

Project Description: Collaborative Research on Institutions and Land-Use Politics

Institutional change is a central question in political science and political economy (Alston 1996; Eggertsson 1990; Ostrom 1990; Knight 1992; North 1990). The proposed research examines institutional change in the context of local land-use politics, with a particular emphasis on the role of local government structure. Land-use policy is an excellent laboratory for studying institutional change for two reasons. First, land-use policies are what Ostrom (1999) calls “operational rules”, which define the property rights governing land-use. Hence, land-use policies help determine who gets what, when, why and where—the essence of politics. Importantly, local governments do not simply create a static system of property rights that never changes. Rather, land-use rules represent policy choices made in the context of local political institutions. Despite the fact that Ostrom and others explicitly include policy choices within the institutional change framework as operational rules, the institutional change perspective had not been systematically applied to the study of local policy. Conceptualizing land-use policy choices in terms of institutional change allows us to bring insights from institutional theory to bear on the broader topic of policy change.

Second, local governments exhibit substantial variance in the structure of local political institutions, which is the central independent variable we wish to study. All policies are made in the context of political institutions, which determine the rules and procedures for making collective decisions. Following Clingermeyer and Feiock (2001), we hypothesize local political institutions will have a substantial influence on the amount and nature of land-use change. The theoretical underpinning of this role is derived from the study of structural reforms introduced by the Progressive reform movement, and builds upon decades of institutional scholarship on local governments (Lineberry and Fowler 1967; Ostrom, Bish and Ostrom 1988; Schneider 1989; Ruhil 2003). Later in this proposal, we will describe the dimensions of local political institutions, and how different structures will influence land-use change.

Our focus on the structure of local political institutions is a significant departure from two other major theoretical frameworks that have developed to explain local land-use policy. The “property rights” model of land-use policy argues restrictions on growth will emerge in the face of scarcity and the overconsumption of common-pool resources (Libecap 1989; Alchian and Demsetz 1973). This perspective is linked to Tiebout (1956) models, which often argue local communities have an optimum size for delivery of local public goods. In general, the property rights model predicts land-use policy will become more restrictive as land becomes scarce, population increases, and infrastructure becomes strained.

The “interest group” model of local politics provides a second popular explanation of land-use policy. Interest group models predict that groups that are better able to deliver to political resources to local elected officials are more likely to receive their preferred policies. The interest group model provides the theoretical underpinning for “growth machines” ruled by political alliances between local government officials and development interests (Molotch 1976; Logan and Molotch 1987). Development interests have the upper hand in local politics because they receive concentrated benefits for pro-development policies, and are better organized than diffuse public interests. Of course, public entrepreneurs can often organize diffuse public interests to effectively participate in local political decisions, and local governments are certainly capable of pro-environmental policies (Elkins 1995; Goetz 1990; 1994). Regardless, interest group models have a modern pluralist perspective that views policy change as a result of interest group competition.

In both the property rights and interest group models, political institutions are largely transparent to the underlying economic or political forces driving land-use change. We believe this is a serious oversight; political institutions are crucial mediators of political and economic forces and will influence policy dynamics. To remedy this situation, we offer a “political market” theory of institutional change that combines political economy theories of property rights (Libecap 1989; Eggertsson 1990; Alston 1996; see also Lubell et al. 2002) with Clingermeyer and Feiock’s (2001; see also Ostrom 1990; 1999) work on local government structure. The political market framework conceptualizes institutional change as the result of a dynamic contracting process between the suppliers and demanders of change in a

community (Alston 1996, p.27-28). Generally, the demanders are the private interests in society, and the suppliers are the government authorities. Interest group demands are driven by the local economic changes described by the property rights perspective, such as land scarcity. In return for political resources, elected officials will supply land-use policies that affect the economic fortunes of interest groups. Hence, the political market framework encompasses both existing frameworks.

More importantly, the political market approach assigns a central role to local government structures as the arena in which political contracting occurs. Political institutions combine with the structure of interest organization to determine the outcome of political contracting. Different types of political institutions will favor different types of interests, either enhancing or reducing the ability of interests to influence land-use policy. For example, we argue district-based elections will favor local environmental interests, which are often organized to resist specific unwanted land-uses. In other words, the structure of local political institutions determines the winners and losers in the land-use policy. In contrast to the property rights model, our perspective heavily emphasizes the distributive consequences of institutional change.

We propose to use land-use policy in Florida as a laboratory for testing our hypotheses about local political institutions and land-use politics. Florida is an excellent research setting because the 1985 State Growth Management Act (GMA) requires comprehensive plans that are relatively easy to compare between local communities, and that have well-defined moments in time to observe institutional change. The GMA required every city and county to create a comprehensive growth management plan to guide land-use decisions. The plan provides a legally binding constraint on development decisions because local zoning codes, land development regulations, and permit decisions must conform to the provisions and designations of the plan. Each local community has the opportunity to amend the plan twice per year, and the city or county commission in each community may propose some number of amendments and land-use changes in each cycle. The amendment cycles are the units of analysis in our study. The number of land-use changes, and in particular the tone (e.g., pro-environmental vs. anti-environmental) of the land-use changes, are the social phenomena we are interested in explaining, and thus constitute the primary dependent variable in our analysis.

We have completed a pilot study in the 67 Florida counties that illustrates our research approach. Table 1 presents preliminary data for the six amendment cycles from 1998-2000. As can be seen, land-use policy in Florida is far from static. There are substantial numbers of changes in each of the plan elements, and substantial variance across counties. Our coding protocol pays special attention to land-use changes, because land use and zoning are the most concrete manifestation of property rights, and also the most frequent type of plan amendment. On average, the land-use changes affected over 2000 acres of space. Each amendment cycle produced a means of 1.3 pro-environmental, 1.7 anti-environmental, and 2.6 neutral land-use changes.

The main research task of this proposal is to improve the coding protocol used for the counties and to collect data for the populations of municipal governments (201) in the eight largest population metropolitan statistical areas in Florida. Municipalities offer a much cleaner test of our hypotheses because of their traditional role in shaping land use decisions history of home rule authority (only 7 Florida counties have home rule charters). Much of the existing theory on local government institutions has also been developed at the level of municipalities. We will code each amendment cycle for a number of variables, most importantly the total number of amendments in each plan element and the number of pro-environment and pro-development (anti-environmental) land-use changes. Then, we will use a variety of other archival data sources to measure the structure of local political institutions, the types of interest group communities, and the pressure on local land resources.

In the next section we discuss how our research builds on the existing literatures on institutional change and land-use politics, and in particular the ongoing research agendas of Co-PI Feiock, which attempts to synthesize the political economy and urban politics literature, and Co-PI Lubell, who empirically examines the role of institutions for governing common-pool resources. We then describe our theoretical approach in more detail, and some of the specific hypotheses we will test. Last, we describe the data collection procedures and planned statistical analyses.

Table 1: Descriptive Statistics for Comprehensive Plan Amendments in Florida Counties, 1998-2000

<i>Number of Amendments in Specific Element</i>	Minimum	Maximum	Mean	Standard Deviation
Land-use	0	86	7.5	12.7
Traffic	0	44	.5	3.6
Mass Transit	0	0	0	0
Port/Aviation	0	28	.24	2.3
Housing	0	50	1.93	7.2
Coastal Management	0	49	2.02	8.1
Conservation	0	114	3.7	14
Recreation/Open Space	0	50	.7	4.4
Intergovernmental Coordination	0	161	3.3	14.9
Capital Improvement	0	60	2	7.2
Transportation	0	55	2.2	7.3
Economic Development	0	38	.3	2.8
Infrastructure	0	341	4.68	28.6
<i>Characteristics of Land-Use Changes</i>				
Number of acres affected	0	135,400	2529.5	12394.8
Anti-environment	0	11	1.9	2.0
Pro-environment	0	86	2.16	7.8
Neutral	0	14	1.2	2.2

Relation to Existing Research and Results from Prior NSF Awards

The property rights literature provides one of the clearest applications of economic theory to land-use policy. The demand for property rights is generated by the potential efficiency gains of internalizing externalities (Alchian and Demsetz 1973). This line of argument is most frequently used for the case of common-pool resources, where the lack of property rights leads to overexploitation and conflict. For example, Libecap (1989) discusses how miners created property rights to protect their claims to gold deposits. The concept of Pareto-efficiency is central to this perspective; actors prefer institutions that lead to Pareto-gains. These ideas are easily generalized to land-use policy. Land is a common-pool resource for local communities, and as land becomes scarce, there are Pareto-benefits to establishing property rights with land-use restrictions and growth management. Eggertsson (1990) calls these early approaches to institutions the “naïve theories of property rights” because they only consider only the economic demand for property rights, and do not address distributional conflict between interest groups.

More recent scholarship has stressed the fact that some interests are better at organizing for collective action, and therefore better able to articulate policy preferences and participate in political decision-making (Riker 1982; Eggertsson 1990). Even in cases where Pareto-gains are possible, there are multiple policy equilibria, and every equilibrium distributes the costs and benefits of policy change in a different way. Interests generally prefer policies that make them better off and lead to more efficient outcomes, but each interest prefers to capture the lion’s share of any efficiency gains. Hence, the relative political powers of the demanders, and the willingness of government authorities to supply favorable policies to various interests, are both important parts of the process (Alston 1996). For example Knott and Miller (1987) chronicle how civil service reforms resulted from the ability of powerful economic actors to lock in distributional advantage through institutional choice. Eggertsson (1990) uses the term “interest group theories of property rights” to describe these more recent accounts of institutional change, because they explicitly take into account the efforts of private interests to secure favorable outcomes in

the political arena. We argue that interest group models of property rights are embedded in existing urban politics theories of land-use politics, such as the growth machine literature.

Our research will build on this literature by specifying empirically testable hypotheses that examine how the structure of local government will affect the operation of the political market. There has been ongoing debate in urban politics whether form of government really makes a difference in terms of policy, management and efficiency. The evidence on this question is mixed at best. Early research found evidence of impacts on spending levels (Booms 1967; Lineberry and Fowler 1967). Other work refuted these claims (Morgan and Pellissero 1980; Deno and Mehay 1987). While contemporary work applying institutional theories find evidence that government form influences development policy choices (Feiock, Jeong and Kim 2003) and voter participation (Wood 2002), a recent study by Ruhil (2003) examined adoptions of council manager government and found reductions in expenditures resulting from institutional change were small and transitory. The debate whether form of government makes a difference remains unsettled because much of the work has focused only on fiscal outputs and has emphasized additive rather than interactive effects of government structure.

The proposed research builds on the research agenda of the Co-PIs. Feiock has investigated the role of community interests and government structures on local economic development (Feiock 1991; Clingermyer and Feiock 2001) and growth management programs (Feiock 1994, 2003; Feiock and Taveras 2002). His recent work has advanced a political “quasimarket” model for analyzing land-use policy (Feiock 2001). An NSF collaborative research award (#SES0214174 *Collaborative Research: A Strategic Approach to Local Economic Development*) with Annette Steinacker (2002) to be completed Summer 2004 extends this work and applies a set of market and bargaining models to explain economic development subsidies given to firms by local governments. The first product of this research is an edited book *Decentralized Governance*, forthcoming from Georgetown University Press. The proposed research complements this work by examining decisions to manage rather than promote development and examining policy change rather than levels of subsidy.

Lubell’s work has focused on the policies for common pool resources, with a particular focus on the emergence of watershed management institutions in the United States (Lubell 2000; Lubell et al. 2002). In particular, Lubell et al. (2002) uses elements of Ostrom’s IAD framework to identify the watershed-level factors that affect the benefits and transaction costs of cooperation within watersheds. The bulk of this research was funded by EPA/NSF grant (#SBR9815473, *Negotiating for Sustainable Development: An Evaluation of the CBEP Decision Process*) and a political science NSF grant (NSF Grant #SBR9729505, *The Politics of Cooperation: Community-Based Environmental Protection*). Lubell’s watershed research has produced several journal publications, and a forthcoming co-authored book (Lubell 2000; Lubell et al. 2002; Schneider et al. 2003; Sabatier et al. 2003). Land-use policies represent another type of institution for managing a natural resource, in this case land. Hence, the proposed research builds on both the conceptual and methodological foundations of Lubell’s research agenda on collective action and environmental governance.

Integrating the Property Rights and Interest Group Models

Our political market approach will focus not only on how the structure of local institutions directly influences land-use decisions, but also on how forces and interests identified in property rights and interest group models are mediated by local institutions. Our empirical models will incorporate several variables from these other models. At the very least, these variables must be controlled for to isolate the influence of local political institutions. By including the relevant variables in the model, we may also be able to identify which model does a better job of explaining local land-use policy. More importantly, the interaction effects described in the next section require measuring relevant property rights and interest group variables in order to construct interaction effects in our empirical models.

Property Rights Model

The benefits of pro-environmental changes are related primarily to the extent to which existing growth patterns increase the scarcity of local land and infrastructure resources. All places experience

some level of development absent any governmental interventions; the economic and physical characteristics of a place generate demand for growth. As growth pressures intensify, many citizens will begin to demand growth management in order to preserve community resources. The benefits of pro-environmental amendments that restrict development would be greatest where rates of development are high but low density, non-urban lands are scarce and open space is limited. Thus, we expect measures of population pressure and urbanization to be positively related to pro-environment amendments, and the availability of open space to be negatively related. In Florida, growth pressures are particularly high in coastal communities, and coastal resources are very sensitive, so the number of coastal miles should be positively related to pro-environmental amendments. Sentiment for growth management often becomes louder when population density strains public infrastructure, so we hypothesize that percentage of roads above capacity and larger mean travel times to work will increase the number of pro-environment amendments.

Interest Group Models

Our primary method for integrating the interest group model is to measure characteristics of communities that reflect certain types of interests. These community characteristics then serve as proxies for interest group participation in the political process. This approach is justified by Gray and Lowery (1996), who show that the density of interest groups is a positive, curvilinear function of the size of the latent constituency. Lubell et al. (2002) also use community characteristics as proxies for interest group constituencies.

We expect community characteristics such as wealth, education and race to influence the demand for pro-environmental amendments. Previous work suggests high socioeconomic status (income/education) communities will favor restricting growth in order to isolate themselves from lower-income individuals and therefore increase their property values and lower the cost of supplying local public goods (Maser, Riker, and Rosett 1977; Ihlanfeldt 2001; Navarro and Carson 1991; Donovan and Neiman 1992). The same groups have also tended to place higher value on protection of the natural environment. Thus, we expect communities with a higher per capita personal income and educational attainment levels and smaller poverty populations to have more pro-environment amendments.

We also expect to find racial homogeneity to be an important predictor of pro-environment amendments. The environmental justice literature suggests minority populations are subjected to a disproportionate share of environmental harms. We suspect this phenomenon to relate to land-use policy as well; minority populations are unlikely to generate support for pro-environmental amendments. However, this is not because minority populations do not prefer environmental policies. Rather, it is because minority populations often lack political resources to articulate political demand, and thus their interests are overwhelmed by better-financed and organized development interests (Lubell et al. 2002).

Economic and development interests have a substantial interest in land-use decisions, because land-use policy has consequences for the private risk and return on their investments and production activities. Like other business interests, development interests are often organized and well financed, making them strong candidates to become powerful articulators of political demand. These characteristics give development interests an advantage in translating their preferences into rules. Another advantage that business interests possess is their perceived importance to local economies (Schneider 1989). A number of studies suggest a substantial degree of cooperation between business and public officials (Fleischmann 1986; Stone 1989). The growth machine perspective often portrays local policy regimes as an alliance between government officials and interest groups from the development and real estate/finance industries. This alliance might have more power in communities with high levels of unemployment, which desire more economic development.

Development and construction interests would be particularly influenced by pro-environmental changes in land-use rules. Any changes that reduce development opportunities will disadvantage the builder and construction industries. Real estate interests are more complex. While they are often outspoken opponents to environmental restrictions, they may benefit from these rules if the amenity

values of environmental goods such as open space can be capitalized into housing prices and passed on to consumers.

The economic base of some communities consists largely of services and recreation. These industries often demand protection of environmental amenities and other quality-of-life characteristics as a tool for attracting potential customers. Thus, we expect the percentage of specific service industries in a community will be positively related to pro-environmental amendments. The political culture of a community may also affect land-use preferences. Typically, politically liberal constituencies are thought to favor pro-environmental policies. Hence, we expect the percentage of voters who are Democrats and the percentage of adult residents who are members of environmental organizations to increase the number of pro-environmental amendments.

Pro-development and environmental interests feature important differences in their geographic basis of organization. The typical political science analysis portrays environmental interests as a diffuse, unorganized constituency that favors some general form of environmental protection. Some local environmental interests, for example unorganized citizens who worry about runaway growth, do have this type of structure. However, many local environmental interests are what Clarke and Gaile (1989) call “territorial groups” with links to a specific geographical location. These groups are often main players in Not-In-My-Backyard politics, and include neighborhood organizations, homeowners associations, and citizen activists located within geographically defined constituencies. These geographic groups often dominate the politics of land-use, as they resist locally unwanted land-uses like major roads, or clamor for improved environmental amenities like parks and conservation areas.

Development interests, on the other hand, have less clear-cut connections to geographic interests. These groups may instead be defined along functional or occupational lines. Such groups might include developers, realtors, contractors, construction trade unions, and financial institutions (Clingermayer and Feiock 2001). Occupationally organized interests will generally look for economic opportunities all over the local community, and are less concerned with a particular location. Geographically diffuse environmental interests cannot compete in the political market with well-organized development interests, unless a strong political entrepreneur helps environmental interests organize at the broader community level. These differences in the structure of interest organization have important consequences for the influence of local political institutions, as discussed in the next section.

Local Political Institutions and Land-Use Change

The central argument of our research is that the structure of local political institutions will facilitate or impede the influence of specific demands and community interests on land-use decisions. The effects of local institutions may be additive and direct, as in a basic linear model. However, we are also hypothesizing interaction effects between political institution variables and property rights and interest group variables. Lubell (2003) demonstrates the usefulness of assessing interaction effects in comparative institutional analysis. Instead of assuming the political process operates identically across different settings, we can think in terms of how the political process will change as a function of different institutional arrangements. We want to emphasize that testing for these specific, theoretically driven interaction effects is an important scientific contribution of this research.

The next step in theory building is to provide a set of empirical hypotheses about how local political institutions affect the ability of the political and economic interests described in the previous section to translate their preferences into land use amendments. Local political institutions vary in terms of both their legislative and executive structures. We argue the structure of political institutions interacts with the structure of interest organization, in that particular types of institutions are more likely to produce pro-environment or pro-development land-use changes. In other words, political institutions affect the ability of interests to articulate their demand in the political market, and the willingness of elected officials and bureaucrats to supply preferred policies.

The Structure of Local Legislative Institutions

Both legislative and executive institutions can shape the responsiveness of land-use rules to territorial or occupationally organized interests. Land use is the quintessential targeted policy that can direct benefits to particular constituencies (Denzau and Weingast 1982; Mayhew 1974). For example, a change in land-use designation can provide a developer with the opportunity for an economic windfall or provide a mechanism for a residential neighborhood to fend off unwanted development (Maser, Riker, and Rosett 1977; Hinds and Ordway 1986).

The most important characteristic of legislative institutions is the extent to which they feature district-based rather than at-large election. District elections, especially where the number of residents in a district is small, increase the likelihood of shared development preferences and reduce transaction costs for representation. We expect this to result in a higher frequency of amendments and land-use changes.

Because of their geographic basis, municipalities with district elections may empower environmental interests, and reduce the influence of development interests. We expect the most pro-environmental amendments and land-use changes where district-based representation is dominant, and where districts are small in size and population. Because a district representative's electoral success is likely to depend upon support from geographic constituencies, he or she may be sensitive to environmental concerns about growth and development. The benefits of growth restrictions will also be higher in small districts because they allow legislators to direct policy positions to specific groups with similar preferences, rather than larger constituencies with more heterogeneous preferences.

At-large elections force local legislators to respond to a much broader set of political interests than are typically found in a single district. At-large representatives serve a citywide constituency, and hence they are more likely to think in terms of aggregate welfare. At-large representatives are often part-time politicians, and would have less incentive to devote the energies necessary to organizers diffuse environmental interests. For this reason they have greater incentive to favor well organized, occupational interests that can provide instrumental political resources over territorial-based environmental interests. We expect the most support for pro-development amendments where representation is entirely at-large. The following hypotheses summarize our theoretical expectations with respect to legislative (L) institutions:

- L1: There will be more frequent plan amendments and land-use changes under district than at-large systems of representation.
- L2: In cities with district representation, the ratio of council seats to population will be positively related to the frequency of amendments and land-use changes
- L3: Population pressures will have stronger positive relationships with pro-environment land-use changes under district representation than at-large representation.
- L4: Environmental interests will have stronger positive relationships with pro-environment land use changes under district representation than at-large representation.
- L5: Construction and development interests will have stronger positive relationships with pro-development land-use changes under at-large representation than district representation.

The Structure of Executive Branch Institutions

The structure of the executive branch of local government also shapes incentives to supply different land-use outcomes. Form of government is generally defined in a city charter, or in cities without charters, by state constitutional rules or special state legislative provision. Executive structures are typically classified as council-manager or mayor-council and commission forms. Only two percent of cities in the U.S. have a commission government and this form is almost non-existent in Florida.

The four institutional forms depicted in Table 2 represent combinations of two dimensions of executive structure. The differences between local executive institutions generally hinge on the presence or absence of an appointed manager and the powers granted the mayor. These two dimensions are described and then linked to land use.

Table 2: Executive Institutions in Municipal Government

		Appointed City Administrator/Manager	
		<i>No</i>	<i>Yes</i>
Mayoral Power	<i>Weak</i>	Weak Mayor-Council Government	Orthodox Council-Manager Government
	<i>Strong</i>	Strong Mayor-Council Government	Adapted Council-Manager Government

Weak mayor-council form is the traditional unreformed municipal government in which an elected council wields most local authority. In this form mayoral power is based more on party leadership than formal powers of office. Strong mayor-council form provides for an elected at-large mayor but no council appointed administrator. Strong mayors are defined by direct election, full-time status, and authority to formulate and administer budgets, appoint key administrators with council approval, and veto statutes approved by council.

About half of U.S. cities operate under a council-manager system in one form or another. The orthodox council-manager plan combines a weak mayor with a professional administrator position appointed by and responsible to the council. The mayor is selected from among the council members and plays a primarily a symbolic role. A growing number of communities have a modified form that includes a directly elected mayor possessing significant administrative authority, while retaining the appointed administrator position (Hansell 2000). Fredrickson and Johnson (2001) label this new and controversial structure the “adapted” council manager form of government. Both dimensions of executive structure, mayoral power and presence of a professional appointed manager, have implications for the supply of amendments and land-use changes.

The powers of the mayor have consequences for development choices because elected executives have high power incentives for opportunistic behavior (Frant 1993; 1996). Orthodox council-manager government ties the mayor’s hands by denying the mayor a city wide electoral constituency or powers to veto policy and budget decisions (Miller 2000). At the other end of the spectrum of mayoral power, strong mayor council government structures provides high power political incentives for the emergence of narrow issues and constituencies and place constraints on the role of professional expertise in informing public decisions (Sharp 1997; Feiock, Jeong and Kim, 2003).

The opportunity structure for strong mayors may create incentives to be responsive to proposed changes advanced by any political interest in the community. Schneider and Teske (1995) found the presence of strong mayors predicted emergence of both pro-growth and anti-growth entrepreneurs. A popularly elected executive officer provides greater access to decision-making because this form of government attracts politically ambitious leaders with different orientations and career interests than weak mayors. Clingermayer and Feiock (2001) contend that directly elected executives are more likely to be full time politicians attuned to political credit claiming opportunities and thus having incentives to become entrepreneurs on both sides of development issues.

Nevertheless, the incentives of office for strong mayors may favor the production of pro-environment policies. Strong mayor forms of government may empower environmental constituencies in the community. Mayor council structures have been presumed to enhance responsiveness to specific popular demands (Lineberry and Fowler 1967; Lyons 1978; Marando and Thomas 1977). Mayoral power can translate into outcomes responsive to interest group activism, mass political pressures, and entrepreneurial action because transaction cost are lowered for neighborhood and other interests that lack the financial, political, and organizational resources to articulate demand (Sharp 1997). Hence, we expect cities with strong mayors to have more frequent plan amendments and more pro-environmental land-use changes. The following hypotheses summarize our expectations about mayoral (M) powers:

- M1: Cities with strong mayors will have more amendments and land-use changes than cities with weak mayors.

- M2: Population pressure will have stronger positive relationship with pro-environment land-use changes in cities with a strong mayor.
- M3: Interactive effects of mayoral power with environmental interests will be stronger than for development interests.

The presence or absence of an appointed manager can also be linked to land-use decisions. The literature suggests two possible hypotheses about the role of appointed managers. We will refer to these as the “insulation hypothesis” and the “planning hypothesis”. The insulation hypothesis portrays city managers as insulated from interest demands and community pressures (Lineberry and Fowler 1967; Marando and Thomas 1977). Moreover, city managers’ professional advancement has been linked to success in promoting efficiency and economic development (Stein 1991). This insulation of city managers increases participation costs for community and territorial based interests. It is less costly for functional interests represented by existing trade associations or labor unions to influence policy than for more diffuse interests that rely on public entrepreneurs. In cities in which business groups are already active and organized, they may have advantage in articulating their preferences to professional managers. In addition, to the extent that the benefits of anti-development amendments are diffuse, (i.e. reduced pollution, lessened highway congestion, or protection of environmentally sensitive lands) it is difficult to generate collective effort to restrict growth (Lewis and Neiman 2002). The insulation (I) hypothesis predicts:

- I1: Cities with an appointed manager will have more pro-development and fewer pro-environment land-use changes than cities without a manager.
- I2: Construction and development interests will have stronger positive relationships with pro-development plan amendments and land-use changes in cities with an appointed manager

The planning hypothesis argues that the professional technocratic training and socialization of city managers make them responsive to demand for comprehensive planning and growth management. Professionally trained administrators are typically granted a certain degree of discretion in the exercise of public trust (Miller 2000). The preferences of many managers are shaped by the modern norms of professional planning associations and public administration schools, which stress ideas like sustainable development and smart growth as ways to reconcile conflicts between economic and environmental values (Nalbandian 1989). This does not mean that government with an appointed administrator is neutral, just that it has a different set of biases than governments operating under mayor-council forms (see Knott and Miller 1987). To the extent professional managers provide an opportunity for the exercise of modern planning ideas, we expect cities with appointed managers will be more likely to have pro-environment amendments. The planning (P) hypothesis predicts:

- P1: Cities with an appointed manager will have more pro-environment and fewer pro-development amendments and land-use changes than cities without a manager.
- P2: Environmental and neighborhood interests will have stronger positive relationships with pro-environment land-use changes in cities with an appointed manager

Research Design and Proposed Analyses

Information on all comprehensive plan amendments will be collected for all municipalities in the eight largest metropolitan areas (MSAs and PMSAs) in Florida. There are a total of 201 municipalities in these areas. We will collect this information for the six-year period from 1998 through 2003. Since the Growth Management Act provides for two amendment cycles per year, this translates into twelve government-amendment cycles per jurisdiction. Hence, we will analyze a total of 2,412 city/amendment cycle observations.

Measuring the Frequency and Content of Comprehensive Plan Amendments

Measurement of the dependent variables is based on quantifying the information contained in each set of amendment documents. For our preliminary study that examined county level change in land use designations, we designed an amendment coding form that will be updated to deal with the unique requirements for cities (the county form is available at <http://www.fsu.edu/~localgov/LIC.htm>).

The first set of dependent variable measures are designed to capture the frequency with which comprehensive plans and their specific elements are altered. The second set of dependent variables are designed to capture the substantive content of each specific change in future land use in terms of environmental and development values.

To measure the frequency with which local comprehensive plans are altered, we first construct raw counts of the number of specific changes per amendment cycle in each plan element required by the GMA (Table 1 lists the required elements). These counts measure basic rates of institutional change in each city, and also allow us to isolate changes that reflect environmental values, for example changes in the conservation, coastal management, and open space elements. Once each amendment in a cycle is coded, we aggregate at the level of the cycle to create counts. Our preliminary study of Florida counties found the number of amendments per cycle ranged between zero and 341 (Table 1).

The second set of dependent variables is designed to measure the tone or direction of the specific changes in land-use designations in the Future Land Use element. We code the tone or direction of specific land-use changes included in the land-use element of the plan (Table 1, Row 3). Measures of land-use changes will be our primary indicator of whether institutional changes support environmental or development values because they constitute the most common type of change in comprehensive plans by far (37% of county changes), and because land-use changes are the most concrete manifestation of local property rights. For each land-use change, it is possible to identify the old land-use designation and the new land-use designation using the city land-use map and written descriptions of the change. The content of land-use changes will be coded pro-environment, pro-development or neutral, using two methods of coding to improve reliability.

The first is a classification-based coding scheme that relies on land-use changes recorded on the future land-use map. It indicates whether a change is pro-environment or pro-development based on the land-use designations before and after the amendment. For example, a change from industrial, commercial, or residential designation to open space or conservation would be classified pro-environment. Pro-environment classifications would also include changes to recreation purposes, agriculture, forestry/silviculture, and rural as long as the designation it was changed from was not open space or conservation. Examples of pro-development land-use change would be those that switch from less intensive land-use designations to industrial, commercial, and residential. The Land-Use Matrix presented below in Figure 1 summarizes the rules we use for coding specific changes as pro-development or anti-development actions. The amendment is neutral if there are no clear implications for environmental quality based on this matrix. All land-use changes included in an amendment can be classified with this matrix. Our preliminary analysis at the county level found that 42% of land-use changes were pro-development, 20% pro-environment, and 36% neutral.

A second “contextual” method of categorizing the tone or direction of land-use changes relies on the subjective judgments by the coders based on the contextual factors from supporting documentation included in the amendment file. This information includes the specific geographic location within the city of the change, and the detailed description of the change by planning staff.

This procedure will allow us to identify land-use changes that may increase the density of development, but could be classified pro-environment because they represent in-fill, brownfields development, or some other type of smart growth tool. If the amendment descriptions contain any mention of smart growth tools, we will code them as pro-environment. The location of each change will be plotted on a census tract map and new development within the central city or defined urban growth boundaries will be classified as in-fill and coded as pro-environment. To identify central city boundaries, we will consult with the planning staff member responsible for reviewing amendments of jurisdictions in the relevant metropolitan area. Each land-use change will be ranked on a similar three point ordinal scale

of pro-development, neutral, or anti-development. We will also examine whether or not the matrix coding of tone agrees with the contextual coding.

To check the robustness of our analyses, we will construct dependent variables using only the land-use matrix classifications, and alternative dependent variables where the contextual designation trumps the matrix designation anytime there is a disagreement. The second variable may contain less measurement error because it integrates the flexibility of the coder with the consistency of the land-use matrix. Lastly, we will also double code a random selection of 10% of the land-use changes in order to assess intercoder reliability.

Once each amendment in a cycle is coded, we will aggregate at the level of the cycle to create counts. For example, an amendment cycle might have ten land-use changes and four transportation changes. Among the land-use changes, five might be pro-environment, two might be pro-development, and three might be neutral. When we aggregate to the cycle level, we will have a variables counting the total number of amendments, the number of land use changes (regardless of tone), the total number of transportation changes, and the total number of pro-environment, pro-development, and neutral amendments and land-use changes.

All of the amendment documents are stored in a document library in the Florida Department of Community Affairs, in Tallahassee. Advanced doctoral students will be responsible for coding land use changes, collection of archival data and will assist in data analysis. Undergraduate students will assist in data coding and to as great an extent as possible they will be involved in the implementation of the larger project (including observation of planning meetings). The participation of undergraduates in the research project is intended to foster integration of research and education. By involving graduate and undergraduate students in all stages of the research we hope to infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives. The graduate students will be trained by co-PI Feiock.

Measuring Independent Variables: Archival Data

Measurements of independent variables are available from several archival data sources. Most of the physical and community characteristics are available from US census bureau products. The 1990 and 2000 Population Census provides data for population growth, population density, housing growth, mean travel time, median income, race, and employment. The annual Zip Code Business Patterns census provides data on the percentage of establishments, payroll, and employees in various economic sectors. The Zip Code Business Pattern data has very detailed categories, and will allow us to isolate different segments of the development and real estate industries. One important reason for choosing the 1998-2003 time frame is that the US Census Bureau recently changed to the improved North American Industry Classification System, and working backwards to the old Standard Industrial Classification system introduces a lot of random measurement error. The zip code level data will be aggregated up to the level of city level. While the boundaries are not perfectly coterminous, aggregating zip codes provides much better correspondence with city boundaries than using data at the county level.

Figure 1: Land-Use Change Classification Matrix

		New Designation										
		1	2	3	4	5	6	7	8	9	10	11
Old Designation		RESIDENT	COMMERC	INDUSTRIAL	INSTITUTION	OPEN/REC	CONSERV	AGRICUL	FOREST	RURAL	MIXED	OTHER
1	RESIDENTIAL	2	0	0	1	2	2	2	2	2	1	1
2	COMMERCIAL	2	2	0	1	2	2	2	2	2	1	1
3	INDUSTRIAL	2	2	2	1	2	2	2	2	2	1	1
4	INSTITUTIONAL	1	1	0	2	2	2	2	2	2	1	1
5	OPEN SPACE/REC	0	0	0	0	2	2	0	2	0	0	1
6	CONSERVATION	0	0	0	0	0	2	0	0	0	0	1
7	AGRICULTURE	0	0	0	0	2	2	2	2	2	0	1
8	FORESTRY/CIVICULTURE	0	0	0	0	2	2	0	2	0	0	1
9	RURAL	0	0	0	0	2	2	2	2	2	0	1
10	MIXED	1	0	0	0	2	2	2	2	2	2	1
11	OTHER	1	0	0	0	2	2	2	2	2	1	2

Note: Cell entries represent code assigned for each land-use change. For example, a change from an old designation of conservation to a new designation of industrial is coded as 0= Pro-development.

- 0= Pro-development
- 1= Neutral
- 2= Pro-environment

The other physical and community characteristics come from a patchwork of archival sources. The USGS National Land Cover Database measures 21 categories of land-use based on GIS maps, and allows calculation of undeveloped and agricultural land. The percentage of roads above capacity can be measured using information in the original comprehensive plans submitted by each local government. The transportation elements in the original plans require the community to identify road segments that are over capacity. The Decennial population census also collects information on mean travel time to work, which can be used as a proxy for infrastructure strain. The percentage of democratic voters in a local jurisdiction is collected by the Florida Department of State on the basis of county election commission reporting. We will contact the Florida chapter of the Sierra Club to get environmental group membership information. Also, the Almanac of Florida Politics has local information about voting behavior on environmental ballot initiatives, which can be used to measure environmental preferences.

Co-PI Feiock has already assembled a large amount of information about the structure of city government executive and legislative institutions in Florida from a survey of land use policy instruments, resources provided by the Florida League of Cities, and online sources. FSU has obtained the International City Management Association's Form of Government Surveys for 1996, and 2001. These surveys collect detailed information on the powers of the mayor and CEO position for over 80 percent of the sample cities. Data for remaining jurisdictions that are not reported in this data set will be filled in based on previously collected data, internet searches and phone calls to local officials. The partisanship of local officials will be obtained from county election supervisor reports compiled by the Florida Secretary of State.

The UC Davis graduate student, in conjunction with the UC Davis Information Center for the Environment, will be responsible for collecting the bulk of the community characteristics data from existing online sources. The Information Center for the Environment has extensive experience in constructing archival databases from many different sources.

We will collect all of the local government characteristics at the annual level, if possible. For example, the Zip Code Business Patterns data is reported every year. However, some data will be available only once, or for only a limited subset of the years we are interested in. For example, 1990 Population Census data will be applied for the entire decade, and the same with change data between 1990 and 2000 Population Census measures (the US Census Bureau has some annual estimates based on the 1990 and 2000 samples). Hence, some of the measures will be spread over multiple units of analysis. We will try to correct for this lack of detail by including dummy variables for different years in the statistical analysis.

Proposed Analyses

The basic unit of analysis is the city-amendment cycle, and counts of amendments and land-use changes are dependent variables. The logic of analysis is to estimate the volume of amendments regardless of tone as well as the number of pro-environmental and pro-development land-use changes based on a political market model that integrates the property rights and interest groups model. After estimating these baseline models, we introduce local political legislative and executive institutions. The analysis will not just examine direct effects, but also the interactions of these institutions and political market factors. The significance, direction, and magnitude of the regression coefficients can be used to assess the validity of our hypotheses, and also identify which variables have the strongest influence on institutional change. We will also estimate equations based on the tone of the amendments, in order to see whether or not the direction of influence is conditional on amendment tone. For example, we expect the percentage of the workforce in construction to have a positive effect on pro-development amendments and a negative effect on pro-environmental amendments.

We noted earlier that our county level analysis found not every jurisdiction offers amendments at a given cycle. Hence, zeros are anticipated to be a large proportion of counts in the data. These zeros may occur either because no amendments were offered at all, or amendments were offered, but no changes in a particular plan element were offered. We argue that cities must cross some type of demand threshold for institutional change before they decide to implement the amendment process. We will use

zero-inflated Poisson regression models to handle the problem of the zero counts, where the zeros can occur for these two different reasons. The standard model for count data is a Poisson regression model, which estimates the expected count at each unit of analysis (the incident rate, denoted μ_i) as a function of hypothesized independent variables (Greene 1994, 2000; Long 1997). Specifically:

$$(1) \Pr (y_i|\mathbf{x}_i) = \frac{\exp(-\mu_i)\mu_i^{y_i}}{y_i!}, \text{ where } \mu_i = \exp(\mathbf{x}_i\boldsymbol{\beta}).$$

To handle the excess zeros in the data, the zero-inflated Poisson model (ZIP) assumes zeros can arise from a Poisson process, but are also generated with probability ψ_i that is determined by a logistic model:

$$(2) \psi_i = F(\mathbf{z}_i\boldsymbol{\gamma}), \text{ where } F \text{ is a logistics cumulative density function}$$

Hence, the full probability function for the ZIP model combines (1) and (2):

$$(3.1) \Pr (y_i=0) = \psi_i + (1-\psi_i)\exp(-\mu_i);$$

$$(3.2) \Pr (y_i|\mathbf{x}_i) = (1-\psi_i) \frac{\exp(-\mu_i)\mu_i^{y_i}}{y_i!}, \text{ for } y_i > 0$$

Intuitively speaking, equation 3.1 combines the logit probability of observing zero with the Poisson probability of observing zero, conditional on the fact that a Poisson process is operating. Equation 3.2 shows the probability of observing a count greater than zero when only the Poisson process is operating.

Combining the two models ultimately allows estimation of the incident rate conditional on the probability of observing the Poisson process. The logit model determines the demand threshold for observing a county that enters the amendment process; once that threshold is crossed, then the factors determining the Poisson count of land-use changes begins. Independent variables enter at two places in the model, x_i (the Poisson model) and z_i (the logit model). In this case, we assume the property rights variables belong in the logit model, while institutional characteristics and interest group variables determine the count. Interaction terms between interest group variables and institutional characteristics will test whether or not the influence of interest groups is conditional on types of political institutions. The substantive interpretation of this structure is that economic variables largely drive the initial demand for changing the comprehensive plan, while the institutional and interest group characteristics determine the outcome of the amendment process in terms of the number of land-use changes. To handle the pooled cross-section nature of the data, we will include year dummy variables in both portions of the ZIP model. To further corroborate our results, we will also run some alternative OLS analyses using panel-corrected standard errors.

Table 3 presents an example of the type of results we plan to present using these methods. The analysis is based on county data from 1999 and 2000, and is presented more fully in Feiock, Lubell, and Jeong (2003). The table shows the change in the incident rate of unclassified, pro-development, and pro-environmental land-use changes moving from the minimum to maximum value of the percent construction employees in a county. The first row shows the incident rate in counties without a manager, the second in counties with a manager. The incident rates are calculated from ZIP model coefficient estimates, which include most of the property rights, interest group, and institutional variables discussed above. Table 3 shows that in all counties, as the percentage of construction employees increases, the rate of pro-development changes increases and the rate of pro-environment changes decreases. However, these effects are larger in county manager government, which supports the insulation hypothesis (I2) and suggests managers are more responsive to construction interests. In other words, county manager forms of government appear to facilitate the ability of construction interests to promote pro-development institutions, and resist pro-environmental institutions. These results speak directly to our central

theoretical question about the role of local government structure, and illustrate the type of evidence we will present to demonstrate the interaction between local interest group communities and political structures. We can construct interaction effects to specifically test the theoretical hypotheses discussed in the institutions section.

Table 3: The Interaction Between Commission-Manager Governments and the Construction Industry

	<u>All Land-Use Changes</u>	<u>Pro-Development Changes</u>	<u>Pro-Environmental Changes</u>
%Construction without County Manager	-0.14	.74*	-.17*
%Construction with County Manager	-0.18	1.82*	-1.04*

*Indicates models where at least one of the three terms (county manager dummy, % construction employees, and multiplicative term) involved in the interaction is statistically different from zero at $p < .05$.

Work Plan

The data collection and analysis for this research will be divided between Florida State University (under the direction of PI Rick Feiock) and UC Davis (under the direction of subcontractor Mark Lubell). Since all the comprehensive plan amendments are stored at the Department of Community Affairs repository in Tallahassee, FL, the Florida State team will do all comprehensive plan coding. The plan coding represents by far the most worker-hours, and hence one academic year and two summer graduate students and two undergraduate students are budgeted for FSU. Collection of archival data will occur at UC Davis, and will require the assistance of one graduate student and consultation from the UC Davis Information Center for the Environment (ICE). ICE has substantial experience consolidating data from multiple sources, including U.S. Census surveys, and thus will greatly expedite the process.

	Summer 2004	Fall 2004	Spring 2005	Summer 2005	Fall 2005	Spring 2006	Summer 2006	Fall 2006	Spring 2007
Code City Amendments (FSU)	X	X	X	X	X	X			
City Archival Data (UCD)		X	X	X	X	X			
Data Analysis				X	X	X	X	X	
Write-ups						X	X	X	X