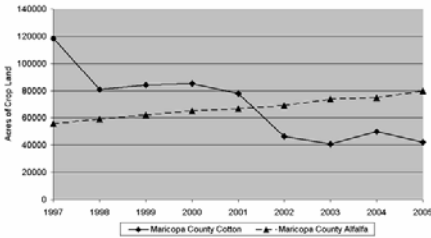


Declining Cotton Cultivation in Maricopa County, Arizona: An Examination of Macro and Micro-Scale Driving Forces*

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Abstract

Once the dominant location of cotton cultivation within the state of Arizona, Maricopa County has undergone significant changes during recent years, resulting in substantial shifts within the regional agricultural economy. The dramatic decline in cotton over the last nine years has prompted the question, what have been the major driving forces resulting in the pattern of decline experienced by Maricopa County's agricultural economy? As singular explanations of agricultural change are often insufficient, this research employs a methodology that combines macro-scale analysis of underlying (distal) driving forces, with interviews of cotton farmers to reveal how these forces have influenced their decisions through the mediation of other significant micro-scale factors. Pressure from the expansion of Phoenix's metropolitan region is identified as an important underlying driver of this land-use change, however fluctuations in the international price of cotton and favorable government subsidies are identified as additional key macro-scale influences on the extent of cotton cultivated. Interviews with growers highlight the importance of several micro-scale factors affecting the land-use decisions of farmers, including personal perspectives, family situations and the impact of negative externalities from sprawl on active cultivation. The recent decline in cotton cultivation in Maricopa County is determined to have resulted from a combination of factors, operating at multiple scales, resulting in the conversion of large tracts of farmland to urban developments.

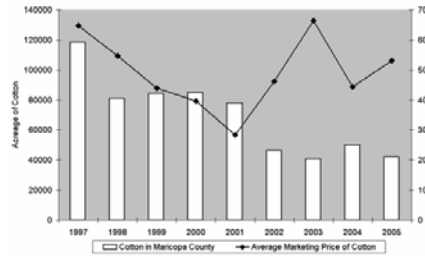


Introduction

The substantial loss of cotton acreage and the particularities of the decline pose interesting questions regarding recent changes in the agricultural economy of Maricopa County. The rate of decline for the county has been irregular, with losses following the 1997 and 2001 seasons accounting for much of the total. Comparing the changes experienced within the county to the state, it is clear that the county accounts for much of the total decline, and the area planted in cotton within the county has remained stagnant.

It is hypothesized that the reduction in total cotton acreage is indicative of wider land-use changes within the county, hinting at the economic shift away from agriculture, towards expansive commercial and residential developments. Urbanization is hypothesized to underlie the sustained decline in cotton agriculture in Maricopa County, however, this paper rejects the *a priori* application of economic land valuation as it fails to fully account for the pattern of land-use conversion witnessed. The specific manner in which urbanization has impacted the extent of the agriculture practiced within Maricopa County encompasses a range of macro and micro-scale forces that have mediated urban expansion into agricultural land.

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Macro-Scale Factors

Macroeconomics of Global Cotton Prices and Demand

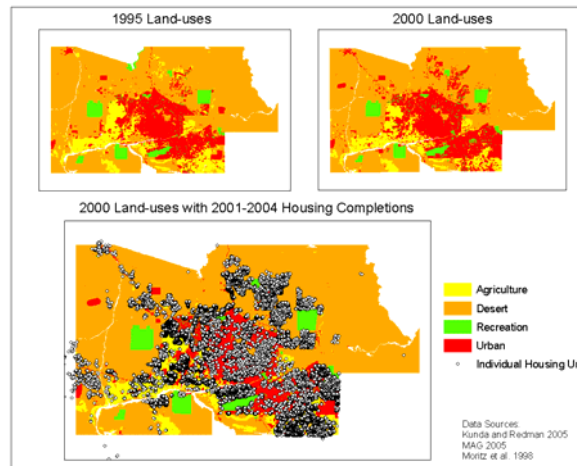
- ❖ 80% of AZ's production is exported, mostly to Mexico and China
- ❖ Cotton prices have some correlation to the declining acreage

Infrastructure and Institutional Support for Cotton

- ❖ Federal support for research and extension services
- ❖ Innovations in cotton agriculture by private institutions
- ❖ Arizona Cotton Grower's Association
- ❖ Favorable cotton subsidies

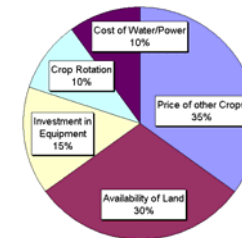
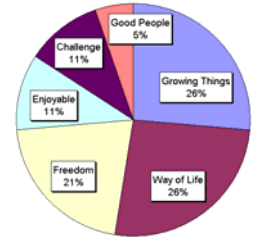
Urbanization in the Phoenix Metropolitan Region

- ❖ Provides financial incentive pull factor and negative externalities push factor



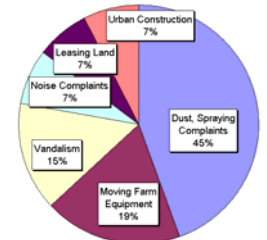
Micro-Scale Factors

When asked what they would list as the greatest benefits to being a farmer, the most common responses were the enjoyment of watching things grow and the generally favorable way of life. It is important to note that economic benefits did not make the list of reasons for any of those interviewed.



When queried as to the most important factors determining the number of acres planted in cotton, most responded that the favorable price of other crops was a significant factor, but land availability ranked a close second. However, comparing the decline of cotton in Maricopa County to the modest rise in acreage in alfalfa, it becomes clear that changing crop types cannot account for the total decline in cotton. Between 1997 and 2002, the county lost over 75,000 acres of harvested cropland, with cotton accounting for over 80 percent of that loss.

In addition to directly impacting the availability and affordability of land, urban sprawl also impacts nearby agricultural lands through a variety of negative externalities. The most prevalent difficulties cited by cotton farmers cultivating near urban developments were public complaints about dust and the spraying of crops, and the difficulty of moving farm equipment due to increased automobile traffic on public roads. Such impacts were found to undermine the perceived benefits of farming cited by those interviewed.



Conclusions

The persistently unfavorable economic climate for cotton has led many cotton growers to reduce their acreage of cotton. In addition, the relentless press of urbanization to acquire agricultural lands along the Phoenix metropolitan region's fringe has provided an opportunity for many to leave farming or to reinvest further a field from development and under more favorable economic circumstances. The decision to sell a particular field challenges the uncomplicated assumptions of economic land valuation as it was found to reflect micro-scale factors such as the negative externalities of existing developments and familial interest in continuing to farm. Additionally, cotton growers have clearly sought to manipulate macro-scale influences such as the conditions for subsidy assistance, institutional support and raising land prices to maximize their benefit. As a result, the decision to sell agricultural land to developers cannot be simply conceived of as a loss of agricultural land to urban land-uses. While it is true that the sale of agricultural land often results in the permanent consumption of productive farmland in urban sprawl, several farmers interviewed used the profits from land sales to reinvest in agricultural land outside of the Phoenix metropolitan region—shifting some cotton cultivation to regions outside Maricopa County.