

Public and farmer support for purchase of development rights in the metropolitan Northeast

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Purchase of development rights (PDR) programs have become popular farmland preservation tools in the Northeast. The literature on these programs has focused on their geographic distribution, operation, and strengths and weaknesses (Daniels; Freedgood). However, there has been little analysis of factors affecting public and farmer support for PDR.

The demand for PDR is largely driven by urbanization pressures in rural/urban fringe areas (Lapping, Daniels, and Keller). In this context the countryside undergoes a transformation from the locus of natural-resource-based production to one of consumption of some idealized rural lifestyle. These changes raise several questions as we attempt to understand the sociological significance of support for PDR. First of all, how does public support compare with farmer support in the context of such changes? The answer to this question, we argue, helps us better understand the correspondence between the supply and demand for PDR. Second, what types of contextual changes affect the respective levels of support?

PDR and urbanization on the rural/urban fringe

Purchase of development rights (PDR) programs spread throughout the northeastern United States during the 1970s and 1980s and has become one of the most important farmland protection techniques in the region. PDR is basically a voluntary land use control program designed, among other things, to keep agricultural land in farm production and unavailable for development (Freedgood). The basic idea underlying PDR programs is that landowners possess a combination of separable property rights. Under PDR programs farmers voluntarily sell the development rights, or conservation easement, and receive payment for development restrictions placed on the land. PDR is financed with public funds, including the issuance of government bonds, and payments are made directly to farmers (Daniels).

Nine northeastern states have active state-level programs: by 1991 such programs had collectively purchased conservation easements from 1,253 farms covering 172,120 acres (Freedgood). Although this quantity represents a relatively small proportion of total farmland acres, the number of PDR acres grew steadily in

the 1980s and indications are that this growth will continue in the near future [Pfeffer and Lapping, (a)]. PDR has become important in the context of recent development in the rural/urban fringe of metropolitan areas which has created opportunities for new forms of agricultural production. In the 1970s settlement patterns emerged that typically spread over wide areas of land in small clusters or along transportation corridors with large tracts of land interspersed between or along residential clusters (Pizor). This pattern of population growth in rural/urban fringe areas has contributed to the dynamism of metropolitan agriculture. During the 1970s and 1980s, agricultural enterprises in metropolitan statistical areas (MSAs) of the Northeast intensified production, and farm and farmland losses were much lower than in non-metropolitan areas (Heimlich). Agriculture has flourished within many metropolitan areas, because some farms cater to the preferences of non-farm residents. Compared with their nonmetropolitan counterparts, farms in the rural/urban fringe are more specialized in the production of high value commodities, sell more direct to consumers, and are smaller and make more intensive use of resources.

In the urbanizing context, the sociological significance of the PDR popularity is not so much that it is a means to stem cropland loss, but that it is part of a far-reaching redefinition of the countryside from being primarily a locus of production to one of consumption (Marsden 1992). The urbanization of rural/urban fringe areas has created demand for rural amenities provided by agriculture. For example, new residents in rural/urban fringe areas value agriculture for high quality, fresh produce, and open space, and for maintenance of scenic values, water and air quality, and a habitat for wildlife, all of which preserve the quality of life in the area (Heimlich; Lessinger; Lockeretz). These amenities are sometimes only indirectly related to the activities of conventional production agriculture. In fact, preexisting agricultural production activities may be seen as a nuisance by new residents (Lapping and Leutwiller; Lisansky and Clark).

The consumption interests of the general public often differ from the interests of farmers. Not only are farmers' interests in maintaining profitable production conditions sometimes at odds with the general public's consumption of

some ideal rural lifestyle, but farmers may be less supportive of land-use planning than the non-farm population because of their economic interests in the development potential of their land (Rudel; Lapping, Penfold, and McPherson). Thus, both population segments may support PDR programs to similar degrees, but for quite different reasons.

Policy-makers and farmland preservation program administrators can benefit from an understanding of both the level and bases of public and farmer support for PDR. The level of public support gauges the demand for PDR, and the farmer support level provides an indication of the potential supply of land for PDR programs. Thus, basic empirical questions regarding the supply and demand for PDR are as follows: what is the level of support for PDR in rural/urban fringe areas of the metropolitan Northeast, and how does it differ between the general public and farmers? Beyond these basic facts, it is most important to understand the contextual factors that determine the respective levels of such support. What changes influence levels of supply and demand for PDR, and how? The answers to these questions provide us with a sense of how well supply can be expected to meet demand under varying local circumstances.

Data and measurement

Data to answer the questions posed here come from a survey of planners conducted by mail during the latter half of 1992. We contacted 259 planners involved in land-use planning within U.S. Census Bureau designated metropolitan areas of the Northeast.¹ The 210 returned surveys yielded an overall response rate of 81 percent.² Planners responded to questions on a variety of local planning issues. We matched their responses with county level Census data to conduct our analysis.

Data on general public and farmer support for PDR are not generally available. Planners' assessments of such support offer an alternative means of addressing this issue. The planners surveyed ranked support levels on a scale of one (very weak) to five (very strong).³ We assume that planners working on land use issues deal with a variety of interest groups and individuals, and this experience puts them in a good position to reliably gauge sentiments toward different types of policies. Actual surveys of the public and farmers might give different results, but we believe that planners' assessments offer a reasonable approximation of the actual atti-

¹ The following 11 states were included in our study: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

² Additional details on execution of the survey may be obtained directly from the authors.

³ The question was worded as follows: At present, how would you rank overall public (farmer) support in your

Table 1. Planner assessment of public and farmer support for purchase of development rights (PDR) programs

Support level	Public	Farmers
Very strong	13.8%	18.8%
Somewhat strong	25.7	26.3
Moderate	30.0	34.9
Somewhat weak	19.5	10.0
Very weak	13.0	10.0
Total	100.0%	100.0%
Mean	3.1	3.3
Standard deviation	1.2	1.2
Number	210	209

Answers coded numerically for analysis; very strong = 5, very weak = 1

Table 2. Population and farm change (1978-1987), and correlation with support for purchase of development rights (PDR) programs

County Characteristics	Percentage change		Zero-order Correlation with Support for PDR	
	Mean	Standard deviation	Public	Farmers
Population	4.96	7.08	0.18 [†]	0.04
Farmland	-10.56	8.28	0.03	-0.17 [†]
Farms	-4.10	15.00	0.19 [†]	0.07
Cash grain	-17.30	55.21	0.01	-0.04
Field crops	-8.20	38.21	0.10	0.06
Vegetable	-0.31	49.97	0.10	-0.01
Fruit and nut	12.72	66.32	0.20 [†]	0.18 [†]
Horticulture	-2.40	27.91	0.05	-0.09
General crop	14.26	75.71	0.07	-0.00
Livestock	-2.36	47.40	0.03	0.05
Dairy	-23.78	24.28	0.15 [†]	0.00
Poultry	-33.18	36.41	0.12	0.07
Animal specialty	101.88	101.54	0.02	-0.04
General livestock	-23.76	70.89	-0.09	-0.08

Farms are disaggregated by the Standard Industrial Classification
[†]p < 0.05

tudes. Thus, our analysis focuses on the determinants of planners' assessments of the general public and farmer support for PDR.

We use percentage changes in farm numbers by Standard Industrial Classification (SIC) as independent variables controlling for shifts in the local production mix.⁴ We also evaluate the effects of changes in farmland and population on PDR support levels. We control for contextual factors such as the area's population size, the total acreage base, percentage of land in farms, and whether a PDR program is available and implemented in the county. Information on the planners' places of work, the number of years worked at the agencies, and educational background serve as controls for the indepen-

area for purchase of development rights?

⁴ The U.S. Census Bureau uses the SIC to group farms by their main income source. If more than 50 percent of a farm's sales is from a particular commodity type, it is classed as that type of farm. For a detailed description of farm classification by SIC see U.S. Bureau of Census, Census of Agriculture 1987.

Table 3. OLS regression models estimating public support for purchase of development rights (PDR) programs

Variables	Model 1		Model 2		Model 3	
	b	beta	b	beta	b	beta
Percent Change: Population	-0.025 (0.010)	-0.14	-0.025 (0.012)	-0.14	-0.023 (0.013)	-0.13 [§]
Percent Change: Fruit and Nut Farms	-0.008 (0.002)	-0.25	-0.008 (0.002)	-0.26	-0.008 (0.002)	-0.26
Percent Change: Dairy Farms	-0.008 (0.004)	-0.16	-0.008 (0.003)	-0.16	-0.007 (0.003)	-0.13
Percent Change: Field Crop Farms	-0.007 (0.003)	-0.17	-0.003 (0.002)	-0.09 [§]	-0.004 (0.002)	-0.09 [§]
PDR Program in Effect			-1.311 (0.186)	-0.46	-1.336 (0.189)	-0.47
Population [†]			-0.107 (0.051)	-0.16	-0.111 (0.051)	-0.16
Planning Consultant [‡]			0.477 (0.229)	0.13	0.509 (0.233)	0.14
Private Non-governmental Organization Staffer [‡]			-0.176 (0.240)	-0.05 [§]	-0.185 (0.233)	-0.05 [§]
Years in Current Position			0.030 (0.012)	0.14	0.030 (0.012)	0.14
Percent of Land in Farms					0.000 (0.010)	-0.05 [§]
Constant	2.95 (0.166)		5.09 (0.690)		5.28 (0.732)	
R ²	0.157		0.461		0.464	
F	7.47		14.67		13.23	

^{*}Standard errors in parentheses

[†]Natural logarithm

[‡]Compared to government staff planners

[§]Not statistically significant (p>.05)

dence of planners' assessments of PDR support from the effects of the individual and occupational characteristics of respondents.⁵

Findings

Planners' assessments of both public and farmer support for PDR in the metropolitan Northeast cover a wide range, as indicated in Table 1. There are slightly more instances where farmer support is very strong, but overall differences between public and farmer support are not large. However, there are clear differences in the bases for variation in support levels. Table 2 shows that population grew by an average of almost 5 percent during the time period as farmland change averaged a 10 percent decline and change in farm numbers averaged a somewhat more moderate drop. Population growth was widespread. More than 70 percent of the counties in metropolitan areas grew in population during the 1980s, and this growth was scattered throughout the region. Farmland loss, on the other hand, was the norm. Farm numbers declined in about two-thirds of metropolitan counties regionwide. One third of the region's metropolitan counties recorded modest increases in farm numbers over the decade, and the farmland base stabilized in most areas of increasing farm numbers.

The figures in Table 2 also indicate a marked change in the agricultural product mix in the metropolitan Northeast. The largest average de-

cline in crop farms was for those specializing in cash grains. Specialized dairy, poultry, and general livestock farms also declined precipitously during the decade. On the other hand, fruit farms and less specialized general crop farms averaged strong increases. Perhaps most striking in terms of the redefinition of the countryside is the high average growth rate of animal specialty farms. Horses are certainly the most visible and important type of animal in this category of farms, and appear to be concentrated on small acreages [Pfeffer and Lapping, (b)].

The correlation coefficients in the third column of Table 2 indicate that almost all of the changes shown were positively associated with public support for PDR. Population growth itself creates greater demand for PDR. This finding is consistent with the notion that as urbanization proceeds, public demands for the preservation of the rural character of the area grow. Such efforts represent the attempt to create some ideal rural lifestyle. However, these findings also indicate that the stronger the drop in farm numbers, the less interest the public has in purchasing development rights. Presumably in those places where farm decline is most precipitous, there is less concern with, and perhaps less hope of, preserving the existing uses of the rural landscape, as in places losing conventional dairy farms. These farms have been the most likely to draw nuisance complaints from non-farm residents in urbanizing rural/urban fringe areas. The type of farm production most closely associated with higher public support for PDR is not clear. The growth in fruit farms, geographically concentrated in western New York, appears to be an example of the type of farming that is valued by the general public and leads to increased support for PDR.

Based on planners' assessments, farmer support for PDR is distinct from that of the public as indicated by the structural change correlates in the last column of Table 2. Most striking is the negative correlation with changes in farmland. An active land market increases farmer support for PDR. This finding points to one of the ironies of PDR programs; they are most successful when pressures for the conversion of farmland are most intense. In places where the number of fruit farms is growing, farmer support for PDR is stronger, as is true of public support. [For an expanded discussion of this point, see Pfeffer and Lapping, (a)].

To weigh the relative importance of the changes listed in Table 2 and to eliminate the possibility of spurious correlations, we regressed support for PDR on each of the change variables. Table 3 shows the results of ordinary least squares regression models estimating public and farmer support for PDR. We began our analysis

⁵ Change in farm numbers and acres of farmland are based on the 1978 and 1987 Censuses of Agriculture. Population change is computed from Census Bureau county

population estimates for 1977 and 1986. The indicator for whether or not a PDR program is available and implemented in the county comes from the survey data.

using the full array of variables mentioned earlier, and then selected the variables in the respective models using stepwise regression.⁶

The results of the regression analyses are generally consistent with those in Table 2. Changes in population, and fruit and dairy farms remained statistically significant predictors of public PDR support. The beta coefficients in the second column of Table 3 show that for these three change measures, fruit farms are of greatest relative importance in predicting public PDR support, followed by dairy and then population. The effects of these changes are independent of the statistically significant control variables in the model: county population size, percentage of land in farms, whether the planner works as a consultant to a public or private organization, and whether a PDR program is available in the county.

As already noted in the discussion of Table 2, changes in farmland and fruit and nut farms are significantly related to farmer PDR support, but percentage change in horticultural specialty farms is also statistically significant and negatively related to farmer support for PDR. Horticultural farms represent some dynamic enterprises that play a central role in redefining the countryside in urbanizing areas, the demands of homeowners for horticultural products and services. The negative parameter estimate for this variable suggests that this type of farming may be part of a strategy that farmers pursue to capture short-term marketing opportunities, while speculating on the longer-term value of their farmland. In urbanizing areas where the demand for horticultural products is strong, such farms increase in numbers, and support for PDR is relatively weak.

Conclusion

A large part of the popularity of PDR in the northeastern U.S. stems from urban development pressures affecting farmlands in rural/urban fringe areas. As such, PDR programs are part of an effort to redefine the countryside in a manner consistent with the consumption interests of nonfarm residents of the urbanizing areas.

The results of this analysis, based on planner assessments, show that population growth stimulates demand for PDR, presumably as nonfarm residents strive to maintain the rural ideal they sought in moving to the area. However, it is clear that the preservation of important forms of conventional agricultural production like dairy farming is not what they wish to conserve. Exactly what type of farm production they would encourage via PDR is unclear from the results of this analysis, and is probably unclear to the public.

Farmer support for PDR is essentially market driven. Population growth has no direct impact

on farmer support for PDR. In fact, urbanization may indirectly reduce farmer interest in such programs in the short run as they pursue lucrative market opportunities by serving the immediate consumption needs of nonfarm residents, or anticipate that future development will lead to even greater windfalls from farmland sales.

The problem for those who administer PDR programs is not only to assure that supply meets demand. As we have suggested elsewhere [Pfeffer and Lapping, (b)], if PDR is to be an effective farmland preservation tool, then policy-makers and planners must also design and implement programs to encourage nonconventional innovative farm enterprises that can operate profitably and in harmony with nonfarm residents in the rural/urban fringe environment. ❁

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⁶ Our examination of the variables and their correlations revealed no violation of OLS assumptions.