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Utah's Greenbelt Program Has Caused Unintended Effects on Farmland Protection

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Since the 1950s, the amount of farmland in the United States has decreased continually every year. According to the U.S. Department of Agriculture (USDA)'s 2022 Census of Agriculture, total farm acreage nationwide fell by 74.7 million acres, an area the size of Nevada, between 1997 and 2022. Utah is among the states that lost farmland during this period, experiencing a decline of 13%, primarily because of urban expansion (Siu, Li, and Caplan, 2023). This trend raises concerns about the effectiveness of the state's farmland protection policies.

This article highlights a recent study that assessed whether and the extent to which Utah's preferential farmland tax assessment program has protected the state's scarce agricultural land resources. The study shows that smaller agricultural parcels in Salt Lake County (home to Utah's largest metropolitan area) were protected by the program between 2010 and 2018, but an increasing number of larger agricultural parcels were developed for urban uses, a trend that undermined the program's conservation target (Siu, Li, and Caplan, 2023). These findings underscore the complexity of leveraging tax incentives for agricultural land conservation efforts and the consequent importance of thoughtful policy design and implementation.

What Is Preferential Tax Assessment?

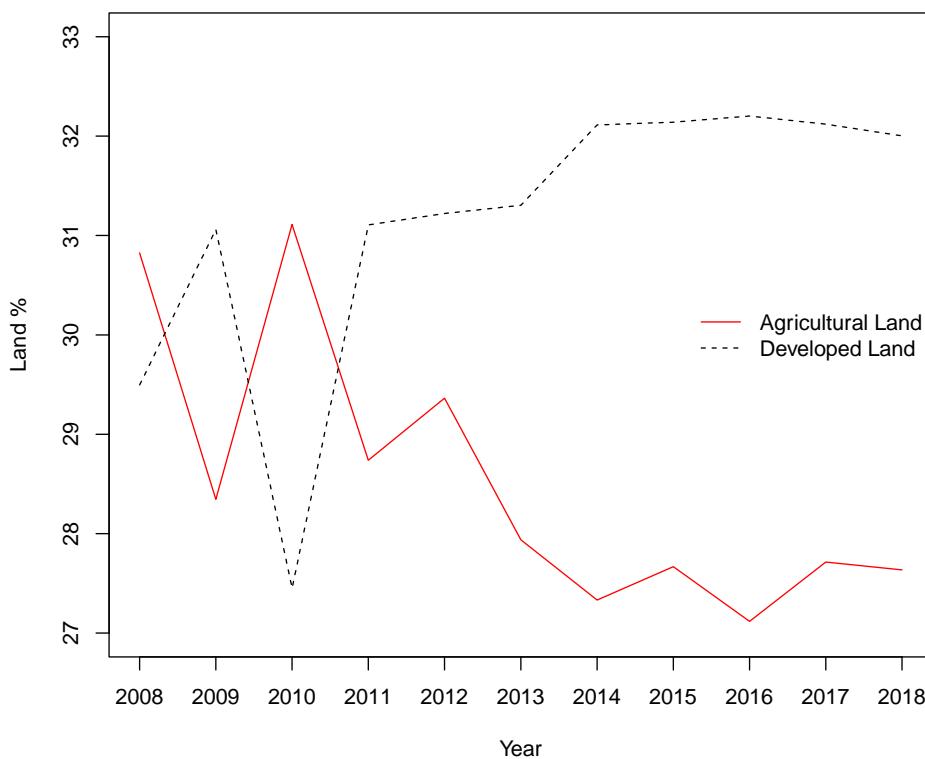
Preferential tax assessment (or use-value assessment) is a tool for land-use policy implemented by state or local governments to incentivize certain land uses, such as agriculture, forestry, or open-space conservation. Its purpose is to reduce property taxes for landowners who engage in activities deemed beneficial to the community or the environment by basing the tax on the property's current use other than its market value. This approach is meant to encourage landowners to retain the existing use of their property if its current use value is substantially below market value.

Preferential tax assessment programs are commonly designed to support land conservation efforts, including farmland, forestland, and open space used for agricultural production, timber production, wildlife habitat, recreational use, or scenic preservation. The programs help reduce the loss of valuable natural resources to development (Malem, 1993; Sundberg, 2012). Some states have adopted such programs with the aim of easing the pecuniary burden on farmers, especially as urbanization and development pressures cause land values to rise sharply.

Why Is Utah's Preferential Farmland Tax Assessment So Important?

Utah's preferential farmland tax assessment program is crucial to protecting the state's limited farmland resources. Utah relies primarily on preferential tax assessment policy for agricultural land conservation, unlike in other states that primarily use programs such as purchasing development rights or land-use planning to protect agricultural land. Utah has faced strong development pressures over time because of its rapid population and employment growth. For example, in 2019, Utah ranked first among all 50 states in total job growth and private-sector job growth, according to data published by the U.S. Bureau of Labor Statistics. Utah's population increased by 16% over the past decade, from 2.76 million in 2010 to 3.21 million in 2019, ranking second in the nation behind the District of Columbia (U.S. Census Bureau, 2019). The state's population is forecasted to nearly double, to 6.84 million, by 2060. Almost 80% of the population lives in a chain of contiguous cities and towns stretching along the Wasatch Front, a long and narrow metropolitan area consisting of a high concentration of prime agricultural land (Your Utah Your Future Staff, n.d.). As a result, Utah has experienced unprecedented pressure to convert agricultural land, with the share of agricultural land decreasing considerably over time (USDA-NASS, 2019), as exemplified by Salt Lake County (Figure 1).

Figure 1. Percentage Change in Agricultural Land and Developed Land of Salt Lake County, 2008–2018.



Source: USDA-NASS Cropland Data Layer. Adapted from Siu, Li, and Caplan (2023).

How Is Preferential Tax Assessment Carried Out in Utah?

Utah's tax assessment program, also known as the Greenbelt Act, was implemented in 1969. Like other states with similar programs, Utah's program has long promoted a dual goal: to support the agricultural industry by easing the financial burden on farmers and ranchers and to protect farmland by preventing it from being converted to nonagricultural uses (Utah State Tax Commission, 2020). The program strikes a balance between economic development and land conservation by providing tax incentives for agricultural land use, ensuring that valuable agricultural landscapes are preserved for future generations.

To qualify for Utah's Greenbelt program, landowners must meet certain criteria set by the state. First, the land must have been actively engaged in agricultural production for a minimum of 2 consecutive years immediately prior to the tax year in which the tax credits are granted. Second, the land is required to meet a 5-acre minimum. Parcels of agricultural land under 5 acres may still meet this criterion if the land is used exclusively for agricultural purposes, particularly to grow irrigated food crops (produce or orchard) alongside other qualifying land owned by the same individual or entity (Office of Legislative Research and General Counsel, 2016). Third, the land must generate a minimum level of

agricultural income. For a given type and location, the land must produce more than 50% of the average agricultural production per acre for that type and location (i.e., its county). In addition, the landowner must commit to using the land for agricultural purposes for a minimum of 5 years in order to remain eligible for the program's tax benefits.

Under the program, the Utah State Tax Commission determines fixed tax rates per acre each year for different types of croplands and grazing lands according to the quality of the land's soils, slope and erosion potential, drainage, climate, susceptibility to flooding, and management (Utah State Tax Commission, 2020). To receive the tax benefits, landowners are required to file an application annually. The county assessor then reviews the application and determines whether the land meets Greenbelt requirements for that year. Eligibility must be supported by federal tax returns, affidavits, lease agreements, sales receipts, and production records. When a landowner fails to provide evidence of eligibility, the owner is required to pay a rollback tax for a maximum of 5 years. The rollback tax is calculated as the difference between the tax paid during the Greenbelt designation period and the tax that would have been paid had the property been assessed at its market value (Utah State Tax Commission, 2020). The assessment process helps ensure that registered lands continue to meet the requirements of the program, while preventing

abuse of the program by landowners who may seek to take advantage of tax breaks without actually engaging in agricultural activity.

Concerns about the Effectiveness of Utah's Greenbelt Program

Utah is one of few states allowing agriculture to be a nonprimary use on parcels that qualify for preferential tax assessment, in contrast to some other states that require agriculture to be the primary use on qualifying parcels. This policy has raised concerns about whether and the extent to which Utah's Greenbelt program protects agricultural land from being converted to nonagricultural uses, as landowners would not necessarily be prevented from registering land for primary commercial use under a Greenbelt designation (Farm Progress Staff, 2016).

This concern is supported by data. According to the Salt Lake County Assessor's (2019) database and the Cropland Data Layer (CDL) developed by the USDA National Agricultural Statistics Service (USDA-NASS, 2019), between 2010 and 2018, approximately 74% of land parcels designated as Greenbelt in Salt Lake County were primarily used for agricultural purposes, but 14% of those parcels nevertheless underwent some form of urban development (panel A of Table 1). Here, development is defined based on the developed land cover classification identified by the CDL, which refers to areas with a mixture of some constructed materials and vegetation, with impervious surfaces ranging from less than 20% (open-space developed land such as large-lot single-family housing units and golf courses) to 80%–100% (high-intensity developed land such as apartment complexes and row houses). The remaining 26% of Greenbelt land parcels were used primarily for nonagricultural purposes, of which 23% underwent

urban development (panel B of Table 1). After all of these lands were developed, our analysis shows that approximately 80% of the county's parcels still retained their Greenbelt designations, regardless of whether they were primarily used for agricultural purposes. It indicates that designation as Greenbelt did not completely prevent land development and that most developed sites still enjoyed Greenbelt tax benefits after they were developed.

How Effective Is Utah's Greenbelt Program?

Our recent study evaluated the effectiveness of the Greenbelt program in protecting Salt Lake County agricultural land from conversion to urban uses between 2010 and 2018 and revealed its unintended consequences in stark detail (Siu, Li, and Caplan, 2023). The study shows that the Greenbelt program provided some protection to smaller agricultural parcels located in the county. Without the program, the annual conversion rate of these parcels, which are less than 5 acres in size, would have been slightly over 1% higher than the actual conversion rate. This difference translates into the protection of approximately 70 acres of agricultural land per year.

However, the study also shows an unintended consequence of the Greenbelt program, particularly concerning the county's larger agricultural parcels. Using an instrumental variable-fixed effects approach, we infer that the program increased the annual conversion rate for larger agricultural parcels (that is, parcels at least 5 acres in size) by 24.2%. It translates into approximately 14,450 acres of agricultural land in larger parcels located in Salt Lake County being converted to urban use each year as a result of the program. These findings suggest that tax incentives provided by the program stimulated

Table 1. Mean Characteristics of Greenbelt Parcels by Land Development Status in Salt Lake County, 2010–2018

	Total	Developed	Undeveloped
<i>Panel A: Primarily in agricultural use</i>			
No. of parcels	12,796	1,752	11,044
Average area in acres	25.8	58.2	20.7
% parcel in agriculture	86.3	79.9	87.4
% parcel in urban	1.3	9.6	-
Total area converted to urban use	2,060.3	2,060.3	-
No. of parcels remained in Greenbelt after land development	1,459	1,459	-
<i>Panel B: Primarily in non-agricultural use</i>			
No. of parcels	4,607	1,054	3,553
Average area in acres	41.2	23.7	46.4
% parcel in agriculture	23.3	18.4	24.7
% parcel in urban	9.1	39.8	-
Total area converted to urban use	1,211.6	1,211.6	-
No. of parcels remained in Greenbelt after land development	818	818	-

Source: Adapted from Siu, Li, and Caplan (2023).

urban development on portions of larger agricultural parcels, thereby undermining the program's conservation goals.

Overall, while the Greenbelt program appears to provide some protection to smaller agricultural parcels, its effectiveness in protecting agricultural land on larger parcels is called into question. The program's conservation effects may be offset by its unintended consequences, particularly for larger agricultural parcels.

How Big Is the Greenbelt Effect?

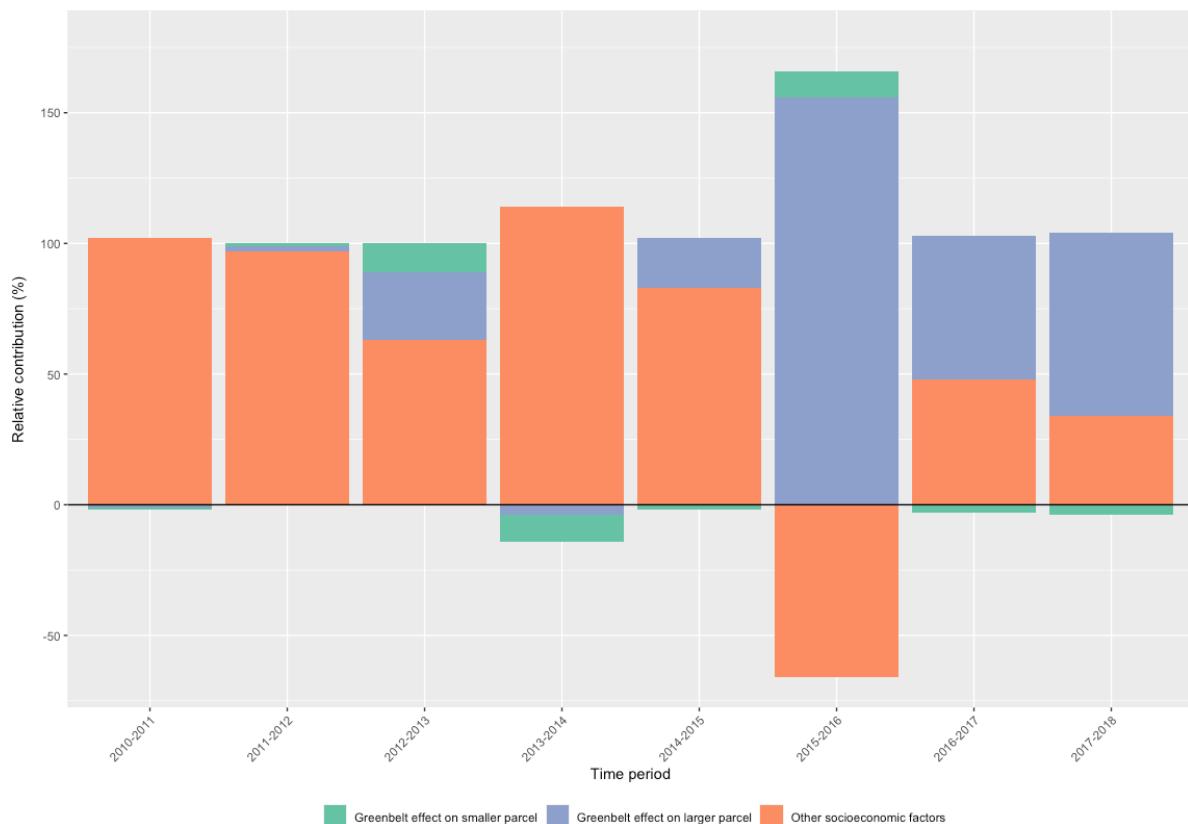
In addition to assessing program effectiveness, we also quantified its overall impact in Salt Lake County based on the aforementioned causal inference (Siu, Li, and Caplan, 2023). From 2010 to 2018, the county's rate of agricultural land conversion to urban use averaged approximately 22% annually. The minimal contribution of the Greenbelt program to protecting smaller agricultural parcels, averaging about 0.3% annually, largely explains this high conversion rate. In contrast, the Greenbelt program's contribution to the development of the county's larger agricultural parcels increased rapidly over time, rising from about 0% in 2010–2011 to 70% in 2017–2018, and peaking at almost 156% in 2015–2016

(Figure 2). These trends suggest that land conversion under the auspices of the Greenbelt program by owners of larger agricultural parcels within Salt Lake County has been increasing over time despite an overall decline in farmland conversion rates. Interestingly, an investigation of the evolution of agricultural land development in counties across the state shows that neighboring counties, such as Utah and Davis, both characterized by high population density, experienced a trend of urban expansion during 2011–2016 (Yang et al., 2018). This trend likely helped relieve the burden of urban development that would otherwise have occurred in Salt Lake County.

What Causes the Unintended Effects?

The rationale behind our findings is straightforward. If a Greenbelt parcel contains 5 acres or less of agricultural land, a prudent landowner is unlikely to convert any agricultural land to urban uses in order to maintain the tax benefits associated with that parcel. Therefore, for smaller agricultural Greenbelt parcels, one would expect to see minimal or negligible land-use change over time. Any deviation from this pattern would render the parcel ineligible for Greenbelt designation, resulting in the landowner facing a rollback tax penalty. In essence, the

Figure 2. Relative Contributions of the Greenbelt Policy to Agricultural Land Conversion, 2010–2018



Note: The contributions of three factors (Greenbelt effect on smaller parcel, Greenbelt effect on larger parcel, and other socioeconomic factors) to changes in agricultural land conversion rates over time are shown in the stacked bar plot.
Source: Authors' calculation.

Greenbelt policy serves as a deterrent against such actions on smaller parcels, thereby protecting agricultural land for continued use.

Our additional analysis shows that by categorizing Greenbelt parcels based on whether they primarily serve agricultural or nonagricultural purposes, the program has unexpectedly favored protecting agricultural land on the latter land type but has stimulated the conversion of agricultural land on the former land type. The findings suggest that landowners with a higher proportion of agricultural land on their Greenbelt parcels may be more inclined to exploit the program's tax benefits by converting some of their land to urban use or selling part of their property to developers. It further underscores the unintended effects of the program, raising concerns about the overall impact of the Greenbelt program on agricultural land conservation.

The findings highlight the need for careful consideration of the program's design and implementation, particularly regarding the partial development of agricultural land.

Discussion

Our findings confirm growing concerns about a loophole in policy that allows Greenbelt parcels to be used for nonagricultural purposes. The loophole could mean that other taxpayers could face increased taxes to subsidize farmland protection—a distributional effect that has been widely criticized and should be carefully weighed in public policy deliberations (Edwards, 2018; Scheckinger, 2023). Alternatively, the loophole may lead to reduced funding for public services. In response to these concerns, the Utah Legislature introduced House Bill 25 in 2016, which aimed to amend the Greenbelt Act to prevent individuals and corporations from the loophole. However, despite extensive discussions of potential amendments, the bill failed to pass.

This study's findings also have important implications for recent and ongoing legislation aimed at protecting farmland through taxes, such as the Urban Farming Assessment Act (UFAA) enacted by the Utah Legislature in 2012. The UFAA allows parcels of 2 to 5 acres in Salt Lake County to qualify for preferential tax assessment based upon agricultural use value, provided the land is used to grow food crops and meets certain production thresholds. Recently, the UFAA was revised to reduce the minimum lot size requirement from 2 acres to 1 acre. In addition, there have been suggestions that the UFAA be expanded to include Utah County, Utah's second most populous county after Salt Lake County. To ensure that such programs effectively protect farmland without inadvertently promoting urban development or redistributing tax burdens among taxpayers, policy makers must carefully develop eligibility criteria and tax incentives and implement rigorous monitoring and enforcement measures.

The implications of the findings from Utah's Greenbelt program extend beyond state borders, offering valuable insights for other states with similar preferential tax assessment initiatives aimed at farmland preservation. In addition to Utah, nine other states allow tax-preferred parcels to be used primarily for nonagricultural purposes, including Alabama, Alaska, Delaware, Maine, North Carolina, Pennsylvania, Rhode Island, Vermont, and Virginia. Our research highlights the need to carefully evaluate the effectiveness of preferential tax assessment programs in these states. The potential benefits of tax relief must be weighed against the risk of unintended consequences, and the interests of agricultural stakeholders must be balanced against broader conservation goals.

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