*Journal of Agricultural and Applied Economics*, 31,3(December 1999):565–579


# Political Economy of Right-to-Farm

**Adesoji O. Adelaja and Keith Friedman**

ABSTRACT

This paper investigates the motivations for local right-to-farm protection ordinances by estimating a logit model relating the adoption of these ordinances to various political, economic and demographic factors previously found to affect the likelihood of passage of farmland preservation policies. Results suggest that the probability of adopting right-to-farm policies increases with the size and political clout of the farm public and with incentives to promote right-to-farm. Adoption is not enhanced by environmental concerns, nor by factors known to encourage adoption of farmland preservation policies. These findings raise serious concerns about the long-run viability of protections afforded agriculture in urbanizing areas.

**Key Words:** *nuisance litigation, open space, political economy, restrictive ordinances, right-to-farm.*

All fifty states in the US have advanced Right-to-Farm (RTF) laws in recent years (Hamilton and Andrews, 1993). These laws, many of which were passed after 1980, surfaced in response to concerns about the diminishing farmland base and the threats to agriculture by inappropriate private and public nuisance actions which adversely affect the viability of farms. RTF laws attempt to diminish the threat to normal farming practices posed by nuisance litigation and prohibitive state and local government regulation. Many perceive RTF laws as an important component of any farmland retention policy. As opposed to typical farmland preservation policies which aim to preserve farmland, RTF laws attempt to preserve agricultural practices and enhance farm viability (Lisansky, 1986; Lapping and Leutwiler, 1987; and Lapping, Penfold and MacPherson, 1983).

The promulgation of local (municipal or county) RTF laws in recent years may suggest that state laws are not altogether effective. For instance, weaknesses in the New Jersey RTF Act (NJRTFA) have been exposed by Adelaja *et al* (1996) and by several recent court decisions. Local RTF laws represent voluntary support for farming practices by a community and, in many cases, represent more clearly delineated and stronger protections for farming practices than state laws. Local laws typically define the extent of protection farmers actually receive from nuisance suits and inappropriate regulation.[1]

Adesoji Adelaja is professor and chair and Keith Friedman is former graduate student, Department of Agricultural, Food and Resource Economics, Rutgers University, New Brunswick, New Jersey. This article is *New Jersey Agricultural Experiment Station Publication No. P-02529-99-4.* The research was supported by a grant from the New Jersey Department of Agriculture under the Agricultural Economic Recovery and Development Initiative and by funds appropriated under the Hatch and McIntire Stennis Acts.

[1] Local RTF laws supplement state RTF legislation. In some cases, they provide protections in areas where state laws are totally silent or weak. For example, California law does not create any informal procedure to deal with agricultural land-use conflicts, but 29 coun-

The growing reliance on these protection mechanisms has been the result of the rapid suburbanization of many areas that were traditionally predominantly farming in character. According to Adelaja, Schilling and Menzo (1997), the typical farm family (two adults and two children) controlling 300 acres could be replaced by over a thousand new non-farm residents. Such a transformation rapidly erodes the political clout of farmers such that a municipality that was dominated by farm interests can change quickly to one dominated by non-farm interests and political agenda. The new residents are typically not familiar with or tolerant of normal farming practices. Hence, agricultural land-use conflicts may result (Centner and Bergstrom, 1988). Residential encroachment eliminates the buffer provided by open space that mitigates the "potentially harmful but inescapable side effects of farm technology" (Thompson, 1982). These side effects—such as odor, noise, smoke, dust, and chemical spray drift—increase the possibility that farmers will be held liable for creating nuisances and lead to more government regulation. Laws restricting noise, odor, manure spreading, plowing, open burning, farm-stands, etc. that are typical to agriculture are common in suburbanizing areas.

Private and public nuisance litigation along with government regulation tend to raise agricultural production costs, and in extreme cases can prohibit certain agricultural practices (Thompson, 1982). While agriculture generates positive externalities such as open space, rural scenery, air and water recharge, wildlife habitat, rural lifestyles, and a host of other benefits (Gardner, 1977), it also generates negative externalities such as odor, dust and noise. The extent of legal protection that would be put in place for agriculture therefore depends on public demand for open space and the other benefits of farming, the strength of the farm and non-farm communities in terms of political clout, the relative demerits of farming to the non-farm public, the degree to which the farm and the non-farm public are pleased with the extent of protection offered farming, the political climate, and other factors.

Hypotheses have been advanced about the political-economic process that leads to the passage of farmland preservation policies. However, little explanation has been put forth regarding the enactment of RTF laws. Also, while many studies have described RTF laws, none has focused on empirical analysis of the rationale for such laws. The few studies on RTF have focused on state level laws. No study has investigated local RTF laws (at the county or municipal level).

A review of the literature reveals that farmland preservation strategies emanate from the desires of the non-farm public to control growth by preserving open space, acquire environmental amenities, and ensure environmental quality, and the desire of the farm community to preserve the agricultural industry (Logan, 1976; Gardner, 1977; Frieden, 1979; Baldassare, 1981; Fischel, 1982; Protash and Baldassare, 1983; Furuseth, 1985a and 1985b; Kline and Wilchens, 1994). Whether or not this applies to RTF laws needs to be investigated in order to gain understanding about the viability of these laws and the sustainability of agriculture in the long run. This is particularly so in urbanizing areas where farmland loss threatens the future of farming, where farmers' political clout is declining, and where there is concern about the ability of the political process to produce RTF laws at the state and local levels.

The objective of this paper is to investigate the rationale for the legal protections afforded farmers at the local level and the applicability to RTF of various hypotheses about farmland preservation advanced by Gardner (1977). Hypotheses are developed relating the strength of agricultural protection to variables related to motivations for protection, the political clout of the farm and non-farm public, and various socio-economic and

---

ties have adopted local RTF ordinances that establish a dispute mechanism to prevent conflicts from escalating into lawsuits (Hamilton, 1992a). In New Jersey, however, some municipal laws provide greater nuisance protection than the state Act.

political factors. To test these hypotheses, data on the existence and nature of RTF ordinances are obtained from all New Jersey municipalities.[2] These are classified into categories of weak and strong protections. The information is supplemented by data on variables representing the hypothesized determinants of the likelihood of existence of an RTF law. The data are used in estimating empirical logit models for overall, strong, and weak RTF laws.[3]

The rest of this paper is organized as follows. Section 2 presents the conceptual framework for this study. Factors hypothesized to determine the extent of protection a community wishes to grant agriculture and the probability of adoption of a RTF statute are identified based on the literature on farmland preservation and similar laws. Section 3 is the empirical framework section and it introduces the logit representation of the conceptual model which is used in this study. Section 4 describes the actual empirical model estimated in this study, the data and the estimation procedure. Section 5 presents the empirical results. A summary and concluding remarks are contained in Section 6.

## Conceptual Framework

Standard farmland preservation strategies (e.g. purchase of development rights [PDR] and transfer of development rights [TDR]) result from the desire of the farm and non-farm communities to preserve agriculture. This they do by competing with developers via the purchasing of development rights on farmland. By allocating a portion of municipal revenues (or their incomes) toward preservation, the public seeks to maximize its welfare by securing the positive externalities associated with farmland (open space, air and water recharge, rural scenery, lack of congestion, environmental quality, rural lifestyles, growth control, quality of life, etc.) which, presumably, exceed the negative externalities (smoke, odor, noise, dust, etc.). On the other hand, restrictive ordinances on farming operation are expected to reduce the negative externalities from farming so that positive externalities dominate, and a net gain to the public results per acre of farmland in the community. Regulation raises regulatory compliance costs and may reduce farm profitability (Adelaja *et al.*, 1996; Thompson, 1982). Of course, the regulatory climate could become so stringent that overregulation stifles farm viability and diminishes agricultural activity and aggregate farm acreage to the point where the overall positive benefits of farming are compromised. Optimal regulation requires a delicate balancing of the positive and negative externalities of agriculture, and the profitability of the industry. It must also consider the nature and current status of farming and the environmental and resource amenities in the community.

Presumably, RTF protections and farmland preservation spending represent a tradeoff to the non-farm public. Both are similar in that they are aimed at preserving agriculture or open space and their net positive benefits. That is, what the non-farm public gives up in the case of RTF is not income or tax revenue, but its property rights to regulate agriculture and control some agricultural practices which generate negative externalities. The adoption of RTF and of farmland preservation strategies should be affected by a similar set of factors.

Empirical evidence exists in the literature to guide the identification and selection of factors that determine the degree of regulation a municipality wishes to impose on agriculture (or RTF protection it wishes to grant). Such

[2] New Jersey is an excellent case study. Farmland preservation continues to be the dominant issue concerning New Jersey agriculture. Urbanization has claimed much of state's farmland. In 1950, New Jersey had 1,770,000 farmland acres; this figure dropped to 850,000 acres by 1995 (New Jersey Department of Agriculture, 1996). In response, the New Jersey Legislature passed three farmland preservation laws: the Farmland Assessment Act-1 to 10, 1983), the RTF Act (N.J.S.A. §§ 4:1C-1 to 10) and the Agricultural Retention and Development Act (N.J.S.A. §§ 4:1C-11 to 48, 1983). The Farmland Assessment Act has provided billions of dollars in tax savings to farmers, and five referenda have raised a total of $1.2 billion for the acquisition of farmland development rights.

[3] Three logit analyses will be presented in the empirical model section: one for all RTF laws and two others for strong and weak RTF laws.

evidence also supports the prediction of the directions of the effects of these factors. A realistic starting point for analysis of RTF laws is the exploration of the literature on the adoption of laws in general, and similar laws such as farmland preservation in particular (Gardner, 1977). As indicated above, both policies are alternative strategies for preserving/retaining the public benefits of farmland.

In his ground-breaking article, Gardner (1977) identified and classified the motives behind farmland preservation laws. He postulated that governments adopt farmland preservation policies for three reasons: (1) agricultural resource preservation, (2) environmental resource protection, and (3) municipal growth management. All three motivations are related to open space, the environment, and quality of life. Gardner's work laid down the framework for future studies on the subject. If his hypothesis is valid, the demand for RTF laws should increase as more farmland is lost, as the stock of open space in a municipality decreases, as a township becomes more congested, as quality of life becomes more compromised, and as environmental quality falls.

A few studies have empirically tested Gardner's hypotheses while others have provided anecdotal evidence in support of it. For example, in testing Gardner's hypotheses, Kline and Wichelns (1994) did not find empirical support for the notion that demand for preservation increases as farmland is lost. Neither did Furuseth (1985a), who actually found the opposite: that the strongest farmland protection policies exist in communities that are agriculturally oriented, with the greatest amount of farmland acreage, with the largest number of farms, with the most stable farmland base, with the greatest economic return on farm products, and where farmers still have significant political clout. Furuseth's "farmer initiated" or "farmer political clout" hypothesis is an alternative hypothesis to Gardner's growth-control hypothesis. A positive relationship between farmland acreage and demand for farmland retention would indicate validity of Furuseth's (1985a) farmer political clout hypothesis. An inverse relationship would support Gardner's (1977) agricultural resource preservation hypothesis.[4]

Kline and Wichelns (1994) did not restrict their investigation only to the roles of farmland loss or farmers' political clout. In fact, they found that the nonagricultural objectives (growth control and environmental protection) had the greatest influence on support for preservation. With respect to growth control, they found that areas with the greatest population increase and the greatest increase in land and house values were the more likely to support preservation. Frieden (1979) and Fischel (1982) also found support for the growth-control theory with anecdotal evidence from California and Vermont, respectively. Other studies also found that growth controls are not intended to deter growth, but are directly attributable to previous rapid population growth and the desire of politicians to preserve their careers (Rosenbaum, 1978; Protash and Baldassare, 1983). The reasoning goes as follows. A large influx of new residents can strain the budgets of municipal governments as expenditures on services and infrastructure climb. Even if the expansion can be financed, the local government may not be able to keep up with the pace. Government officials may adopt growth controls to ensure that municipal finances can meet current expenditures, since the resulting financial stability can lengthen their political careers. Under this scenario, growth controls are adopted independent of social conditions or any mobilization against growth (Protash and Baldassare, 1983).

With respect to environmental quality,

[4] Additional factors related to the political clout of farmers in New Jersey are the state Purchase of Development (PDR) program and the role of the County Agricultural Development Boards (CADBs). One would expect municipalities with greater farmer political clout to have already enrolled land in the state's farmland preservation program since state, county, and municipality matching funds are required for preservation. The State Agricultural Development Committee (SADC) also rewards farms from municipalities with RTF legislation with greater points in the process of determining farmland preservation priority. In addition, three CADBs (Cape May, Middlesex, and Morris) require that a municipality must have enacted a RTF law in order to participate in the PDR program.

Kline and Wichelns (1994) found that the prevalence of resource-sensitive lands enhances the motivation for preservation. Further support for the open space/environmental quality hypothesis is found in the work of the Urban Land Institute or ULI (1982) which found that environmentalists promote farmland preservation as a mechanism to preserve environmental assets, not to protect agricultural production. The implication is that agricultural production is not seen as an environmental asset.

Logan (1976) relates the adoption of growth-control policies to socioeconomic and demographic factors. He posited that 'high-status' communities undergoing rapid growth rates have the necessary social and financial resources to mobilize their citizens to press for measures that attempt to preserve the existing nature of their community. He defined 'high-status' communities as those with higher average incomes, a high proportion of homeowners, high educational attainment, low levels of minority and poor residents, and greater per-capita expenditures on public services. In an expansion of Logan's work, Protash and Baldassare (1983) concentrated on two of Logan's socioeconomic factors: the proportion of homeowners and of white-collar workers. A high proportion of homeowners and of white-collar workers is hypothesized to present a greater opportunity for a local community to combat growth because the greater equity interest of homeowners in the local community will motivate them to maintain or improve the local status conditions by promoting growth controls. Homeowners are also more likely to belong to grass roots organizations, expanding their communication channels and political influence.

Protash and Baldassare (1983) further argued that citizens with white-collar jobs are more likely to possess the skills and resources needed to mobilize the community against well-funded growth lobbies, and are less likely to feel politically powerless. On the other hand, communities with low proportions of homeowners and white-collar workers are expected to oppose growth controls since they are more likely to view growth as a mechanism to improve local employment and housing (Baldassare, 1981). Protash and Baldassare (1983) suggest that citizens with the expertise to understand complex legal issues and motivate others to act may have a better chance of getting their political agenda passed and propose that white-collar workers possess these necessary technical skills. They also suggest that rising property taxes, which result from rising land and house values associated with growing populations, affect the desire for preservation.

Political dynamics can also play a role in legislative patterns. Dye (1966) presents a general theoretical framework of legislation adoption that explains the forces determining the original adoption and later revisions of laws. He identified four factors, two of which represent the party system. The first, interparty competition, is postulated to enhance the adoption of new policies as the parties vie for votes. The variable was measured by one minus the percentage of the majority party. The second, the division of Democratic and Republican control, relates party affiliation to legislative outcomes. Republicans are believed to favor deregulation and free enterprise while Democrats favor government intervention. This characterization may break down when considering RTF laws. Republicans may indeed favor the legislation since the laws can actually free agricultural enterprises from municipal regulations and the hindrance of nuisance lawsuits, enhancing farm returns. Dye's third variable is voter participation. Non-voters are said to be typically lower-income, lower-status, poorly educated, and non-white groups. Since conservatives receive their greatest support from the high socioeconomic groups, a small voter turnout is expected to benefit their candidates (Dye, 1966). Dye's last political variable is the degree of inequality in voter representation or malapportionment (defined as "variation in the numbers of people in legislative districts which receive the same number of representatives"). Hence, state policy choices are affected by the policy differences of rural and urban constituencies (Dye 1966).

Finally, legislative adoption by neighboring

governments is also said to influence adoption patterns (Rosenbaum, 1976). Political leaders and governments look to regional neighbors for legislative innovation (the spillover effect) because (1) neighboring districts probably have similar problems, (2) there is a widespread attitude that laws should be adapted to those of nearby governments, and (3) officials in neighboring towns often belong to the same organizations and are therefore in close contact with their neighboring counterparts (Sharkansky, 1970; Rosenbaum, 1976). On the other hand, it is possible that passage of a strong piece of legislation by a neighboring principality provides a wake-up call to opponents of the law, encouraging them to rise up and defeat similar legislation (the backlash effect).

The above explain the factors that could affect a community's desire to protect farmers or adopt RTF statutes. For illustrative convenience, denote the strength of the community's desire to protect farmers by $\beta$. When $\beta = 1$, absolute protection is desired and farmers are given absolute rights to freely farm without any fear of those burdensome regulations or of litigation against those externalities that the non-farm sector finds irksome. When $\beta = 0$, farmers get no protection from the government. Theory and empirical evidence from the literature therefore suggest that the determinants of $\beta$ include (1) the relative size of the farm community, (2) the relative political clout of the farm community, (3) the rate of loss of farmland or open space, (4) the rate of change of population, (5) population density, (6) per-capita income, (7) home ownership, (8) property values, (9) political structure of the community, and (10) spatial proximity to towns where similar laws exist. These variables relate to the environmental, open space, quality of life and growth control motivations for preservation.

## Empirical Framework

In real life, political decision making is discontinuous and often occurs in a treadmill fashion so that what one observes in reality is a dichotomous manifestation of $\beta$. When $\beta$ reaches a high enough threshold value, one might observe the passage of a RTF law, whereas low values of $\beta$ might imply no such law. Alternatively, a high value of $\beta$ might lead to the passage of a strong law while a lower level of $\beta$ might imply a weaker law or no law at all. Whether or not a polity adopts protective mechanisms and the stringency of the protections actually adopted depend on the cumulative effects of the determinants of $\beta$ described above.

Considering the dichotomous manifestation of $\beta$ in real life, an appropriate approach to modeling the adoption of RTF laws is via a logit specification where the dependent variable(s) assume discrete values representing the presence or absence of a municipal RTF law (strong or weak) and the independent variables are as defined above.[5] The decision to enact RTF legislation is not a sequential process. That is, a municipality decides to adopt a RTF law. If so, the law may be weak or strong, depending on the political environment. The municipal council does not first decide to pass a RTF law and then separately decide to choose between a weak and strong version of the law. In the case of the former, independent logit models for strong and weak RTF laws would be adequate for empirical analysis. If the latter were the case, a nested or sequential logit model would be most appropriate.

The following construction of the logit model follows Liao (1994). The expected value of a choice variable Z is assumed to be

[5] Logit, linear probability,and probit models are alternative specifications of qualitative dependent variable regression models. They are preferred to linear models in discrete choice analysis because they eliminate heteroscedasticity and resulting efficiency loss due to non-normal error. Results derived from logit and probit models are identical (Liao, 1994), except that logit models may be more appropriate when distributions have heavier tails because the logistic probability function, on which the logit model is based, has a fatter-tailed distribution than the cumulative normal function, on which the probit model is based (Pindyck and Rubinfeld, 1981). In a case study of New Jersey where there are stark contrasts between suburban and rural areas and data on agricultural statistics at the municipal level are highly fragmented, a logit model is probably more appropriate.

dependent on a linear combination of k unknown independent variables r. That is,

$$(1) \quad E(Z) = z = \sum_k b_k r_k,$$

where the $b_k$s are parameters corresponding to each r. A link variable, e, links $\Sigma_k\ b_k r_k$ to z, creating the possibility of nonlinear specifications. The independent variables always produce e linearly, and e then predicts Z. The relationship is given by:

$$(2) \quad e = \sum_k b_k r_k.$$

The function that relates e to z must be specified. The model begins with the assumption that an underlying response variable, z*, is determined by a set of explanatory variables $r_k$:

$$(3) \quad z^* = \sum_k b_k r_k + \epsilon.$$

It is assumed that observations on z* are not available. Rather, the data differentiate individual observations between two categories, low values of the response variable, z*, and high values of z* (Pindyck and Rubinfeld, 1981). The error term, $\epsilon$, has a mean of zero and a cumulative distribution function (CDF) defined as $\Phi(\epsilon)$.[6]

Observed data consist of the realization of the underlying response variable: z = 1 if z* > 0 and z = 0 otherwise. From equation (3) and the condition above, the following relationship of the probability of the event occurring (z = 1) can be derived:

$$(4) \quad \text{Prob}(z = 1) = \text{Prob}\left(\sum_k b_k r_k + \epsilon > 0\right) = \text{Prob}\left(\epsilon > -\sum_k b_k r_k\right) = 1 - \Phi\left(-\sum^k b_k r_k\right).$$

The functional form of $\Phi$ must be specified based upon the assumption regarding the distribution of $\epsilon$ in equation (3). When $\epsilon$ follows a logistic distribution, we have the logit model and the link function becomes the logit $e = \log[z/(1 - z)]$. The link translates into a logit model that estimates the binary outcome of a dependent variable. Expressed in logit form:

$$(5) \quad \log[\{P(z = 1)\}/\{1 - P(z = 1)\}] = \sum_k b_k r_k.$$

One can express equation (5) in terms of event probability by replacing the general CDF with the logistic distribution, L:

$$(6) \quad \text{Prob}(z = 1) = 1 - L\left(-\sum_k b_k r_k\right) = L(\epsilon^k b_k r_k) = \epsilon^{\Sigma rk}/[1 + \epsilon^{\Sigma rk}].$$

Equation (5) is expressed in terms of the probability of an event occurring (z = 1). The alternative, the probability that an event will not occur, is just 1 minus event probability:

$$(7) \quad \text{Prob}(z = 0) = L\left(-\sum_k b_k r_k\right) = [\epsilon^{-\Sigma rk}]/[1 + \epsilon^{-\Sigma rk}] = 1/[1 + \epsilon^{\Sigma rk}].$$

The above specification can be applied to RTF as follows. There are three cases. First, the dependent variable is the probability of the adoption/existence of a municipal RTF law of any variety. Second, the dependent variable is the probability of a strong RTF law. Third, the dependent variable is the probability of a weak law. These models would estimate the influence that the hypothesized variables have on the presence of a municipal RTF law. That is,

$$(8) \quad \log[\{P(RTF_{yes})\}/\{1 - P(RTF_{yes})\}] = \sum_k b_k r_k,$$

where $P(RTF_{yes})$ is the probability of a municipality having a RTF law. With this logit transformation, the regression coefficients describe the change in the logarithm of the odds of a municipality having a RTF law to those that do not, given a one-unit change in the value of the independent variable (Liao, 1994).

[6] Equation (3) specifies the major difference between the linear probability model and logit and probit models. In the linear model, the model directly estimates the occurrence of an event, z. Logit and probit models estimate the underlying response variable, z*.

**Table 1.** Independent Variables Classified Under Categories of Motivation

| Variable | Identifying Acronym | Source |
|---|---|---|
| **Agricultural** | | |
| Change in farmland assessed acreage: 1980–92 | CHAGLAND | *Twenty-Fourth Report of Data from FA-1 Forms for 1992 Tax Year* |
| Percentage of farmland assessed acreage to total acreage: 1992 | PERFARMS | *Twenty-Fourth Report of Data from FA-1 Forms for 1992 Tax Year* |
| Actual and pending PDR acreage: 1992 | APACRES | *New Jersey Farmland Preservation Programs: Participation as of June 30, 1994.* |
| Dummy variable for the three counties (Cape May, Middlesex, and Morris) requiring a local RTF law to qualify for county funds | CADBREQ<br>0 = NO<br>1 = YES | Interview with Don Applegate: 1994 |
| **Environmental** | | |
| The percentage of total farmland-assessed acreage comprised of wetland and woodland | WETWOOD | *Twenty-Fourth Report of Data from FA-1 Forms for 1992 Tax Year* |
| **Growth Control** | | |
| Percentage change in the population: 1980–90 | CHGPOP | *New Jersey Legislative District Data Book: 1994* |
| Per-capita personal income: 1989 | INCOME | *New Jersey Legislative District Data Book: 1994* |
| Percentage of home ownership: 1994 | OWNOCC | *New Jersey Legislative District Data Book: 1994* |
| Percentage of white-collar workers: 1992 | WHTCOLAR | *The New Jersey Municipal Data Book: 1992–93* |
| Percentage change in the average residential value: 1984–93 | CHGRSVAL | *New Jersey Legislative District Data Book: 1994* |
| Population density: 1992 | DENSITY | *New Jersey Legislative District Data Book: 1994* |
| **Political** | | |
| Percentage of municipal governing body, Democrat: 1994 | MUNDEM | *New Jersey Legislative District Data Book: 1994* |
| Spatial proximity: Dummy variable for presence of local RTF law within the county | SPATIAL<br>0 = No<br>1 = Yes | *The right to farm in New Jersey: a legal, institutional and social analysis* (Adelaja *et al.*) |

## Empirical Model, Data and Estimation

In light of the analysis above, the following econometric model is specified for estimation:

$$\begin{aligned}(9)\quad \log[\{P(RTF_{yes})\}/\{1 - P(RTF_{yes})\}] &= b_1(CGAGLND) + b_2(PERFARMS) \\ &+ b_3(APACRES) + b_4(CADBREQ) \\ &+ b_5(WETWOOD) + B_6(CHGPOP) \\ &+ b_7(INCOME) + b_8(OWNOCC) \\ &+ b_9(WHTCOLAR) + b_{10}(CHGRSVAL) \\ &+ b_{11}(DENSITY) + b_{12}(MUNDEM) \\ &+ b_{13}(SPATIAL) + \epsilon.\end{aligned}$$

where $\epsilon$ is an independent and normally distributed random error term with a mean of zero and a constant variance. The independent variables are described in Table 1. The marginal effect of an independent variable on the probability of a municipality having RTF leg-

islation is calculated with the following equation:

$$(10) \quad [dProb(RTF)]/[dr_k] = [b_k \epsilon^{\Sigma br}]/[1 + \epsilon^{\Sigma br}]^2.$$

The marginal effect on the probability is dependent upon the values of the independent variables ($r_k$). Their mean values can be used to calculate the marginal effect. With continuous independent variables, equation (10) provides a close approximation of the marginal effect; however, the marginal effect of a dummy variable yields only rough estimates (Liao, 1994).

The state of New Jersey is used as a case study. The most densely populated and suburbanized state in the nation, New Jersey was one of the first states to pass a RTF law and its municipalities have been at the forefront of legislative innovations to protect and preserve the farmland base. A survey of New Jersey municipal RTF laws was conducted as part of this study. The details are provided in Adelaja et al. (1996). All 328 New Jersey municipalities with any farmland-assessed acreage were contacted to determine if a local RTF law had been adopted. The overwhelming majority of municipalities were contacted by telephone. In most circumstances, the municipal clerk could determine whether the township had passed an ordinance or has a section in the Codes that provides RTF protections. In other cases, a planning or zoning officer, construction official, or the mayor provided the necessary information.[7] Seventy-eight municipalities with farmland-assessed acreage had voluntarily adopted RTF laws and one other had a law but did not report existence of farmland-assessed acreage. There were 250 municipalities without RTF legislation.

A scrutiny of the RTF laws reveals that they employ five basic provisions to protect agricultural practices: (1) exempt agriculture from municipal ordinances and from regulations which inhibit crop production, (2) allow specific agricultural by-products and/or protect specific agricultural practices, (3) require Generally Accepted Agricultural Management Practices (GAAMP), (4) allow agriculture as a permitted use in all zones, and (5) require subdivisions to include notification to the buyers of the property of the presence of an active farm.[8] When the above classification system is applied, a continuum of RTF provisions emerges which progresses from the most general (i.e., (1) above) to the most specific (i.e., (5) above). As the RTF provisions progress, they provide agricultural operations with stronger safeguards.[9]

The first three provisions may be regarded as the weaker versions of the law since their protections are vague (see Adelaja *et al.*, 1996). They do not provide absolute statements that can provide greater protection in land-use conflicts. The last two, allowing agriculture as a permitted use and the notification requirement, are considered strong versions of

[7] A segment of New Jersey known as the Pinelands has a comprehensive growth management plan in place. All Pinelands municipalities adopted the RTF section of the Plan (N.J.A.C. 7:50-6.54, 1994). Such an adoption may not truly reflect the desire to preserve agricultural activities. Also, the vagueness of the Pinelands RTF provision and the fact that the provisions are limited to "municipal ordinances and regulations which inhibit efficient crop production" suggest that these ordinances are very weak in the area of land-use conflicts (N.J.A.C. 7:50-6.54, 1994). Pinelands municipalities were not included in this analysis unless they have adopted an independent RTF ordinance.

[8] In some cases, the township's RTF provisions are included in the deed to the land. Notification is accomplished in one of two ways: The first is a notice that indicates that the buyer is moving into an active farm area. The second consists of a waiver whereby the property owners cedes the right to object to local farming practices.

[9] For example, provisions that require GAAMPs provide a mechanism that can settle land-use conflicts. When a RTF law establishes farming as a permitted use throughout the municipality it provides greater safeguards for farm operations. Judges pay special attention to the "character of the locality" when determining appropriate land uses. Since appropriate land uses can change over time, courts often defer to zoning regulations (Hand, 1984). Therefore, an agricultural operation that is a permitted land use stands a greater chance of defeating a land-use lawsuit. The highest level of protection is given by the notification requirement. This protection codifies the "coming to the nuisance" defense whereby new landowners must waive objection to farming activities.

the law since they do offer concrete statements that support the agricultural industry.[10]

Data on the independent variables described in Table 1 and equation (9) came from a number of sources. The sources are described in Table 1. Variables related to motivation for RTF legislation include change in farmland acreage (CHAGLAND), the percentage of land in farms (PERFARMS), and the purchase of development rights (PDR) program incentives (APACRES and CADBREQ).[11] The PERFARMS variable permits testing the 'agricultural-interest/political clout' arguments. APACRES is the acreage of farmland with development rights purchased or pending final approval as of June 30, 1994. CADBREQ is a binary choice variable for Cape May, Middlesex and Morris Counties whose County Agricultural Development Boards all require municipalities to pass a RTF law in order to participate in the PDR program.

No concise catalog of environmentally sensitive farmland exists. Hence, the percentage of total farmland-assessed acreage comprised of woodland and wetland (PERWOOD) serves as a proxy. The percentage change in population from 1980–90 (CHGPOP) was included to investigate the validity of the growth control theory. Two characteristics of 'high-status' communities—per-capita income (INCOME) and the percentage of owner-occupied residences (OWNOCC)—are included.[12] Additionally, the percentage of white-collar workers (WHTCOLAR) may offer a clearer indication of the skills necessary to mobilize a community into action against rapid growth. White-collar workers are defined as those designated as 'managers or professionals' by the Bureau of Labor Statistics.[13]

Rapidly increasing real estate values can indicate that local taxes are rising faster than inflation, creating an incentive to retard development. The change in average residential value from 1984 to 1993 (CHGRSVAL) is used to measure this effect. Population density (DENSITY) is included as a variable to account for the pressure on the carrying capacity of the municipality. The political factors that influence policy outcomes are proxied by the percentage of municipal governing body seats held by the Democrats (MUNDEM). With very few municipal Independents, the dummy variable accounts for only two parties, thus avoiding multicollinearity. The exclusion of inter-party competition also reduces the incidence of multicollinearity.

Spatial proximity is measured by whether or not another municipality has passed a RTF law within the same county (SPATIAL). The dummy variable equals zero if the municipality is the first to adopt a RTF law within the county. The dummy variable also equals zero if no municipality has adopted a RTF law within the county. If one or more municipalities within the county have enacted a RTF law, the dummy variable equals 1. The county level was chosen for this variable because of the close political relationship between the municipalities of a county and since municipalities

[10] In nuisance lawsuits, courts often defer to zoning regulations to determine appropriate land uses (Hand, 1984). Therefore, a RTF law that allows farming as a permitted use throughout the township can provide greater protection against nuisance lawsuits. With the notification requirement, residential land users will have a difficult time claiming that they didn't know they would be subjected to inconveniences created by agricultural operations. Written notification of nearby farming activities or RTF protections will be spelled out in their title deed or in a separate document supplied by the developer. Some notifications contain a waiver whereby the buyer gives up the right to object to local farming practices.

[11] The absolute figure was used in place of percentage since in a number of municipalities the farmland-assessed acreage rose from zero to a positive amount.

[12] In a preliminary investigation, it was found that the percentage of college graduates is highly correlated with both income and the percentage of owner-occupied residences. Because of this high degree of correlation, the percentage of college graduates was left out of the model.

[13] Other categories may be considered white-collar workers, but the one chosen includes those workers with technical expertise combined with experience guiding and motivating a group on a regular basis. The growth control objective is rounded out with the percentage change in average residential value and the population density.

**Table 2.** Results of the Disaggregated Weak and Strong Right-to-Farm Law Models

| | Parameter Estimates | | | Marginal Effect on the Probability Reported in Percentages | | |
|---|---|---|---|---|---|---|
| Independent Variables[b] | All Laws | Weak Laws | Strong Laws | All Laws | Weak Laws | Strong Laws |
| INTERCEPT | 2.092[a] | 0.382 | 2.827 | 17.001 | 1.314 | 12.748 |
| | *(2.037)* | *(2.905)* | *(2.301)* | | | |
| CHGAGLND | −0.000 | −0.000 | −0.000 | −0.001 | −0.0001 | −0.001 |
| | *(0.000)* | *(0.000)* | *(0.000)* | | | |
| PERFARMS | 0.046** | 0.051** | 0.044** | 0.372 | 0.174** | 0.201** |
| | *(0.011)* | *(0.016)* | *(0.012)* | | | |
| APACRES | 0.001 | 0.001 | 0.001 | 0.013 | 0.004 | 0.014 |
| | *(0.001)* | *(0.001)* | *(0.001)* | | | |
| CADBREQ | 2.389** | 2.891** | 2.158** | 19.410 | 9.868** | 9.729** |
| | *(0.600)* | *(0.875)* | *(0.724)* | | | |
| INCOME | −0.000* | −0.000 | −0.000* | −0.001 | −0.000 | −0.001* |
| | *(0.000)* | *(0.000)* | *(0.000)* | | | |
| CHGPOP | 0.007 | 0.007 | 0.006 | 0.061 | 0.022 | 0.033 |
| | *(0.007)* | *(0.011)* | *(0.008)* | | | |
| OWNOCC | 0.003 | 0.011 | −0.008 | 0.024 | 0.042 | −0.041 |
| | *(0.019)* | *(0.029)* | *(0.020)* | | | |
| WHTCOLAR | 0.022 | 0.019 | 0.050 | 0.168 | 0.066 | 0.032 |
| | *(0.043)* | *(0.061)* | *(0.053)* | | | |
| CHGRSVAL | −0.008 | −0.0170 | −0.003 | −0.059 | −0.062 | −0.010 |
| | *(0.008)* | *(0.013)* | *(0.020)* | | | |
| DENSITY | −0.001** | −0.001** | −0.002** | −0.010 | −0.004** | −0.013** |
| | *(0.000)* | *(0.001)* | *(0.001)* | | | |
| WETWOOD | −0.028** | −0.020 | −0.034** | −0.233 | −0.067 | −0.054 |
| | *(0.011)* | *(0.014)* | *(0.013)* | | | |
| MUNDEM | −0.006 | −0.006 | −0.004 | −0.038 | −0.023 | −0.019 |
| | *(0.007)* | *(0.010)* | *(0.008)* | | | |
| SPATIAL | −1.237* | −1.506* | −1.398* | −10.054 | −5.143* | −6.295* |
| | *(0.643)* | *(0.868)* | *(0.767)* | | | |

A single asterisk (*) indicates that parameter estimate is statistically significant at the 0.10 level.
A double asterisk (**) indicates significant at the 0.05 level. Standard errors in parenthesis.
[a] Marginal effects calculated at the sample means (expressed in percentage terms).
[b] Variable definitions reported in Table 1.

consult with their County Agricultural Development Boards when attempting to preserve farmland in their districts. The logit procedure in SAS was used to estimate the aggregate RTF equation and two other equations for the strong and weak laws.

## Empirical Results

### *Aggregate Right-to-Farm Model*

The dependent variable in the aggregate model is the probability that a municipality would have a RTF law. The McFadden's $R^2$ suggests that the estimated model explains 45 percent of the observed variation in the dependent variable. At the 5% and 10% levels, four and six variables, respectively, are significantly different from zero (see Table 2). The results are consistent with the agricultural objectives hypothesis. Both the PERFARMS and the dummy variable for CADB requirement for county PDR funds (CADBREQ) positively raise the probability that a municipality would have a RTF law.

At the local level it therefore appears that

the political power or clout of the farm community is a major determinant of whether or not a RTF legislation exists. In municipalities where farmers control a larger portion of total land, they can exert greater influence on local political outcomes as opposed to farmers in a suburban setting. With a greater voice in local politics, farmers can propose legislation to forestall the problems of farming in an urbanizing area. On the other hand, as rural areas become urbanized, non-farmers are more likely to maintain the ability to regulate land-use as their numbers, and presumably problems, increase. The significant and highly positive coefficient for (CADBREQ), the dummy variable for the three County Agricultural Development Board (CADBs) requiring that a municipality must pass the legislation in order to participate in the purchase of farmland development rights (PDR), suggests that by tying farmland preservation to RTF the non-farm public can be forced to adopt a more favorable agricultural climate.

The model failed to confirm the growth objective hypothesis of Gardner (1977). INCOME and DENSITY are inversely related to the chances of the RTF law passing, and CHAGLAND and CHGPOP are both statistically insignificant. That is, contrary to expectations and to the hypothesis of Gardner, the more affluent communities are least likely to support agriculture, while communities where open space is being lost the most or where population growth and congestion are most problematic are not necessarily more likely to support agriculture. These same variables have been shown to encourage farmland preservation. However, the fact that they do not encourage RTF suggests that the non-farm public does not see RTF as farmland preservation. This is intriguing, considering that the motivation for many RTF laws in the first place is agricultural preservation.

The model also failed to confirm the environmental objective hypothesis of Gardner. An increase in the percentage of farmland comprised of wetland and woodland (WETWOOD) will actually result in decreased odds that a municipality will have an RTF law. The SPATIAL variable was found to have an adverse effect on the presence of the law. This refutes the findings that laws pass from one government to another in a contagious manner and in fact suggests that when a neighboring township passes a RTF law, others respond by blocking such laws. The insignificance of OWNOCC challenges the notion that a difference exists between owners and renters. The fact that the coefficient of WHTCOLAR is insignificant challenges the notion that the well-educated white collar workers are more supportive of agriculture. The insignificance of CHGRSVAL suggests that individuals in the more exclusive neighborhoods are less likely to implement a RTF law. The insignificance of the MUNDEM variable suggests that party ideology does not affect the likelihood of passage and that RTF laws are not seen as liberal or conservative.

The marginal effects on the probability of a municipal RTF law are examined to provide a clearer comparison of the independent variables. They are useful in understanding which causal factors have the most effect. A one-percent increase in the percentage of municipal land dedicated to farmland (PERFARMS) leads to a 0.37-percent increase in the probability that a municipal RTF law exists. Municipalities in counties with the CADB requirement for county PDR funds (CADBREQ) have a 19.41-percentage increase in the probability of having the law in place. This suggests how promising it is to utilize the "bitter-pill" approach to RTF. For every dollar increase in per-capita income (INCOME), the probability of a RTF law decreases by 0.001 percent. As the population density (DENSITY) climbs by one percent, the chances of RTF legislation falls by 0.01 percent. With every percentage rise in the amount of farmland that is either wetlands or woodland (WETWOOD), the probability of municipal RTF law decreases by 0.23 percent. Finally, when another municipality within the county has adopted a RTF law (SPATIAL), the probability that other municipalities within the county will adopt and maintain the law falls by 10.05 percent.

*Disaggregated Right-to-Farm Models: Weak and Strong Laws*

There are 31 municipalities with RTF laws that provide only minimal protections for farmers and 47 municipalities that provide the highest degree of protection. Separate models were estimated for each group. The model explains 43 percent of the observed variations in the dependent variable for the weak municipal RTF law and 44 percent of the observed variations in the strong laws. At the 10-percent level, four variables were significant in the weak law function and six variables were significant in the strong law function. Table 2 presents the estimated coefficients for both types of laws and the marginal effect on the probabilities of both.

As anticipated farmers' political clout, as measured by PERFARMS, raises the likelihood of a strong law more than it raises the chances of a weak version. This result can viewed as a partial confirmation of the 'agricultural-interest' model of farmland preservation policies. Farmer political clout translates into policies that aim to protect agriculture. As farmer political clout grows, it seems intuitive that farmers push for stronger legislation.

The CADB requirement simply ties the hands of the non-farm public. That is, if they want farmland preservation, they must put in place RTF. The results suggest that the requirement is more likely to lead to a weak law than a strong one. That is, in some cases, these townships simply pass the weak version of the law just to meet the requirement. The CADBs do not require any specific language to be included into the law. If the CADBs require that a strong law is passed, either fewer townships will want to participate in farmland preservation or the interest in strong laws will rise.

The presence of preserved acres in a township (APACRES) does not have any effect on the probability of passing a strong or weak law. This suggests that a critical mass of preserved acres is not what encourages RTF protection, but a critical mass of farmers. The idea that preservation encourages a preservation culture which translates into RTF protection is therefore refuted. The insignificance of CHGAGLND and the significant but negative coefficient for DENSITY in both models again refute the growth control theory. These suggest that as residential land users come into closer proximity of active farms, people are less likely to allow the agricultural industry to operate without their approval. However, the fact that the marginal effect of DENSITY on the probability of a weak law is more negative than it is for a strong law suggests that the more congested areas actually 'relatively' favor strong laws.

Rising income lowers the probability of a strong law, but has no effect on the probability of a weak law. If income is viewed as a proxy for home values, then it seems that the greater the investment, the more homeowners will oppose attempts to diminish their regulatory powers.

Increases in the amount of environmentally sensitive lands (WETWOOD) retard strong laws, but have no effect on weak versions of the laws. It therefore appears that as the percentage of farmland made up of environmentally sensitive lands rises, public willingness to grant farmers greater freedom to use their land as they please diminishes because such an action could endanger resources that the non-farming public is trying to preserve. Consequently, strong RTF laws would stand little chance of passage if the true goal of RTF laws were environmental preservation.

When another municipality within the county has a strong RTF law (the SPATIAL variable), the likelihood of a strong version of the law diminishes. The same applies to weak laws. However, the SPATIAL effect is more debilitating to strong laws than it is to weak laws. That is, municipalities view the strong version of the law as a capitulation of property rights, especially if the municipality has a limited agricultural industry.

## Summary and Conclusion

This study is the first of its kind in many ways. It is the first to econometrically investigate the political economy of RTF laws. It is also the first to investigate the validity of various theories of the motivation for such protections.

The study is also unique in that while previous RTF studies have concentrated on statewide legislation, the focus of this study is local. The authors are not aware of any other studies that have concentrated on local RTF laws. When state level RTF laws are ineffective, the municipal laws become more important. By studying the mechanisms that facilitate the passage of municipal RTF laws, this paper makes an important contribution to the literature on the assignment of property rights and agricultural protection. The study allows an evaluation of the long-term viability of local RTF laws as the clout of the farm community dwindles.

A key finding here is that when one observes the existence of a RTF law, it is probably because the farm community still has substantial control over municipal affairs or because non-farmers are forced into compliance through the carrot of farmland preservation. Hence, given the continued decline in farmers' political clout at the urban fringe, to the extent to which New Jersey's experience is applicable, one expects tougher days ahead for municipal RTF laws. The findings that the growth control and environmental rationale for farmland preservation do not hold true for RTF suggest that the non-farm public does not see RTF as being in their best interest. Therefore, the farm community may need to concentrate on educational programs that emphasize the public benefits of RTF laws.

The finding that when the non-farm community is forced to support RTF in order to get farmland preservation it opts for weak RTF support suggests a resentment of RTF laws. The fact that the spillover (SPATIAL) effect is such that when a municipality passes a law a neighboring town retaliates by blocking a RTF law also suggests such resentment. It does appear that to preserve farming as well as farmland, states may want to strengthen state level RTF laws unless innovative ways can be found to link local RTF laws to preservation or other goods the public demands. This study seems to be consistent with the Adelaja, *et al.* (1996) study in that it suggests the importance of (1) educational programs about the public benefits of RTF, (2) conflict resolution and (3) conflict prevention.

## References


Adelaja, A.O., F.J.A. Brooks, H.H. Heinrich, P.E. Hayes, and K. Friedman. *The Right-to-Farm in New Jersey: A Legal, Institutional and Social Analysis.* The Ecopolicy Center for Agricultural, Environmental and Resource Issues, Cook College/NJAES, Rutgers, The State University of New Jersey. New Brunswick, NJ. Ecopolicy Center Report #AERDI94-4-95-1, 1996.

Adelaja, A.O., Brian J. Schilling and Julia E. Menzo. *"Changing New Jersey's Farmland Assessment Eligibility Requirement: Impacts on Land Use, Open Space and Municipal Finance, Volume I."* The Ecopolicy Center Report No. AERDI94-2-97-1 and NJAES publication No. SR-02529-96-4, New Brunswick, 1997.

Baldassare, M. *The Growth Dilemma: Residents' View and Local Population Change in the United States.* Berkley: University of California Press, 1981.

Bureau of Government Research and Department of Government Services, *New Jersey Legislative District Data Book: 1985.* Rutgers University, New Brunswick, 1985.

Centner, T.J. and J.C. Bergstrom. *Agricultural Nuisances and the Georgia Right-to-Farm Law.* The Georgia Agricultural Experiment Stations. College of Agriculture, The University of Georgia. Research Report 547, 1988.

Division of Taxation, State of New Jersey. *"Twenty-Fourth Report of Data from FA-1 Forms for 1992 Tax Year. Farmland Assessment Act of 1964:" Chapter 48, Laws of 1964.* Trenton, NJ., 1993.

Dye, T.R. *Politics, Economics, and the Public: Policy Outcomes in the American States.* Chicago: Rand McNally and Company, 1966.

Edward J. Bloustein School of Planning & Public Policy, *New Jersey Legislative District Data Book: 1994.* Rutgers, The State University of New Jersey, New Brunswick, 1995.

Fischel, W.A. "The Urbanization of Agricultural Land: A Review of the National Agricultural Lands Study." *Land Economics* 58 (1982):236–259.

Frieden, B.J. *The Environmental Protection Hustle.* Cambridge, MA: MIT Press, 1979.

Furuseth, O.J. "Local Farmland Conservation Programmes in the U.S.: A Study of California Counties." *Applied Geography* 5 (1985a):211–227.

———. "Influences on County Farmland Protection Efforts in California: A Discriminant Analysis." *The Professional Geographer* 37 (1985b):443–451.

Gardner, B.D. "The Economics of Agricultural Land Preservation." *American Journal of Agricultural Economics* 59(1977):1027–1036.

Hamilton, N.D. *A Livestock Producer's Legal Guide To: Nuisance, Land Use Control, and Environmental Law.* Drake University Agricultural Law Center, Des Moines, Iowa, 1992a.

———. "Right-to-Farm Laws Revisited: Judicial Consideration of Agricultural Nuisance Protections." *Journal of Agricultural Taxation & Law* 14(1992b):195–228.

Hamilton, N.D. and G. Andrews. *Employing the "Sound Agricultural Practices" Approach to Providing Right to Farm Nuisance Protections to Agriculture.* Drake University Law School, Agricultural Law Center, White Paper 93–2, Des Moines, Iowa, 1993.

Hand, J.P. "Right-to-Farm Laws: Breaking New Ground in the Preservation of Farmland." *University of Pittsburgh Law Review* 45 (1984): 289–350.

Kline, J. and D. Wichelns. "Using Referendum Data to Characterize Public Support for Purchasing Development Rights to Farmland." *Land Economics* 70 (1994):223–233.

Lapping, M.B. and N.R. Leutwiler."Agriculture in Conflict: Right-to-Farm Laws and the Peri-Urban Milieu for Farming." In *Sustaining Agriculture Near Cities,* W. Lockeretz (ed), Soil and Water Conservation Society, 1987.

Lapping, M.B., G.E. Penfold, and S. MacPherson. "Right-To-Farm Laws: Do They Resolve Land Use Conflict?" *Journal of Soil and Water Conservation* 38(1983):465–467.

Liao, T.F. *Interpreting Probability Models: Logit, Probit, and Other Generalized Linear Models.* Sage Publications, Thousand Oaks, California, 1994.

Lisansky, J. "Farming in an Urbanizing Environment: Agricultural Land Use Conflicts and Right To Farm." *Human Organization* 45 (1986):363–371.

Logan, J.R. "Notes on the Growth Machine: Toward a Comparative Political Economy of Place." *American Journal of Sociology* 82(1976):349–352.

New Jersey Department of Agriculture. *New Jersey Agriculture: 1995.* Trenton, New Jersey, 1996.

E.R. Hornor (ed). *The New Jersey Municipal Data Book: 1992–93 Edition.* Information Publications. Palo Alto, California, 1992.

Pindyck, R.S. and D.L. Rubinfeld. *Econometric Models and Economic Forecasts.* McGraw-Hill Book Company, New York, 1981.

Prosser, W. *Handbook of the Law of Torts,* 4th edition, 1971.

Protash, W. and M. Baldassare. "Growth Policies and Community Status: A Test and Modification of Logan's Theory." *Urban Affairs Quarterly* 18(1983):397–412.

Rosenbaum, N. *Land Use and the Legislatures: The Politics of State Innovation.* The Urban Institute. Washington, DC, 1976.

Sharkansky, I. *Regionalism in American Politics.* Indianapolis, Indiana, Bobbs-Merrill, 1970.

Thompson, E., Jr. "Defining and Protecting the Right to Farm." *Zoning and Planning Law Report* 5 (September 1982):57–63.

Urban Land Institute. "The Agricultural Land Preservation Issue: Recommendations for Balancing Urban and Agricultural Land Needs" (Urban Land Institute policy statement). *Urban Land* 41(1982):18–26.