

FARMLAND CHANGE, URBANIZATION AND A CHANGING FARM ECONOMY

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Overview

- Farmland change has been a matter of concern over the past few decades, but the nature of that concern has changed from a concern with farmland deterioration to a fear of the loss of farmland.
- But farmland change has occurred in the context of urbanization which itself has changed over that same time period.
- Farm viability is heavily conditioned by macroeconomic conditions and that farmland protection efforts need to be tailored to specific local circumstances and local conditions.

About the Data

- The data presented in this Policy Brief are from Max J. Pfeffer, Joe D. Francis and Zev Ross, “Fifty Years of Farmland Change: Urbanization, Population Growth and the Changing Farm Economy” in *Population Change and Rural Society*. Edited by William A. Kandel and David L. Brown. 2006. Springer.
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Farmland Change, Urbanization, and a Changing Farm Economy

In the 1960s and 1970s, observers warned of the loss of farmland, specifically soil quality deterioration and conversion of fertile farmland to alternative uses. Subsequent studies concluded that most losses were of marginally productive land and that, even with the level of farmland change witnessed in the 1960s and 1970s, the supply of actively and potentially cultivated land could meet projected increased demand for farm produce. More recently, concerns about farmland have emphasized urbanizing regions.

Despite the overall abundance of farmland in the United States, its loss in urbanizing areas remains a major concern, not for overall supply, but for maintaining the rural character and quality of life of newly urban or urbanizing areas. With the spread of non-farm residences across the countryside, land use diversified, and farmland and related habitats fragmented. By the 1970s, rapidly expanding urban areas, especially on the east and west coasts, were encroaching on agriculture and raising concerns about the negative environmental impacts of continued low density development, or “sprawl.” For example, in 1950 officially designated metropolitan areas encompassed 136 million acres. By 1993 they covered 438 million acres, an increase of more than 200 percent in forty years. A 124 percent increase in population accompanied this

increase in metropolitan area. In some areas, the dispersal of residences across the countryside occurs without population growth (Pendall 2003). Low density development has led to population dispersal, as evidenced by declining metropolitan population density in the 1960s in conjunction with the creation of dispersed “edge” cities and loosely organized clusters of residential housing (Altobelli and Pfeffer 2000).

Development patterns that emerged in the 1970s created geographically extensive metropolises encompassing a wide variety of land uses. Metropolitan areas expanded to include extensive rural territories as people commuted to work from greater distances. Residents in these rural areas have significant and increasing transportation and communication linkages to urban areas and many are oriented to urban occupations and markets (Daniels 1999; Pfeffer and Lapping 1994). Metropolitan areas increasingly included expanses of agricultural, forested or otherwise “undeveloped” land between residences and clusters of industries. This form of development has been described as “leap frog” development or “rural/urban fringe” because it lacks a smooth or consistent land loss pattern. Houses and commercial enterprises are often constructed on large lots and isolated from other dwellings, creating fragmented landscapes.

In this metropolitan context farmland extends beyond agricultural production to include “multifunctional” uses (Pfeffer et al. 2001; Daniels 1999). Non-market benefits of farmland preservation include limiting urban sprawl, preserving open space, and protecting soil, air, and water quality. Metropolitan expansion also created markets for local farm produce and prompted the growth of roadside stands and farmers’

markets in the 1980s and 1990s. Metropolitan farms nationwide tend to operate intensively on smaller acreages and specialize in high-value horticulture. However, farmland conversion most often occurs when the proximity of public sewers, water, shopping, employment centers and major roads increase demand for land.

Overall Farmland Change 1949-2002

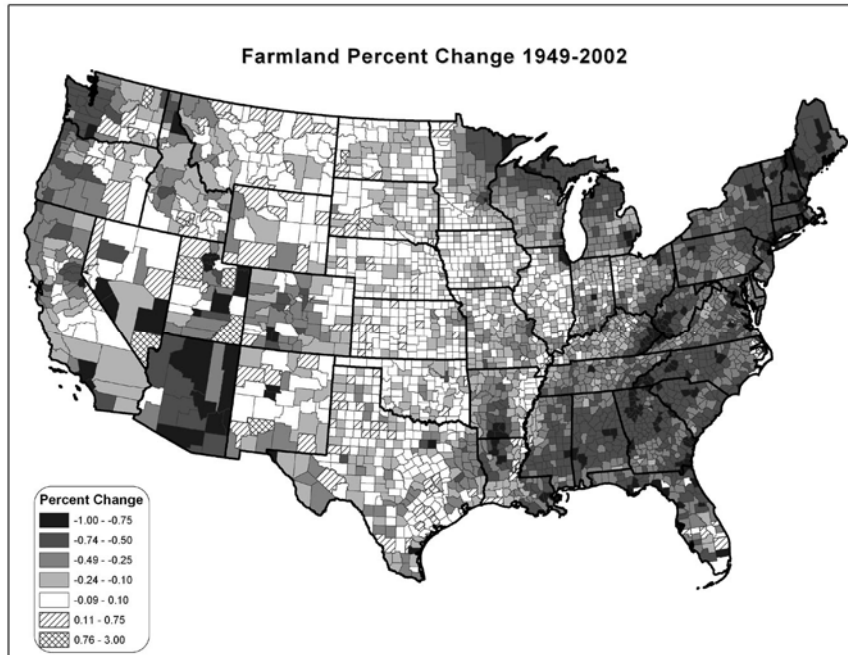
Statistics presented here use county-level data from the Censuses of Agriculture for 1949 through 2002 and the decennial Censuses of 1950-1990. Counties are the lowest geographical unit for which the Census of Agriculture reports information on a consistent and systematic basis, and Census of Population data are available for all counties. To ensure accuracy, a small number of counties with missing or suspect data, or that appeared to represent non-viable farming situations, such as heavily urbanized environments, were removed from consideration.

Total farmland in the continental United States has declined significantly over the past 50 years, from 1,151 million acres in 1949 to 921 million acres in 2002. Moreover, this change did not occur uniformly across the American landscape, as illustrated by the marked regional differences shown in Figure 1. Areas east of the Mississippi display some of the most pronounced change during this period. The decrease in farmland is concentrated in some distinctive regions. Some of the highest rates of change are concentrated in the “old South,” the southeast Piedmont, the Ozark Ouchita Plateau, the Ohio Valley, New England, and the northern reaches of Michigan, Wisconsin and Minnesota. High rates of change are also found in the far West, but areas with high rates of change are more scattered than they are in the East.

One area of concentrated farmland decrease in the West is the Seattle metropolitan area. The least change occurred across the great American heartland of the Midwest and the Great Plains. All regions of the U.S. experienced farmland decline between 1949

and 2002, but the greatest decreases occurred in the New England and South Atlantic Census Divisions. The lowest rates of decline are found in three Central and the Mountain Census Divisions.

Figure 1: County Farmland Percentage Change 1949-2002



Farmland Change and Metropolitan/Non-metropolitan Status

Farmland change over the past half century occurred in the context of urbanization. Table 1 shows counties grouped by size of metropolitan area. Between 1950 and 1993, metropolitan counties with populations over one million grew five-fold, smaller metropolitan counties more than double and nonadjacent nonmetro counties declined by

half. Moreover, as shown in Table 2 the largest metropolitan areas experienced the highest rates of farmland change, with rates of decrease almost four times greater than in nonmetropolitan non-adjacent counties. In 1949 farmland made up most land in each county category, but by 2002 farmland as a proportion of total land in the largest metropolitan areas was about half that in non-metropolitan non-adjacent ones.

Table 1: Counties by Size of Metropolitan Area

Metropolitan Area Size	1950		1993	
	N	Percent	N	Percent
Greater than 1,000,000	53	1.8	268	9.0
500,000 to 999,999	99*	3.3	142	4.8
250,000 to 499,999			173	5.8
Less than 250,000	97	3.2	198	6.6
Non-metropolitan, adjacent to metropolitan	767	25.7	1,147	38.5
Non-metropolitan, not adjacent to metropolitan	1,966	66.0	1,054	35.3
TOTAL	2,982	100.0	2,982	100.0

SOURCE: Glenn V. Fuguitt, University of Wisconsin.

*In 1950, the size of metropolitan area combines the 250,000 to 499,999 and the 500,000 to 999,999 categories.

Table 2: Farmland and Total Land by Metropolitan Area Size, 1949 and 2002

Metropolitan Area Size	Farmland Acres 1949	Farmland Acres 2002	Percent Farmland 1949	Percent Farmland 2002	Percent Change 1949-2002
1,000,000+	69,008,110	37,890,866	55	30	-45
500,000 to 999,999	48,991,586	26,271,755	53	28	-46
250,000 to 499,999	52,112,120	35,835,250	63	43	-31
Less than 250,000	83,235,870	64,211,905	65	50	-23
Non-metropolitan, adjacent to metro	427,151,192	333,576,382	61	47	-22
Non-metropolitan, not adjacent to metro	470,039,991	407,106,824	68	59	-13
TOTAL (000)	1,150,539	904,892,982	63	50	-21

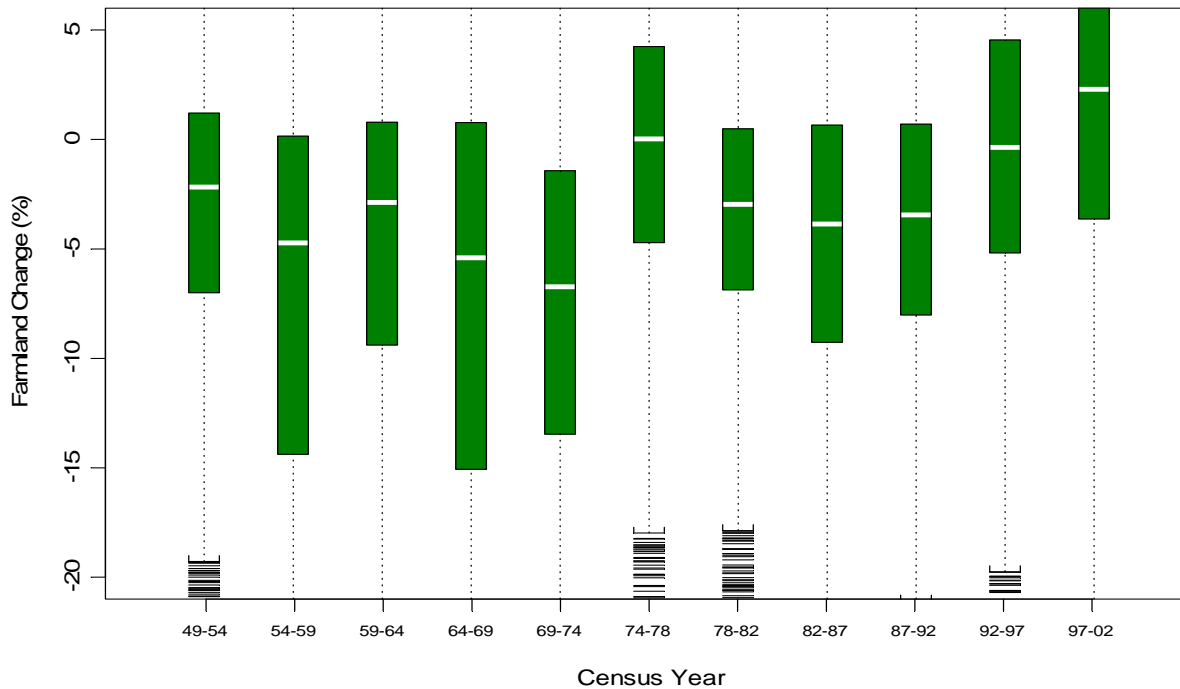
SOURCE: U.S. Census of Agriculture, 1949 and 2002

Period Differences in Farmland Change, 1949-2002

Within the overall changes between 1949 and 2002 discussed above, the rate of change for shorter time periods within this span varied considerably. This variation reflects the changing fortunes of the volatile farm economy. Data in Figure 2 show that the highest rates of farmland change occurred between 1964 and 1974, partly as a result of farmland loss from recurring farm crises. In the 1960s and late 1970s farm crises stimulated protests like the “holding actions” of the National Farmers Organization in 1967 and the “tractorcade” in Washington, D.C. instigated by the American Agricultural Movement in the late

1970s. The growing post-World War II economy created numerous employment opportunities for farmers who increasingly shunned agriculture or ceased farming marginal lands. In the eastern United States, much of this abandoned farmland was allowed to return to forest. On the other hand, the stabilization of farmland change reflects the export boom of the early 1970s when Secretary of Agriculture Earle Butz encouraged farmers to “plant fence row to fence row.” Period-effects shown in Figure 2 are associated with macro-economic factors and appear to be related to variation in the rate of farmland change.

Figure 2: Farmland Change for Eleven Intervals between Agricultural Censuses Since 1949



Conclusions

In previous analyses, the most important factor accounting for variation in farmland change has been the decline in the number of farms, a robust effect across all models fitted (Pfeffer et al. 2005). Farm viability is heavily conditioned by macroeconomic conditions, and these results suggest that such factors are most important in accounting for farmland change, and that farmland protection efforts need to be tailored to specific historical and local conditions.

Such findings are consistent with other analyses that call for greater attention to farm economics. They also suggest that farmland preservation efforts which do not address farm economic viability are likely to

fail. Policies should be designed to help farmers take advantage of multiple income earning opportunities. Such opportunities are most abundant in metropolitan areas and include the sale of products and services that cater to the growing urban population. Population growth bears both opportunities and constraints for agriculture. However, with careful local planning population growth can be channeled in ways that buffer farmland and create additional economic opportunities for farm enterprises (Daniels 1999). In some cases this may involve recognizing the multi-functionality of agriculture and compensating farmers for the economic value of non-market goods they provide (Pfeffer et al. 2001). While this approach holds promise, specific alternatives need to be evaluated to

determine when and where they might be most appropriate and effective (Batie 2003).

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