gioia Tauro beginning in 2002 seeks to give Gioia Tauro a competitive advantage in regulatory costs over other Italian ports and the EU as a whole. Italy is reputed to have relatively high regulatory costs within the EU.⁴ With the implementation of the free-trade zone in and around Gioia Tauro, this major remaining portion of the production function would be substantially reduced in cost. Although the port president declared that "Gioia Tauro is in competition with every other port in the world," the main competitors are transshipment ports in the Mediterranean (GioiaTauro#1, 2005). While several of these share many of Gioia Tauro's advantages listed above, Malta is the only one of these ports to boast a free trade zone. With the implementation of a free-trade zone, Gioia Tauro could boast of

⁴ No data is available for specific comparison but several informal conversations and one formal interview with parties doing business throughout Europe confirm this claim (also see Genova#16 2005).

significant advantages in all aspects of the production function representing the costs of doing business at the port.

The final point of analysis for comparing Gioia Tauro to its competitors is productivity. Productivity in terms of containers loaded and unloaded per hour and further measured in terms of the efficient use of labor to move goods around the terminal is another relative strongpoint for the port. To begin, the layout of the port on a flat plain with little pre-existing infrastructure constraining development has meant that the port could be designed to the optimal specifications for container throughput at the time of its design in the mid-1990s. In comparison, Genoa has seen five-hundred year old wharves converted to container use and the entrance and exit points for the port often pass through twisting and narrow streets clogged with traffic. As a result, Gioia Tauro has a real advantage in terms of productivity on site. In terms of the loading and unloading of containers, Gioia Tauro's president claims that the port is among the most efficient in the world (GioiaTauro#1, 2005).

This assessment of Gioia Tauro began with the economic narrative in which the port frames itself as competitive and then continued in this section by analyzing the measures of competitiveness that this economic narrative judges to be important. It is clear from this analysis that Gioia Tauro does indeed have the production function characteristics to make it a prominent competitor within the global container trade. In the following section these competitive characteristics are put to the test as I examine the evidence for Gioia Tauro's competitive success.

Metrics for comparison

Container ports are almost always compared based on throughput statistics. In Gioia Tauro, throughput and the less useful number of vessels calling at the port are the only measures available in any form for judging the success of the port. It is not surprising that the port would seek to emphasize the measure of throughput since it has done extraordinarily well in these terms. The port recorded its first container movements in 1995; by 2004, the port ranked as the largest port in the Mediterranean, the fifth largest in Europe, and the twenty-third in the world, an extraordinarily impressive move given its very recent beginning.

Figure 2 provides the details of Gioia Tauro's competitive success. The figure charts the throughput at a number of major container ports in the Mediterranean from near the advent of containerization in 1975 through 2005. Except for brief downturns in 2001 and again in 2005, Gioia Tauro consistently has had among the fastest rates of growth of any Mediterranean port; in 2005, the port president was willing to claim that Gioia Tauro was on a trajectory to become "the best in the world with all the other ports our competitors" (GioiaTauro#1, 2005).

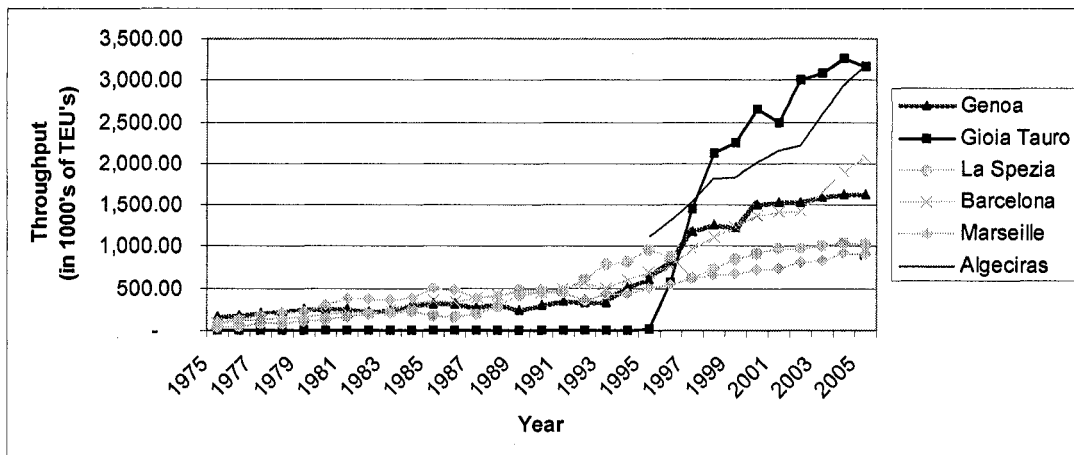


Figure 2 Throughput at major Mediterranean Ports 1975-2005

The President's claim that Gioia Tauro could compete with the best in world is called into question by the dip in traffic in 2005 that left Gioia Tauro at the number two spot in the Mediterranean just behind a rising Algeciras. Furthermore, while the port's rapid growth put it at the forefront of throughput and particularly growth within the Mediterranean, the port's success is less stark when put into the context of the largest European ports located in the north. As shown in Figure 3, Gioia Tauro's growth subsequent to its initial burst puts it in line with three other major European ports: Bremen, Le Havre, and Valencia. The giants of Europe—Hamburg and Rotterdam—both greatly exceed Gioia Tauro in absolute size and in rate of growth. Gioia Tauro's performance on the world stage would be further dwarfed if held up against the phenomenal growth of a number of Chinese ports which have seen staggering rates of increase in the past five years.

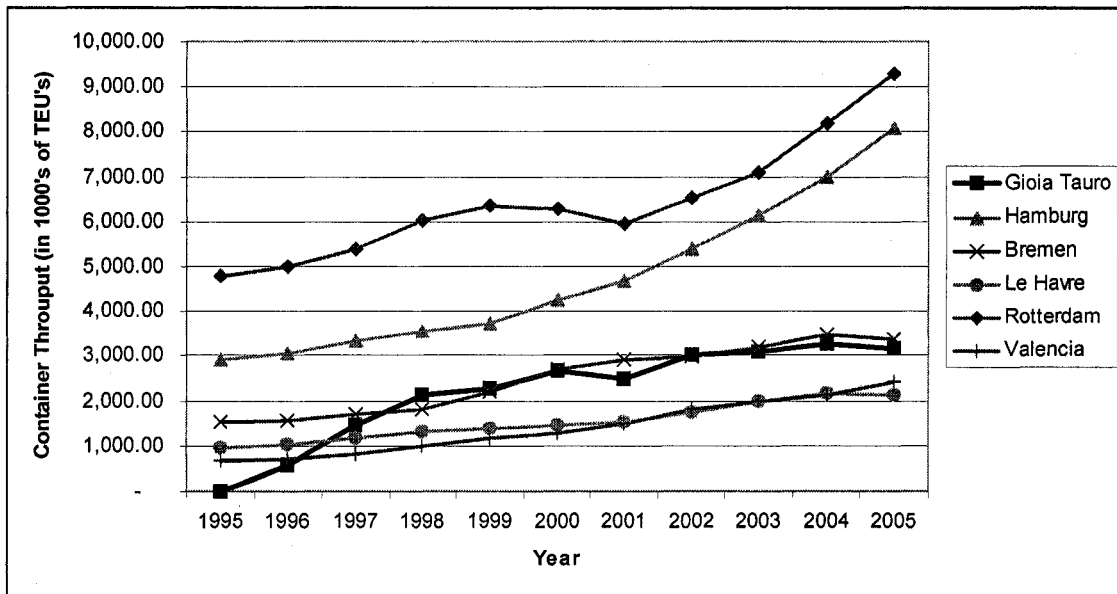


Figure 3 Comparison of throughput at Gioia Tauro and major Northern European ports

In examining this metric, it seems fairly evident that the formula in place in Gioia Tauro is working on many levels if not quite at the levels claimed by the port's supporters. In only a few years, it has established itself as a major player in the European container freight network. While it is not the largest or even the fastest growing port anymore, it is able to compete with established ports benefiting from greater proximity to Europe's population centers and tighter links into Europe's primary terrestrial transportation networks. Gioia Tauro has taken advantage of all its production function advantages and that competitiveness has paid off.

Up to this point, this chapter has stayed entirely within the widely publicized narrative promoted by Gioia Tauro. If we accept the idea that ports are in direct economic competition with one another and that this competition occurs along the well defined axes of a production function (labor costs, land rents, capital costs, regulatory costs, and productivity), then by the most obvious measure Gioia Tauro

has been successful. Competitive policies such as the still nascent free trade zone and the successful certification under CSI directly affect elements of the production function and improve Gioia Tauro's competitive advantage. If the factors that give Gioia Tauro its competitive advantage remain in place, then one would expect the port to continue its success.

One aspect of the economic discourse that has not been explored up to this point is the local effects of Gioia Tauro's success. Despite the growth pole rationale for Gioia Tauro's development, none of the data collected by the port or the Italian government has sought to quantify the impact that the port actually has on its local environs. Economic theory treats growth as a rising tide that raises all ships; it is taken for granted that Gioia Tauro is a powerful force for good in the struggle to reduce the wealth polarization between northern and southern Italy. While these benefits are assumed, the efforts to characterize the benefits of the port are framed entirely in terms of its position within global networks. In the following section, I turn attention very much back on the local relationships, both individual and institutional, that determine the effect of the port on its surroundings. This local focus does not supplant the global focus that is the subject of so much of the port's attention, but it is a key component of what is interesting about the port's competitiveness and a good indicator of what the long term effects of the port's growth are likely to be within Calabria.

Re-examining the economic narrative in Gioia Tauro

Although Gioia Tauro is most commonly represented as rising out of an orange grove to become a major port, this narrative is inconsistent in both representation and practice. Closer examination reveals that Gioia Tauro has a port history that stretches back for millennia. While the port has had little to do with the entrenched interests of labor and city/regional politics that set the operational parameters of virtually all of its competitors, these traditional institutions are replaced in Gioia Tauro by the firm control of the Calabrian mafia. While the mafia is relatively invisible in the throughput statistics by which the port is generally assessed, its presence is inescapable on the ground in and around the port itself. Though difficult to fully document because of the illicit nature of the institution, a convincing argument can be made that the competitive policies touted by the port consistently operate in the best interests of the mafia. This reframing of competitive policies demonstrates the critical role that local institutions play in shaping competitive policies.

A second element that comes to light in examining the local conditions that surround the port is that the benefits of economic growth at the port do not seem to have had any marked effect on the surrounding area. The mafia acts as mediator between the port and the local community and appears to have captured virtually all of the benefits offered by the port's success. Taken together, it appears that we must consider the possibility that local institutions can create quantifiably "competitive"

conditions that will advance a port's status within global networks, but that these conditions do not in any way guarantee commensurate local benefits.

Although the dominant narrative in Gioia Tauro represents the port as being without a history, this narrative is not without contradiction. Italians are justifiably proud of the rich history attached to so many locations within their country. Gioia Tauro likewise fits this; it is located on the site of Metauria, a Greek port founded in the 6th century B.C. The port itself probably hit the apex of its global importance somewhere between 600 and 800 A.D. and was also an important site of trade within the Byzantine Empire. Calabria, where the port is located, was known as "Magna Greca" during the heyday of ancient Greek civilization. The area near the port was once home to the city-state of Sybaris from whose great wealth has come the term "sybaritic," meaning the love of luxury. The city of Kroton, where Pythagoras' geometry was conceived, was also located nearby.

The historical narrative of wealth, power, and learning is rarely mentioned in connection with the port, in marked contrast to the extremely tight connection drawn between Genoa's Roman past and its present day existence. Some of this is likely the result of the gap in continuity between the port's past glories and its present success. The difference may also be related to the lack of visible history in the surrounding area; the ruins of Magna Greca in Calabria have largely been overlooked (except by looters) and are therefore still buried and out of the public eye. Whatever the reason, the general absence of this narrative is important because it allows for a disconnect between the local people and the port itself. In contrast, the Genovese treat the port as

the heart of their city and universally acknowledge the port's importance. They express a sense of ownership of the port commensurate with their sense of ownership of the city itself. With connection comes a sense of involvement, entitlement, and responsibility for the port which seems remarkably absent in Gioia Tauro. Whether the suppression of this narrative is a causal factor in the lack of connection evidenced between the port and its environs, or whether, as seems more likely, it is a result of the port being owned and operated by extralocal investors is not entirely clear. Regardless, the lack of attention paid to Gioia Tauro's historical prominence stands out noticeably in contrast to the history-obsessed Genovese.

The defining experience of my own explorations of the port and its environs had nothing to do with free-market competition and everything to do with the oppressive presence of the Calabrian mafia in every facet of the region's affairs. Everything is connected to the mafia in Calabria. In wandering around the town of Rosarno, the nearest town to the port, the evidence of the mafia is everywhere. In just five days of exposure to the town I observed the following:

- A man gunned down in the street at approximately 11am. The building where this occurred was razed and there was never any indication that the murder or the fire were under investigation.
- Half-finished houses attested to the numerous cases of construction fraud. It is common practice for the mafia to win a construction project, build some of it to appear busy, and then leave the project unfinished, pocketing the excess. Numerous residents of Rosarno live in buildings where the roof or second story was never finished and is instead covered with a simple blue tarp.
- There is no effort made to hide the ever-present influence of the mafia in the streets of Rosarno. I observed a vehicle moving slowly down the main street in broad daylight. At almost every storefront, a man got out of the passenger seat, went into the store briefly, and then returned to the

car. Obviously there are many possible explanations for this behavior, but in the context I observed, it seems likely that this was simply old-fashioned extortion.

- Several of the shops looked as though they had been firebombed recently.
- Shops in Rosarno had a different feel than those elsewhere in Italy. Throughout Italy, stores remain in the same use for centuries and so upon entering a butcher shop, one has the distinct impression that the counters, tools, and so on have been employed there throughout human history. There are items for sale tucked into the corners of these shops that look like they haven't moved for decades. None of this is true in Rosarno. Everything looks temporary in Rosarno: the shopkeepers appear capable of packing things up and moving out on a moment's notice and temporary shelving is the norm with goods piled onto displays in the center of the storefront, leaving the walls bare.
- Finally there were unconfirmed, but frequently repeated, stories that the mafia collects one dollar for every container that moves through the port; strangely the currency is repeatedly cited as a dollar rather than a Euro.

Given these observations, it seems irresponsible to explain Gioia Tauro without looking at the institution of the mafia and the way that it is entwined with the local economy. Everywhere I turned in my research of the port, I came across signs of the mafia's influence on the port and the surrounding region. Local sources estimated that the Calabrian mafia directly employs about 30% of the region's populace. Studying Calabria without considering the mafia is tantamount to drawing conclusions about the Washington State economy without acknowledging anyone employed in the Aerospace, IT, Health Care, State Government, and Retail Trade sectors, which account for approximately 30% of the state's workforce (Washington Department of Employment Security 2006).

The rich history surrounding Gioia Tauro and the powerful presence of the mafia provide an alternative context within which to analyze the port and the

competitive policies it promotes. These policies, which appear to have been so successful when examined with the metrics offered in the previous section, take on a wider range of meanings when we examine their impact on the local distribution of resources. The quantifiable success of the port should not be discounted, but there are other important effects that a simple analysis of throughput and global ranking completely ignores. In the following paragraphs, I highlight some of these effects on the way towards incorporating them in a broader theoretical understanding of how competitive policies work.

Analysis of competition in Gioia Tauro

The prominence of competitive discourse coming out of Gioia Tauro is noticeable even in comparison to other ports where competition is a key focus of policy. The discursive construction of Gioia Tauro as a competitive market-driven space is, however, inconsistent with observable facts in and around the port. These observations suggest that Gioia Tauro is very closely linked with a range of criminal activities. The representation of Gioia Tauro as a market-driven space actively works to draw attention away from this criminal activity while making such activity easier to pursue. Competitive policies such as the proposed free trade zone and CSI certification clearly advance the interests of the local mafia every bit as much as they advance the production function advantages of the port.

The prominence of competitive discourse coming from the port is best represented in the interview with the port president. My transcript of our ten-minute interview includes twelve separate references to the port's competitiveness such as

“We are always ahead of the others in being competitive. We have obstacles, but we overcome them. We always have to be at the maximum level of competitiveness to overcome the others.” (GioiaTauro#1, 2005).

Representing Gioia Tauro as competitively economic is incredibly important to the port’s mission. The president spoke more forcefully and more stereotypically in terms of competitive behavior than any other individual I have interviewed. The quantifiable, competitive advantages of the port were reported repeatedly and the “obstacles” were described in terms of barriers to competitiveness. The obstacle at the top of the president’s list was the unfair advantage granted to other ports by government investment and the Italian government’s inability to provide commensurate funding due to these funds being spread across all one-hundred and forty-six Italian ports. Despite my endless observation of seemingly (or definitively) criminal behavior, this aspect of port operations was never even hinted at in my interview. While I was not willing to ask about the role of the mafia outright, several leading questions along these lines were simply ignored. The port president’s job was to push the port’s competitiveness and its global reach and to gloss over the local context in which these operations existed. Used discursively in this way, competition is a powerful tool drawing attention away from local conditions.

The president’s rhetoric of competitiveness is widely supported in literature referencing Gioia Tauro. The port’s own literature invariably leads with information about its competitiveness, and even most academic work that touches on the port seems to point out the production function advantages outlined in the previous section

(Autorita Portuale di Gioia Tauro 2002; 2004; 2005a; 2005b; Ridolfi 1996a; 1999).

Even in the ports of North America where competitive behavior is driven by neoliberal policy to the forefront of most ports' self-representations, the level of focus exhibited in Gioia Tauro is extreme.

The president's focus on international competitiveness and rational economic behavior was in marked contrast to the actions of individuals I observed in the region. In the president's representation, the port was functioning at the highest level of market efficiency which demands a sort of mechanized, rational highly-regulated behavior from the individuals who make up the port's workforce. From my own limited observations, it appeared that the port was being operated based much more on local relationships and practices.

One particular anecdote that reflects on the locally embedded behavior of individuals at the port is the operation of the gate. Port gates are highly sophisticated points within the logistics chain. Because of the nature of containerized goods, these gates serve as transition points where responsibility for the cargo shifts from trucker to ocean carrier or port. Ports across the world have invested in expensive information technology to more efficiently process trucks coming and going through these gates; in most places, they are almost completely mechanized. In Gioia Tauro, the gate is nominally operated by the Guardia di Finanza, the federal Finance Police. In my own time at the gate negotiating permission to enter for my interview at the port headquarters, I was able to observe a real difference in the ways that vehicles were passed through. Identical looking vehicles but with different drivers were either

stopped and interrogated at length or waved through without even slowing down.

There was no visible inspection or oversight of the cargo for the ones waved through.

There was no paper trail monitoring these individuals. It also appeared that the decision to wave through or stop and investigate were not even being made by the members of the police unit. These officers sat on a chair while a man in civilian clothes directed traffic and spoke to the drivers or passed them through without reference to the police. In contrast to the IT-intensive, multi-million dollar infrastructures I have observed at other ports, the gate at Gioia Tauro seemed to operate based on the personal connections of a single individual. The detailed electronic tracking of containers which is crucial to the assumption of cargo integrity used to justify limited customs involvement is openly ignored in the comings and goings of trucks through this gate. Here at the baseline of competitive operations for the whole port were individuals acting based on personal connections without regard to the rules of the system which assure the integrity of the larger network. The gate operates as a control on the goods entering and exiting the port network; the integrity of this check is critical to the speed and freedom with which goods are allowed to move once they are "checked in." The security breakdown at the port of Gioia Tauro suggests that the integrity of this network and its sleek market-driven credentials is severely in doubt.

Individual action appears to act counter to the rational tenets of economic theory, but it is also useful to think about the extent to which this behavior is set within the organizational context provided by the mafia. The mafia's involvement

calls into question the placeless representation of the port by linking it closely to the dominant political, economic, and cultural developments of the Calabrian region over the past several hundred years.

Obviously it is difficult to detail the relationships that exist between the mafia as an institution and the port as they are necessarily secret. It has been reported, however, that the capitalists of Medcenter-Contship Italia who initially invested in the port met formally with the local mafia leadership and were informed that “We [the mafia] own the past, the present, and the future of the port” (Mondodisotto 2004). In addition to my own observations, there is a growing record that documents the extent to which the mafia have proven the truth of this statement. A survey of recent articles covering criminal activity at the port finds references to the seizure of “thousands of kilos of cocaine” at the port in 2004 (Martiche 2004). Sources within the Italian government estimate that the Port alone accounts for 80% of the cocaine imported into Europe (Lawrence 2006). Other reports link the port to the illegal importation of assault rifles equipped with grenade launchers and bound for Canada or possibly the U.S. (Contenta 2002). The port has also become a destination for illegal immigrants from all over Africa leading to concentrations of workers in the small town of Rosarno that do not meet even the lowest UN health and safety standards for refugee camps located in Africa (Lawrence 2006).⁵

⁵ Much to my surprise, the U.N. maintains separate minimum requirements for refugee camps in Africa from those required of camps in other parts of the world.

Given the presence of individual and institutional behaviors that do not coincide with the free-market capitalist discourse that the port so adroitly cultivates, it is necessary to re-examine the specific ways in which competition and competitive policies have been co-opted into service for criminal purposes.

To begin, we can reopen the question as to why the original government-led investments that were programmed for Gioia Tauro failed and the port succeeded. As stated earlier, the dominant narrative constructs these projects as doomed socialist experiments unable to compete on a global scale. Alternatively, these projects could be examined in terms of their value to the local mafia. There was money to be made on the construction of a steel mill or a coal plant, but the actual operation of those plants had little to offer. The industries themselves would have provided little in the way of growth, and profits available for graft would have been limited. On the other hand, an active trading port has a tremendous potential to enrich the local criminal elements. In addition to the revenue stream provided by foreign companies looking for safe transshipment of their goods, the port offers an incredible opportunity for the import and export of illegal goods. The mafia controls security in and around the port, and faces little regulatory oversight. Competitive discourse gives their goods a sheen of respectability that may help them get past foreign customs agents.

A second way that competitive discourse aids the interests of the mafia is that it draws attention away from local conditions and the effects that the port is having on the region. Gioia Tauro is represented as a major economic growth engine within the economy of Southern Italy. Despite its size, however, it has had very little impact on

the surrounding region. Employment in the transport sector appears to have actually declined within the Reggio-Calabria sub-region since the port came into existence (Eurostat 2006), and anecdotal evidence suggests that few of the benefits of globalization have arrived in Rosarno. Some of this can be attributed to the changing nature of port economics, particularly for transshipment ports like Gioia Tauro. With containerization, value-added activities taking place near the docks are significantly reduced and shipping companies can exist with many fewer ties to the local economy; this greatly reduces the direct and indirect benefits from port activity (Benacchio, Ferrari et al. 2001; Musso 1996). While the changing nature of port economics is salient, the role played by the mafia as a mediator between the port and its environs must also play a role. The mafia is capturing some of the profit generated by the efficiency of the port in an age where ports capture very little. It appears, in this case, that the mafia captures enough so that few, if any, of the port's benefits accrue to the region at all. By framing the port in competitive terms, its success is put in terms of throughput rather than jobs created or value added. Consequently, the port is judged a success. No one bothers to collect the other details about the port's economic footprint that would draw attention to the exploitative role of the mafia. Members of the Italian Parliament speak glowingly of the port's central role in the economy of Southern Italy despite the severe lack of any evidence that this is in fact the case (Lloyd's List 2007c).

A third critical factor in understanding the importance of the competitive discourse shielding the port from direct scrutiny resides in the port's role as a

reputable site for transshipment of goods. Only about 4% of containers moving into the United States are scanned for illegal cargo; even fewer come under scrutiny in most other countries. Given the limitations of the U.S. security system, virtually all resources are focused on containers arriving from perceived high risk locations, particularly the Middle East and parts of Asia. Containers coming from countries allied to the U.S., and particularly those coming from Western Europe, are given the lowest priority for screening, and so one could be almost certain that a container bound for the U.S. from Gioia Tauro would arrive in port with only cursory inspection. If Gioia Tauro was classified, as it should be, among the ranks of potentially dangerous ports, the likelihood of closer scrutiny would be greatly increased. By framing the port in terms of a placeless, competitive global marketplace rather than a corrupt, criminally dominated, entrepot, Gioia Tauro's criminal element substantially increases the ease of smuggling all sorts of goods.

Gioia Tauro's push to meet the standards for the Container Security Initiative becomes particularly sinister in light of the continued criminal activity at the port. As described above, the port was an early adopter of the various security enhancements necessary to qualify under CSI as a preferred trading partner with the U.S. This move is portrayed as just another competitive strategy by the port, but it also buys even less scrutiny for containers traveling from the port to U.S. and other destinations, likely increasing the success rate for smuggling operations carried out through the port. Given the continued questionable security procedures at the port that I observed in

2005, it would seem that the goals of CSI are met on some technical level, promoted heavily in port discourse, and almost entirely meaningless in practice.

The proposed free trade zone in and around the port can also be reinterpreted as a competitive policy geared towards advancing the mafia's interests. A free trade zone reduces the number of federal taxes collected at the port. This in turn means markedly reduced oversight by federal finance police and taxation authorities. Not coincidentally, these agencies have historically been exactly the agencies that have brought mafia leaders to prison. The neutralization of the involvement of these state authorities is a fairly significant change in terms of the illicit operations taking place at the port.

A cynic might argue that the efficient movement of cocaine into Europe through the port is just another example of the port's competitive advantage. Friedman for one is at some pains to point out the changes being wrought by globalization are the source of global criminal and terror threats as well as widespread economic benefits (Friedman 2005). On some level this may be true, but it never enters into the discursive representation of the port. For obvious reasons, the port has emphasized its security and its insular position as a place with no local or institutional connections. What is problematic is that it is exactly the discourse of competition with its global and placeless representations that allows this criminal activity to succeed at such levels. Only by engaging with the local conditions surrounding the port can we fully understand the range of impacts that this growth pole has had.

The intense focus on competition at a global scale draws attention away from what is going on the ground in Gioia Tauro. By selling the narrative that Gioia Tauro is competing successfully against ports all over the world, we look at the success of Gioia Tauro in these barren analytic terms of throughput statistics. As a result, we do not pay attention to the fact that the port has had no discernable impact on the surrounding region, especially given that the effects on jobs are dispersed across an area of hundreds of kilometers. The auxiliary industries that might support a big port are located elsewhere. Gioia Tauro is isolated in terms of its impact on the local community. By selling the port as an international location rather than a local economic driver, that attention is diverted. It is also important to note that this focus on competitive market driven, de-regulated business really does serve to draw attention away from the kinds of exploitation that are prevalent in these areas under mafia control. The extortion that occurs at the port goes unchecked in part because there are no other existing institutions in the region with the power to contest the kinds of strategies being employed by the mafia. Where competitive discourse faults institutions for inefficiency, it does not recognize the important role they play in putting forward the interests of a range of groups that might otherwise be marginalized. By keeping institutional formation and involvement to a minimum, competitive discourse insures the continued role of the mafia.

Elements that determine the outcomes of competitive policies

As stated in the introduction to Part I, a key goal of the research conducted in Gioia Tauro was to engage with an actually existing competitive policy and from this

engagement to learn about what matters in the implementation of these policies and in the distribution of their costs and benefits. This effort was intended to identify a range of actors and institutions involved in various ways with these policies and to identify some of the multiscalar interactions that characterize their involvement. In this section, I attempt to highlight some of the generalizeable hypotheses about competitive policies that might be drawn from the Gioia Tauro case study. I begin with individuals and jump scales up to institutions and then impacts within global networks. At each scale I try to distill some of the key ways that my analysis of competitive policies might differ from more traditional approaches.

The hypotheses presented below are just that: untested hypotheses. I make no claims as to their accuracy or to their importance in determining the distribution of costs and benefits of competitive policies. They are simply derived from the case studies as questions that I felt merited further analysis. In Part II of this dissertation, I lay out a framework that will begin to test these hypotheses. The combination of case-study generated hypothesis and abstract modeling is a powerful, mixed-methods approach to analysis. It combines the strengths of both forms of research: finding the unique, the complex, and the important in case study work and using it to support the repeatable and generalizeable results of quantitative methods. At this stage, I do not ask the reader to do more than acknowledge that the hypotheses identified below were more than obliquely visible in the case study performed for Gioia Tauro. Any greater claim of significance is, at this point, premature.

Economic theory begins with rational, utility-maximizing individuals; it is at this scale that the competitive assessment of the port should begin. Economic theory argues that at some basic level the “typical” individual acts rationally. One of the first goals of my fieldwork was to compare this model behavior with the actions and perceptions of individuals working in and around the port. To the extent that these individuals acted in ways predicted by theory, we might be more or less convinced that the rational individual was a good starting point for theoretical extrapolation at other scales. The amount of information about individual experience and perception that I was able to gather in Gioia Tauro is minimal to say the least. I fled the town after only a week and spent most of my time in the region hiding in my hotel room after witnessing a murder. The people I met in the street were extraordinarily unfriendly. Even the shopkeepers and hotel managers were quite reserved. In short, the source material I have for analyzing individual behavior with respect to the port is inadequate. My hope is that this shortcoming can be overlooked in this case and the work I conducted in Genoa be used in its stead to judge the usefulness of this methodological approach.

There are two elements to come out of my observation of individuals at the port that are worth examining in the more abstract analysis of competitive policies in Part II of this dissertation:

- *Individual action takes place within the context of institutional affiliations which constrain actions and affect the capture of benefits (3.1)*
- *Individuals recognize the power of perception in framing competitive policies and will use the idea of competition to promote their own goals and affect the perceptions of others. (3.2)*

The basis for my claim in hypothesis 3.1 comes from my observation of a civilian waving trucks through the port's gate based on his own recognition of their right to be there or not. This individual's control over the gate subverted the rules of the entire global container freight network by providing a point of access to the network that clearly violated the strict guidelines for freight integrity that allow containers to move freely and with limited inspection all over the world. The free movement of containers is one of the most important competitive advantages of containerized freight over other modes of transportation. It is therefore very much in the economic interest of the shipping companies to maintain this advantage in movement. In a placeless, competitive system, the integrity of the gate would be maintained because it offers the greatest overall benefits. The individual at the gate, however, arguably was embedded within the institutional context of the mafia and was intent on maximizing that institution's share of the benefits of containerization at the possible expense of other legal users of the system. Personal context affected economic decisions away from a global competitive ideal and towards a local capture of benefits.

The hypothesis stated in 3.2 is a direct result of my conversations with the port president. This man clearly recognized the importance of Gioia Tauro's competitive image to the port's success and worked hard to frame my perceptions of the port in these terms. He was not trying to convince me that Gioia Tauro had the lowest labor costs or the cheapest land so much as working to frame my analysis of

the port within the metrics of competition where the port appears quite favorably.

Discourse is a key element of competitive policies with profound material effects.

Individuals (and institutions) mobilize these ideas of competition to their own ends.

Another way of examining the implementation of competitive policies is by looking at the ways different institutions cause these policies to come together and share in the costs and benefits of their implementation. The illusion of the port as a competitive space operating in a vacuum removed from history, institutions and anything that might interfere with the free movement of goods is called into question by the existence of this extraordinarily powerful and hidden institution. The question then becomes, how might the competitive policies in Gioia Tauro be rethought in terms of this institutional presence.

- *Institutions recognize the power of perception in framing competitive policies and will use the idea of competition to promote their own goals. (3.3)*

Hypothesis 3.3 is simply an extension of 3.2 and reflects my opinion that the mafia itself played a role in advancing, or failing to contradict the competitive representation of the port. Little takes place in Calabria without the blessing of the mafia, and so policies such as the certification under CSI have to be considered as part of the mafia's larger goals for the port.

Individuals and institutions play crucial roles in varying the effects of competitive policies from the economic ideal typically considered in academic debate about competition. These variations have pronounced effects on how we interpret the

results of competitive policies. The following hypotheses relate to the interpretation of competitive policy outcomes.

- *Competitive policies can arise in response to non-market goals of institutions (3.4).*
- *Competitive policies can serve both market and non-market goals simultaneously. (3.5)*
- *The costs and benefits of competitive policies are not uniformly local or global, but vary widely based on the coalitions of individuals and institutions that have brought them into being. (3.6)*
- *Assessment of the costs and benefits of competitive policies must include all scales of action where such effects are present (3.7)*

The idea that competitive policies can arise in response to non-market goals of institutions is somewhat of a misnomer in the case of Gioia Tauro where the non-market goals are in fact black-market goals. The point to be made, however, is that competitive policies at Gioia Tauro could clearly be interpreted in terms that had little to do with global competition as the promoters of competitive policies have defined it. The subversion of the Container Security Initiative to more effectively smuggle goods is a far cry from the reduced regulatory costs its promoters in the Italian Parliament had in mind.

Hypothesis 3.5 is a corollary to 3.4 and clarifies that just because competitive policies can be subverted to serve a wide range of local goals does not mean that they cease to function as tools for altering a place's position within global economic networks. The proposed free trade zone and the certification under CSI both contribute to advantages for the port that make it more attractive to the highly mobile shipping companies. This increased competitiveness can translate into greater throughput at commensurately higher status within the global container network. The

fact that these policies also advance the interests of the mafia does not deny the important economic effects that these policies are having.

Finally, hypotheses 3.6 and 3.7 formalize my observation that the seemingly cookie cutter approaches to competitive policies are in fact quite varied when it comes to the distribution of costs and benefits. Many ports around the world have implemented the measures necessary for CSI certification, Genoa included. In each case, this certification brings certain kinds of benefits to a different grouping of individuals and institutions. The mafia does not appear to be a major beneficiary of the CSI certification in Genoa where it appears to be acting primarily in the interest of the shipowners and other maritime interests who promoted it. Thus, it is not fair to say that the implementation of a competitive policy such as the CSI initiative will always have certain local or global effects. Each policy is different in its application no matter how similar its name. To be sure of understanding the policy's impact, therefore, we must be prepared to assess its impacts at multiple scales.

Gioia Tauro is a partial case study. In addition to witnessing a murder, I was also robbed and fled the town long before the project could get off the ground. Nevertheless, my brief sojourn there had a profound effect on my thinking about competitive policies. On the one hand, competitive policies can be simple in the sense that they can come into being and operate exactly as advertised. The free trade zone proposed for Gioia Tauro would certainly reduce regulatory costs to make Gioia Tauro a more attractive location for both ocean carriers and companies seeking access to low-cost transportation for a development project. In terms of how costs and

benefits are distributed, the costs would be at a national level and the benefits should be largely accrued at a local level when new industry and associated jobs locate in the zone. That said, there is no doubt that “being competitive” in this case would also reduce regulatory oversight and increase the capacity of the local mafia to make money from the port. In closing, however, it is important to note that even in this most free-market, capital-driven location competitive policies are not purely an economic expression.

Epilogue to Chapter 3

In the year since I collected my research in Gioia Tauro, much has changed at the port. The one year downturn in traffic shown in Figure 2 has extended through a second year and does not appear set to rebound. More importantly, institutions have come to roost in the port. The Partita Rifondazione Comunista (Refounded Communist Party) has organized workers into a new union, the “Sindacato dei Lavoratori” (Workers Union) which claims to represent 350 of 650 workers at the port (Lloyd's List 2007a; 2007b). The new union has gone on strike several times and has set off a series of events that paint a fascinating picture of the forces at play in the competitive space of Gioia Tauro.

One point of interest is the success of the radical left union in organizing the port's workers. While the Rifondazione Comunista has supporters throughout the country, it is on the far left of the Italian political spectrum. To organize over half of the port's workforce under this radical banner in the usually more right-leaning southern part of Italy is quite extraordinary. Furthermore, the strikes undertaken by

this newly formed and radicalized union have gone on in the face of written and widely publicized opposition from the other major unions organizing workers on the docks in Gioia Tauro and throughout the country. As noted above, these unions, representing mainstream parties of the left, center-left, and center-right, negotiate on a national level and have determined themselves satisfied with the working conditions, wages, and benefits being offered at Gioia Tauro. Finally, these strikes have drawn significant attention to the port and have reduced the amount of cargo passing through it, both detrimental to the interests of the local mafia. It is unclear from any of the published accounts what, if any, interaction is occurring between the mafia and the union.

A second point of interest relates to the response of the shipping companies and carriers to the strike. Mediterranean Shipping Company, the world's second largest container carrier has recently scrapped plans to move a major portion of its business through the Gioia Tauro hub, while Maersk Line, the world's largest is in the process of reducing its shipments through the port (Barnard 2007). Contship, the port's major investor, is itself making threats to withdraw from the port—a move that could effectively close the port down almost entirely (Lloyd's List 2007a). All told, the throughput at the port has dropped approximately 7% since 2005 and Contship blames the striking workers for the loss of approximately 200,000 containers in the early months of 2007.

Other research has documented the rapidity with which ocean carriers can come and go from ports, thus forcing port regions to offer concessions and compete

for business (Fowler 2006; unpublished). Even so, Contship's president, Cecilia Battistello was particularly blunt when she said that "ships will always win out in a battle with ports because they can move where they please" (Lloyd's List 2007a). What is extraordinary about this situation and Contship's claim is that the complete dissolution of the port really seems to be a possibility. Gioia Tauro has built itself around the idea that it has no ties to the Calabrian region where it is ensconced; this freedom has been one of its major competitive selling points. While this has ostensibly led to the port's success, it may also provide the seeds of its downfall. With little invested in the port and few institutions able to openly fight to retain its presence, there is the distinct possibility that cargo will move rapidly away from the port to its newest major competitor, the nascent Port Said where labor and land costs are equally low and the competitive literature once again speaks of a market-driven space free of local institutional connections.

A final point of interest in the unfolding drama around the port is the institutional involvement of the Italian federal government, which is stepping up to retain Gioia Tauro's clientele. No less august a personage than Prime Minister Prodi has taken a direct role in the negotiations between the union and Contship. The federal government has also stepped in with considerable debate and several calls for increased investment in the port (Lloyd's List 2007a). This rapid and high-level response by the government demonstrates the continued ties between the state and even a supposedly market-driven entity such as the port. The federal government looks to be the most prominent institution weighing in to retain the port in Calabria.

Even this involvement can be read in multiple ways: on the one hand emphasizing the importance of the state, but also potentially demonstrating the much touted claims that the Italian federal government has very close ties to the mafia. One must wonder as well whether Contship's directors have met more recently with the local mafia groups to further negotiations.

There are several lessons to be drawn from these changes at the port. First, no place is placeless. Despite the continued separation from the port's local context, the institution of a local labor movement only took ten years to come into existence. This is particularly remarkable when one considers that the workers at the port come from a wide area across southern Italy so there are few points of community solidarity among the workers outside of their positions at work. Second, the benefits of a competitive port like Gioia Tauro are fickle and impermanent. Despite a ten-year history of successes, there is still so little invested in Gioia Tauro that it could potentially disappear off the map almost as quickly as it arrived. The sedimentation of capital and the concepts of creative destruction do not apply when the metric of success is container throughput. It costs nothing for Maersk to move its operations to Port Said, which as a new port, will probably pay any incurred costs and more just to get the business. In the meantime, the ten years Gioia Tauro has played host to this capitalist enterprise will leave few lasting resources beyond some cleared land and slightly improved connections to the Italian national transport infrastructure. Ironically, it is probably the institution of the mafia that has the most invested in the continued success of the port, and I imagine that this organization is doing all that it

can to maintain the ports viability; I fear for the striking workers. In conclusion, a focus on being competitive transformed the Calabrian coast from an orange grove into a major international player, but by focusing on this global network rather than local value-added investment the investments may have been extremely transient.

Chapter 4: “Genoa has been a port since Roman times”

"Genoa could not exist without the sea, this I believe. Every time Genoa has had an economic crisis, and therefore a social crisis as well, it has been in a period when the port was not functioning well." (Genova#13, 2005)

The quote above comes from a Genovese who had no direct links to the Port of Genoa. Although many who work in the port feel that the Genovese are indifferent to the work done there, there was no ambivalence in the interviews I conducted. The port was referred to as the ‘heart’ or ‘lifeblood’ of the city on numerous occasions; most interviewees could point directly to specific historical events or the experiences of people close to them that demonstrated for them the centrality of the port in the economic, historical, political, geographic, and cultural understandings of the city.

Genoa stands in marked contrast to Gioia Tauro because the city and port have over a millennium of history binding them together. Despite this difference, both ports have implemented competitive policies with similar effects on production function elements like labor costs and regulatory costs. These policies have changed the ports’ position within global economic networks, albeit temporarily. But the diverse range of institutions engaging with the port in Genoa has given competition a very different discursive application than that observed in Gioia Tauro. In Gioia Tauro, competition was discursively constructed in a way consistent with economic theory as a sort of smokescreen to draw attention away from the criminal activity of the mafia. In Genoa, however, competition was used discursively in several ways that

run directly counter to free-market economics. Varied institutions such as labor, local political groups, and business associations mobilized the intellectual authority of competitiveness to support their own agendas, often with important effects that appear to have outlasted the economic gains that were nominally the target of those policies. The analysis of competitive policies in Genoa points to the importance of heterogeneous actors organized within institutions struggling to win resources wherever possible.

At first glance, Genoa and Gioia Tauro could not be more different from one another. The dense network of ties binding the port of Genoa to the city extend back thousands of years, and the city's residents readily acknowledge the symbiotic relationship between city and port. Gioia Tauro was built in large part to escape this web of connections and the perceived costs of trying to change within these institutional constraints. Gioia Tauro aggressively maintains its image as a port without local connections in an effort to set itself apart from Genoa. With no local government, no protesting citizens, and no labor or business groups, Gioia Tauro can adapt quickly and unimpeded to the market forces that drive the development of the global container freight network. In contrast, Genoa is seen as trapped in its own history.

A second glance, however, reveals that the two ports have adopted remarkably similar competitive policies in their efforts to advance their respective positions within the global network. Gioia Tauro's efforts to improve the production function for companies doing business there is matched almost item for item by the aspects of

the Law 84 of 1994 that privatized the Genoa docks around the time Gioia Tauro opened its doors for business. Not only the measures themselves, but the outcomes of these two ports' competitive policies, have been similar. Though nowhere near as spectacular as Gioia Tauro's rise from nothing to regional leader, Genoa saw major advances in container throughput in the years following privatization. Gioia Tauro's recent downturn was also presaged by Genoa's return to a more "normal" growth pattern as the effects of the competitive policies enacted in the mid-1990s have worn off.

Like layers of an onion, the similarities in the expressed aims of the ports' competitive policies can be peeled away to reveal a set of striking differences. In Gioia Tauro, competition was used discursively to draw attention away from the illegal operations of the local mafia. Port literature and spokespeople presented the port as a textbook example of free-market operations with competition and competitive policies at the heart of the port's success. In contrast, competition is used discursively in Genoa to achieve a wide range of goals, some of them in direct contradiction of economic theory. In Genoa, the labor unions spoke of government subsidies for retiring dockworkers in terms of competition. Less surprisingly perhaps, business interests used competition as a justification for the government's below-market-value sell-off of terminal concessions. Even environmental and cultural organizations employed ideas of competition as a means of promoting 'sustainable' economic practices for the city.

Although one might be tempted to focus on the tangible, production function effects that are the direct and stated goals of competitive policies, it appears that the indirect, local effects may have more lasting impacts on local economic development. While the change in Genoa's strategic position faded after only five or six years, the 1994 privatization continues to be constructed and reconstructed to advance the goals of one group or another. Similarly, the indirect material effects of implementing these competitive policies will last at least as long as the twenty-five year concessions given to the terminal operators at below-market value, or the lifetime pensions supplied to dockworkers forced into early retirement. The long-term economic effects of these changes already exceed the impact of a few percentage points of growth in container throughput that was the measurable result of port privatization.

If one were to generalize the conditions under which competitive policies were implemented in Genoa, there are several key areas where this case study finds differences with neoclassical representations of competitive theory. First, the people of Genoa are heterogeneous actors with respect to competitiveness. They certainly do not fit the model of rational, profit-maximizing individuals operating under conditions of perfect information. Rather, perception appears to be a key tool for describing their thinking about competitive strategies. Individuals within the same general group (call it class or institutional membership) shared similar perceptions about what competition was and what actions would be required to make the port competitive; however, these shared perceptions differed significantly across groups. Secondly, a focus on the attraction of new capital (or throughput) is far too narrow a

metric with which to gauge the impact of competitive policies. Competitive policies do affect the location of capital investment, but they serve far more important roles in advancing the goals of local institutions. Furthermore, these policies are most effective when the interests of two or more institutions are aligned and least effective when these institutional goals clash. In short, local economic effects are guided by power struggles among institutions and (over)determined by the perceptions and membership choices of individuals.

This chapter begins by setting out the context in which the privatization of the Genoa docks occurred. The history of the relationship between port and city is incredibly important to the Genovese and colors much of their thinking about the competitive policies implemented there. In the second section, I attempt to mimic the analysis laid out in the Gioia Tauro chapter commenting on the production function elements of labor, land, capital, and regulatory costs at the port and the changes to this production function as a result of port privatization. I conclude the second section by examining the metrics of success for these changes: container throughput and job creation. In the third section, I flesh out the complex environment in which port privatization took place in Genoa, focusing on the ways that individuals and institutions made use of competition in discourses about their policy goals. I identify three themes as of particular importance: a neoliberal discourse justifying the consolidation of wealth in the hands of the few, a social welfare discourse invoking a key role for government, and a sustainability discourse that interprets competition at the port in terms of waterfront redevelopment rather than growth in the transport

sector. In the fourth and final section, I draw some general hypotheses from the specifics of the case for further examination in the abstract modeling efforts of Part II.

“Genoa has been a port since Roman times”

“In order to understand the port and the city you must understand that Genoa has been a port since Roman times” (Genova#1, 2005). This is how my first interview in Genoa began; I was to hear variations on this theme at the beginning of over half of my subsequent interviews so it seems an appropriate place to begin this narrative. The history of Genoa as a port is essential to the way the Genovese conceive of their city and a critical element in the discourse of competition.

Genoa’s geography was the key to its early success and the reason it became prominent within the Roman Empire. The city is centered on an excellent natural harbor with hills rising sharply up from the water (Figure 4), an advantageous feature in the history of the Mediterranean where marauding pirates and mercenary bands were long a reality. Possibly of greater importance is Genoa’s proximity to Milan and the Padana plain to the north. This region is one of the most economically important in Italy and also acts as a gateway to the passes through the Alps and hence the rest of Europe. Today, as in the past, a substantial portion of the cargo arriving in Genoa will be forwarded on to this area to the north.

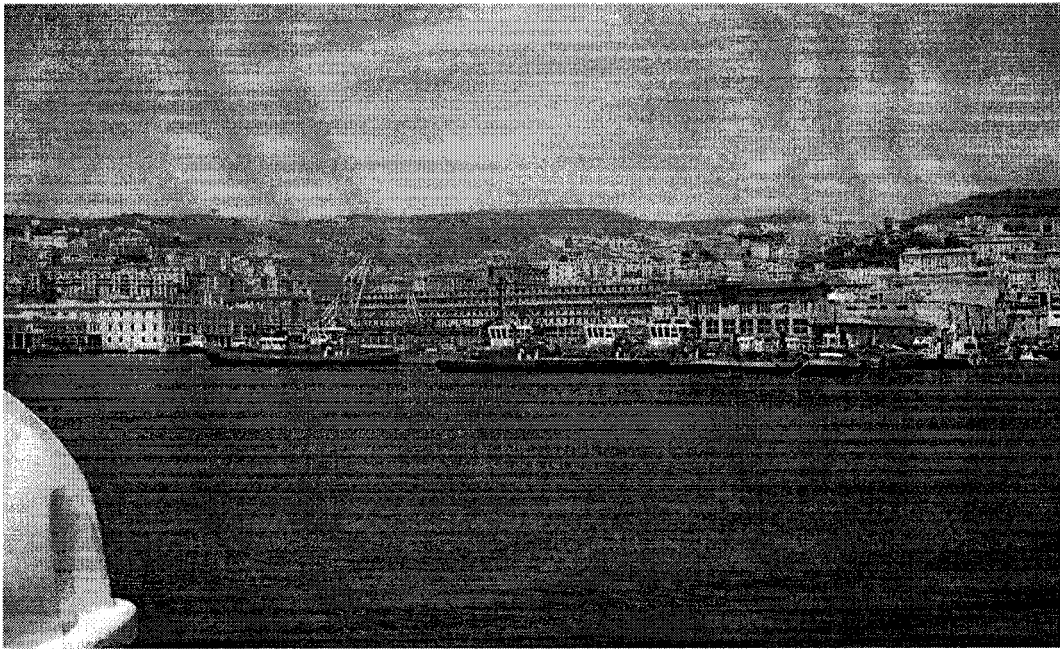


Figure 4 In Genoa the mountains rise steeply from the coast

For most of its history, the port has been the lifeblood of the city. Genovese wealth was founded on trade; the long relationship between city and port has had some important effects that carry forward into the present day. One outcome of Genoa's millennia of association with the sea is that the economy of the city is intricately tied to the port. In 2002, it was estimated that 11% of the value added and 35% of the workforce of Genoa were directly or indirectly related to the port (Coriano 2002). In the post-war period, Genoa had a more balanced economy with the weight of the maritime economy countered by the presence of several large manufacturing industries, steel in particular. With the extreme downsizing or outright departure of these industries in the late 1970s and early 80s, Genoa's economy is as reliant on the port now as it was prior to the industrial revolution (Genova#12, 2005).

A second key result of Genoa's historical ties to its seaport is the development of the dockworker *comanie*. Genoa has had organized corporations of dockworkers, or *comanie* (sing. *comania*) since the early thirteenth century. In 1897, one of the oldest of these *comanie*—La Pietra Chiesa—formed a chamber to formalize a commitment to joint action among the members of the group and began the modern era of union organization in Genoa and in Italy. The *comanie* would eventually form an alliance with the Communist Party and were understood to be one of the principal points of political power within Genoa beginning in the early 1900s and lasting up until the privatization of the port in 1994.⁶

A final piece of history necessary to understand the implementation of competitive policies is the changing status of the Port Authority of Genoa. Beginning in 1903, this government body existed entirely separate from the city; it conducted its own planning and marketing led by a board of directors pulled from the Port's users and representatives of the important regions in Genoa's trade hinterland. This port authority was manager and operator of the port. It boasted a vast workforce that was

⁶ There is a peculiar difference between unions and *comanie* on the docks of Genoa. Unions in Italy are tightly linked to political parties; given the large number of parties represented in Italy's "dynamic" parliamentary system of government, it is not uncommon to have four or five unions, one for each party, represented on a single factory floor. The *comanie* are different. They are literally corporations and their membership includes individuals who are subscribed to each of the major unions and others who are not subscribed to any union at all. The *comanie* act like unions in that they have traditionally negotiated contracts for all of the work undertaken on the docks, and they provide support functions such as health care and insurance for their members. Up until the privatization of the port in 1994, the *comanie* also had the power to dictate exactly which individuals would do which jobs on the docks on any given day, and consequently the power to close the docks down. With the power to strike largely controlled by the *comanie* rather than by the national unions, the *comanie* were the real power on the docks and used it to extract significant improvements in wages and increased control over their labor process (Genova#3 2005). The critical distinction between unions and *comanie*, however, is that the *comanie* have always been local to Genoa and involved themselves in local affairs, whereas the unions have typically conducted their negotiations and operations at a national scale.

employed in parallel with the workers from the *companie*. In the typology of ports, Genoa was an owner/operator port before privatization, becoming simply a landlord port as a result of the Law 84 of 1994. The changing governance structure at the port is important to its development for two reasons. First, the Port's incorporation as an entity separate from the city from 1903 until 1994 had significant impacts on the spatial connectivity of the port and the city and subsequent impacts on the relationship between the citizens of Genoa and their port. Second, the role of the port authority as a port operator had significant consequences on the distribution of profits from port activities. On the one hand, the port maintained a workforce of its own that was a study in inefficiency—literally following around the workers of the *companie* and duplicating their work. Paying this redundant labor was a major source of discontent on the docks and one for which none of the parties involved in the port expressed nostalgia. On the other hand, the single ownership and management of all of the port terminals meant that the port as a whole had greater negotiating power with respect to its customers, the ocean carriers. The present system of individual control of each separate pier has led to competition among the terminal operators that may reduce the benefits accrued locally by the port sector as a whole.

The political power of the *companie* and the management structure of the port were both implicated in the events of the 1980s that put the port into a state of crisis and led to the push for more competitive operations in the form of privatization. Prior to the age of containerized freight, Genoa was the unquestioned principal port of Italy and a major focal point for traffic in the Mediterranean. Genoa was famous for its

dockworkers who could load a ship so efficiently that it might leave port with 50% more cargo than if it had been loaded elsewhere (Genova#16, 2005). With the arrival of containerization however, the automation and unitization of ship loading nullified the productivity advantage that had justified higher than average labor costs at the port. At the same time, the massive efficiency gains meant that fewer workers were needed even as the traffic at the port increased. Solidarity prevented the *companie* from shrinking their ranks, but the demands of supporting 9000 members when there was work for only 1000 became a significant strain.

Throughout the 1980s, a politically powerful but underemployed port workforce led, predictably, to clashes between labor and management that created a great deal of turmoil at the port frequently leading to closures and slowdowns. In retrospect at least, there is unanimous recognition across a range of subject positions that this period in the Port's history represented a crisis for both the port and the city. (Genova#1, 2005; Genova#3, 2005; Genova#6, 2005; Genova#9, 2005; Genova#11, 2005; Genova#16, 2005; Genova#17, 2005). At the time the city was already suffering from significant deindustrialization, and the port was by far the largest employer. With the port closed due to strikes, however, the port saw significant declines in traffic leading to even less work for the dockworkers.

In the context of this crisis, the local shipping community framed the declining traffic at the port as a symptom of uncompetitive conditions in Genoa with a single solution based in achieving globally competitive standards. One chronicler of the period wrote "The dockworkers bear all the blame for these

problems... [t]hey thought that the geographic advantages would cause merchants to bear any additional costs or conditions" (Cabona and Massardo 2003 p.145). This same author goes on to explain how privatization can make the port more competitive using a reference to achieving global standards:

the first stage of privatization...was to a modern and competitive labor system that would be market driven, and liberated from the narrow alleys imposed by the normative regulations of public activity: just as was done in the North European ports. (Cabona and Massardo 2003 p.145).

A further, and peculiarly Italian, way in which competition was invoked as a frame of reference for change at the port was the use of a metaphor comparing the port to a soccer team relegated to the lower divisions:

I must say that the port of Genova, 25 years ago, it was going very badly. It was a port considered to be part of 'Seria B' or Seria C. (Genova#1, 2005).

This reference to being promoted and relegated to different leagues was commonly invoked as a metaphor for moving the port forward in a competitive environment.

Eventually, a group of shipowners petitioned the European Union's Court of Justice to declare the monopoly held by the dockworkers to be unconstitutional under EU law. On December 10, 1991, the Court decided in favor of the shipowners and this decision became the impetus for Law 84 of 1994 (denoted 84/94 hereafter). The law's most significant effect was to declare that the terminal operators, not the *companie*, had the right to select the workers they would employ and the right to employee them permanently rather than have them selected shift by shift at the union hall (Cabona and Massardo 2003).

The enforcement of the 84/94 law, which also had the effect of eliminating the need for the vast, port-employed dual workforce, was matched by a move to privatize the port terminals by auctioning off concessions to each pier to the highest bidder. This action was initiated locally by a powerful port authority president and was made possible by the end of the *comanie* monopoly. The result was a series of individually managed terminals employing their own workforce and paying a small amount of rent to the port for the privilege of using the still publicly owned infrastructure. The combined effect of these two actions radically changed the way business was done at the port.

The 84/94 law effectively destroyed the power of the *comanie*. They continue to function as they once did, but without their monopoly power, the bulk of the work on the docks is done by employees of the terminals with *comanie* workers called in to handle the frequent peaks. Ironically, the once powerful *comanie* now epitomize the new post-Fordist flexible workforce.

Having addressed what was seen by many at the port to be the biggest impediments to growth, the port has subsequently attempted to address the deficiencies in its infrastructure. As part of the 84/94 law, the Port was required to develop a regulating plan (*piano regolatore*) that would programatize the infrastructure improvements necessary to meet the continued demands of growth at the port. In true Italian form, the plan has laid complete and unimplemented for the past ten years. The cargo throughput scenarios that it was designed to accommodate have arrived and been exceeded and the port is widely seen as being on the verge of

another crisis where its continued growth, and therefore continued place in the top tier of port cities (or *Seria A* as the Italians would repeatedly call it), is threatened by this policy paralysis.

The debates over infrastructure development came to a head in May 2005 when the beloved Genovese architect Renzo Piano unveiled a *fresco* outlining his vision for the port's expansion. Piano is the uncontested favorite son of Genoa for his work in re-designing the city core in the early 1990s to refocus the city on its heart in the ancient port. In this first venture, Piano used land reclaimed from (or donated by depending on the source) the Port to create ocean-side piazzas, promenades, and tourist attractions on the site of the ancient port and ruthlessly cleared out alleys and tore down buildings to create a smooth flow of pedestrian traffic from the cultural sites in the city center to the waterfront. The effect this has had on the self-image of the Genovese is hard to over-state. The renewal has led to a powerful new lobby within the city pushing for further development of Genoa as a tourist destination, a future that was unthinkable only fifteen years before. Piano's fresco of May 2005 was represented as the next step in this process, reclaiming even more land within the confines of the ancient port and shifting major port operations around. The most dramatic change, however, would be the planned addition of at least one if not two massive artificial islands to expand the port's functional area. As the Port thinks through the next round of infrastructure improvements, it faces a dual challenge posed by the expense of the improvements it thinks it needs and the push to expand the cultural assets along the waterfront where port and city already exist in very tight

quarters. Global competition and the future of the port are once again being raised as the principal justifications for these infrastructure improvements and so a revisiting of the last major competitive policy implementation at the port is well-timed.

Assessing the economic outcomes of the 84/94 policy

The passage of the 84/94 law marked a major effort in Genoa's attempt to improve its competitive standing within global trade networks. Nevertheless, the outcomes of this effort are somewhat mixed with significant short-run gains, but much less certain long-term advantages. In this section, I examine the traditional axes on which competitive policies are presumed to operate: labor, land, capital, and regulatory costs, as well as productivity. Finding that the privatization of the port had the desired (in economic terms) effect on most of these measures, I then turn to the metrics of competitive success by which ports are typically judged: throughput and jobs created. This analysis sets a backdrop by which the attempts to structurally modify the production function of Genoa's port economy can be compared with that undertaken at Gioia Tauro as well as the discursive uses of competition discussed in subsequent sections of this chapter.

Genoa's labor costs were among the highest in Europe for many years leading up to the privatization of the port in 1994. Prior to the advent of containerization, this higher price was accepted because the skill of the workers permitted ocean carriers to fit more cargo on the ship than would otherwise be possible (Genova#16, 2005). With containerization, however, the loading and unloading of ships became a matter of

capital investment more than human skill and the higher costs of the Genovese workforce could no longer be justified.

Concurrent with the changing value of dockworker labor was a radical change in demand for this labor. Containerization increased the efficiency of labor by a factor generally estimated at 3200% over the course of just 15-20 years (Slack 1998). When container ships began to arrive at Genoa's docks, the *compagnie* responded by charging the terminal or shipowner the same price they would have charged had the ship been handled in the old way, regardless of the actual labor used in the process. If a 40,000 ton ship had previously required 24,000 person-hours to unload it would be charged at that rate even if it only required 750 person-hours to complete the job. Under this system, the *compagnie* could continue to pay their entire membership even though only about ten percent of them were regularly employed. As a result of this system, dockworkers at Genoa were able to capture virtually all of the efficiency gains brought about by containerization. Far from making the union rich, however, this capture was necessary to retain basic payments to the workers already on the union rolls but who no longer had paid work to do. As efficiency continued to improve and ocean carriers chose other ports where labor costs were lower, the gap between labor demand and labor cost grew even further (Genova#16, 2005).

One of the principle outcomes of the 84/94 law was to break the monopoly held by the *compagnie* over work on the docks. With the law's passage, terminal operators were freed to hire their own workforces as they saw fit, negotiating wages and contracts on an individual basis or with the national unions. The *compagnie*

continued to exist, but in a greatly reduced form. The oldest of the *companie*—La Pietra Chiesa—dropped from some 1400 workers down to 7 and has only recently climbed back up to 42 (Genova#3, 2005). The *companie* hall that was once the nerve center for allocating jobs on the docks is now the base of operations for some 1,000 individuals who are called up sporadically to handle peaks in labor demand at individual terminals; they are paid well, but only for the work they actually do.

There are no published data on the wages earned by dockworkers before and after the implementation of the policies privatizing the port so it is impossible to say what the real effect the law had on labor costs. Nevertheless, the wage paid to individuals is less important in this case than the altered structure of who is paid. In the past, the terminal operators were responsible for paying all of the people who worked, as well as sustaining those who did not work that day. Under the present circumstances, operators are required to pay only those people they employ, so regardless of the wages paid, the overall labor bill is greatly reduced.

Land rents are another important area where the 84/94 bill altered the production function of Genovese companies using the docks. Prior to privatization, the docks were owned and operated by the Port Authority and the users of the docks paid rent to this entity. Land costs have always been high in Genoa because the mountains rise up steeply from the coast leaving little room for expansion (see Figure 4). The port has many competing uses along the waterfront and there is no room to alleviate this congestion by moving activities to off-dock facilities as is commonly done elsewhere. The costs of renting the land from the Port Authority took into

consideration the value of the concession granted, but also served to pay for the considerable overhead generated by this rather bloated bureaucracy.

One of the most critical elements of the 84/94 law was to put the terminals up for use in long-term concessions granted to the highest bidder. Although seemingly a tactic intended to generate the maximum price for public assets, there was a catch in how the new Autorita Portuale valued the properties. The starting value for each concession was set based on the value of the land if it was not to be used as a terminal. This would have been acceptable except the land was assumed to remain as port property (e.g., it could not be converted to a non-port use such as residential development). The result was a determination that if not used as a terminal, the property would sit idle and so the base value for the properties was set virtually at zero. Then, in the auction, it turned out that there were very few firms interested in taking over the concessions for each terminal other than the terminal operators who had been using them up to this point. Starting at a base price of zero with few buyers, the concessions were virtually given away and the rates were fixed without any link to inflation so the real price paid at the terminals has only declined since 1994 (Genova#12, 2005; Genova#16, 2005). In terms of change, the land rents paid by the terminal operators represent one of the biggest competitive advantages supplied by the 84/94 legislation. From the highest land costs of any Italian port, Genoa's terminal operators were suddenly operating with rents that were among the lowest. Unlike Gioia Tauro, however, these cheap land rents were finite in that there was

almost no room for low cost expansion; the operators could run their terminals cheaply but had no room to expand their operations.

Capital costs are difficult to pin down in terms of the competitive position of the port when compared to other ports in the region. On the one hand, the Italian government continues to make many of the improvements necessary to provide basic operations at the port. The government is responsible for maintaining the piers, for dredging when necessary, and for providing suitable connections with the larger transport infrastructure (Genova#1, 2005; Genova#3, 2005; Genova#16, 2005). As a result, these costs are nationalized and do not directly affect the terminal operators' bottom line. Similarly, the investments for buildings and cranes that the terminal operators are principally responsible for are purchased on a national if not a global market and are not a source of competitive advantage for any port. One factor that does differentiate Genoa, however, is the combination of aging port infrastructure and a federal government that has underinvested in its port system for many years (Genova#16, 2005; Genova#19, 2005). These combined factors have led some of the terminal operators to make upgrades themselves that might normally have been government responsibilities. In other cases, the restrictions imposed by the aging infrastructure has kept operators from investing in the most efficient equipment, keeping down capital costs, but at the expense of productivity. Capital costs are clearly more of an issue in Genoa than in many of its newer or better funded competitors, and the passage of the 84/94 law was ambiguous in its effects on this element of the local production function for firms using the port.

Regulatory costs are an area where Italy is notoriously uncompetitive. The inefficiency of the Italian taxation system and the relatively large tax burden keep costs high throughout the country. Furthermore, Port fees are collected locally and then turned over to the national treasury before being redistributed among all of the national ports. This means that a port like Genoa, Italy's largest by total volume, contributes much more than it receives back, thus effectively increasing regulatory costs. In comparison with its rival Gioia Tauro, Genoa is particularly handicapped because Gioia Tauro can do more with the money it receives (less expensive improvements) and also gets favored treatment because of its location in the depressed southern economy. There is a growing movement led by ports like Genoa to maintain control over port fees at the local level to give the advantage to the ports like Genoa that are net contributors to the port finance account, but this legislation has not yet advanced in Parliament.

Productivity is the final measure upon which a port's production function is typically compared. No published statistics were available for Genoa's productivity compared to other ports or compared to the same port prior to the 84/94 legislation.⁷ As with Gioia Tauro, productivity for a container port is primarily a factor of capital investment and site layout. Since both of these areas have lagged in Genoa as described above, productivity there should be assumed to be lower than in competitor ports such as Gioia Tauro. In contrast, the 84/94 legislation cut the number of

⁷ Productivity could be measured as simply as total throughput divided by number of employees, but labor statistics for the port are highly variable in their accuracy and difficult to compare across ports when they are even available.

individuals on the labor rolls of the port considerably, so the labor bill portion of productivity must have improved markedly in response to the legislation.

Measuring the effects of the 84/94 legislation is difficult. There are many who would argue that without the law, the entire port would have collapsed and disappeared altogether; the fact that it has not is vindication enough for these individuals (Genova#1, 2005; Genova#2, 2005). There has been substantial consolidation of the container port network in the past ten years, and Genoa's continued presence within the top tier of ports suggests that this claim is not entirely without its basis in fact. In practice, however, Genoa is one of the most important ports in Italy with a history that extends back thousands of years and it was not likely that the port would close completely. Its competitive success should therefore be measured on a broader scale against the other major ports in the Mediterranean and in Europe as a whole.

Competition within the Mediterranean has been fierce during the past several decades. Recently, the proximity of the Mediterranean ports to the "round the world" routes favored by some of the largest container ships has increased their importance as gateways to broader European markets. Several ports including Malta, Algeciras, and Gioia Tauro have appeared as if from nowhere to handle the vast number of containers scheduled for transshipment out of the Mediterranean to secondary ports in Europe, Africa, and the Middle East. Genoa's competition within this port range is primarily from four ports: La Spezia, Marseilles, Barcelona, and Gioia Tauro. While a basic comparison of throughputs at each of these ports, Figure 2 (repeated below as

Figure 5) gives a feel for how Genoa has fared in comparison with each port; the specific details provide more insight into how this comparison should be interpreted.

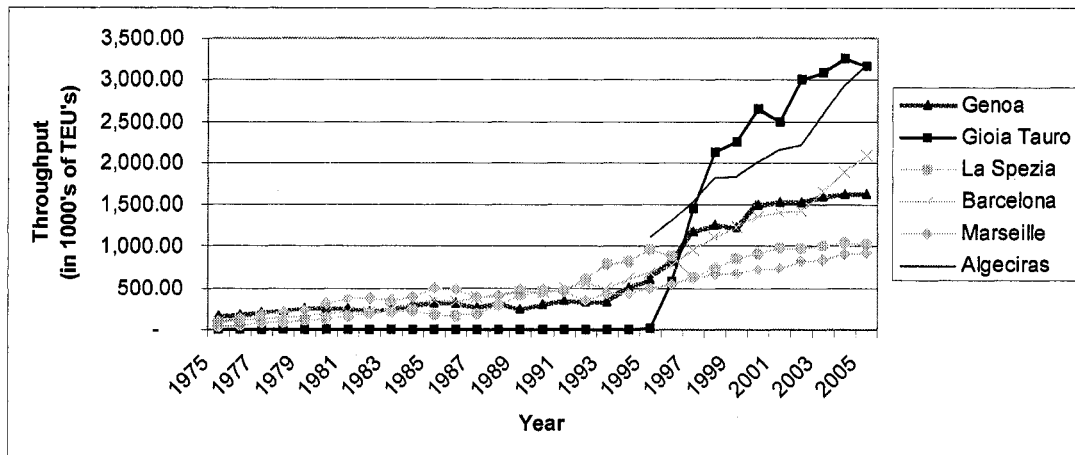


Figure 5 (repeated from Figure 2) Throughput at major Mediterranean Ports 1975-2005

La Spezia was created from scratch as a container port by a Genovese entrepreneur named Angelo Ravano who wanted to operate a port outside of the historical relationship on the docks at Genoa. La Spezia was the first private port in Italy and was set up to be a direct competitor for Genoa. As the trendlines in Figure 5 indicate, La Spezia was quite successful in this regard from the late 1980s until around 1995 when the privatization in Genoa appears to have won back much of La Spezia's gain.

Of all of the Mediterranean ports, the Genovese seem to hold up Barcelona as their model and ideal. Barcelona has moved towards a mixture of public and private ownership much like Genoa's, but it has set itself apart (at least in the minds of the Genovese) by coordinating this privatization with major improvements to its physical infrastructure. On several occasions, interviewees commented that Barcelona was set

to leave Genoa far behind in the future because of these improvements—regardless of the fact that the two ports had implemented similar competitive policies with regards to port governance and labor regulations. In terms of container throughput, Barcelona appears to have operated at a level roughly comparable to that of Genoa for most of the 1975-2005 time period. The two points of divergence are Genoa's relative advantage in the years following the port privatization and Barcelona's more rapid upswing, overtaking Genoa once again, in the last several years.

Marseille is the final point of comparison with Genoa in the Mediterranean. Marseille has not undergone the privatization that occurred at most other locations in the port range and the port suffers from a contentious relationship between dockworkers and port management. As one interviewee put it, "our good fortune is that Marseilles is still at war--they punch each other every day, otherwise we would have already lost the competition" (Genova#6, 2005). During autumn 2005, Marseille was frequently in the news with images of violent battles being waged on the docks between workers fighting to protect their control and the national army which had been called in to enforce calm in the face of a new law aimed at Genoa-style reforms. Returning to the data in Figure 5, it seems clear that Marseilles has suffered somewhat in terms of throughput when compared with its Mediterranean counterparts.

Reviewing the data presented so far, Genoa's privatization has indeed made the port more competitive vis-a-vis its geographic competition. The port improved markedly with respect to these ports after the implementation of Law 84 in 1994 and

the only ports to have kept pace and exceeded Genoa's performance are the two ports where additional competitive policies are also in place.

A more careful examination of the data reveals some inconsistencies in the narrative of privatization as competitive improvement. Figure 6 looks at rate of change in throughput at four of the five Mediterranean ports described above (Gioia Tauro is left off because its change of 3464% between 1995 and 1996 throws the scale of the chart off, making it difficult to examine the other ports carefully). This figure uses five year moving averages to eliminate some of the erratic swings in cargo flows to better focus on the trends in the data. What this figure highlights is the temporary nature of the gains offered by competition. As many critics of competitive policies have argued previously, competitive policies will have only temporary effects as competitors implement similar or more aggressive policies and negate any initial advantage (Leitner and Sheppard 1999; McCann 2004; Peck and Tickell 2002). This tendency is clearly evidenced first by the data for La Spezia in the 1987 to 1992 period, and then by Genoa in the period extending from 1992 until 2000. Ironically Marseille, which has been most successful in resisting (or least successful in implementing) competitive policies, appears to be growing at roughly the same rate as Genoa in recent years. The comparable rates of growth between Genoa and Marseille suggests that, after competitive policies have run their course, the implementing city may return to its prior status within the economic network rather than having the rest of the network catch up to its temporarily high rates of growth.

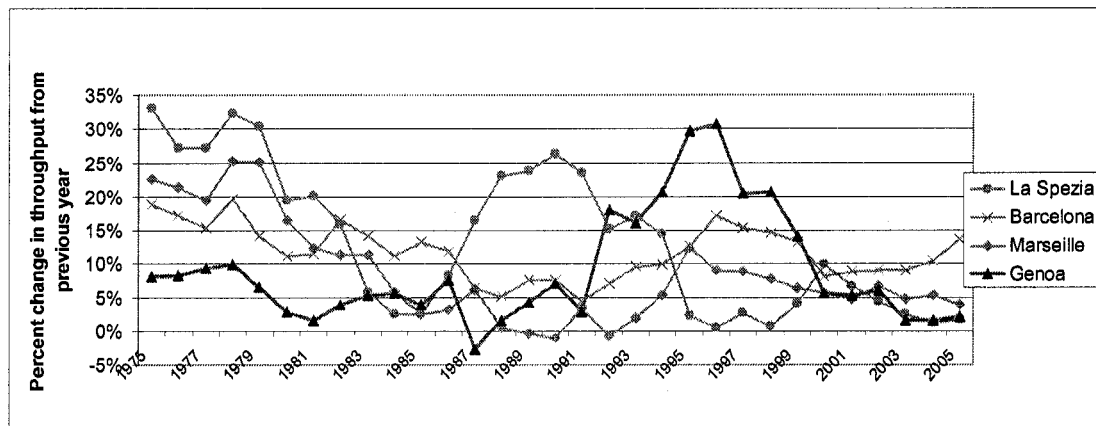


Figure 6 Percent change in throughput from previous year 1975-2005 (5 year weighted average)

The fact that throughput is almost exclusively the measure used to judge the competitive success of a port is a telling sign of what is deemed to matter in the discourse of competition. Throughput is actually a remarkably bad measure of economic impact. Although the number of containers moved may stand in as a useful measure for how much money is being made at the port, it is a poor indicator for judging the economic relationship between port and city. Enrico Musso, a prominent maritime economist based in Genoa, has written widely on this topic and argues convincingly that the move to containerization has reduced the impact that cargo has on the port where it comes ashore (Benacchio, Ferrari et al. 2001; Musso 1996; Musso and Benacchio 2002). With radically reduced labor requirements for loading and unloading ships, the impact that cargo has on a port city is determined by the extent to which the cargo is improved (assembled, repackaged, finished) in warehouses located near the port. Another important factor is the provision of high-end services to the maritime industry such as ship brokering, legal support, vessel

repairs, and so on. Despite their importance, these measures are very rarely mobilized in discussions about the competitive success or failure of the port.

One common measure for estimating the changing role of the port with respect to the city is the number of individuals employed by the port. This information comes up against a further set of hurdles. According to an individual familiar with the economic data and record keeping at the port, the port has only maintained employment data since 1995 (Genova#18, 2005). This claim is belied by information provided by the Port that includes data going back to 1990 (shown in Figure 7). Complicating matters further is the fact that the numbers shown in Figure 7 are demonstrably false in the pre-1995 period. Estimates from employees of at the Port Authority, a prominent member of the terminal operators' association, a representative of a national union, and a member of one of the *companie* all pointed to an employment level prior to 1995 that was between 10,000 and 15,000 (Genova#3, 2005; Genova#11, 2005; Genova#16, 2005; Genova#19, 2005). This, of course, has a radical effect on the message to be presented in Figure 7 as the second portion of the figure demonstrates. The biggest change is in the number of employees at the port (estimated at 3,500) and the members of the *companie portuali* estimated at 9,000. In estimating the effect that competitive policies had on employment in the city, we are left with no clear answer. The data provided by the port (and presented widely in works describing the impact of the 84/94 law) is, by the port's own admission, wildly inaccurate. The more accurate picture is much less favorable, though the data to make this case formally are not available.

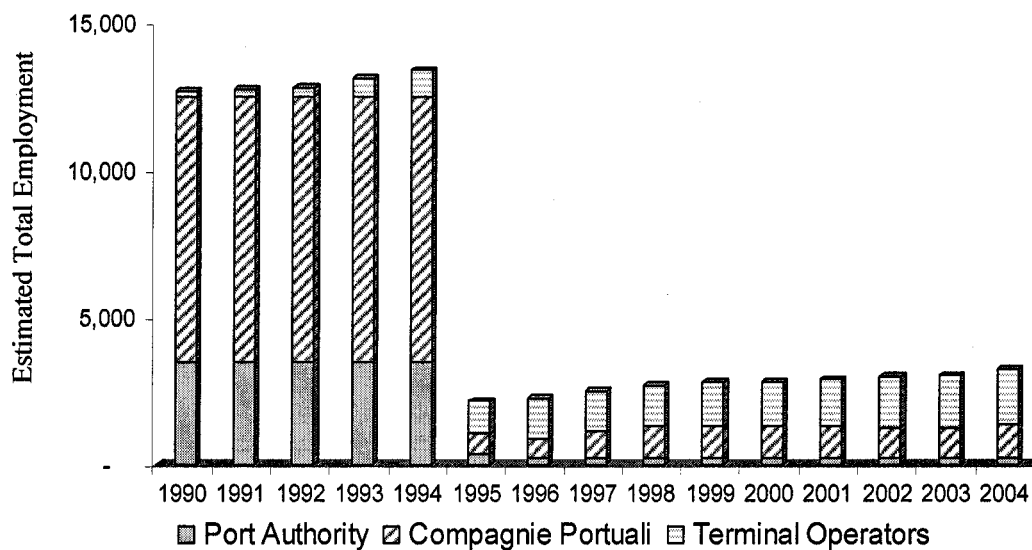
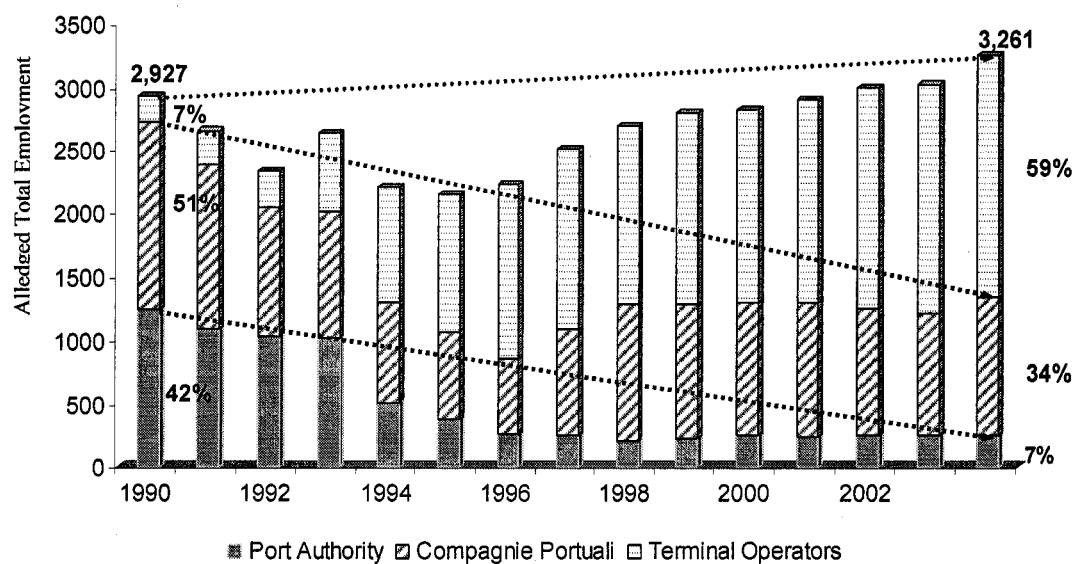


Figure 7 Alleged and Estimated Number of Employees by Employer, Port of Genoa 1990-2004

In summarizing the economic impact of Genoa's privatization policy, the results can only be described as mixed. Clearly there was some initial impact on throughput at the port. Genoa saw gains in absolute terms, but also in comparison with its competitors for a period of approximately six years. This boost in throughput kept Genoa in the running with the largest ports in the Mediterranean port range, though it continues to be dwarfed by the ports of northern Europe. In a broader reading, however, the policy does not fare so well. It had limited or more likely negative effects on the port's contribution to employment within the Genovese economy and the competitive advantage provided by the policy seems to have faded to the point where the annual gains are not much better than those at neighboring Marseilles where no privatization took place and the advantages of higher employment figures and related 'inefficiencies' still contribute benefits to the city's economy.

Competition as a discourse for policy promotion

Competitiveness is unequivocally an important policy goal for the Genovese. The Genovese identify their city very strongly with the affairs of the port and every interviewee felt that it was important for the port and city to be competitive. Nevertheless, very few of the interviewees identified competitiveness in the economic framework presented above. Instead, competitiveness was constructed in very personal terms as a way of advancing local goals of specific interest to the individual. These discursive constructions were often consistent across individuals with similar interests or group memberships, but differed outside of these groups.

Three separate constructions of competitiveness appeared with particular frequency: a neoliberal construction that offered exceptional benefits to business interests, a social welfare construction that sought to bring government resources in to correct social problems brought about by globalization, and a sustainability construction that emphasized resource spending on public amenities and “third way” economic development at the expense of the port’s traditional clients. Some of these discourses used the idea of competition to justify actions that could not be considered competitive in economic terms at all. The success of the policies advanced by these discourses was largely dependent on whether or not multiple groups within the local political arena supported them. Whether the policies were welfare maximizing or efficient does not appear to enter into the success rate whatsoever. Unlike the rather short-term effects that the privatization of the port had on Genoa’s position within the global container freight network, these local policies appear to have had important long term effects on the distribution of resources within the city. The local distribution of resources and the global position of the city are not, however, unrelated. In the final analysis, it appears that Genoa’s real strength within the container network comes from the dense network of relationships which surround the port. These relationships represent real, long-term sources of value that are not replicated elsewhere. It is these relationships that maintain Genoa’s global ranking, while the production function changes described above are merely ancillary.

Nearly every Genovese I interviewed felt that being competitive was important for the economic well-being of the port and the city. Some saw competition in terms that were classically economic:

“they say this container port is in competition with La Spezia and Livorno with Marseilles, with Barcelona, and so they need to give away the space for free to be competitive” (Genova#12, 2005).

Others anchored competitiveness in geographic advantage:

“The port of Genoa today does not compete for that which it could be. For that which it could do, for that which its geographic position provides” (Genova#16, 2005).

Alternatively, some of the interviewees implied support for competition on some levels favored by economists but resisted the idea that competition should be based on labor costs:

“They don't say that 'we need to modernize our terminal' 'we need to re-look at the plan for our operations' 'we need to be competitive in terms of quality' no they say we need to be competitive on labor costs” (Genova#3, 2005).

Some respondents, however, phrased their ideas in terms that are anathema to the idea of free-market competition that competitive policies allegedly espouse:

“I don't think Genoa can stand still. It must compete. It is a city that is developing and searching for a new form. Who knows how it will be paid for, maybe the central government, maybe a tax, maybe some financing from the European Union, but whatever, we cannot stand still” (Genova#13, 2005).

Competitiveness among the interviewees was framed in personal terms. Those investing capital in port operations were the most likely to frame competition in terms of labor and capital costs. Labor interests framed competition in terms of quality of product but expressly avoided calls for competition on labor costs. Individuals

engaged in the tourist industry felt that competition should mean a move towards service and culturally oriented aspects of the economy and away from the industrial sectors traditionally associated with the port. Politicians viewed competition in terms of infrastructure projects.

Competition was not at all limited to the spheres of action theorized by economists. Competitive policies as theorized by economists are straightforward; they reduce inefficiencies in local production functions, thereby modifying the economic conditions in a city to attract capital or to improve the conditions of existing constituents. Competitive policies supposedly interact with well defined segments of the economy to produce these effects. In Genoa, however, the targets of competitive policies varied widely across different groups. Each of these groups took parts of the narrative of competition and abandoned others, sometimes spectacularly as in the quote above where Genova#13 calls for competitiveness to be paid for by the government. Furthermore, these competitive narratives sometimes called for action that had only tangential relationships to the economic relationships of the port or city at all, as in one interviewee who saw Genoa's competitive future as dependent on the arrival of a unifying patriarchal quasi-political leader,

“in the end the previous plan was fatherless, [the port and city] needs a father in order to move forward” (Genova#8, 2005).

Because competition is framed in such personal terms, we need to separate the clearly-defined, free-market competition analyzed in the previous section from this more fluid discursive construction of the idea of competition. It is a serious oversight

to look at competition only through the lens provided by economics. Interviewees used competition as a means of expressing hopes and aspirations for the city. They also expressly draw on the idea of competition to lend credence to their ideas. For example, several interviewees cherry-picked the idea that competition depends on expansion and free movement to justify government investment in a massive 35 km railroad tunnel that would connect Genoa with the Padana plain to the north. This plan was far too expensive to be justified based on purely market terms. Nevertheless, this tunnel would provide tremendous benefits to its supporters and so was framed as an absolute competitive necessity (Genova#1, 2005; Genova#2, 2005; Genova#14, 2005).

In another twist, one representation of competition that came up repeatedly in the interviews was the idea of competitiveness as an alternative to the political infighting and subsequent inaction that dominates Italian politics. This is a fascinating point for examining competition because individualism was repeatedly cited as a significant barrier to competitiveness. In economic theory, competitiveness is founded on the freedom of individual subjects to act independently to maximize their own welfare. Because of their homogeneity of purpose (typically based on the maximization of wealth and therefore goods consumed), this individual freedom is the driving force that makes the free market work. In Genoa, however, people's interests are very much at odds with one another. As one interviewee put it:

“There is a Genovese characteristic, whatever work you want to do there is a group of citizens who are organized in opposition to that work. Anything....if you say you want to fold paper, there is a group of people blocking the street

in protest. Genoa is this way. And so there are many projects that get held up. Genoa is a disaster; it threatens to remove Genoa from the largest trade networks.” (Genova#11, 2005)

Individuals pursuing their own interests are represented as anti-competitive in this quote and in countless others. Political infighting and turf wars are one of the most frequently cited gripes within Italian policy discourse. In the interviews I conducted, appealing to the rationale of competition was almost always also understood as a code for ending political infighting to get the important things done. This is consistent with economic theory up to a point, but individuals had very different ideas of what was important. Consequently, people’s differing assessments as to what was important lead them to create different discourses of competition that make their interests appear favorable.

Individual goals are critical to understanding views on competitiveness, but the interviews suggested that the oft-cited individualism was strongly organized within groups organized around shared perceptions. There are real hazards to making claims about class membership as it has often been understood in geographic literature (Gibson-Graham 2006). People change, hold beliefs that are inconsistent with their material interests, and ‘belong’ to multiple classes in different aspects of their lives. Despite these drawbacks, there was strong evidence of shared class perspectives in Genoa. The way these classes were organized had significant effects on the eventual outcomes of the competitive policy debates and therefore deserves further consideration.

The importance of class interests in this research is related to the role of perception in determining the local outcomes of competitive policies. As stated above, interviewees employed very different narratives about competition that were specific to their individual interests. Where individual interests were in alignment, thus constituting a species of class interest, narratives about competition tended to be consistent. Thus, for example, four different individuals for whom increased throughput at the port would have financial benefits all framed the construction of “the famous third pass” (*il famoso terzo vallico*), a grossly inefficient railroad tunnel, as being competitive (Genova#1, 2005; Genova#2, 2005; Genova#14, 2005; Genova#16, 2005). From a purely economic point of view, the tunnel is an inefficient expenditure. At over 35 billion euros, it would be cheaper to relocate the entire port infrastructure to a location without the limitations imposed by Genoa’s steep terrain than to build this structure. Yet each of these individuals had a substantial investment in the expansion of trade through the port and not just anywhere. This shared interest caused them to share a perspective on competition.

Not surprisingly, similar class interests could be found among the individuals associated with the labor movement on the docks in Genoa. These individuals constructed government payments to workers as a necessary step to preserve the port’s competitiveness. From the standpoint of economic theory, adding government payments to the wage bill is pure inefficiency and diametrically opposed to the idea of creating a competitive port. Nevertheless, exactly this strategy was promoted and secured by the labor interests at the port in the name of enhancing competitiveness

and its effectiveness confirmed by those who opposed this intervention (Genova#3, 2005; Genova#6, 2005; Genova#9, 2005; Genova#11, 2005; Genova#17, 2005).

Individuals use competitiveness to promote their own goals whether competitive in economic terms or not. To the extent that individuals have shared interests, they appear to have constructed similar narratives of competitiveness to promote those interests.

The importance of these shared class perceptions takes shape as we begin to look closely at the full spectrum of outcomes associated with competitive policies at the port. Much more was accomplished by the 84/94 law than adjustments to the local production function; the impacts extend well beyond the addition of a few thousand extra containers per year. These impacts are closely related to the political power exerted by various institutions participating in the port's policy environment. One important organizing force of these institutions is the shared class interests and thus shared constructions of competitiveness. To the extent that a group's policy goals were not in direct conflict with the goals of other groups, these goals seem to have been more or less successful, but when two institutional forces disagreed on a policy goal, that goal was not enacted.

To students of urban governance, the important role of institutions and other class groups in negotiating policy outcomes is a well-established fact. Research on regulation theory is just the latest in a long line of theoretical models that seeks to explain the distribution of power and policy success (Bachrach and Baratz 1962; Brown 1999; Cox 2002; Dahl 1963; Harvey 1989b; Jessop and Sum 2006;

Magnusson 1986; Molotch 1976; Stoker 1995). Nevertheless, theories of competition and assessments of competitive policies have completely ignored the role of institutions and negotiation in advancing policy outcomes. The economists' assessment of competitive policies allows no room for class interests and does not include the effects that these interests have on the distribution of resources.

In Genoa, three separate constructions of competitiveness appeared with particular frequency:

- a neoliberal construction that offered exceptional benefits to business interests,
- a social welfare construction that sought to bring government resources in to correct social problems brought about by globalization,
- and a sustainability construction that emphasized resource spending on public amenities and "third way" economic development at the expense of the port's traditional clients.

These representations of competitiveness were by no means completely consistent, but as themes, they came up often enough in interviews to be noteworthy.

Furthermore, each of these discursive constructions had long-term material impacts on the local economic development of Genoa that fell outside of typical range of measures used to judge competitive policies.

Competition as neoliberal reconsolidation of power

The business community was a staunch supporter of the reforms implemented at the port of Genoa under the 84/94 law. Under the rubric of increased competitiveness, this community, and particularly the individuals who managed the port terminals, managed to accrue substantial benefits to their businesses. At first glance, these gains might be attributed to the removal of barriers to efficiency as

described in the analysis of production function costs above. Upon closer examination, however, enough inconsistencies appear to suggest that the gains of this particular group can be most usefully understood in terms of a successful political move to recapture more of the local economic pie.

From the start, representatives of the port business community have represented the policy needs of the port in terms of competition as understood by economists:

"the first stage of privatization...was to a modern and competitive labor system that would be market driven, and liberated from the narrow alleys imposed by the normative regulations of public activity: just as was done in the North European ports." (Cabona and Massardo 2003 p.145)

"The traffic generated by the 'global' economy is growing, albeit slowly, but to take full advantage of the opportunity offered by such growth, the port companies must look toward the future and in a dynamic manner, because these are the new rules of the game. Italian shipping in Genoa has to play by these rules and the entrepreneurs operating in the port must be able to eliminate the encrusted atavistic layers of interwoven vetoes that, traditionally, divide the wharves." (Autorita Portuale di Genova 2004 p.27)

The 84/94 policy was also explicitly labeled as a measure to move the port closer to these economic ideals:

"the dockworkers union and the terminal operators will deal with each other as economic subjects and autonomous firms." (Cabona and Massardo 2003 p.113)

To some extent, these ideals of competitive behavior were instituted with the 84/94 law. Dockworkers now negotiate with terminal operators as individual subjects for the most part, and the reconstituted Port Authority's "atavistic layer" is no longer a check on the behavior of the firms that operate the docks. Where the tenets of

economic theory were in line with the interests of these highly motivated, well-funded business interests, they were put into practice and justified as moves towards competitiveness.

While some of the outcomes of the 84/94 law were in line with economists' views on free-market competition, some of the most important advantages gained by the business community are in direct contradiction to these tenets. This dynamic is quite evident in the process of granting private concessions for the terminals in Genoa. The first sign that the bidding for these concessions was not conducted without some political machinations is that all of the terminal concessions were granted, after 'competitive' bid, to exactly the same companies who had used these terminals when they were held publicly. The only case where a newcomer entered the market was the concession granted for the modern VTE container terminal that was won by the perennial Italian political powerhouse Fiat. As one interviewee commented, Fiat saw the privatization of the port as an investment opportunity and used its political muscle to win the concession for a low rate and then immediately resold the concession at market rates to the Singapore Port Authority (Genova#6, 2005). Winning the port concessions essentially allowed the established terminal businesses to continue their operations as before, but with freedom from the labor restrictions imposed by the *companie* and with less of the profit from their operations going to the public coffers.

Complex relationships of power among Genoa's shipping elite clearly played a critical role in determining the allocation of benefits stemming from the

privatization of the port terminals. Where economic theory foresaw market competition for these concessions, they were distributed based on networks of local influence. However, the misapplication of economic principles was not restricted to the uncompetitive bidding. Even more insidious was the use of economic theory to identify the appropriate bid prices for these terminals. The terminals were put up for auction not in a freely competitive manner, but based on the principle of opportunity costs; as one interviewee (an economist by training) put it:

“the economists have an explanation for this, it is an opportunity cost, and the cost of this space is very low (since there is already a container port there) so the opportunity cost for this property is zero, therefore the ports feel justified in giving the land away for free. If there is a terminal there and some ships come, then at least there will be some people employed to operate the cranes.” (Genova#12, 2005)

Bidding on the terminals was organized in such a way that only “suitable” candidates were allowed to bid on the terminals, and then the price was set, as stated above, based on the opportunity costs assuming the terminals would otherwise remain empty. Discussions with a different interviewee who was very familiar with the operation of the terminals subsequently suggested that the terminal operators had worked together with the port to set the prices for each concession, suggesting that they are not free, but it appears that the bidding reflected only established relative values based on prior experience, not market values (Genova#16, 2005).

A second point of contradiction between the outcomes of the 84/94 law and economic theory comes from the continued lack of competition among businesses on the docks. While labor must now negotiate without the power of a closed-shop union,

the same cannot be said for the terminal operators. This tendency has been generalized as one of the major contradictions of neoliberal policy. As David Harvey states:

"While the virtues of competition are placed up front, the reality is the increasing consolidation of oligopolistic, monopoly, and transnational power within a few centralized multinational corporations: the world of soft-drinks competition is reduced to Coca Cola versus Pepsi, the energy industry is reduced to five huge transnational corporations, and a few media magnates control most of the flow of news, much of which then becomes pure propaganda." (Harvey 2005 p.80)

Harvey's criticism can also be applied to the privatization of the wharves in Genoa where the set of policies implemented by the 84/94 law directly abets the continued consolidation in an industry that is not only dominated by a few players, but where international law actually permits collusion.

As stated previously, the business of shipping containers has been characterized by consolidation as the largest companies have built bigger and bigger vessels to capture economies of scale. In recent years, however, these companies have relented somewhat in their drive to increase profits through economies of scale, focusing instead on profitability in port-side operations. The ocean carriers have invested in dedicated terminals where only their ships may call to achieve greater profits. This move has gone hand in hand with the privatization of port terminals around the world. While ports were owned and operated by public agencies, they could not openly play favorites towards one carrier over another and so it was difficult to negotiate for dedicated terminals. More recently, however, the privatization of terminals has led a number of ports to grant major concessions to the

largest carriers, frequently in exchange for promises of continued and increased calls at port or for investment in port infrastructure. The smaller carriers are not able to provide volume sufficient for a dedicated terminal, and are left to continue their operations through a public terminal that, because it no longer has to serve the largest industry players, can often be left short on infrastructure investment. Faced with less efficient port operations, the smaller carriers are left to offer a less reliable and often more costly service, further advancing the interests of the large carriers.

The move towards conditions in which the largest carriers can exclude or reduce port access to smaller competitors is a powerful example of the ways in which the 84/94 law, and others like it, purports to promote competition while actually setting the conditions for greater monopoly. After the law was passed, the largest local proprietors were able to gain the concessions for their terminals; for example, almost immediately the industry's largest player, Maersk-Sealand, began applying for the rights for a dedicated terminal. That this terminal has not yet materialized is a point of contention among Genoa's shipping community and is largely blamed on citizen's groups fighting the expansion of the port, an important example of political conflict driving outcomes completely divorced from market stimuli.

A third way in which the 84/94 law is inconsistent with economic theory is that, despite the privatization of the terminals, the government retains responsibility for a wide range of infrastructure investments. Unlike U.S. ports where private terminals mean that the terminal operator provides all the on-dock equipment, Italy has a peculiar system in which the government continues to fund all infrastructure

improvements on the docks even though the use of those docks is restricted to the concession holder. This means that the terminal operators are able to operate with very little risk in terms of capital investment in the terminals. To be fair, it should be noted that having to rely on the Italian government for improvements is at best a mixed blessing.

As port constituents continue to push for the implementation of further policies aimed at competitiveness, the issue of government investment in infrastructure is one of the most important themes. There are a number of massive projects in the planning stage that could contribute substantial gains to the terminal operators if they were implemented while nationalizing the costs. Projects such as *il terzo vallico* and Renzo Piano's *fresco* are high on the list for investment by the port and the federal transport ministry despite the fact that very few individuals would profit from the investment.

The competitive advantage enjoyed by Genoa in the wake of the 84/94 legislation faded significantly after only five years, but the distribution of profits from the shipping industry appears to have changed for the foreseeable future. The construction of this policy as competitive aided in its passage, but the outcomes are full of new inefficiencies and subsidies that bear little resemblance to economic theory. These outcomes are not chance, or byproducts of imperfect implementation, but rather are the result of political influence and will on the part of the interested parties. These policies also bear all the hallmarks of neoliberalism, concentrating economic benefits in the hands of a business elite. As we will see in the following

sections, however, the business community was by no means the only group to gain from the implementation of the 84/94 law. The example of the business community manipulating policy to their own advantage fits in well with the literature on neoliberal policy, but it is premature to end our examination of the outcomes of this competitive policy at that point.

Competition as a justification for the social safety net

The labor movement has been powerful in Genovese politics for many years. In the late 1980s and early 1990s when the privatization legislation was being debated, the dockworkers union was in a crisis brought about by the changing technology of containerization. To counter this difficult situation, the unions worked hard to shape the privatization legislation in a way that would solve their own crisis and save the union. They drew heavily on the idea of labor situated within global networks and the need for Genoa's labor to be competitive to achieve this result. Typically, and often rightfully, privatization is associated with the interests of capital and the withdrawal of the social safety net. In this case, however, being competitive was constructed to include a major influx of funds from the federal government. Flying in the face of economic theory, a major impact of the competitive policies implemented in Genoa was to provide generous financial compensation for displaced workers.

"La Compagnia Unica", the largest of the dockworker *companie* in Genoa was a powerful political force in the city. The workers of La Compagnia were seen as privileged. They were paid well and paid regardless of whether they worked or not.

They became an aristocracy within the working class of Genoa. As one interviewee observed:

"In the smaller Italian ports La Compania was just a union like any other, but here, where it began, it had become a part of the community. La Compania had made investments in everything--the hospitals, other businesses, etc... this annoyed the local government and so they wanted to limit the power, not augment the power, of La Compania in local politics, get them out of their field of play and focus them on the port" (Genova#11, 2005).

Other observers felt the power of the dockworkers as a threat to law and order within the city:

"when they came down into the public squares they made people afraid. Because they would descend on the squares with huge machines--that weren't even theirs--they belonged to the port, but they used them for their strikes just the same. They used them and no one said anything. These huge things that went Bruhhhhhhhh.... in the streets, they made the streets shake, heavy, they used them also against the police. Breaking the cars of the police. There was this climate of anarchy, this climate of violence. And so one sought to have calm, in this time they did what they wanted." (Genova#1, 2005)

Even the unions had their fights with the *companie*, with the *companie* periodically refusing to participate in strikes called by the unions and never honoring the national contracts that the unions negotiated (Genova#3, 2005).

Given the power of the union in the city, it is difficult to understand why this city, this port, would be the place where privatization on the docks first took hold in Europe. A member of the union movement in Genoa answered that question saying,

"Because of the crises. There were times during the years at the end of the 1980s where the port security had to warn ships off with a siren because the docks were in such chaos. Also, it had to do with local power.... The crisis generated down on the docks was a time where the local government could make its move. Things had gotten so bad that Genoa was thrown out of the

international network, the relationships with the rest of the world were cut"(Genova#11, 2005)

The advent of large-scale containerization brought about an internal crisis in the union. Based on ideas of solidarity the *companie* guaranteed a living and retirement benefits to all of their members. As the demand for labor dropped at the port the burden of paying for those who were not working became harder and harder to bear. In fact, the productivity gains made possible by containerization virtually guaranteed that the port could not support the full roll of 9,000 *companie* members. Changing the practices of the union would have meant breaking the promise of solidarity for most of the existing members. Alternatively, failure to change was pushing more and more traffic away from the port, jeopardizing the livelihood of all of the workers.

As the quote above indicates, the dockworkers framed their crisis in terms of Genoa's position within global networks. The solution they identified was to persuade the Italian government to intercede and provide early retirement for nearly ninety percent of the union. Or as one union organizer put it:

"At a certain point they saw the opportunity to get money from the government to solve the problem of the excessive number of workers they had. And so they became business men" (Genova#17, 2005).

The reference to businessmen above refers to the exceptional package that the retiring union members received, but also to the way in which the union members justified those benefits. With a sense of disbelief in his voice, a member of the shipping community laid out the benefits:

[The state] put their hands in their pockets and began to pay for early retirements--they gifted them 7 years of work [setting pensions as if they had

worked seven more years than they had in actuality] and those that had the right were able to go into retirement at 41 or 42 years of age with the full pension plus an exit bonus. Porca Miseria!”(Genova#16, 2005)

The government did this in part because of the argument that it was necessary for the Italian workforce to be competitive. The union was successful in framing the question as competitive in large part because it linked the resolution of this issue to the national success of the port system. Although the effects of the investment in the labor union were to be local, the benefits of efficiency at Italy’s flagship port made it a national question. With this in mind, a prominent politician involved in the affairs of the port laid out the decision to fund the union retirement thus:

“So, how do we resolve these problems?...with investment. But these big investments should be paid for primarily by the State, because Genova has become a national question” (Genova#9, 2005).

The long-term outcome of privatization at the port continues to call into question the concordance between the theory and practice of competitive policies. The early retirement of roughly 8,000 out of 9,000 workers ended the crisis on the docks, and subsequent gains in throughput at the port have gradually increased the number of workers employed there. Nevertheless, work on the docks continues to be characterized by uncertainty and sudden spikes in labor demand when multiple ships need unloading. This uncertainty was a principle reason for the formation of the types of solidarity arrangements put in place by dockworker unions across the world. Although the state was able to reduce the rolls of union members, they could not change the uncertain patterns of labor demand. As a result, the state has had to fill the

gap left by the union's dissolution. A politician noted the irony of the seeming improvement in labor efficiency on the docks:

"if they are called to work they have to go work, but if they are not called for work then they go collect unemployment from the State--before the port paid for the availability of these workers, but now it is the state" (Genova#3, 2005).

In the present day, the unions continue to adopt the strategy of framing their interests in competitive terms. A copy of the most recent union 'manifesto' developed as conference proceedings includes a standard litany of growth statistics that would fit in seamlessly in promotional literature for the Port of Gioia Tauro. Throughout the document, the labor organizers frame their interests in terms of making investments on par with those put forward by Barcelona, Marseille, and Valencia (Bosco 2005). However, the union version of competitive behavior is consistently different from other narratives in the obvious insistence that competition should not take place on the backs of labor.

"The thing that the unions cannot tolerate is that there would be a competition among the ports based on the cost of labor. There are a few movements to join forces among the unions that are involved in other ports around the Mediterranean---there is an international union ITF International Transport Federation, which is working on this. We also have contacts with Marseilles, Barcelona, etc..."(Genova#11, 2005).

Competition promoting the sustainable city

Concurrent with the implementation of the 84/94 law that privatized Genoa's docks, the waterfront was undergoing another related transformation focused on restoring the city's cultural heritage. This urban renaissance was driven by its own narrative of inter-urban competitiveness focused on livability, tourism, and

sustainable economic development. This narrative of competitiveness came into direct conflict with the competitive policies being implemented at the port because both sets of policies envisioned expansion for their interests on the crowded waterfront.

The urban transformation of Genoa began with the city reclaiming a large portion of the ancient port for its own use. The space was cleared and opened up as a beautiful set of pedestrian piazzas, a vast aquarium, and a crane-like elevator capable of carrying tourists up several hundred feet for a view of the city. Warehouses in the area were converted into expensive loft spaces and a modern movie theater. Cafes, bars, and nightclubs sprang up along the periphery of this new public space. Possibly of greater importance, the city knocked down buildings and widened streets so that there is now a direct route from the palaces and museums of the city center down to the waterfront. The importance of this urban transformation to the people of Genoa cannot be overstated. In the fifteen years since the project was completed, they have gone from thinking of themselves as a dying, drug-plagued industrial city to celebrating their achievements as a European Capital of Culture—a title the city held for a year in 2004.

Genoa's urban revitalization strategy is in many ways a classic competitive policy. The city has actively sought to improve its "brand" by developing its waterfront amenities much as cities such as Baltimore, London, and Vancouver, Canada have done. The city bid for and won the right to call itself European Capital of Culture expressly to create a new image for itself. This approach builds on one of

the city's formerly hidden strengths: it was a wealthy and powerful city during the Italian Renaissance and it has many beautiful buildings and magnificent pieces of art. Furthermore, by enhancing the amenities along the waterfront, the city has become more livable in many of the ways that Richard Florida perennially recommends (Florida 2002; 2004).

What makes the competitive policies aimed at urban sustainability interesting in the context of this chapter is that these competitive policies came up frequently in discussions about competitiveness at the port. Although these policies make claims on land that the Port Authority will not release willingly, the individuals who were interested in promoting the idea of a sustainable city saw these policies as a viable path for the *port* to improve its own competitiveness.

These policies proposed under the loosely defined rubric of the sustainable urban environment imagined a completely different future for the land along Genoa's waterfront than the policies proposed by the port and business coalitions; the result is a kind of competition among proposed competitive policies. As one close observer of Genoa noted:

"the institutions of the city do not occupy themselves very much with the port--the city, the province. A few years ago they didn't think at all of the port because they were separate worlds. The port, with its need for space, was seen as constraining the city. And the city was ugly because of the port, and then when the ancient port was returned to the city, this rapport changed somewhat. The people had retaken this small piece of the sea and it was pleasant even with the port there and so the port became something less evil."(Genova#10, 2005)

Although the port was seen as less evil, the citizens of Genoa were not willing to make the sacrifices for it that representatives of the port thought were their due. This phenomenon is explained by one interviewee as a function of the city's move away from an industrial path still associated with the port:

“I think we need to choose a path for this city. With the industrial path that we have already tried it went badly and I believe that the port needs to focus on the tourist path rather than the industrial path and so I don't think the *terzo vallico* is worthwhile. I think in the future it should be more focused on the cruises. This is where the growth is possible. In part because I think that this is where the growth is going to be in all of the northern Italian cities, therefore, if we are banking on increased growth in the industrial sectors it will not come. Torino for example, used to be tied to Fiat, but now look at the Olympics there and Fiat is almost gone” (Genova#13, 2005).

This young interviewee's perspective on the future of the city equates the port with the city's failing industrial sector despite the fact that the port's expansion has little to do with these sectors, being much more closely tied to the retail sector of the economy. This is an important link because it equates the port's expansion with investment in industries that are not competitive in Italy, namely steel and coal. The competitive narrative woven around the sustainable city equates port expansion with allegiance to these inefficient industries in comparison with the waterfront redevelopment initiatives which are tapping into tourism, culture, and “third way” economics (Genova#13, 2005).

Another reason that the waterfront redevelopment policies come into conflict with the port's expansion plans is the changing demographics of the city. Declining birth rates in Italy, and in Genoa in particular, have meant that the city is rapidly

aging. At present over thirty percent of the city is retired. One rather bitter port promoter commented that

“Genoa is a city of old people now and it is a city with young retired people. These people are interested in different things now. They don't care at all if the port is growing or not, but even more, it is a bother to them--they want to fish, they can't go to the beach, there is noise of trucks on the street--the port has become an annoyance”(Genova#11, 2005).

With fewer people relying on the port for jobs, even indirect jobs, there is much less reason to support port expansion than there might otherwise be. A prominent economist set it out in these terms:

“The citizens see that the port occupies all this space, blocks the expansion of tourist activities, gives work to 10,000 people in a city of 600-700 thousand inhabitants is it still indispensable? No.” (Genova#12, 2005)

The port's expansion is caught between the aspirations of a younger generation hoping for work in the service and information sectors and an older generation that has no use for economic development in their retirement. This pressure has led to an important series of standoffs between the two narratives of a competitive Genoa.

The competitive policies that revitalized Genoa's waterfront represent only one part of the effect that this powerful political lobby has had on the port's competitiveness. The success of the revitalization has given its supporters confidence to oppose infrastructure projects proposed by the traditional port constituencies. A major element of the 84/94 law was a requirement that the port develop a ten year infrastructure improvement plan (*il piano regolatore*) to guide investments in port infrastructure. The Port Authority developed this plan in relatively short order, completing it in 1998. Nevertheless, none of the projects that were external to the port

area have been built. The resistance of Genoa's urban revitalization constituency and its affiliated political institutions (primarily political parties) is the principle reason for this delay.

The failure to implement any of the infrastructure elements from the *piano regolatore* is a major point of dissatisfaction with interviewees who worked in the port, and not just the failure to implement the big projects. According to one individual, "At the very least we should have a neutral environment with respect to the city" (Genova#19, 2005). Those who work in the port almost universally expressed the idea that the city had forgotten the port and the port's role in the local economy (Genova#1, 2005; Genova#2, 2005; Genova#9, 2005; Genova#15, 2005; Genova#16, 2005; Genova#19, 2005). They blame the gridlock in implementing the regulatory plan on this forgetfulness on the part of the city, and on the political climate in which a seemingly small group of individuals could halt major elements of the regulatory plan.

In contrast, those individuals who were not directly connected to the port were among the strongest in declaring the port's importance to the city (Genova#5, 2005; Genova#6, 2005; Genova#10, 2005; Genova#13, 2005). These individuals believed that the city could not succeed without the port. The difference as they perceived it was in what steps would truly make the port more competitive. Those directly tied to the port saw competition in terms of port expansion and higher throughput. The other interviewees tended to frame competition in very different terms that were at times in

direct contradiction to the goals of port expansion, for example, in terms of recapturing more of the wharfs for urban redevelopment use.

The current “solution” to the conflict between constituencies interested in port development in Genoa provides yet another interesting angle on how competitiveness can be framed. Recall that port users want a bigger port while the rest of the city wants the port to succeed but with less space than it currently enjoys. In response, Renzo Piano, the architect of the urban renewal plan, presented a “fresco” in 2005 that sought to lay out the infrastructure necessary for a compromise. The fresco was presented in one of the waterfront piazzas to much fanfare and media coverage. The solution presented by Piano represents an infrastructure improvement of unprecedented size. The project foresees the existing airport converted to an additional container terminal while the petroleum port and a new airport are moved offshore onto man-made islands to be created with dredge material in water some eighty feet deep. The rest of the ancient port would be given back to the city, and the important dry-dock and ship-outfitting operations would be moved over to the area where the petroleum port is now.

Piano’s fresco represents an interesting solution in that it attempts to resolve the political battle for port property through massive government financial intervention; it does this with blaring headlines about the importance of the project to the city’s competitiveness. The economics of this project are questionable at best, but it is still represented as a competitive policy (Pellizetti 2004). Furthermore, it is likely

to be successful up to a point because it gives each of the major parties the things they want while nationalizing the cost of the improvements.

The most critical realization to come out of the careful examination of competitiveness in Genoa is that the language of competitiveness is a smokescreen giving quasi-scientific credibility to a wide range of political preferences. These political preferences represent positions in local battles over resource distribution. To capture what is important about competitive policies, we need to think about political battles that often have nothing to do with the economic conception of competition at all. Sometimes the political battles are over local resources, as in the battle over a small swimming beach near Voltri desired by the Singapore Port Authority to expand their Genoa terminal. Although a logical location to expand the major container terminal, the beach is also a favorite of local retirees who see it as one of the last local points of public access to the waterfront. Competitiveness was used by both parties in the battle over the beach and led to a stalemate that maintains the status quo for beach goers to the utter frustration of port users. At other times, competitiveness is mobilized in an effort to attract resources from national sources as in the work promoting the *fresco* of Renzo Piano where the conflicting interests of the sustainable city and the global port have reached a form of compromise made possible by the prospect of a massive influx of funding from national sources.

As discussed above, competition in Genoa was represented based on individuals' affiliation within specific interest groups or classes in at least three distinct ways: a neoliberal conception coming from the port and related business

groups, a labor productivity conception put forward by the labor unions, and a sustainability conception put forward by the green coalition within the city. These representations were then incorporated into the political goals of the institutions representing these groups and put forward into a negotiated political environment sometimes resulting in local solutions, but more often than not leading to intervention by the national government as a means of paying for the hoped-for competitiveness. The material effects of these local political battles were significant on the local economy and on the long-term viability of the port. These policies, however, bore little resemblance to the free-market ideals with which competitive policies are supposedly justified. This finding suggests rather pointedly that free-market profit maximization models are not an appropriate tool for predicting the impacts of competitive policies.

Elements that determine the outcomes of competitive policies II

The case study in Genoa reinforces the significance of the hypotheses generated at the end of the previous chapter. The role of individual perception and institutions in advancing goals that are local in their effects is reinforced over and over again by the diversity of viewpoints found in the Genoa interviews and by the clear role that political coalition building has played in determining the distribution of costs and benefits arising from these policies. What the Genoa case study adds to this picture is a sense of how complex the implementation of policy can become when multiple institutions come into play. Furthermore, the Genoa case study focuses the dependence that so called competitive policies have on funding from outside sources.

Rather than acting to reduce inefficiency or leverage local strengths for long-term economic gain, competitive policies in Genoa were best understood as discursive masks for otherwise straightforward political maneuvering for local and national resources. Following on the work in Genoa, three additional hypotheses seem relevant for further incorporation into the modeling framework in Part II:

- *Much of the use of competitive discourse has absolutely nothing to do with modifying production function values in a city and everything to do with local political struggles over resource distribution. Efforts at understanding competitive policies need to incorporate a sensitivity to these local political efforts. (4.1)*
- *Competitiveness is prominently used as a justification for attracting resources from higher levels of government. Attracting these resources is a major focus of the political struggles that employ competitive discourse. (4.2)*
- *Individuals organize themselves within political institutions based on similarities in preferences for a range of potentially unrelated policy outcomes. (4.3)*

Hypothesis 4.1 is likely the most important idea introduced by the case studies conducted for this dissertation. Competition in Genoa was frequently used in ways that had no relationship to the market conditions in which the port and city found themselves, or to the city or port's capacity to attract capital or workers from other regions. Most of the political action around the Port of Genoa related to small scale battles over control of space, while the policies internal to the port were blatantly directed at consolidating resources in one camp or another. It is difficult to separate this use of the idea of competitiveness from the elements of competitive policies that really do change production function conditions. Nevertheless, we must be prepared to accept that some portion of the policy rhetoric using competitiveness as a motivator will be operating in a distinctly uncompetitive frame of reference.

Hypothesis 4.2 builds on the claims of hypothesis 4.1, pointing out that competitiveness is an effective tool for directing federal resources towards local problems. Particularly in an era where government waste is a topic of much discussion, being able to link funding to the efficient pedigree of competitiveness eases a number of burdens when it comes to receiving federal funding. The dockworkers clearly benefited from this system when they used federal money spent on pensions to resolve their internal crisis. It also appears that federal monies will also be key in resolving the disputes over waterfront development that currently plague the port. Hence, our understanding of competitive policies must also be aware of their usefulness as attractors of investment from government.

Finally, hypothesis 4.3 returns to the scale of the individual and suggests that personal utility maximization is not a satisfactory way of ascertaining individual preferences within the policy environment surrounding competitive policies. Individuals had opinions on a wide range of policy choices, some of which would have no discernable bearing on their individual lives (or utilities). These preferences are not explained within a model that relies too heavily on economic theory for its foundations. In response, models of policy implementation must be open to different ways of characterizing individual preferences that vary across multiple issues.

Epilogue to Chapter 4

There are too many port cities competing to remain in the container freight network. When I began my research in Genoa, I wondered if Genoa was such a city. Constrained heavily by geography and history, saddled with layers of bureaucracy

and a complex interwoven set of institutional relationships, I wondered if Genoa could possibly hope to compete with a port like Gioia Tauro. I tentatively hypothesized that competitive policies in Genoa would not be as effective as those in Gioia Tauro and that Genoa was, in essence, just putting off its eventual sidelining in the global network.

My research in Genoa partially confirmed my fears: the port is inefficient and it cannot respond with anything like the speed of its rival in Calabria. Furthermore, the major policy efforts geared towards changing the port's competitive position appeared to have had only short-term advantages when they affected the competitive position at all. Given the success of the urban revitalization effort and Genoa's enviable position as a potential tourist destination, I was prepared to argue that Genoa should commit its waterfront to tourism and amenity-oriented developments and let the port slide.

As my research continued, however, I became aware of the short-term nature of competitive advantage at all of the container ports, not just those with the complications present in Genoa. Furthermore, I observed with some surprise that a port like Marseilles neither fell behind nor caught up with Genoa in any significant way even as the workers and management on the dock were engaged in a destructive, often physical, war. Finally, when trying to unpack the real costs and benefits of having a container port located in a city, I realized just how unimportant throughput is as a measure of economic impact. The real issue with port development is value-added services like ship-brokering, ship repair and design, maritime legal services,

and so on. These services have accrued to Genoa because of its centuries as a leading port in the Mediterranean. They continue in Genoa because Genoa continues to act as a port, however inefficiently. They sustain traffic in Genoa at levels that will never take the port to the top of the port rankings but the concentration of high-end services in Genoa contributes far more to the local economy than the meager gains in throughput would suggest. In fact, Genoa is in a relatively small cadre of cities when it comes to providing the value-added services for shipping; Hamburg is another, as is London—notable in this context as the world leader in these services despite having a trivial port in the present day.

It appears to me that it is Genoa's dense networks of relationships between port and city that give it its competitive advantage in the final analysis. This advantage may not appear at all in a production function view of the port, but it represents a real economic advantage and a historical advantage that no competitive policy can strip from the city. There is no comparison with Gioia Tauro where, despite efficiencies beyond Genoa in every respect, the big shipping companies can contemplate complete withdrawal and the virtual closure of the port in a matter of months. The same companies could not leave Genoa. Genoa is where they negotiate, buy, sell, litigate, refit, and even socialize. They are there for the long term.

Part II: Towards a New Ontology of Competition

The premise under which this dissertation began was that competitive policies were insufficiently understood for their costs and benefits to be adequately specified. The case studies presented in the previous section provide an opportunity to revisit the messy reality surrounding the implementation of competitive policies. An important outcome of this work was to offer a number of hypotheses about what really matters in the implementation of competitive policies, and how the important actors might be expected to interact across scales. These hypotheses form the foundation of a new ontology for examining competitive policies. Rather than attempting to tweak the body of work that has studied competitive policies so far, this dissertation proposes a break from the economistic thinking that drove previous theoretical models and a renewed emphasis on complexity, multiscale interactions, and discursive representations. The work undertaken in this section begins the process of taking the hypotheses generated previously and moving them into a theoretical model. The model is incomplete and untested; nevertheless, it represents an important first step in attempting to change the frame of reference within which competitive policies are studied and understood.

The case studies undertaken in Part I provide a number of important insights into the ways that individuals and institutions participate in the implementation of competitive policies. The case studies also provided suggestive evidence related to the distribution of the costs and benefits of these policies. What is not known is how important these insights are to the overall success of competitive policies, or what

effects these policies have on inequality within cities. The data available to answer these kinds of questions is incomplete and where available at all is incompatible across cities. Therefore, it is appropriate to attempt to answer these questions within a theoretical modeling environment. Modeling cannot tell us the exact outcome in a particular city, but it can provide a range of possible outcomes while telling us which policy elements are most critical to a desirable result.

Building a formal theoretical model is a difficult undertaking and there is much that can be learned from existing models. The work described in the following chapters began with the presumption that a basic framework could be drawn from a successful model within economics that would then be modified to fit the theoretical ideas put forward within the case studies. As Chapter 5 demonstrates, however, the dependence of many economic models on conditions of general equilibrium presents an impossibly strict framework for the kinds of theoretical innovations put forward in the hypotheses of Chapters 3 and 4. Having rejected the substantive focus of previous work on competitive policies in Chapters 3 and 4, Part II begins by rejecting the theoretical framework and general methodology as well. Just as the hypotheses offered in Part I provide a new substantive focus for research on competitive policies, Chapter 6 outlines the ways in which a relatively new methodology can operationalized these hypotheses. The agent-based models proposed in Chapter 6 provide the tools for constructing a theoretical framework based on complexity and multiscalar effects that offers sufficient flexibility to test the hypotheses drawn from Genoa and Gioia Tauro. Together the shift in substantive focus and theoretical

framework justify the claim that this dissertation is moving towards a new ontology for understanding competitive policies.

In Part II of this dissertation I begin by discussing the justification for applying a modeling framework to questions about competitive policies. In Chapter 5, I examine the usefulness of one of the best models of inter-city competition employed by economists. I compare this model to an agent-based microsimulation incorporating the same relationships and find that both models are insufficient as tools for analyzing policy decisions. In Chapter 6, I begin to lay out the elements which will be necessary to develop a model of competitive behavior that captures the elements of individual heterogeneity, perception, institutional negotiation, path dependence, incomplete information and multiscalar impacts that were important in the implementation of competitive policies in my two case studies. While this chapter does not go so far as to build and test such a model, it provides a framework within which such a task may be readily accomplished.

Methods II: Why Model?

Modeling is an approach to theory development with a checkered past within human geography. Closely associated with geography's move towards spatial science, modelers committed what many subsequent geographers consider the cardinal sin of oversimplifying space. Critiques from a wide range of epistemologies have (rightfully) associated modeling with generalization and abstraction, anathema within post-foundational geographies where difference is the coin of the realm. Because the giants on whose shoulders this particular research stands are largely out

of favor, I begin by introducing the methods I will use and justifying their applicability in this context.

In the following two chapters, I set out to develop a better mousetrap in the form of a new model of competition among cities. I also choose to commit some of the very sins mentioned above in pursuit of this goal. I do not make this choice blindly however, but with very specific goals in mind: to build theory and to speak to power. While no abstraction is without its problems, I believe that the agent-based modeling approach adopted in the following chapters significantly improves on many of the models that have preceded it, particularly in its emphasis on individual difference and its representation of indeterminate outcomes.

The world is extraordinarily complex and the art of theory building, however pursued, is doomed to fail to the extent that it tries to make definitive statements about outcomes within this complexity. Even so, scholars of all stripes continually try to make sense of the world through theory. Some theory is successful because it makes very small or very ambiguous claims. Other theory is successful for the dubious reason that it is useful and either helps to explain the world in ways that make sense to people or has some capacity to predict outcomes. It is my hope that the models presented in this section represent a relatively new hybrid in modeling that expresses conclusions in terms of uncertainty, but is therefore able to make claims that are more substantial and more useful.

Models are theory building tools that express their results in a mathematical language. Although this form of representation is powerful because it is widely

accepted as neutral, truthful, and scientific, it does not have to be anything more than one language among many for expressing ideas (Barnes 1996). Models are also abstractions from reality, a fact that gives them the ability to express partial or incomplete viewpoints that can be harmful for what they obscure (often things that are not easily quantified). On the other hand, abstraction can be useful as a way of mapping out the relationships that exist between items of interest. The value of a model, as with theory more generally, is directly related to the kinds of claims made by the modeler; if those claims ignore the complexity hidden by abstraction or in any way claim too much, they become problematic.

The models I propose using in this dissertation are based on the micro-foundational approach of agent-based modeling. Agent-based models begin with the behavior of individuals and make claims about system-wide behavior based on the often surprising aggregate measures derived from the interactions of individual agents. One of the strongest arguments in favor of this form of modeling is that it operates at the most basic level on assumptions of individual heterogeneity. Even if all of the agents in a model are ‘genetically’ identical, they face different environmental conditions from the outset which constrains their options in the future giving them a functional uniqueness. One of the foremost critiques of modeling is that models use abstraction to hide difference. In contrast, agent-based modeling has difference at its core; even as it limits the full range of relationships that might be considered, it asks questions about how those relationships function within a diverse population.

Agent-based models differ from many types of models because of the kinds of answers they provide. Whereas most models generalize away difference in their starting assumptions to arrive at a unique solution, agent-based models begin with unique agents and provide a generalized distribution of solutions. Agent-based models' embrace of complexity from the outset means that the same model will often give different solutions depending on initial conditions, stochastic effects, or simple indeterminacy. Results are typically reported in terms of the probability distribution of different solutions generated as the result of a large number of model runs (50,000 for the models presented in Chapter 5). A deductive model, like the model of inter-city competition presented in Chapter 5, will solve to the same outcome every time it is run. Given homogenous inputs the basic economic model of inter-city competition will identify a unique solution. The agent-based version of the same model instead offers a range of possible solutions even when it starts from the same initial conditions as the deductive model. When heterogeneous agents are allowed the range of solutions offered by the agent-based model will likely increase even more.

The theory developed with agent-based modeling techniques in the following chapters has no more correlation with the real world than abstract theory developed through thought experiments or any other method of theory building—in fact it probably has less correlation than some of these methods. The models can tell us how we might expect certain relationships to play out in the real world, but they cannot tell us whether those relationships that we have modeled are key components driving behavior in the real world or whether they are incidental factors. Furthermore, one of

the key findings of work in complexity theory has been that small and seemingly insignificant factors can completely alter the outcomes in a system (the butterfly effect). As a result, even if we believe our model captures the dominant or majority of relationships that are operating in the real world, we must accept that the tiniest factor we have not included may completely alter the observed outcomes in the real world.

The final reason for employing a modeling framework for this project is so that the work I do can speak to power. An old adage has it that, “to defeat an enemy you have to win where they are rather than where they are not.” Modeling is a form of representation and a mechanism for theoretical development that dominates in economics and has tremendous influence in policy circles. My work is on the border between economics and geography and I wish for my work to have a significant policy impact. As such I feel I need to level my critiques against economic theory on this playing field. This is not an uncritical choice, but acknowledges the biases of the audience with whom I want to engage through my work. Competitive policies are a prominent tool within policy circles and, until now, the critiques leveled against them have gone unheard. It is my hope that by providing a significant internal critique to the dominant way of doing things and simultaneously providing an alternative method that is visually compelling, mathematically rigorous, useful, and intriguing I will accomplish more good than harm.

Chapter 5: Taking Geographical Economics Out of Equilibrium

The analytic models of geographical economics represent some of the best models for exploring the forces driving workers and firms to migrate among cities. As these are the stated intent of competitive policies, geographical economics would appear to be a good place to begin when attempting to gather information about the effects of such policies. Nevertheless, these models remain largely untested in the context of analyzing competitive policies and so their use requires further justification.

The basic models of geographical economics have made distance and location into mathematically tractable issues and allowed economists to add significantly to dialogues about the agglomeration of economic activity in cities. Despite the growing breadth of this research, little has been done to explore the relationships among workers, firms, and places that are postulated within these models when equilibrium conditions do not hold. What is unknown is whether and how these models can move to equilibrium in a dynamic space-time economy. To answer this question, this chapter explores the relationships posited by one of the most basic models of geographical economics in a dynamic, agent-based microsimulation framework. The results show that the relationships posed in the basic model do not make sense in a dynamic, micro-level model of economic decisions. Specifically, when put into a dynamic model of economic decision making, issues such as the supply of labor,

wage-setting, and production levels are all mathematically impossible to resolve given the assumptions that form the foundation for the basic models.

This chapter describes an effort to move a basic model of geographical economics into the dynamic, abstract space of an agent-based microsimulation framework. Agent-based modeling works by disaggregating the modeling environment to the extent that each firm and agent is represented as acting individually. This disaggregation has the effect of permitting the modeled agents to act in ways that move the system out of equilibrium. Agent-based modeling has a growing role in economic modeling as economists become more interested in the heterogeneity of human behavior and the effects of perception on economic outcomes (Axelrod 1997; Ormerod 1999, 2005). Transforming the basic model of geographical economics into an agent-based framework tests the assumptions and results of the economic model for robustness. This transformation also lays the groundwork for further development of models that address questions raised by geographical economics, but where assumptions of homogeneity of actors are problematic.

The agent-based model presented here is limited in its usefulness because it tries to re-create as exactly as possible the relationships in the economic model. The agent-based version moves towards a range of quasi-stable solutions where firms exist in cities without regard to the labor supply required for their production levels and workers generally cluster in one city without regard to labor demand in that location. In the analytic model, the number of firms in a given place is derived from the size of the local labor market. When this relationship cannot be assumed, as is the

case when the system is outside of equilibrium, there is no mechanism available in the model to link the number of firms to either the supply of labor or the demand for goods. As a result, the model fails to move towards any of the equilibrium conditions predicted by its analytic counterpart. While this finding does not invalidate the important work that has been accomplished in geographical economics, it does suggest that the transition between analytic models and policy recommendations must be treated carefully; how a system moves towards some desired policy result can be as important as the result itself.

This chapter adds to the much called for but still small body of work that attempts to bridge the gap between economics and economic geography. Geographers and economists have been talking about the difficulties and potential of work that draws on both traditions for at least ten years and the trajectory of this discussion in the literature is well documented. Accounts usually begin with Martin's early critiques (Martin 1999a, 1999b; Martin and Sunley 1996), and Amin and Thrift's exhortation to "move away from the long shadow of economics" (Amin and Thrift 2000) before moving on to the major efforts at delimiting common ground and insurmountable obstacles in three special issues of *Antipode* (e.g. Plummer and Sheppard 2001; Samers 2001), *Regional Studies* (e.g. Brakman and Garretsen 2003; Plummer 2003), and the *Journal of Economic Geography* (e.g. Bathelt and Gluckler 2003; Boggs and Rantisi 2003). More recently, a few papers have called for continued patience and understanding (Duranton and Rodriguez-Pose 2005; Overman 2004). Throughout this literature, one will find geographers criticizing the

economists' assumptions, determinism, and dependence on analytic models (Amin and Thrift 2000; Perrons 2001; Sheppard 2001). After Krugman's early, and harsh, critique of geographers' methods, economists have not felt the need to add much in the way of critique aimed at geography but have ignored the discipline instead (Overman 2004). In fact, economists have been more likely to criticize geographical economics than geography. When writing about geographical economics, economists have tended to criticize it for its dependence on simulation rather than analytic solutions, its simplistic representation of the interaction between firms, and its lack of strong empirical evidence (Brakman, Garretsen et al. 2001; Pines 2001). In the rare occasions when economists have attempted to engage with geographers, they have tended to exhort geographers to see the links in results shared by the two disciplines (Duranton and Rodriguez-Pose 2005; Ottaviano and Thisse 2001; Overman 2004). At times, geographers have contemplated real engagement with the approaches of geographical economics (Plummer 2003), but there are no widely cited instances of geographers working with any of the tools put forward by geographical economists (but see Sheppard and Barnes 1990 for an early example of geographers developing an internal critique of economic methods).

Testing the robustness of relationships posed in equilibrium models outside of equilibrium represents an important way that economic geographers can gain some purchase for their empirically derived theoretical work in the face of the general preference in policy development circles for the deduced theories of the economists. The inability of the deductive models to describe the movement of a system between

equilibria represents a major drawback of these models. Conversely, the microsimulation environment used to present this critique is well-suited as a tool for representing empirically derived theory in an abstract context that emphasizes complexity and difference rather than insisting on uniformity and rational action. This chapter lays the groundwork for future research that will use the flexibility offered by the microsimulation environment to create a model of firm and labor location decisions that can meaningfully function outside of equilibrium

This chapter continues in three parts. The following section (section II) provides the bulk of the chapter's argument with a discussion first of the analytic equilibrium models favored by economists followed by a specific analysis of a basic analytic model from geographical economics. The section continues with an explanation of the approach taken to convert the analytic model into an agent-based simulation to assess the internal validity of the relationships posited by the former in a dynamic setting. Section III compares the results of the analytic model with the results suggested by the agent-based simulation and clearly demonstrates the inability of the analytic model to calculate the path taken to reach equilibrium. The final section discusses the implications of the analytic model's failure and considers further opportunities for model development within the framework of an agent-based microsimulation.

The equilibrium model of geographical economics

Equilibrium models are at the core of much research in economics.

Equilibrium is the point in system space where supply equals demand, markets clear,

efficiency reigns, and overall welfare is maximized. More practically, equilibrium is an important point in the complex systems of equations economists use to model the economy because the market clearing and efficiency maximizing properties allow certain equations to be set equal to zero and the rates of change among others to be set equal to one another. To generate model systems where equilibrium is possible, and systems of equations are therefore solvable, economists have adopted a host of useful assumptions: perfect information, perfect competition, and utility or profit-maximizing behavior to name just a few. These assumptions have been criticized for their lack of concordance with the lived world, but they unlock a tremendous amount of analytical power that has provided economists with an ability to explain and predict the behavior of economies that is the envy of many a social scientist.

Equilibrium is equally important in the theoretical formulations put forward under the rubric of geographical economics. Assumptions about equilibrium are crucial to the derivation of a key equation within the basic model (Equation 3 below). Furthermore, the findings of geographical economics are typically framed in terms of stable and unstable equilibria. Economists have tested the effects of shocks that might move the system away from equilibrium, but these tests rely on short-run equilibria rather than a truly out-of-equilibrium system. Left unexplored in these models is the behavior of these complex systems when equilibrium is temporarily disturbed.

The model of geographical economics, most closely associated with Paul Krugman and a few others (Fujita, Krugman et al. 1999; Fujita and Thisse 2002; Krugman 1979, 1980, 1991), explains how spatial relationships can account for the

economic success of some locations and the failure of others (for a summary of the development of this model, see Brakman, Garretsen et al. 2001; Fujita and Thisse 2002). The model has some close links with early work from geography and regional science (Berry 1961; Berry and Garrison 1958; Christaller 1966; Isard 1956; Losch 1954), and many of the model's applications have served to provide analytic extensions of concepts treated by early geographers and regional scientists such as the rank-size rule (Black and Henderson 2003), border effects (Brakman, Garretsen et al. 2001), and central place theory (Martin 1999a). Unlike its predecessors, the model of geographical economics can be solved for an equilibrium set of values, and in some cases for multiple equilibria with the number of firms, the wage rate, profit, utility, supply, and demand all determined endogenously within the model. With just a few parameters for people's preferences, and some heroic assumptions, the model of geographical economics can be solved (quasi) analytically, revealing the short- and long-run distributions of economic activity among a system of cities or regions.

At its most basic level, the model of geographical economics can be understood to be the simultaneous solution of three equations:

$$Y_r = \lambda_r W_r \gamma L + \phi_r (1 - \gamma) L \quad (1)$$

$$I_r = \left(\frac{\beta}{\rho} \right) \left(\frac{\gamma L}{\alpha \varepsilon} \right)^{1/(1-\varepsilon)} \left(\sum_{s=1}^R \lambda_s T_{rs}^{1-\varepsilon} W_s^{1-\varepsilon} \right)^{1/(1-\varepsilon)} \quad (2)$$

$$W_r = \rho \beta^{-\rho} \left(\frac{\delta}{(\varepsilon - 1) \alpha} \right)^{1/\varepsilon} \left(\sum_{s=1}^R Y_s T_{rs}^{1-\varepsilon} I_s^{\varepsilon-1} \right)^{1/\varepsilon} \quad (3)$$

where the subscripts r and s refer to a city under consideration and all other cities in the system respectively. Y is a measure of the total income in a region, I is something called the “index of manufactures” for a region, and W is the wage paid to manufacturing laborers in a region. The additional parameters describe various characteristics of the larger environment. They are, in order of appearance: λ , the percent of the total manufacturing workforce employed in a given region; γ , the percent of L , the total labor force that is in the manufacturing sector; ϕ , the percent of all agricultural workers located in a given region; β , the amount of labor required to produce one additional unit of a manufacturing good; ρ , a love of variety effect that refers to the degree individuals value having a range of manufactured goods—a value of one would mean that goods were perfect substitutes while a value of zero would mean that goods were perfect complements; α , the fixed labor input necessary to produce any number of manufactured goods; ϵ , elasticity of demand; and δ , people’s relative preference for manufactured goods over food. T_{rs} , is a measure of transport cost where $T_{rs} = T^d$, when d is the distance between r and s and T is an iceberg transportation cost that refers to the number of goods that must be produced in order for 1 good to arrive after a journey of 1 unit of distance. For a detailed description of these equations and their derivations, see Brakman et al.’s excellent introduction to the model and its function (Brakman, Garretsen et al. 2001).

Equation 1 is relatively straightforward. The total income in a city is related to the two kinds of workers present in the model: agricultural sector workers and manufacturing workers. Agricultural workers are assumed to have a wage of 1 (a

numeraire chosen for simplicity of calculation); their contribution is simply the number of them in a given region. Manufacturing workers are the other type of laborer in the model and receive a variable wage based on Equation 3.

Equation 2 is the most difficult of the three equations. In essence, it seeks to capture the effects of distance on the availability of goods in a way that balances transport costs and love of variety. The workers in each city have access to all of the manufactures that are produced in the model, but this access is differentiated based on the distance between the city where the worker lives and the city where the good was produced. The index of manufactures (Equation 2) is just a summary of the costs of all of the goods based on how far they have to travel to get to the city for which I is being calculated. Of particular note in this equation is the parameter T which is the “iceberg-transport cost.” Because of the complexity of adding a transportation sector to this model, transport costs are assumed to exist in the form of some fraction of the transported good “melting” in transit. For example, if $T = 1.07$, to get 100 units of a good to a city that is 1 unit of distance away, the firm producing the good might have to produce 107 (100×1.07^1) units. To send 100 units of a good 2 units of distance, the firm would have to produce roughly 115 (100×1.07^2) units of the good.

Finally, Equation 3 calculates the wage paid to manufacturing workers. The first half of Equation 3 reflects the fact that the wage paid is based on the firm’s ability to sell its goods and the amount of marginal labor necessary to produce them. The second portion of equation 3 reflects the fact that the wages in a city can be

higher if that city is closer to a large market for the goods produced by the firms in that region.

A key element in understanding the equations described above is that they represent a system; (1) cannot be solved without (3), (3) cannot be solved without (2) and (1) calculated for all other cities in the system, and (2) requires that (3) has been calculated for all other cities. This is a very useful set of relationships from an analytical perspective. It means that the equations can be solved simultaneously, and that, for any given levels of the exogenous parameters, any possible equilibria can be found for the values of Y , I , and W in all cities. Nevertheless, for the system to be in equilibrium, these three equations must hold for each city (or region, or place) under consideration. This means that even the simplest (two city) model requires the simultaneous solution of six non-linear equations with three more equations added to the mix for every additional city in the model. For most applications then, models of geographical economics have been solved computationally rather than as a proof (Brakman, Garretsen et al. 2001). This is accomplished by setting the wage (W) in each location at some nominal level and then using these values of W to solve equations (1) and (2). Equations (1) and (2) can then be plugged back into equation (3) to provide a new value of W and the process is repeated. When the change in W between iterations falls below some predetermined threshold (called the stopping condition), the model has reached a short-run equilibrium. At this point, the variable λ , measuring the percent of the manufacturing labor force in each city, can be adjusted to a new optimum distribution, and the solution process for Equations 1-3 is

continued as above until a new short-run equilibrium is reached. When the change in λ between equilibria falls below the stopping condition threshold set by the modeler, the model values are taken to approximate the long-run equilibrium point for the system.

The solution method for solving the analytic model's simultaneous equations uses an iterative process that provides for an approximation of the equilibrium values. It should be noted, however, that while these equations intuitively suggest a system moving towards equilibrium, the intermediate values for these equations do not necessarily represent a system that is defined outside of equilibrium. One can calculate the distribution of firms and workers at each of the short-run equilibrium periods, but the number of firms is simply a function of the labor required to produce a fixed optimal quantity of goods. More precisely, the firms are operating under identical cost structures for production (a key assumption of monopolistic competition), and the optimal output for each firm is constant regardless of the number of firms or the spatial distribution of cities or labor. This output depends only on the elasticity of demand, the amount of labor required to produce each additional unit, and the amount of fixed input necessary for production. The output of each firm f is defined as:

$$N_f = \frac{(\varepsilon - 1)\alpha}{\beta} \quad (4)$$

It is also possible to define the amount of labor necessary to produce this output level, which is again a constant value for each firm in terms of fixed costs and elasticity of demand, thus:

$$l = \alpha \varepsilon \quad (5)$$

It is then trivial to determine the number of firms in each city using the number of workers and the labor input per firm defined in equation (5).

$$N = \frac{\gamma L}{l} \quad (6)$$

Finally, the migration decision that moves the model between short-run equilibria is based on the real wage (R_s) in each city such that:

$$R_r = W_r I_r^{-\delta} \quad (7)$$

A portion of the manufacturing labor will move into or out of each city based on the difference between the average real wage (R) and the local real wage multiplied by a constant n that ranges between 0 and 1 and simply controls the rate at which the model moves towards the long-run equilibrium. Note that there is no cost associated with the migration of labor (or firms) from one city to another. Formally this can be expressed as:

$$\lambda_{r(t)} = \lambda_{r(t-1)} + n(R_s - R) \quad (8)$$

A full description of the relationships behind these derivations can be found in Brakman et al. (2001).

There are two critical points that must be understood about the analytic solution to this model. First, time is conceived as discrete in this model; values for

short-run equilibria can be calculated along some arbitrary temporal scale, but these are snapshots along the way and cannot tell us how the system moved from one point to another (or how much time elapsed between points). The second critical factor is that the model assumes that the number of firms in a city is defined based on the amount of labor available in that city and the amount of labor necessary to produce the optimal amount of a good. As we will see below in the discussion of the agent-based simulation, this definition becomes untenable in space and time, as it becomes problematic to select which firms survive and which firms fail when the movement of labor “temporarily” upsets the equilibrium relationships. These issues will be drawn out more fully in the results section of the chapter, where a sample run of the model is presented.

Economists have addressed the question of how this model acts outside of equilibrium (Baldwin, 2001). Baldwin’s article systematically defines basins of attraction for the basic model for the typical myopic agents and also for forward-looking agents. This article’s main conclusion is that myopic and forward-looking agents will move to the same equilibrium points when migration costs are high, but that at low migration costs, forward-looking agents can rationally choose paths that lead to distinct equilibrium points, thus opening up the possibility that groups of agents could select outcomes as different as complete agglomeration or perfect symmetry. Baldwin’s work is helpful because it makes a point of defining the entire system space in which the model operates (e.g. both equilibrium and out-of-equilibrium positions) and shows how particular trajectories act as attractors towards

the previously identified equilibria. This broader definition of the system of equations provides a clear look at how the model will function in continuous time. The key difference between the non-equilibrium points mapped by Baldwin, and the system space defined within the agent-based model that follows, is that firms and workers are assumed to move synchronously without a moment of lag. Workers moving to better their real wages drive the model's movement because firms simply appear in each city in proportion to the number of workers. As will be shown below, this is a critical assumption to the model's equilibrium results.

Agent-based simulation⁸

The purpose of this research project was to develop a model that would show how the relationships posited by the model described above might function outside of equilibrium. As a rule, geographers have less faith in the importance of equilibrium values for understanding how an economy works. The economy as it has been represented in geography is typically far too chaotic to be considered at rest or to be operating at some market-clearing point where all labor is employed, all production is consumed, and utility is maximized (Plummer, Sheppard et al. 1999). Therefore, moving the proposed relationships specified by the economists into a framework where they could be observed in the abstract, but outside of the restrictive conditions of equilibrium, represents an important step in moving the disparate approaches of

⁸ The equations described below were implemented as a model using the Repast Agent Simulation Toolkit (North et.al. 2006). Annotated source code and an executable implementation of the model are available from the author.

economics and geography to a point where ideas might be exchanged between the two groups.

An agent-based simulation decomposes a complex system into its individual components to see how decision-making rules at the most basic level affect the aggregate level behaviors of a system. Unlike an equilibrium-based model such as the model described above, a microsimulation approach examines how the system moves towards and between equilibrium points by simulating the discrete choices made by individual actors in continuous time. Whereas the analytical approach bypasses flows to arrive at a final resting point, microsimulation examines the flows in detail and maps the paths that the system follows on its way towards, or away from, equilibrium. Equilibrium is, in fact, a fairly difficult balance to achieve in agent-based models because of the indivisibility of individual actors.⁹

The simulation environment developed to recreate the relationships of the model of geographical economics populates space with cities, manufacturing laborers, agricultural laborers, and firms, and asks them to maximize their profit or utility based on the location and production choices available to them at a given point in time. To the extent possible, the equations used to express the analytic model have been maintained. The most significant difference between the two models is that the

⁹ Whereas 2.34 firms might be the optimal level for a given city in a hypothetical configuration of the analytic model, an agent-based simulation would, at best, alternate between 2 firms and 3 firms since it cannot divide a single firm into fractional amounts. To justify the use of 2.34 firms in their solution, economists would assume that the model represents the movements of some arbitrarily large population such that 2.34 might stand in for 2.34×10^4 or even 2.34×10^40 . To replicate this assumption, the agent-based model might be run with similarly large populations, but the problem of indivisibility would still exist at the micro scale.

number of firms in the simulation is set by the modeler, and then moves up or down in each time period depending on the level of profit achieved across all firms. A second adjustment is the formal reliance on using wage levels from the previous time period to calculate the present values for the index of manufactures (I) and the total income (Y). This mimics the method used to compute equilibrium values in the analytic model. Finally, the analytic model is synchronous in the sense that all decisions are assumed to be made simultaneously. In comparison, the agent-based model is asynchronous and stochastic, with firms and workers making their decisions in turn as they are (randomly) selected.

The formal inclusion of time in the calculation of the wage, index, and total income represents an important methodological decision. The analytic model uses an iterative process to identify short-run equilibria and ultimately a long-run equilibrium point. A nominal starting wage W_{initial} is used to calculate the Y , I , and W , and then W is reinserted as W_{initial} , this process is repeated until the difference between W and W_{initial} falls below some threshold sigma (.001 in the examples presented in this chapter). When this result is achieved, workers (and as a result, firms) are permitted to move to a new city and the process is repeated. In contrast, the agent-based model iterates through this equilibrating process only once per agent move. Since only one agent moves between each re-calculation, the values of Y , I , and W are calculated based on current conditions before each decision.

The assumption that all agents make their location decisions asynchronously and at random is a strong assumption and a critical difference between the analytic

model and the agent-based version. There is little evidence to suggest that a completely asynchronous set of location decisions is any more or less realistic than the synchronous decisions that are part of the analytic model. The power of this assumption was therefore tested as an alternative scenario for the agent-based model. Although a full description of this alternative is beyond the scope of this chapter, it appears that the choice of asynchronous rather than synchronous decision-making is not a key point in understanding the differences between the agent-based and analytic models.

The equations used to represent the simulation model are, in fact, quite similar to the equations listed above with the addition of a few relationships that are implied in the analytic model but which do not need to be specified to solve for equilibrium. These additional relationships are necessary to provide sufficient information within the model for workers and firms to “observe” conditions in the environment and calculate their optimal choices. Most notably, rather than deriving the location and number of firms, the equations below permit this distribution to vary with changing model conditions. As we shall see in the discussion below, however, the expansions provided here can move only so far from their origins in an equilibrium model. The equations used in the agent based model are:

$$Y_r = A_r + (M_r W_r) \quad (9)$$

$$I_r = \left(\sum_{s=1}^R Z_s (T_{rs} p_s)^{1-\varepsilon} \right)^{1/(1-\varepsilon)} \quad (10)$$

$$W_r = \rho \beta^{-\rho} \left(\frac{\delta}{(\varepsilon - 1)\alpha} \right)^{1/\varepsilon} \left(\sum_{s=1}^R Y_s I_s^{\varepsilon-1} T_{rs}^{1-\varepsilon} \right)^{1/\varepsilon} \quad (3 \text{ repeated from above})$$

$$p_r = (\beta W_{r(t-1)}) / \rho \quad (11)$$

$$C_r = (\delta W_{r(t-1)}) / I_r \quad (12)$$

$$U_r = F_r^{(1-\delta)} C_r^\delta \quad (13)$$

$$N_{fr} = \delta \left(\frac{\beta}{\rho} \right)^{-\varepsilon} W_{r(t-1)}^{-\varepsilon} \left(\sum_{s=1}^R Y_s I_s^{\varepsilon-1} T_{rs}^{1-\varepsilon} \right) \quad (14)$$

$$\pi_f = (p_r N_{fr}) - ((\alpha + N_{fr} \beta) W_{r(t-1)}) \quad (15)$$

$$\Delta_{Labor} = \text{Max}(U_1, U_2, \dots, U_n) \quad (16)$$

$$\Delta_{Firm} = \text{Max}(\pi_1, \pi_2, \dots, \pi_n) \quad (17)$$

where all of the variables specified earlier retain their meanings. The new variables are: A , the number of agricultural workers in a given city; M , the number of manufacturing workers in a given city; Z_s , the number of firms in a city s ; p_r (not to be confused with ρ) is the price of goods in a given city r ; C_r is the number of manufactured goods consumed by each manufacturing worker in a given city r ; U_r is the utility of manufacturing workers in a given city; F_r is the amount of food consumed by each worker in a given city; N_f is the number of goods produced by a given firm; π_f is the profit captured by a given firm; and Δ is the selected destination city chosen based on the maximum utility (for workers) or profit (for firms) found among all cities 1 through n .

Before attending to the details of these equations, it is important to note that they do not involve any original economic formulation on the author's part. The intention of this research is to faithfully transform the assumptions and relationships of the original model into a microsimulation model. Each of these equations is presented in some state during the derivation of the analytical model (Brakman, Garretsen et al. 2001). Because of the assumed equilibrium values of many of the elements of the analytic model, most of these additional equations are converted into constants or assumed away entirely for the analytic solution. They need to reappear in the microsimulation principally because these equilibrium relationships cannot be assumed.

Equation 9 is actually a simplification of the analytic version (1) where the number of workers can be represented in absolute terms rather than in proportions. Equation 10 is also a simplified version of (2), but with the constants removed because the number of firms and production costs cannot be assumed. Instead, the index value is pared down to its essential elements of distance, price, and the number of firms. Note that this equation is originally derived in the specification of the Krugman model, but equation (2) is substituted for (10) in the analytic model for mathematical simplicity (Brakman, Garretsen et al. 2001).

Equation 11 is a calculation of the price at which a firm in a given city can sell its goods. It utilizes what economists refer to as "mark-up pricing." In short, a firm will charge whatever it can get, as long as it is over its marginal cost of production. Recall that ρ varies from 0 to 1. The markup that a firm can attain is therefore greater

as ρ moves towards 0 and goods become complementary. If ρ is set to 1, and goods are therefore perfect substitutes, the firm can only get its marginal cost of production for its good. Note that this equation uses the wage for a given city in the previous time period. This subtle distinction is necessary to incorporate time into the model and suggests that prices do not come to equilibrium at the end of every time step. This distinction is very similar to the iterative method used to find short-run equilibria in the analytic model, and so is consistent with the analytical approach specified above; however, this change (and its counterparts in equations 12, 13, and 14) represents the only mathematical break from the relationships specified in the analytic model.

Equation 12 represents the number of manufactured goods consumed by manufacturing workers in a given city; it simply calculates what they will buy based on their wages and preferences for goods over food, and modifies this based on the Index to reflect the variable prices of different manufactured goods available to them. Equation 13 is a straightforward measure of a Cobb-Douglas utility function expressing the relationship between consumer utility and their consumption of food and manufactured goods. Equation 14 captures the number of goods a firm will produce based on the preferences of consumers and the level of competition it faces from other firms. Equation 15 specifies that a firm's profit will be a function of the price and quantity of the goods it is able to sell minus its costs for production.

Equations 16 and 17 represent the migration equations employed by workers and firms respectively. They operate based on the fact that both utility and profit are equal for all firms or workers located in the same city. The model simply scans

through each city and chooses the city offering the highest profit or utility. As with the analytic model, there is no cost associated with migration.

Equation 3, which reappears in the agent-based model, bears further discussion because it is an equation that is derived under the assumption that equilibrium conditions are present in the model. These conditions do not necessarily hold in the agent-based model, thus calling into question the suitability of this equation for this application. The equation is retained in the model for two reasons. First, the intention of this project was to recreate as exactly as possible the relationships posed by Krugman et al. Thus, when agents are computationally able to identify the relationships in an equation, these equations were maintained in their original state. Second, the use of this equation to derive an equilibrium wage level when conditions are not initially in equilibrium is a necessary first step in the analytic model where wages are initially set in each city at a nominal level. The equation is assumed to function well enough to come to an equilibrium result given these starting conditions, thus it seems reasonable to apply the equation in the agent-based model at least until firms and workers move radically away from equilibrium. It is readily conceded that the equation becomes more and more problematic as the location of workers and firms moves further from equilibrium proportions, but at this point, the failure of the system to move towards predicted equilibria is already demonstrable.

The major difference between the analytic model and the agent-based translation can be found in the dynamics of the two models. The analytic model is solved in such a way that the equilibrium values for all variables are deduced based

on assumptions that firms and workers will choose their optimal locations and production levels. The microsimulation populates a surface with workers, firms, and cities and then cycles through workers and firms asking them each in turn to look at all of the possible location choices (and production levels for firms), and to choose the one that maximizes utility (for workers) or profit (for firms). The firm and worker agents have perfect information in the sense that they can know the outcomes of their decisions up to a point, but the simulation environment is dynamic and the conditions that they observe at the time they decide where to move will not remain constant as other firms and workers make their own decisions.¹⁰ The agent-based model iterates by randomly selecting a firm or manufacturing worker and providing that entity the opportunity to compare its current location with the other cities in the model. Manufacturing workers will choose to remain or move based on principles of utility maximization (Equation 13), while firms will stay or move based on profit maximization (Equation 15).¹¹ At the end of each move, the model recalculates Y , I , and W (Equations 9, 10, and 3) in each city. In addition, if the sum of profits and losses across all firms is positive (e.g. total profits are greater than zero), an additional firm is spawned in the model environment at the most profitable location. If total profits are negative among firms, a firm in the city where firm profits are lowest will

¹⁰ The absence of rational expectations, as this failure to anticipate the decisions of all other agents is called, is likely the most important reason that the agent-based model does not mimic the equilibrium values of the analytic model. It would be desirable to incorporate some sort of predictive power into the choice algorithm for the different agent types, but as described below, this is not possible when the model is built around assumptions that production and consumption will be market-clearing.

¹¹ Although evidence suggests that firms should maximize the rate of profit rather than total profit outside of equilibrium (Plummer, Sheppard et al. 1999), profit maximization is used here for consistency with the Krugman model.

be removed from the model environment. This dynamic simulates the process by which profit is maintained at zero, an important assumption of the analytic model.¹² The key difference in the dynamics of the model is that there is essentially no capacity to allocate firms and workers to an optimal configuration all at once; rather, they must find that configuration as individuals through their iterated location decisions.

Comparing the agent-based and analytic models

The critical distinction between the two models specified above comes from treating firms as decision-making agents. In equilibrium, the number of firms and their location can be defined purely in terms of the location of labor and the constant levels of production (see equation 4, 5, and 6 above). In this framework, firm location is modeled essentially as a ‘result’ of labor location decisions, even if those decisions are based on assumed firm locations. In an agent-based model, the firms need to calculate their optimal location and production level based on a profit-maximizing calculation derived from the current distribution of consumer demand and other firms. Equation (15), which calculates profit, includes N_j , solved with Equation (14). Equation (14) examines the demand for a firm’s product based on its price, the price of competing goods, and the income of consumers. However, a problem arises when the model is run under these conditions. Specifically, there is no constraint built into

¹² The agent-based model was also tested in a scenario where the number of firms was fixed from the start without regard to profitability. This had significant effects on wages and other model variables but no measurable effect on the distribution of model solutions expressed in Table 3.

the model that insures that firm production is limited to the available labor supply, or that workers only receive wages when they are employed by a firm. The result is a model where workers locate without regard to labor demand in a particular location, thereby steering the model's course away from the predicted equilibrium results. In summary, when firms move, they tend to want to move to places where wages are low; in contrast, workers tend to want to locate where wages are high. The analytic model assumes that workers drive these decisions with firms relocating proportionately. The agent-based model goes out of equilibrium as soon as a firm makes its own location decision. As the assumption that firms move in exact proportion to the desires of a mobile labor force seems unusually restrictive, the effort at examining out-of-equilibrium conditions seems desirable even if it cannot be fully operationalized in the current model framework.

To avoid the nonsensical result described above, it would be desirable to find a mechanism by which a firm's production decisions could be optimized subject to a constraint that they have the labor necessary to produce this quantity. To do this, however, firms must bid on workers through wage competition. Bidding is complicated by the fact that the model takes place in an environment with increasing returns to scale (because of the fixed costs α associated with producing any number of goods), so the amount a firm can offer in wages is dependent on the amount it can produce and the price it receives for its goods. These quantities are affected, in turn, by consumer's wages which depend on which firm employs them (and whether or not they have found employment at all). The result of all these relationships is that the

production decisions of firms cannot be optimized into a full employment, market-clearing configuration with any certainty without changing some of the underlying assumptions of the analytic model. In an agent-based model, the firm agents set their prices at different times and must make decisions without complete certainty that the necessary labor will be there to produce the good, or that they will sell all the goods they manage to produce at the price they have set. Even making the model synchronous, so that all firms and workers decide at once before any model values are recalculated, does not solve this dilemma. There is no mechanism to perfectly predict future demand without setting wages, and there is no way to set wages without knowing future demand.

The logical step to improve the functionality of this model is to develop equations that account for the rationing of wages and production based on worker employment (for wages) and availability (for production). This is, however, not nearly as easy as one might hope as the aforementioned conditions of uncertainty preclude a simple formulation. As described below, the model must be reformulated from its most basic assumptions before such rationing can be incorporated to move forward in this highly desirable direction.

Results

The differences between the two types of model are most easily understood through a comparison of their results. Although it is somewhat artificial to compare two models, one of which has just been shown not to work, it is instructive to see the particular ways in which the general model fails when it is taken out of equilibrium.

This section reports the outcomes of a comparative model run using the same starting conditions and spatial configurations in each model. The parameters and starting conditions for both models are shown in Table 1 and Table 2; the location of the three cities is shown in Figure 8. The parameters in Table 1 were not selected at random, but drawn from an introductory analysis of the model by Brakman et al. (2001). The analytic model is operationalized using the specifications made available in Brakman et al. (2001) in a macro-driven spreadsheet. The macros employed within the spreadsheet use the solution conditions specified within the literature to iteratively find the short-run and long-run equilibrium solutions for the model.

Table 1 Model Parameters

Preference for goods (δ)	0.4	Percent of workforce in manufacturing (γ)	0.5
Love of variety (ρ)	0.8	Variable labor (β)	0.8
Elasticity of demand (ε)	5	Fixed labor (α)	0.1
Initial wage (W)	1	Labor force (L)	20
Stopping condition	.001	Transport cost (T)	1.07
Distances between cities: City 1:City 2 =6 units, City1:City3 =10 units City2:City3 = 10 units			

Table 2 Starting Distribution of Workers and Firms By City

	Agricultural Workers	Manufacturing Workers	Firms
City 1	4	2	4
City 2	3	3	6
City 3	3	5	10

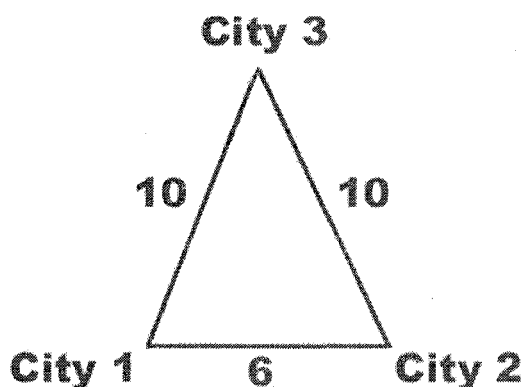


Figure 8 Graphic Representation of City Locations and distances between them

Figure 9 and Figure 10 provide a visual representation of the solutions found by these two model runs. They illustrate the location of the ten manufacturing workers over time under the conditions provided by the two models. The two model results are instructive. In the analytic model (Figure 9), the initial advantage of City 3 due to its starting allocation of manufacturing workers and firms is overcome by the resource advantage that City 1 has in agricultural workers. The model is ‘cognizant’ of the long-run benefits afforded by the agricultural workers (e.g., a larger home market for firms locating there once all firms have selected this optimal location). In contrast, the agent-based model tends to agglomerate all activity in City 3 where the starting advantage in terms of firms and total workers is decisive. In the agent-based model, a starting advantage given to any of the three cities will usually result in that city receiving all of the manufacturing workers within a relatively short time period.

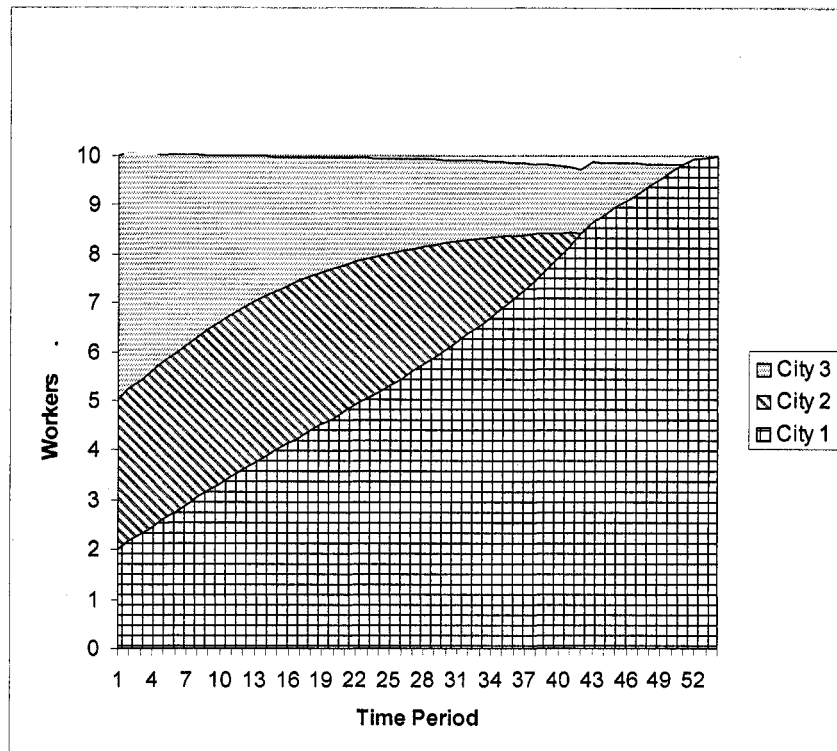


Figure 9 Distribution of Manufacturing Workers (Analytic Model)

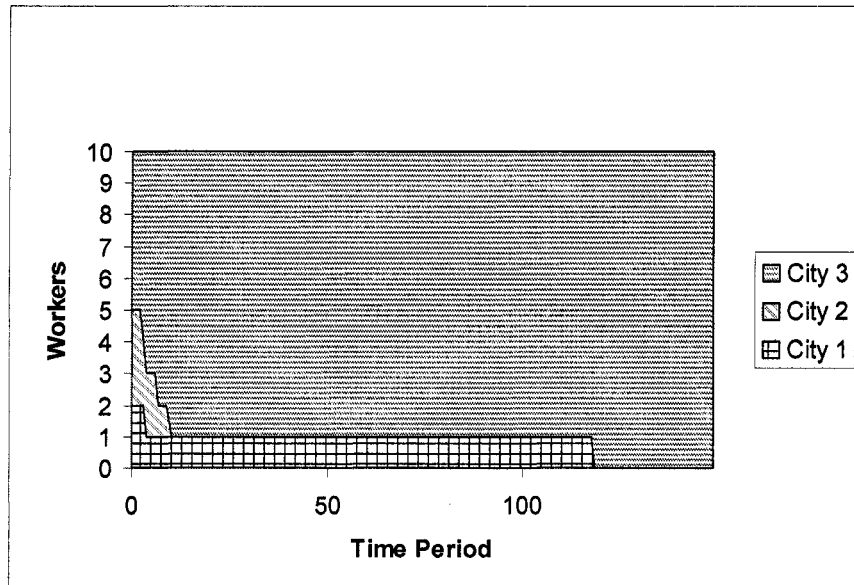


Figure 10 Distribution of Manufacturing Workers (Agent-based Model)

Figure 10 represents a “typical” solution for the agent-based model. In fact, the agent-based model is stochastic, and barring certain extreme parameter values, it will provide a range of solutions with varying probabilities. To provide greater certainty about the behavior of the agent-based model, it is possible to run the simulation multiple times and record the probabilities of each solution. Table 3 demonstrates that the solution shown in Figure 10 represents the eventual solution approximately 88% of the time. Interestingly, the solution found by the analytical model, in which all manufacturing workers found their way to City 1, represents the least probable solution in the agent-based model with only 1.4% (or 699 out of 50,000 model runs) arriving at this solution.

Table 3 Starting Distribution of Workers and Firms By City

	City 1	City 2	City 3
Location of Workers*	1.40%	10.26%	88.34%
Mean Distribution of Firms	29%	24%	47%
--when workers are present	40%	38%	48%
--when workers are not present	28%	23%	43%
Minimum Number of Firms present	0	0	1
Maximum Number of Firms present	12	13	14
*in every case the workers all congregated to a single city			

While all of the solutions for the agent-based model result in the agglomeration of workers in one city, the location of firms is more varied. During the simulation runs, the number of firms present in the model tended to oscillate between 16 and 17 firms with some model runs stopping with as few as 14 or as many as 20 total firms. The firms somewhat favor the city where the manufacturing workers have agglomerated, but the most profitable city appears to fluctuate constantly during the

model run so that agglomeration of all workers does not guarantee an advantage in the number of firms. Rather than being a necessary condition for firm location, as in the analytic model, each worker tends to add to whatever city has a present advantage, thereby increasing the tendency for both firms and workers to bunch in one location.

This first comparison of the two models suggests that the equilibrium solution for the analytic model is not a strong attractor within the agent-based framework. The necessity of choosing based on present conditions rather than an anticipated future condition usually forces the economic system into a distribution of workers and firms that is suboptimal. This said, it would be a mistake to make too much of the model's failure to find the equilibria specified in the analytic solution. The decision-making processes of the manufacturing workers closely mimic processes in the analytic model (which is, after all, driven by worker location with firm location solved after the fact). In contrast, the decisions of firms are inaccurate because of the failure to link production to labor availability; as a result, firm decisions will tend to nudge the model in ways that are very different from the outcomes predicted by the analytic model.

The analysis above can be usefully extended to test the concordance of the two models across a range of parameter values. Figure 11 shows the distribution of manufacturing workers among the three cities specified above when transportation costs were varied from 1.0 to 2.0 in increments of .01 in the analytic model. As would be expected, there is no incentive for workers or firms to move when transport costs

are zero.¹³ Each worker can acquire the same bundle of goods for the same price at any location and firms can reach the same markets equally from any location. Next, when transport costs are very low, the size of the local market dominates and there is a brief range of values in which City 3, with its larger starting population of workers and firms, dominates. When the transport parameter reaches 1.04, however, transport costs enter a range in which locating at a central market area dominates the location pressures in the model and activity concentrates at the city with the largest potential market area, City 1. Above 1.08, however, the dominance of City 1 begins to erode. By 1.32, workers end up distributed across the three cities in a roughly equal distribution based on their allocation of agricultural labor. Because of higher transport prices, it is more efficient to serve each area locally than to serve them centrally.

¹³ Because the distance is applied as an exponent to the transport cost parameter, a value of 1 for transport cost means that the cost of a given good does not vary with distance.

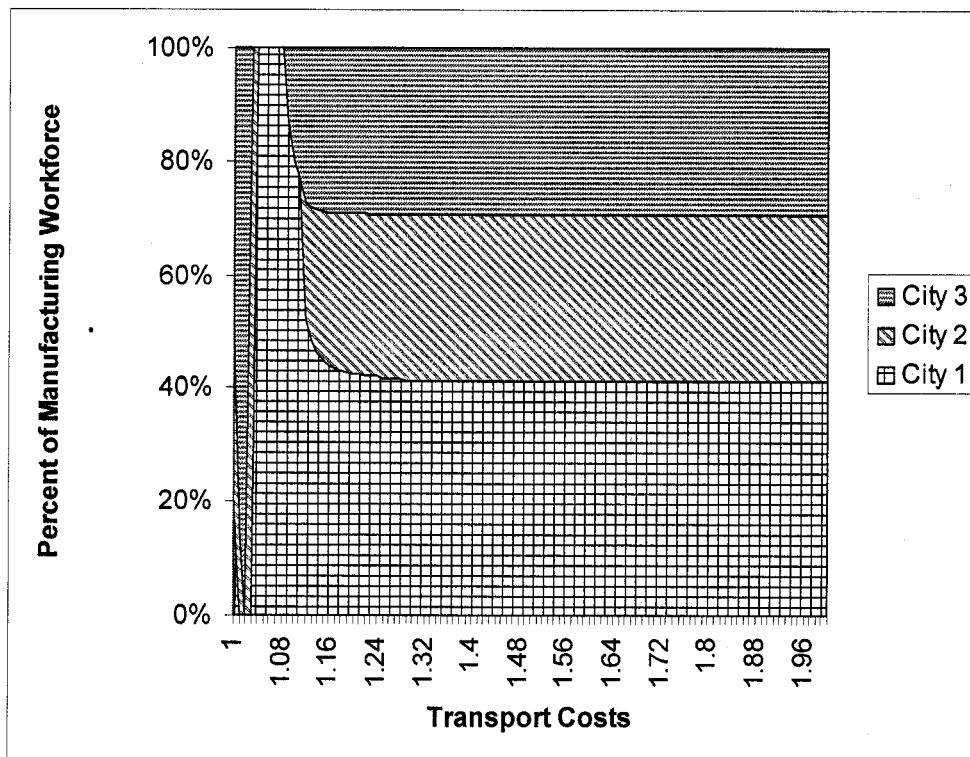


Figure 11 Effects of Changes in Transport Costs on Distribution of Economic Activity (Analytic Model)

In contrast, the agent-based model is far less deterministic in its outcome across parameter values. As it turns out, a value of 1.07 for transportation costs— the value originally selected by Brakman et al. (2001) and shown in detail in Table 3— has a relatively simple solution set with the manufacturing labor force always agglomerating into one of the three cities. For other parameter values, this pattern of agglomeration does not necessarily hold and so any representation of the solutions becomes much more complex. Figure 12 shows the average distribution of workers across the three cities at each parameter value from 1.0 to 1.99. The figure represents the results of 50,000 simulation runs (5,000 for each of 100 values for the transport cost parameter). One fact that jumps out immediately from this graph is the overall

similarity it holds to Figure 11. While City 1 moves into a dominant position at a slightly lower transport cost in the analytic model, the overall form of the distributions remains the same. For very low (1.0-1.02), and relatively high (>1.32) transport cost values, the two models have very similar solutions in terms of the number of workers in each city.

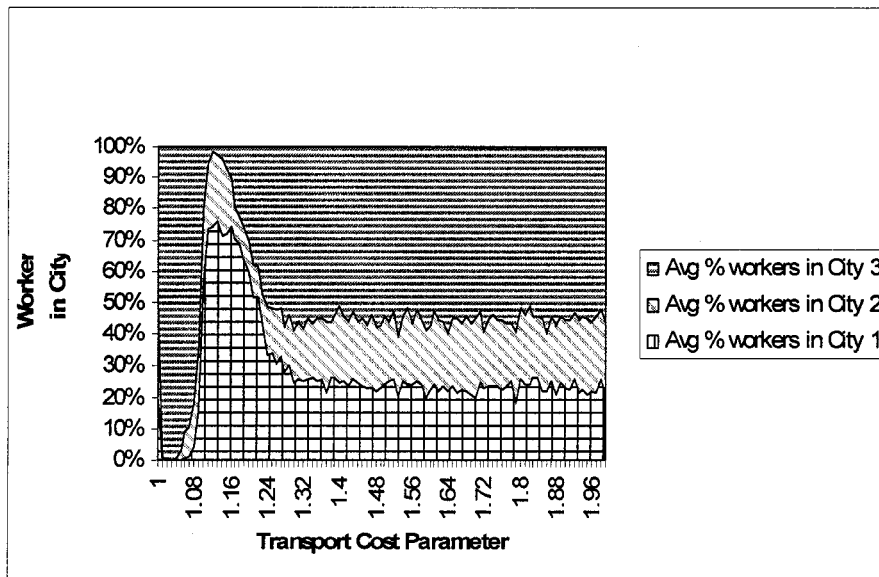


Figure 12 Effects of Changes in Transport Costs on Distribution of Economic Activity (Agent-based Model)

The similarities between Figure 11 and Figure 12 are somewhat deceiving. By showing the average distribution of firms at each parameter level, Figure 12 hides the fact that in any given simulation run, the solution is likely to involve complete agglomeration of workers in a single city. Furthermore, the propensity for workers to locate in one place changes significantly across parameter values. There is no agglomeration at 1.0, then full agglomeration through 1.09 with the propensity for all workers to end up in one city falling slightly thereafter, but remaining at 90% when transport costs are raised to 1.99. This suggests that the spreading effect of high

transport costs, which is so powerful in the analytic model, is not nearly as strongly felt in the agent-based version, if felt at all. Further complicating comparisons of the analytic model and the agent-based model is the fact that at high values for the transport cost parameter, the model will frequently move to a solution where there are no firms making it difficult to interpret the results at all.

The results presented above illustrate the effects of moving the model of geographical economics outside of its equilibrium conditions. The relationships posed in the analytic model do not map a complete system, but provide glimpses of a few special points with no information about how those points are connected. Although the equations of the analytic model can be mimicked in a way that is sufficient for a simulation to run, such a simulation cannot be made logically defensible without significantly altering the relationships among workers, firms, and cities posited in the analytic model.

Discussion

The preceding sections have shown that the relationships posited in the analytic model are unable to explain the system's behavior outside of equilibrium. Without further research, it is even unclear if the equilibrium points deduced in the analytic model are attainable from non-equilibrium points in the system space. This suggests that more work needs to be done to bridge the gap between economics and geography so that the substantive issues raised by the application of spatial models of economic activity can be addressed.

From a technical standpoint, it is possible to build an agent-based model that would study the location behavior of economic agents under much the same conditions as those offered by the geographical economics model. What does not appear to be feasible is an agent-based model that can replicate the short run equilibria of the analytic model, *and* show how they are connected to one another through periods of disequilibrium. To create such a model, firms would have to have some mechanism with which they could predict an appropriate production level for themselves and estimate the levels chosen by their competition in an environment where sufficient labor supply is not guaranteed. The delicate balance among the equations of the analytic model does not allow for the error and uncertainty that are necessary parts of this sort of prediction, and so a new set of relationships needs to be specified.

Chapter 6 sets out to outline in detail what relationships might be suitable in an agent-based model of competition. In addition to the issues raised in this chapter, Chapter 6 also adopts some of the hypotheses put forward in Part I of this dissertation as important aspects of competition among cities and therefore necessary components of an improved model.

This chapter may appear as somewhat of a detour between the hypotheses and complexity generated from the case studies in Part I and the model construction undertaken in Chapter 6. To some extent this is a valid point; for many researchers in geography the methodologies of neoclassical economics are already so thoroughly discredited as to need no explanation. Nevertheless, economics remains the

preeminent discipline within the social sciences and certainly the first resource for policy-makers interested in competitive policies. Abandoning the methodologies developed so carefully within economics cannot be undertaken lightly or without justification if future work is to be taken seriously within these circles. Chapter 5 has offered a clear justification for abandoning the models of neoclassical economics along with the economistic frame of reference discredited in Part I. These models, while useful, are not sufficiently flexible to incorporate the kinds of hypotheses put forward in Part I, nor are they particularly good for tracing system dynamics when the world is assumed to be messy and complex rather than neatly ordered. A new ontology for examining competitive policies requires new methods for theory building and this chapter has both demonstrated this point and provided direction for what those new methodologies might look like.

Although critical on its face of neoclassical models, the intent of this chapter was to move beyond some of the differences that have separated economists and economic geographers in the study of space's impact on economic behavior. Instead it has served to highlight why some of those differences continue to exist even as it points towards a partial way forward. The failure of the basic models of geographical economics to provide meaningful solutions outside of equilibrium represents a serious challenge to the utility of these models, particularly as they begin to be used to promote policy decisions. This research suggests that a great deal more needs to be done at the disciplinary border between economics and economic geography before

either Amin and Thrift's (2000) call for disengagement or Overman's (2004) call for appreciating shared goals and results can be fairly judged.

Chapter 6: Future Steps

Competitive policies represent the outcome of complex interactions among individuals and institutions working to affect the distribution of local resources and to attract resources from elsewhere. When examined at close range as in the case studies of Genoa and Gioia Tauro, policy implementation is an extraordinarily messy, political, and complex process that is rife with structured power relations, path dependency, heterogeneity, and indeterminacy. This complex representation differs starkly from the neat, homogeneous model of economic action that is typically used to explain competitive policies. To gauge the effects of competitive policies, both within cities and in terms of their effects on global economic networks, requires a modeling framework that is far more flexible than that demonstrated in the previous chapter. At a basic level the model of geographical economics lacks the ability to tell us anything about the performance of cities outside of equilibrium constraints. More broadly, this model is incapable of incorporating or testing any of the myriad hypotheses developed in the case studies presented in Chapters 3 and 4. A more flexible model is possible within the framework offered by agent-based modeling. The purpose of this chapter is to set down the basic components of a theoretical model for examining competitive policies in the context of the hypotheses put forward in Chapters 3 and 4 and in light of the theoretical developments suggested in Chapter 2.

The development of a model that can better describe the relationships among cities in competition is desirable for two reasons. Foremost, such a model is desirable

for examining the relationship between policy and resource distribution when competitive policies are implemented; to date the theoretical relationships are either misspecified (in the case of the deductive model just described) or descriptive (as in the case studies in Chapters 3 and 4). Secondly, a better model of city competition can replace current economic models for policy analysis, thereby adding a consideration of inequality, complexity, and indeterminacy to this critical stage.

Moving from the deductive models proposed by economists to an alternative model that incorporates the lessons learned in Part I is a difficult process. The assumptions at the base of the economists' model are highly regarded as are the general relationships proposed within that model; if we are to move beyond those models we must do so gradually and with clear justification for our choices. Chapter 5 offered very clear reasons for mistrusting the results offered by the deductive model, but the agent-based version presented there was equally flawed. In the first section of this chapter I consider some of the theoretical elements that need to be considered in order to better express the processes associated with competitive policies. Next, I begin the process of reframing the model of competitive policies through a modified version of the relationships proposed in the deductive model. The modifications take place at the level of very basic assumptions and so some readers may regard the results as a new model entirely. Nevertheless, this model is supposed to be an intermediate step. It provides a point of departure where the basic points of interest (e.g. the movement of firms and workers) are represented without any equilibrium constraints. This model, however, falls well short of the eventual goal

hinted at in the hypotheses proposed in Chapters 3 and 4. The third section of this chapter tries to address those hypotheses. Although Chapter 6 only succeeds in sketching out these two models, its purpose is to demonstrate how much further we can go in modeling competitive policies.

Theorizing competitive policies

Both proponents and opponents of competitive policies have almost exclusively focused on the link between competitive policies and global economic networks. In contrast, the case studies in Chapters 3 and 4 have shown that there are entirely local reasons for implementing competitive policies, and that these local reasons may actually have longer term effects than changes made to a city's status within global networks. This section attempts to re-imagine the link between policy and outcome in terms of the multiple scales where policy is negotiated and where its costs and benefits are distributed and also contested. This process begins at the scale of the individual and proceeds upwards through class organization to local governance, and then beyond to regional, state, and international institutions. Next, the impacts of these policies on global networks are reassessed in terms of these frames of analysis. Finally, I consider the subjective nature of the decisions necessitated by the complexity of the issues under consideration with an emphasis on the caution necessary when presenting results of such models.

The theorization that follows is expressly designed as a starting point for mathematical modeling of the relationships that come together to create competitive policies and determine their local and global costs and benefits. As a result the ideas

are expressed more fixed than they should be. The linear progression from individual to global that follows lends itself well to a nested view of scale with individuals fitting neatly within classes, classes within cities, cities within states, and so on up through different levels of geographic or political boundaries. These structured relationships will likely be a disappointment to readers who prefer agency and complexity, but they are necessary steps in this retheorization and may be usefully broken later on. While a nested theorization may prove useful in some contexts, the linear representation is a convenience rather than a necessary structural relationship. Certain levels of institutional organization will be felt more in some places than in others, while membership within institutions can be fluid.

Competitive policies rest on assumptions about the rational action of individuals drawn from neoclassical economics and so it is with a critique of these assumptions that a multiscalar theorization must begin. Neoclassical theory assumes homogeneity across individuals maintained by perfect information and uniform utility maximizing motives. This assumption of homogeneity then allows theoretical models to scale up from the microfoundations of individual rational actors to the global scale of competition among cities. A great deal of critical effort has been directed at calling into question these assumptions. From the behavioralist critiques of the 1960's (Pred 1967) to poststructural critiques of the present day (Callon 1998; Law 1999; Woods 2006) authors writing from a wide range of epistemological stances have critiqued the assumptions that underlie economic theory (Barnes 1996).

More pressing than further critique is the need for a better theory of the individual and how their preferences and desires might contribute to something as remote as local economic policy. In some ways it is easier to define individuals by what they are not. They are not homogeneous, they do not have a fixed set of preferences, and they do not operate with perfect information or even a perfectly consistent rationality. Trying to positively construct individual subjects in a way that could be understandable within the context of policy analysis is a difficult task and touches on a host of current debates. In constructing a suitable individual for incorporation into policy analysis I would like to make several strong assumptions. First, individuals are not fixed in their preferences, but adjust them in unpredictable ways, but also in response to the preferences of individuals around them. Second, individuals do not act based on perfect information or even imperfect information (in the sense of perfectly accurate information constrained by geographic scope). I prefer to think of individuals operating based on their perceptions which will be strongly influenced by the perceptions of individuals in their vicinity, but also by perceptions held by members of their class groups or residents in their political region (e.g. city or nation). Third, individuals will identify with one or more class groups based on shared perceptions of how the world is and how they would like it to be. Class membership is not fixed by any one characteristic, nor is it permanent, but membership does influence perception.

A final and somewhat distinct element that I need to introduce at the base level for theorizing competitive policies is a theory of preferences. These preferences

will apply to both individual workers and firms, and will be a key factor in determining group membership and policy priorities. Whereas economic theory sees preferences as uniform (utility or profit maximization), I wish to leave room open for a broader range of variance. Ideally, this range of variation would be infinite, but for practical (primarily visualization) purposes, I will represent preference as existing along three axes. These axes could represent anything, but for the sake of this argument I will characterize them in terms of major poles of difference related to competitive policies: pro-firm→pro-worker, less regulation→more regulation, and more infrastructure investment→less infrastructure investment. Clearly individuals are defined by many more preferences than this—prefers the outdoors→prefers city life, prefers dogs→prefers cats, tastes great→less filling—to name just a few. Limiting the range of variation to just three axes cuts out many of the fine distinctions that make us individuals. Nevertheless, three axes when divided into 100 units each, allows for one million unique combinations; enough to insure that individuality remains the norm within all but the largest model environments. The advantage of defining these preference axes is that we can put names on the policy goals of heterogeneous individuals and define institutional groups to represent the interests of likeminded individuals. While the axes themselves are unimportant, the difference they represent is a key component of defining the tensions that exist locally and intra-locally in policy environments.

The assumptions specified above are every bit as strong as the assumptions made within neoclassical theory. They are far from perfect. Nevertheless, these

assumptions form a foundation for further analysis of competitive policies that permits these policies to be assessed in the context of current debates on subject formation. Such agents are enmeshed in multidirectional webs of power—both influencing and being influenced by the societies in which they are placed (Foucault 1980). They are also dynamic subjects, identifying themselves with multiple and changing classes, shifting their preferences and remaking themselves based on their own goals and on the goals they read off their neighbors (Gibson-Graham 2006). Regardless, individuals thus defined provide a fascinating microfoundation from which to build a more complex theory of competitive policies.

Institutions are another relevant scale for thinking about the development of competitive policies. Institutions are entirely absent from the debate over competitive policies so far, but they play a key role in bringing together the interests of likeminded individuals in the process of policy formulation (Kollman, Miller et al. 1997; Ostrom 2000). In economic literature institutions are understood as limiting the decision set available to an individual through constraining rules and bounded information (North 1990). In contrast, I envision institutions as the functional extension of different class groupings; the actors that promote the interests of groups of individuals. Rather than identifying a role for individuals in promoting their own interests within local government decision-making, I reserve that role for institutions. In the formulation I am proposing here, institutions will form generically around groups of individuals with similar preferences and will work on promoting the mean preference of those individuals within local government. Institutions will also have a

small effect on pushing the preferences of their membership towards the mean preference of the institution's membership taken as a whole.

Local governing coalitions are key actors in the implementation of competitive policies. These coalitions can put any number of local spins on the battery of standard policies described earlier. My interest in framing the implementation of competitive policies in terms of local government coalitions is expressly tied to my belief that the local distribution of costs and benefits is tightly linked to the power relations within these coalitions. Regulation theory argues that local coalitions function based on a mandate for certain types of policy and this is the model I wish to employ in my own theorization. For my purposes local coalitions will be composed of institutions present in the locality. These institutions will be arranged into subgroups within the coalition based on shared preferences. The policies put forward by these coalitions will reflect the points of shared interest among institutions, and policies will not be possible in areas where subgroup preferences diverge markedly.

Regional, state, national, and international actors also have a role to play in the local implementation of competitive policies. Despite the protestations of the world cities literature that cities are now operating outside of national contexts my own research on competitive policies has shown that many competitive policies are simply efforts on the part of local groups to capture resources from higher levels of

government.¹⁴ To the extent that this is true, these governmental formations need to be incorporated in our models of how competitive policies come into being and how their benefits are distributed. At this early stage I do not intend to formally incorporate supra-local entities into my theoretical model, but I do foresee scenario testing where resources are periodically made available to localities exogenously or in exchange for consistent payments. Further development of this aspect of the model will have to await future research

Although the global scale has been overemphasized in current theoretical framings of competitive policies, it is not without its place in a theoretical model. One clear finding of the case studies in Genoa and Gioia Tauro was that the competitive policies implemented there were lowering production function costs in the cities and subsequently attracting additional capital (in the form of throughput) albeit temporarily. The focus of this dissertation is on extending the scope of our understanding of competitive policies to reach beyond these global network effects, but at the same time these effects cannot be overlooked entirely. Measures of success within global economic networks remain a primary focus of policy and need to be included in this reformulated modeling effort

¹⁴ To be fair, the cities I examine are not “global” or “world “ cities in the sense coined by Sassen, Taylor and others (Alderson and Beckfield 2004; Beaverstock, Doel et al. 2002; Sassen 1991; Smith and Timberlake 2001; Taylor 2001; Taylor, Catalano et al. 2002b). Perhaps the largest world cities do act without close relation to their national contexts. Nevertheless, since the world cities authors have felt justified in delineating their hierarchies down to third and fourth tiers which include cities like Genoa (if not Gioia Tauro) then I feel that it is fair to make the counter point that these cities are embedded in national politics (Derudder, Taylor et al. 2003; Taylor 2001; Taylor, Catalano et al. 2002b).

Theory abstracts from reality. To build theory, then, we must make choices about what to keep and what to discard as we create our abstraction. We cannot do this without assumptions of some sort and those assumptions will be flawed. Furthermore, the nature of these flaws will have important impacts on the conclusions that we draw from these outcomes. Economists have addressed this problem by choosing the same set of assumptions across an entire discipline, justifying their flawed outcomes in an ‘everybody is doing it’ logic. What needs to be absolutely clear about the work being done here is that it is no more or less flawed than the abstractions leveled by the economists, it can only be more honest. By focusing on complexity and difference, the theoretical model I am developing is even more vulnerable than a model that assumes homogeneity. If one assumes homogeneity, one can at least achieve ones assumption in the practical development of a model. In contrast, when one assumes complexity and difference, efforts at forcing this assumption within the constraints of a model will create problems (such as limiting preferences to three axes rather than infinite variation). The only solution to this quandary is to be modest about the claims being made. A model undertaken under these conditions can still be useful for telling us at least a little about complexity, but it is always going to be a very partial representation.

Modeling city competition outside of equilibrium

The agent-based version of the Krugman model produced nonsensical results for two critical reasons: firms and labor were not functionally linked in any kind of demand relationship, and firms could not accurately calculate levels of production or

prices of goods to insure market clearing. The problem is that, by definition, when an economic system is out of equilibrium there will be surplus and shortfall, unemployment and unmet employment demand. The agent-based model derived from Krugman's insights had no way of defining these relationships while retaining the basic form of its ancestor. To define these relationships requires one simple change; we must permit workers and firms to make mistakes.

This section reports on the development of a model that is not yet coded and not yet tested. It is incomplete in some areas, but it serves a useful purpose by showing what kind of foundation an agent-based model of city competition might rest upon and discussing the advantages of this construction. This is a necessary step before the hypotheses generated from the case studies can be considered in the next section.

Model overview

This model retains the basic forms of the model discussed in Chapter 5. It features firms, a bifurcated workforce (with mobile manufacturing workers and immobile agricultural workers), and cities scattered across an isotropic plain. At each opportunity firms will seek to maximize their profit while manufacturing workers will seek to maximize their utility. As before, the simulation will run by randomly selecting a worker or firm and running through a choice scenario that determines whether or not they should move and, if moving, relocates them to their new city.

The modeling framework differs from the models discussed so far in that it explicitly incorporates a time given over to production and consumption. As Sheppard and Barnes explain:

“[T]here is no sense of reproduction in the neoclassical scheme. For a given slice of time, individual agents rationally exchange their set of exogenously given resources with another set owned by different individuals in order to maximize utility. Once exchange occurs, the slate is wiped clean and we start with a new set of resource endowments and preferences.” (Sheppard and Barnes 1990)

In practical terms this plays out in the Krugman model in such a way that workers have a wage they are earning and a quantity of goods they are consuming, firms have a production level they are producing but the paycheck never comes and the cars never roll off the assembly line. In the model proposed here there are two kinds of step, a decision step, and a market step. In the decision step one agent (worker or firm) makes decisions about what they will do next based on the world around them and how they did during the last market step. In the market step all of the currently employed workers are paid a wage and all of the firms produce goods based on their current employment levels. Workers buy goods from the firms based on their wages and these purchases are subtracted from the available stocks of goods held by the firms. The number of decision steps that take place between each market step is arbitrary; it depends on the number of agents in the model and what percentage of the agent's should have the opportunity to change between markets. The important element though is that firms and workers will actually earn utility or profits and adapt to their success or failure within this system.

The framework described above represents a sharp departure from the models put forward in the previous chapter, but it is necessary as a way to move out of the constraints imposed by equilibrium models. The move seems less problematic when we recognize that economists adopted the assumption of equilibrium in large part because it was necessary to make their mathematical models solvable. In abandoning this assumption we take a strong step away from economics, but it is not so far from how we might imagine firms and workers actually operate. In a sense we have just replaced Adam Smith's invisible hand with an explanation rooted in the desire of each individual to participate advantageously in an exchange economy.

Modeling worker behavior

The principal change affecting workers in the proposed model is that workers now carry a variable marking them as employed or unemployed. In the previous agent-based model configuration workers would simply migrate to the city with the highest wages. Firms typically would do just the opposite, preferring low-wage cities. The end result was the rather ridiculous outcome of all firms clustered in the lowest wage city and all workers in the highest wage city with no indication of who was producing goods for the firms, or who was paying the workers. In the proposed model workers must be employed at the time of a market step in order to receive wages and participate in the market.

Ancillary to the need to be employed in order to earn utility, workers' migration decisions are now constrained to firms with unfilled demand for labor. Rather than simply moving to a city based on its generic wage rate and market access,

workers must now consider whether or not there is a job for them at the end of the move. Jobs will offer different wages and different opportunities for consumption, but the focus is on the employing firm rather than the host city.

The only other change affecting workers is in the process by which they calculate the potential utility of employment. Utility is estimated based on the presumed availability of all goods currently in production. As will be described below, the actual practice of market day may mean that not all of these goods are available to each worker, but this is too complex to calculate in advance. Workers maintain the same utility function as before (Equation 13 reprinted below)

$$U_r = F_r^{(1-\delta)} C_r^\delta \quad (13)$$

The change comes in the way that consumption is estimated. The previous model incarnation employed the Index (I) as a means of calculating the amount consumed (C_r in Equation 12 reprinted below).

$$C_r = (\delta W_{r(t-1)}) / I_r \quad (12)$$

I is not a useful method of allocating consumption outside of equilibrium, however, and so we are left to solve the problem of maximizing C_r subject to the constraints of our budget. Formally this problem is written as:

$$\begin{aligned} \text{Max } C_r &= (Q_1^\rho + Q_2^\rho + \dots + Q_n^\rho) \\ \text{s.t. } (\delta W_{r(t-1)}) &= p_{Q1} Q_1 + p_{Q2} Q_2 + \dots + p_{Qn} Q_n \end{aligned}$$

where C_r is now understood to be a function representing the utility gained by consuming manufactured goods (as opposed to food). The function describing C_r retains the tradeoff between wanting a *variety* of goods and wanting a greater *quantity*

of goods. When $p = 0$ goods are perfect complements and the consumer will buy an equal amount of every good. When $p = 1$ goods are perfect substitutes and the consumer will just purchase as much of the cheapest good as she can find. Setting p at some intermediate value represents varying levels of balance between these extremes. The constraint equation simply translates into “the cost of implementing the consumption function C_r will not exceed the wages allocated to consumption of manufactures where each good in C_r is charged at its price multiplied by the quantity (Q).”

With just two goods the problem stated above has a relatively straightforward solution. One would simply solve for the point where an additional dollar spent on the first good would add exactly as much utility as spending that dollar on the second good. With a large number of goods potentially included in the consumption function the math necessary to solve this problem exceeds my capabilities. Fortunately, the stepwise, computationally intensive, approach of agent-based modeling can provide a solution. Given a list of the delivered prices of all available goods we can calculate the marginal utility of spending one dollar on each good in turn. We then simply choose to spend our first dollar on the good that will bring us the greatest utility. Next, we recalculate all of the marginal utilities given our new consumption levels (which now includes some small quantity of one of the goods). This may tell us to spend our second dollar on the same good, or maybe a different good depending on the relative prices of the goods and whether p is closer to 0 or 1. We continue this process until all available funds have been spent.

Table 4 illustrates the stepwise calculation of consumption using three goods A, B, and C priced at \$2, \$3, and \$4 per unit respectively. The value for ρ is .5 throughout; an even emphasis on variety and quantity. The table is best read left to write one row at a time. The wage earner starts with nothing and first buys $\frac{1}{2}$ a unit of A with her first dollar. Next she buys $\frac{1}{3}$ of a unit of the \$3 per unit B with her second dollar and finally $\frac{1}{4}$ of a unit of C with her third dollar. This pattern continues until, with her ninth dollar she opts to spend her money on more A rather than C; at this point A's lower price gives it a slight advantage over the urge to have variety. With different values of ρ the pattern of purchases would vary favoring the cheaper A as ρ gets closer to 1 and favoring a more even distribution of quantities as ρ approaches 0 .

Table 4 Example of Stepwise Consumption Preferences

Dollars Spent	Quantity of each good purchased			Total Utility	Marginal Utility of \$1 worth of each good		
	A(\$2/unit)	B(\$3/unit)	C(\$4/unit)		MUA	MUB	MUC
0.00	-	-	-	-	0.500	0.333	0.250
1.00	0.50	-	-	0.93	0.054	0.333	0.250
2.00	0.50	0.33	-	1.83	0.054	0.044	0.250
3.00	0.50	0.33	0.25	2.70	0.054	0.044	0.038
4.00	1.00	0.33	0.25	2.77	0.036	0.044	0.038
5.00	1.00	0.67	0.25	2.83	0.036	0.031	0.038
6.00	1.00	0.67	0.50	2.89	0.036	0.031	0.0271
7.00	1.50	0.67	0.50	2.93	0.0273	0.031	0.0271
8.00	1.50	1.00	0.50	2.97	0.0273	0.024	0.0271
9.00	2.00	1.00	0.50	3.00	0.022	0.024	0.0271
10.00	2.00	1.00	0.75	3.04	0.022	0.024	0.021

The rather lengthy description above is designed to give a feel for the ways that a computationally intensive agent-based model can handle the vagaries of an economy that is out of equilibrium. By setting problems into the moment and examining them as they progress, the agent-based model can handle seemingly

impossible calculations using only simple algebra. In Table 4 a difficult calculus problem is solved using nothing more than a patient set of comparisons; what should I spend my first dollar on to gain the most benefit? what should I spend my second dollar on? etc...

The only additional piece necessary to explain the behavior of workers in the proposed model is that when they are selected for a decision they will calculate their expected utility (as above) based on wages earned and market access available at the site of every firm currently offering a job. If any of these opportunities exceeds their current utility they will move.

Modeling firm behavior

Firms represent a slightly greater challenge than workers because they need to determine how much they would like to produce, what profit to use when marking up their goods, and what wages to offer in the labor market. As before, firms seek only to maximize profit through adjusting the variables named above and moving to new, more favorable locations. The key difference between firms in the previously examined models and this proposed model is that firms can now make mistakes. Rather than always producing exactly what is demanded of them, at zero profit paying the minimum possible wages, firms in this model will constantly strive to do better, but will be lucky to stay on top of the changes occurring in the market.

The complexity of the variables with which firms can seek to maximize their profit leads to a rather convoluted process for deciding what a firm should do at any given decision point. As explained in the previous chapter it is not feasible to

optimize choices for production and sales; things change too quickly for this to be meaningful, and the availability of labor means that there may not always be workers available to fill production demands. To accommodate this complexity, this model will incorporate a probabilistic decision matrix in which firms compare their own performance with other firms and then select one of five strategies. First, if the firm observes that it is the most profitable firm it will not change its current strategy. If that is not the case then the second option open to firms is to adopt the production, profit, and wage strategies of a successful firm. Third, a firm may seek to adjust its production targets either up or down depending on the success it has had in selling its goods. Fourth, a firm may adjust the price at which it is selling its product; either increasing or decreasing the profit earned depending on whether the goal is to sell more or earn more profit. Finally, the firm may choose to move to a new location. Figure 13 summarizes these complex decisions.

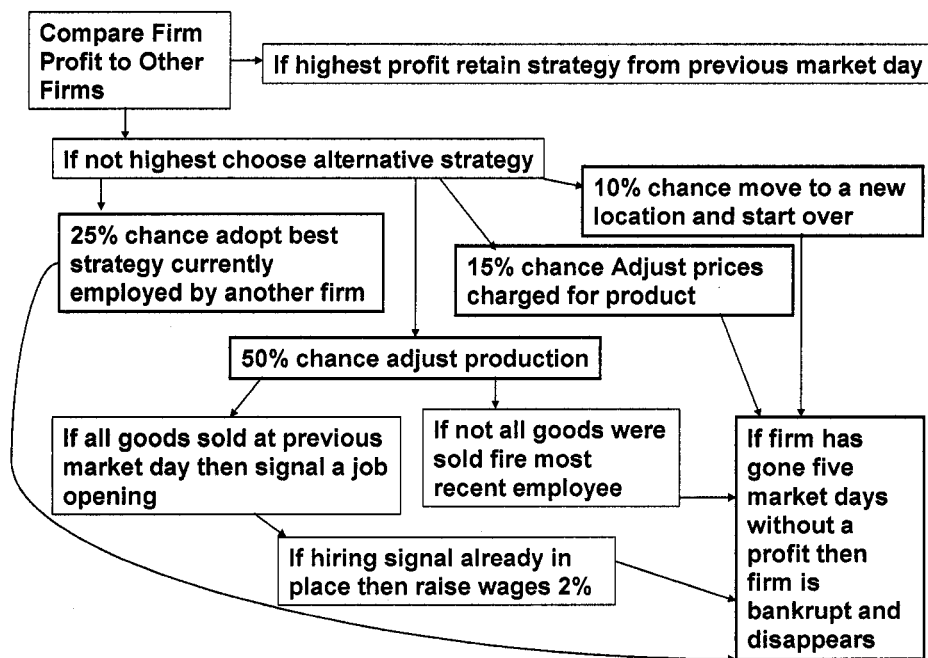


Figure 13 Decision flowchart for firms

Obviously the decision pattern for firms is quite complex, and it will take some artistry for the modeler to decide what the appropriate probability distributions are for each choice, or if under some circumstances combinatorial changes might be allowed. One important point to note, however, is that in this model when firms move they do not take workers with them. Instead, firms begin anew in their new location. They may have to alter their wages and production decisions for at least one turn until they can bring on new employees, but there is no guarantee that this strategy will work immediately.

A related point is the treatment of unprofitable firms and perennially unemployed workers. For the purposes of this model workers are assumed to remain in fixed quantities regardless of the number of turns they may find themselves without a paycheck and unable to participate as consumers on market day. Firms are

somewhat more complex. The fundamental strategy of this model is to model out-of-equilibrium behavior by permitting failure, therefore firms must be allowed to fail at least temporarily. At the same time, the number of firms present in the model will be a function of the labor supply and the consumption preferences of the workers and it is not reasonable to fix this number in place. As a solution I have chosen to implement the model so that one new firm is introduced at the end of each market day and that any firm that does not show a profit in five consecutive market days will be considered bankrupt and dissolve. This will have the added benefit of cycling through production strategies quickly so that firm agents remain flexible in their responses to changing market conditions.

Market day

One of the key features of the proposed model is the existence of a market day when firms and workers actually conduct the exchanges that determine success or failure for the firms and consumption for workers. This is a necessary step because it recognizes the cycle of production and reproduction within the economy, a major shortfall of much work developed within neoclassical economics where endowments and preferences are typically assumed as given (Sheppard and Barnes 1990). Market day is a crucial step for incorporating both path dependence and uncertainty into the model. Amid all of the location and production decisions processed within the model there needs to be a reckoning point where different strategies are assessed, where profits are realized, and where resources are distributed. After market day choices are re-evaluated, firms drop out or enter the market, jobs become available or layoffs

occur--all based on assumptions drawn from performance on the previous point of reckoning. The model is dynamic, but it is unreasonable for an entirely new production cycle to occur after every single decision. Market day is a flexible compromise giving firms and workers some time to sort themselves out, but insuring that choices in one time period will have consequences for the next.

The market day dynamic is somewhat difficult because there is no guarantee that firms will produce enough to supply all of the consumption demands of the workers, or that the workers will consume everything that was produced. The framework I am proposing begins with a determination of the actual production runs of each firm based on their employment during market day. From this supply and its associated prices we can calculate the delivered prices for each worker and calculate their demand levels for each good. From this calculation we can calculate the total demand for each good. If total demand exceeds supply then each consumer gets a fraction of their demand for that good equal to the ratio of supply over demand. If this occurs then workers will have left over wages that they could not spend on goods produced in insufficient quantities. As a result we can repeat the process using the goods not purchased in the first round to calculate a new set of demands and distribute goods in the same manner as the first round. This process can be repeated iteratively until all wages have been spent, until all goods are sold, or until some other stopping condition is achieved. After all goods have been distributed each worker and firm calculates their utility or profit respectively for use in decision-making that will occur before the next market day.

Model analysis

The model proposed in the preceding paragraphs provides several important advantages over the models examined in Chapter 5. Foremost, this model will provide a framework for analyzing the migration patterns of firms and workers outside of the constraints imposed by equilibrium models. Equilibrium is a condition imposed on models to make them mathematically tractable in a deductive logical framework. It demands a host of constraining assumptions that limit its flexibility. The agent-based model proposed here requires a host of powerful assumptions of its own, but for the most part these are negotiable and part of the modeler's art rather than limitation imposed by mathematical solvability. The model is a far cry from simulating the "real world" of worker and firm interactions, but that is not its intent. This model provides a basic framework from which exploration of competitive policies can begin. As these policies come to be tested, many of the relationships posed above can and will be changed to meet new demands. The strength of the model is that, for the most part, this change is possible.

A second advantage of the model proposed here is that it focuses on the behavior of individuals and recognizes that those individuals will face different environmental conditions, have different histories, and respond differently even if faced with the same choice. This is an important step away from the homogenous rational agents of economic theory with which we have dealt so far. Even while the agents and firms retain (for now) classic utility and profit maximization goals, they are fallible in judgment in large part because of the constant change around them and

the unknowable nature of that which they are trying to understand. In the second half of this chapter I will move away even from the uniformity of the utility calculations among workers and will incorporate truly heterogeneous agents, but even at this point we have a model that is based on dissimilarity and unique choices rather than sameness.

The heterogeneity of the agents within the model has important implications for path dependency. Since Massey's seminal article on regional difference (Massey 1979) geographers have been arguing that present economic conditions are not sufficient to explain difference among places (and also people). In this model firm decisions are particularly dependent on previous experience, although experimentation is also a major factor in distributing profit. In each model run firms will discover different kinds of responses to economic conditions and some strategies will survive while others disappear. There are many possible model outcomes because starting conditions, discovery of particularly effective strategies, and other coincidences may guide the overall model into different long-term conditions. Without adequate testing it is impossible to know what these model possibilities might be, but it is an exciting prospect for further analysis.

Finally, the multiplicity of possible model outcomes is a highly desirable result in that it represents the economy as overdetermined, and specific to time and place rather than inevitable. One of the most powerful critiques of modeling is its association with finite, repeatable results when reality seems to suggest that systems are too complex to be predicted with such accuracy. Statistical models are typically

formulated to represent a system as containing some portion of explained result plus some portion of “error.” In contrast the modeling framework here will provide as many unique system pathways as there are model runs. Results can often be categorized in terms of the likelihood of a certain generalized outcome, but this does not permit us to make any claims about how an empirical situation will behave. The usefulness of this modeling framework is as a tool for thinking about the effects that certain kinds of relationships have on results (e.g. how does agglomeration affect wages).

The model presented here has several important defects, some to be resolved in the second half of this chapter, while others are inherent limitations of the modeling framework itself. Chief among the limitations is the model’s continued dependency on a purely economic set of relationships. As presented here workers think only of consuming the best bundle of goods and firms think only of profit. There has been no effort made to represent the kinds of networks that connect firms and people to the places they live, nor is there a place for politics in this model. Given the emphasis on these kinds of effects in the analysis of the case studies from Chapters 3 and 4 this is a major drawback. Individuals are not atomistic; they exist within groups with shared goals and perceptions that extend far beyond consumption. Advancing the model’s theorization of these kinds of relationships will be a major goal of the second portion of this chapter.

A second issue of importance to the model outcome is the continued use of isotropic space with exogenously defined transportation costs. This has been an

important critique leveled by geographers against the models of geographical economists and it will be desirable to move away from this inaccurate representation of spatial relationships. The inadequate measure is retained for now because this work demands something of a step-wise move away from the dominant models of economics. While there is much to dislike about these models, they are important within policy development circles and it is useful to move gradually away from the models, carefully building a case for each move rather than abandoning the entire project from the outset. In this way it may be possible to maintain a dialogue with the economics discipline.

Defining competitive policies

The model specified so far is still incomplete insofar as it makes no mention of how competitive policies might be represented. Although it is clear from the case studies in Chapters 3 and 4 that competitive policies do all kinds of work at multiple scales, it appears that they also have distinct effects in terms of economic relationships at a global scale among cities. The work undertaken in Part I did not suggest that the emphasis on global effects was wrong, only that it missed much of what was interesting. Before incorporating the theses from Chapters 3 and 4 that get at what is most interesting about competitive policies we must finally implement the global side of competitive policies in the form of direct subsidies and the like.

As detailed in Chapter 2 competitive policies take a limited number of forms, primarily direct investment, regulatory rollbacks, branding, cluster promotion, and promoting the interests of the creative class. While these descriptions hide a wide

variety of implementations, as demonstrated in the case studies, they provide an important starting point for deciding how competitive policies among cities might be formulated within the context of an agent-based model.

Before initiating the implementation of competitive policies we need to set out how policies will be paid for—as economic theorists have pointed out for some time, these policies are not without costs for the residents and firms already located in a place (Krugman 1996). To design this revenue source we will have each city tax wages and profits of local workers and firms. The simplest way to accomplish this would be to tax based on a percentage of wages or profits. Alternatively cities could set out a revenue goal and assess each firm and worker some percentage of the total goal. Both scenarios bear testing. The costs can be subtracted out of the appropriate accounts at the start of each market day without difficulty.

A second point of adaptation that bears consideration is how cities will choose among competitive policies and how they will set taxation rates. One likely possibility is to have cities act in much the same way as firms and balance their decisions between random experiments and adoption of successful strategies employed by other cities. Interestingly here, it may be useful to measure success in terms of both change and in present status as it seems that in the real world cities often look at what successful cities are doing without asking whether the cities are successful because of the strategies, or whether the strategies appear successful because they are employed in successful cities. Again, some artistry will be required

to decide among the infinite variations of random action, learning by doing, and adopting best practices.

Implementing direct subsidies within the established framework is relatively straightforward process once a source for these payments is established as in the paragraph above. If cities choose to offer direct subsidies to firms they can simply offer a flag that such policies are in place and firms will consider this when making relocation decisions. This will function in much the same way as the employment opportunities flag for workers. There are more modeling decisions to be made when deciding whether policies pay for ongoing subsidies to firms, one time subsidies, or any number of similar variations, but these are all easily coded based on modeler preference.

Simulating reduced regulatory costs could involve several model alterations. At the most basic level, reducing the taxation of firms could act as a reasonable stand-in for this type of policy, although it bears a close resemblance to the direct subsidies described above. Alternatively, the regulatory cost could come in the form of paying some small portion of employee wages to simulate reducing the cost of benefits. Finally, the reduction could come in the form of a reduced requirement for fixed capital investment in the city as a way of simulating lowered permitting and infrastructure investment costs. Again, any of these benefits are easily coded into the modeling framework.

A third important competitive policy is the investment in branding that many cities are undertaking. The theory of branding is that by creating a buzz about a city

you will attract companies and fulfill economic growth goals as a result—things will be more attractive because of the growth rather than prior to it. This might be incorporated into the model by charging a city a certain cost (for marketing) with the result that firms or workers calculating their potential profits in that city would slightly overestimate the benefits of moving to the city. The amount of this miscalculation could be a function of the amount spent on the branding policy or on the actual advantages presented by the city—cities with better opportunities would receive a greater bonus than those with lesser opportunities. Again, there are any number of slight variations in the way this kind of policy could be modeled, all of them equally straightforward to code and calculate.

Cluster promotion ala Porter (1985; 1997; 2003) is the most difficult competitive policy to implement within the modeling framework because the model as currently specified does not recognize the existence of industries. To function properly, this sort of policy would need to be implemented within a system with a relatively large number of firms—since it works by attracting groups of similar firms, there must be groups to attract. Next, each firm needs to be randomly assigned an industry code. In the simplest models there might only be two codes, but there is no restriction on how many might be allocated; it will depend on the desired size of the industry groups. Once these codes are assigned it is straightforward to have cities identify any proto-clusters within their domains and to offer advantages targeted at these groups specifically as a special type of the direct subsidy described above. Depending on the degree to which one accepts Porter's thesis that proximate location

yields some level of benefits to the firms in a cluster one might also code some sort of agglomeration benefit that occurs with or without a policy in place as long as similar firms are located near one another.

Implementing a simulation of the creative class policies promoted by Richard Florida is constrained by the lack of differentiation among workers within the model environment. Creative class policies target the highly educated individuals who allegedly attract capital in their own right. To accommodate this differentiation we might assign workers into two categories, call them white collar and blue collar. Next we need to differentiate the production requirements for firms so that each firm requires a certain amount of white-collar labor in addition to the pre-existing blue-collar requirements. Next the relative distribution of blue-collar and white collar workers can be set such that white-collar workers are somewhat more scarce and/or less mobile than blue-collar workers (to give them an attractive power for firms). Finally cities could implement policies that increase the utility of all white-collar workers within their domains by some fixed amount.

The entire range of competitive policies as they have been treated in the literature can be incorporated into the base model of inter-city competition without having to overcome any major hurdles. The alterations discussed above require some careful thought and calibration, but this process of implementation is a key component of theory design. For the model to run usefully, the various levels of return on policy investment will have to be scrutinized carefully, for the decisions made about these levels will have critical implications for the behavior of the rest of

the model. Furthermore, the subjective side of this modeling exercise needs to be up front and clearly described if the model itself is to be of any use. Building theory, particularly complex theory, is a subjective process whether it is based on the results of a single case study, or whether it is codified in the logical framework of an agent-based model.

Testing hypotheses suggested in Genoa and Gioia Tauro

From the outset this dissertation has called for an improved framework for modeling competitive policies that incorporates the complexities of “actually existing” policy implementations. At this late stage in the project we have finally put together a suitable modeling framework and can begin to work through some of the hypotheses identified in Chapters 3 and 4. These hypotheses lay out the additional layers of complexity involved in the implementation of competitive policies with a particular focus on the ways in which competition is used discursively to support a wide range of local policies that have little or nothing at all to do with competition as it is understood by economists. To test the kinds of effects that these hypotheses will have on the distribution of resources within and among cities represents an extensive project for the future. For now, I will conclude this chapter and the substantive portion of this dissertation by sketching out the steps necessary to begin this project.

One of the key findings of the case studies in Genoa and Gioia Tauro was that economic factors playing out within global networks were only a small part of the overall effects of competitive policies. Local political conditions shaped the process of implementing these policies and ultimately affected the distribution of costs and

benefits associated with them. Most, if not all of the hypotheses discussed below seek to bring these local political battles into the more general model of inter-city competition. Nothing about these additions will preclude the continued measurement of the effects of competitive policies on these global networks, however. The intent of the following sections is to add a sensitivity to the local policy battles associated with competitive policies, not to eliminate the existing functionality as a gauge of competitive policies' global effects.

As with the more general theoretical description at the start of this chapter, it is necessary to begin the incorporation of local political struggles into the model at the level of individual preferences. As described above, I have chosen to theorize individual preferences along three arbitrarily selected axes. If we think of these three axes as defining the x , y , and z axes of a cube, then the set of possible preferences lies on the surface or within the space defined by the cube. At the model's outset each worker and firm is randomly assigned a set of preference coordinates (x,y,z) defining that individual's opinions about three key policy areas. This should not be a completely random assignation, as at least one of the axes represents worker interests at the low end and firm interests at the upper end. Although there will be a range of values along this axis I will assume that workers and firms will tend to lean in opposite directions with a limited amount of overlap between the sets. Otherwise, each agent will have its preferences defined randomly.

Individual preferences are not, however, a stable affair within this model. From hypothesis 3.2 we have,

“Individuals recognize the power of perception in framing competitive policies and will use the idea of competition to promote their own goals and affect the perceptions of others.”

To incorporate this effect, individuals must be able to influence the preferences of others. I choose to implement this influence spatially such that individuals will feel a pull towards the preferences of the individuals located adjacent to them. The power of this effect and the certainty with which it may be exerted will determine how important this addition is to the model and will require careful scrutiny.

A key issue to note at this point is that in adding the possibility of influencing others' perceptions into the model we are, for the first time, treating competitive policies in a rather arbitrary way; the hypothesis could just as easily suggest that individuals will use the idea of global warming or intelligent design to promote their own goals. The nature of the discourse that presumably helps an individual shape her neighbors' opinions is not important, only the effect is important for these purposes. It is enough to have observed that competition was being used discursively. Other than being a particularly prevalent and influential discourse, competitiveness has no special characteristics that set it apart.

Once the initial preferences are set we can begin to define institutions.

Hypothesis 3.1 suggests that

“Individual action takes place within the context of institutional affiliations which constrain actions and affect the capture of benefits”

I suggested this hypothesis because of the critical role played by the mafia in shaping the implementation of policies and particularly the distribution of benefits within

Gioia Tauro. Institutions can be neutral, beneficial, or parasitic, and all three implementations bear consideration in examining the relationship between institutional presence and competitive policy outcomes. The basic implementation of institutions is trivial within an agent-based framework; institutions may act as containers just as cities do with each worker and firm located within an institution within a city. Where the implementation becomes difficult is in differentiating among institutions and deciding whose interests a given institution pursues.

A resolution to this quandary and a further refinement of the implementation for institutions is suggested by hypothesis 4.3:

“Individuals organize themselves within political institutions based on similarities in preferences for a range of potentially unrelated policy outcomes.”

Institutions will be a simplified type of actor within the model with each institution containing some variable number of agents (firms and workers). Agents will choose to assign themselves to institutions based on the degree of fit between the preferences of the institution and those of the individual or firm. Conversely, institution policy preferences will be defined based on the mean preferences of all institution members.

Institutions are not simply passive collectors of individual preferences however. Membership in an institution affects the information available to an individual, the kinds of people one associates with, etc... Thus hypothesis 3.3 extends hypothesis 3.2 above by suggesting that institutions may influence their membership in much the same way as individuals influence their neighbors.

“Institutions recognize the power of perception in framing competitive policies and will use the idea of competition to promote their own goals. (3.3)”

To implement this influence we can simply define a degree of attraction towards the institutional mean felt by all individuals associated with that institution. Once again the degree of this effect and its success rate in causing preference shifts will be a matter for testing once the model is established.

Having established a framework for defining institutions we can now turn to the role that institutions play in shaping local policy. We have already decided that institutions will be the actors representing their memberships' interests, but for this action to take place we need to define yet another scale of interaction, that of local government. I draw my ideas regarding the implementation of local government from work done on Regime and Regulation theories (Barnes 1997; Brown 1993; Cox 2002; Jessop and Sum 2006; Stoker 1995; Tickell and Peck 1995). This thinking argues that governing coalitions form based on constituent mandates, and that policies reflect the interests of the governing coalition as long as the mandate holds. There will be some art required to define the ways that different institutions come together to form coalitions and to ascertain the best method of weighing the strength of different institutions. I have in mind a relatively simple formulation in which institutions are weighted based on their size and on the strength (polarization) of their opinion on a given policy axis. Governing coalitions would then be fluid with different coalitions representing the majority on each of the three policy axes.

Once we ascertain which policy positions represent a majority we need a method of implementing “policy.” The hypotheses generated in the case studies have a great deal to say on this account, but most explicitly we have hypothesis 4.1 which reads:

“Much of the use of competitive discourse has absolutely nothing to do with modifying production function values in a city and everything to do with local political struggles over resource distribution. Efforts at understanding competitive policies need to incorporate a sensitivity to these local political efforts.”

The upshot of this hypothesis is that policy implementation varies on two key points: the group of individuals who will pay for implementation and the individuals who will benefit from it. The most straightforward method of implementing this idea is to assign a policy a preference value along one or more of the three policy axes. This assignation should be tied to the preferences of the governing coalition that implements the policy. Next, assess taxes from all residents within a city, and then pay out benefits based on the difference between an individual’s preferences and the value held by the policy with lower differences receiving a greater payoff. In literal terms we might think of a business-led governing coalition enacting a policy that gives a direct subsidy to all businesses within the city limits based on the number of employees. This policy would be in line with the preferences of the coalition members and they would receive the majority of the benefits from the action. Individuals opposed to providing direct benefits to the business community would likely have different preferences and would therefore see little benefit from the actions.

An important addition to the strategy for implementing policy described in the preceding paragraph is the recognition that local policy battles are often fought over the distribution of resources extended by higher levels of government as in hypothesis 4.2:

“Competitiveness is prominently used as a justification for attracting resources from higher levels of government. Attracting these resources is a major focus of the political struggles that employ competitive discourse.”

To reflect this distinction it is reasonable to occasionally offer resources to cities in excess of those collected in local taxes. The frequency and amount of these distributions will be an important line of inquiry both empirically in further case studies, and theoretically in ascertaining the range of effects that these variables might have on competitive outcomes. The case studies suggest, however, that this source of income is of significant importance in discussions related to competitive policies.

Finally, we must address the most difficult hypotheses raised within the previous text. Hypotheses 3.4 through 3.7 address the wide range of scales and kinds of effects generated by policies related in one way or another to competitiveness.

“Competitive policies can arise in response to non-market goals of institutions (3.4).

Competitive policies can serve both market and non-market goals simultaneously. (3.5)

The costs and benefits of competitive policies are not uniformly local or global, but vary widely based on the coalitions of individuals and institutions that have brought them into being. (3.6)

Assessment of the costs and benefits of competitive policies must include all scales of action where such effects are present (3.7)”

The model described so far is capable of handling all of these complexities, but their implementation will need to be tested carefully and individually. The coexistence of competitive policies like Porter’s clusters described at the beginning of this section and local effects like a business-coalition led bid for government resources represent the reality of how competitive policies are used in the case studies conducted so far. Competitive policies as defined in the literature provide the talking points behind which local and national political fights occur. Local policies often have some effect on the attractiveness of a city to firms and workers elsewhere, even if that attraction is negated by policies in other cities. Similarly, none of the competitive policies defined above are neutral in terms of their effects on workers and firms, so they are in many ways inseparable from the local political struggles. Examining the give and take among these policies and the effects that they have on relationships among cities represents a nearly limitless research agenda to take forward.

Conclusion

The series of models proposed in the previous chapter present competitive policies as they should be represented; complex, variable, multiscalar, and of uncertain effect. The models are necessarily subjective with artistry replacing the well worn assumptions of economic theory. This seemingly ad hoc approach to modeling may be unsatisfying for some, as so many of the assumptions that I have made are untested and their effects therefore unknown. If anything is clear from the analysis of equilibrium in Chapter 5 however, the pedigree of the assumptions used by economists is no guarantee that their implications are well understood, merely that they are accepted on faith. By constructing a model from the ground up based on assumptions and relationships designed to fit the moment we are forced to acknowledge how partial and ephemeral our model actually is. Our claims about its predictive powers or general utility must also be modest. This modesty is a strength in its own right because it focuses our attention on what modeling can achieve and pulls us back from hoping that models can give us definitive answers about how the world will work in any given instance.

What modeling can achieve is a way of laying out the complex interactions of the real world in a way that allows us to study a small set of the relationships that we find particularly interesting. It helps us define our areas of interest and forces us to think carefully about the ways in which that interest interacts with the rest of the world. It allows us to express our thinking in general, mathematical terms that can be easily, if imperfectly, applied to other cases and other situations. Modeling in this

light acts as a form of generalization without insisting that every case will be the same.

In the effort to achieve more than these general claims, economists have taken on layer upon layer of assumptions that restrict and narrow diversity and complexity so that the results they provide may be definitive. In the process they have lost sight of how important the diversity they have assumed away is to the outcomes they pronounce. The modeling in chapter 6 is anything but definitive, rather it leaves open an almost infinite number of pathways along which answers may lie. Exploring these pathways and identifying the unexpected turns they take will be the subject of my research agenda for years to come.

Despite the uncertainty present in the models presented in Chapter 6 they do hold out some hope of speaking to power in more progressive terms than their deductive compatriots from economics. Although it is far too early to know what kinds of policy advice might be gleaned from further explorations of the models presented in this dissertation, there is reason to believe that basing the model on ideas of heterogeneity and path dependence will highlight the unequal outcomes that economic development policies often seem to produce. At the very least, the existence of these alternative models may quietly undermine the dominant position of the economic models which they seek to replace. This could happen because these models demonstrate that more “common sense” assumptions are not out of the reach of modeling, just out of the reach of deductive models.

The results of the modeling efforts undertaken in Part II of this dissertation are still preliminary, and their eventual outcomes and usefulness necessarily conjectural at this point. In contrast, the case studies conducted in Part I have made a real contribution to the literature assessing competitive policies. Genoa and Gioia Tauro have both provided clear evidence that competitive policies achieve much more and much less than a straightforward adjustment to the attractiveness of a city. Competitive policies do appear to have short-term effects on a city's position within global networks. What is also clear, however, is that competitive policies are even more important as a discursive framework in support of local political struggles over resource distribution. For every policy that is easily recognizable as "competitive" jurisdictions appear to be enacting numerous ancillary pieces of legislation that advance local goals or simply justify intervention from higher levels of government. These secondary pieces of legislation may frequently have greater and longer term effects than the competitive policy with which they were originally associated.

Closely associated with the local political struggles that accompany competitive policies is the evidence from the case studies that competition has a powerful discursive role in policy debates. Throughout the research in Genoa and Gioia Tauro the idea of competition was invoked in myriad ways to persuade others that a certain course of action was justifiable. Competition and competitiveness are so ingrained in common sense understandings of the economy that they have been coded and recoded to mean all sorts of things within the context of policy discourse. The persuasive power is used to sell policy choices that have little to do with the idea of

competition at all; like any widely recognizable spokesperson pushing a product consumers are left to draw the conclusion that a policy will have economic benefits because they trust the idea of competition, not because of any demonstrable link between the idea and the policy.

The realization that competition is playing a discursive role in policy formation has important implications on how we theorize competitive policies and how we judge their efficacy. For theory we must broaden our frame of analysis to include multiscalar effects and non-economic factors that have been entirely absent from the academic literature on the subject. The multiple scales where competitive policies have been shown to have an effect on the distribution of resources means that we must be far more careful in examining the outcomes of these policies.

In terms of the ongoing debate about the usefulness of competitive policies this dissertation provides a somewhat mixed message. On the one hand there is some evidence that competitive policies really do function as advertised at least over a short time period. Whether these benefits are sufficient to justify the costs of the policies is less clear. Furthermore, the identification of numerous interests employing the idea of competitiveness to further their own goals calls into question the claims made by opponents of competitive policies that they simply represent a race to the bottom; competitive policies accomplish all sorts of local and regional policy goals. Equally strong arguments can be made against competitive policies from the research conducted in this dissertation. Competitive policies do not appear to have significant long term effects on global economic networks, and they are frequently used to

advance a neoliberal agenda that has powerful negative effects on inequality within cities. How the various pros and cons will balance out in any given case is, however, still a matter of speculation. This research agenda will continue to be important as long as these policies remain widely implemented and powerful as discursive tools.

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Vita

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