



Understanding barriers and opportunities for adoption of conservation practices on rented farmland in the US



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ARTICLE INFO

Keywords:

Non-operating landowners
Absentee landowners
Operators
Rented farmland
Conservation barriers
Barrier expression

ABSTRACT

Agricultural conservation programs often focus on farm operators when promoting conservation practices. However, much of U.S. farmland is owned by landowners not directly involved in farm operations. Rental arrangements on these lands can dis-incentivize the adoption of conservation practices that could improve soil health, water quality, and land values. To date, agricultural conservation policy has largely ignored the role of non-operating landowners (NOLs) and rental arrangements. We help improve the evidence-base for policy by identifying barriers to adoption of conservation practices on rented farmlands. Analysis of forty interviews with NOLs, operators, farm managers and university extension personnel in Iowa, Illinois, and Indiana revealed five categories of barriers: cash rent lease terms, rental market dynamics, information deficits/asymmetries, cognitive/interpersonal, and financial motivations. Some barriers, such as risk aversion and farm aesthetics were expressed by both NOLs and operators, while other barriers, such as status quo bias and annual renewal of leases were only expressed by NOLs and operators, respectively. To overcome barriers to conservation, interviewees recommended improving communication between NOLs and operators and modifying cash rent lease terms in order to build in flexibility for equitable sharing of risks and rewards. Agricultural conservation programs could readily apply these results—possibly working with intermediaries (e.g., farm managers, lawyers)—to offer communication and lease tools and assistance to NOLs and operators. Future research should evaluate the efficacy of these conservation interventions and how intermediaries affect the balance of power between NOLs and operators.

1. Introduction

Most agricultural conservation programs focus on farm operators when promoting conservation practices that promote soil health and improved water quality such as cover crops, no-till and nutrient management (e.g., USDA-NRCS, 2018). However, 39 percent of all U.S. farmland is rented (USDA-NASS, 2015), and 80 percent of that rented land is owned by non-operating landowners (NOLs). NOLs are those who own farmland and rent it to a farm operator, rather than farming it themselves (Bigelow et al., 2016). There is some evidence that when the owner is not the operator, there is a lower probability of conservation practice adoption than on owner-operated land (Petrzelka et al., 2013; Soule et al., 2000; Ulrich-Schad et al., 2016).

Questions regarding how NOLs view conservation on their land and what motivates them to get involved with conservation are under-researched (Petrzelka et al., 2013; Ulrich-Schad et al., 2016). More work has investigated attitudes and behaviors of owners of other types of land, particularly private forestland owners (Finley and Kittredge, 2006; Rickenbach and Kittredge, 2009). However, our understanding of conservation attitudes and behaviors of NOLs and operators with respect to adoption of conservation practices on rented farmland remains thin. Using social and behavioral science to identify these barriers and approaches to overcome them is critical to designing successful, evidence-based conservation programs (Reddy et al., 2017). With the goal of filling this research gap, we present findings from interviews conducted with NOLs, operators, farm managers and university extension

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<https://doi.org/10.1016/j.landusepol.2018.09.039>

Received 19 February 2018; Received in revised form 28 September 2018; Accepted 28 September 2018

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personnel in Indiana, Illinois, and Iowa. In particular, we were interested in understanding the barriers to adoption of conservation practices that NOLs and their operators face. While limited past work has identified barriers for NOLs to adopt conservation practices (see Carolan, 2005), in this study, we focus on developing an understanding of the barriers faced by both NOLs and their operators. We also asked public (Extension) and private advisors what barriers they have found to adoption in working with clients. The barriers, as well as potential solutions, identified through interviews will improve the evidence base for sustainable agricultural and land use policy.

2. Literature review

Ownership of land by NOLs is growing worldwide (Petrzelka, 2012). In the U.S., NOLs of farmland are a unique population in comparison to farm operators. NOLs tend to be older than farm operators and are more likely than farmers to be female, with 37 percent of NOLs being female, compared to just 10 percent of farm operators on rented land (Bigelow et al., 2016). These owners tend to be either retired farmers, inheritors of family-owned land, or purchasers of land for investment or recreation (Petrzelka et al., 2012). Residential NOLs live on or near the land they rent or lease to others, while absentee NOLs live in a different county, state, or country from the location of their land (Ulrich-Schad et al., 2016). Comparing residential and absentee NOLs, absentee NOLs are less likely than residential NOLs to be from farming backgrounds or to have knowledge about agriculture (Petrzelka et al., 2012).

Only 18 percent of NOLs are involved in conservation practice decisions on their land (Bigelow et al., 2016), although NOL participation varies by the type of decision. Decisions on short-term farm management practices, such as cultivation practices, crop choice, and harvesting, are commonly made with no input from NOLs. Because farm ownership is an investment, NOLs are more likely to be involved in long-term decisions, including adopting permanent conservation practices such as contour terraces and implementing infrastructural improvements, such as tile drainage (Petrzelka et al., 2009).

Barriers to implementing conservation practices on farmland with NOLs have been acknowledged in the academic literature and white papers on U.S. non-operating farmland owners since the late 1970s (Pampel and van Es, 1977). Although there have been relatively few studies on this population, we use this extant literature to identify barriers in four primary categories: lease terms, information deficits, interpersonal or cognitive barriers, and NOL financial needs.

Lease terms – including lease length and type – have been identified as a barrier to conservation adoption. Seventy percent of leases on U.S. farms are single-year contracts (Bigelow et al., 2016). Yet while lease renewal is common – 84 percent of U.S. farmland acres have been rented to the same tenant for over three years (Bigelow et al., 2016) – evidence on the effect of annual versus multi-year leases on adoption of conservation practices is thin. Multi-year leases are often recommended to promote sustainable agricultural practices (e.g., Cox, 2011), or hypothesized to have an effect on conservation (Maye et al., 2009; Soule et al., 2000). But the effects of these arrangements are either not quantified, or not tested for statistical significance with respect to conservation adoption (Maye et al., 2009). Qualitative evidence points to the importance of multi-year leases for promoting soil health and conservation. Carolan et al. (2004) found that the uncertainty of one-year leases inhibited tenants' willingness to adopt sustainable practices, particularly those whose benefits accrue over time (e.g., cover crops).

Like annual leases, cash leases (as opposed to crop-share or flexible leases) are currently the most common type of lease (70 percent of agricultural leases) (Bigelow et al., 2016), affording both the NOL and operator the ease of an up-front acre price. In this arrangement, the annual rent is set, typically near the end of the calendar year, with no additional adjustments. In Carolan et al.'s (2004) study, operators thought cash leases made sustainable farming more challenging, because they concentrate risk on the operator. Cash rent is more risky for

the operator because the operator pays a set rent regardless of the harvest or input costs (Roesch-McNally et al., 2018). There is some quantitative evidence that cash leases are less likely than crop-share leases to be associated with adoption of conservation practices. For example, Soule et al. (2000) found that cash renters were less likely than share-renters to use conservation tillage.

Information deficits are a second category of conservation barrier identified in the literature. Carolan et al. (2004) found that farmers already engaged in or who were interested in getting into sustainable agriculture perceived extension and other agricultural advisers, traditional sources of agronomic recommendations, as lacking technical knowledge needed to advise tenants and landowners on sustainable methods. Conservation practice information rarely targets NOLs, especially NOLs living out-of-state or who do not fit the typical farmer profile, such as women or investors (Petrzelka et al., 2009).

Interpersonal or cognitive barriers make up a third category, including communication difficulties between a NOL and their operator stemming from geographic distance, power dynamics, gender, age, or status quo bias. Uneven power dynamics may exist between a NOL and operator, often in ways that deviate from a typical landowner-tenant relationship. Gilbert and Beckley (1993), for instance, found that the NOLs they surveyed had little to no power in their relationships with their tenants; most NOLs were "only passive recipients of rent" (p.570).

This dynamic is not always present, but can be exacerbated by age or gender. The average age of a farm operator is 58, while the NOL average is 66.5 (USDA-NASS, 2015). Petrzelka and Marquart-Pyatt (Petrzelka and Marquart-Pyatt, 2011) propose that older NOLs may be less active on their land than younger NOLs, and thus may be less likely to initiate conservation practices on the farm. Older NOLs may also be less likely to consider long-term alternative land uses such as agroforestry (Arbuckle et al., 2009). Power dynamics are particularly pronounced in relationships between female NOLs and male operators. Thirty-seven percent of principal NOLs are female, and they hold about 25% of the farmland acreage that was rented out in 2014 (Petrzelka et al., 2018). Female NOLs often feel a sense of exclusion from farm decisions and a lack of technical knowledge, which in turn may lead them to self-censor (Carolan et al., 2004; Carter, 2016). Female NOLs are generally less involved in farm decision making than males, including decisions pertaining to conservation (Constance et al., 1996; Petrzelka and Marquart-Pyatt, 2011). Supportive networks of conservation-minded NOLs can counteract some of these dynamics, although these networks are difficult to access when the NOL lives far away (Constance et al., 1996; Petrzelka et al., 2013).

On the other side of the relationship, operators may be hesitant to "rock the boat" of the relationship with their NOL by trying new conservation practices (Carolan, 2005). Agricultural fields have traditionally been seen as aesthetically pleasing if crop rows are straight, weeds are gone, and hedge rows are trimmed back. This view can clash with some sustainable practices, which encourage cover crops, field edge buffers, and/or leaving crop residue on the surface. Ulrich-Schad et al., (2016) found that 59 percent of in-state Midwestern NOLs and 39 percent of those out-of-state said that "keeping the land looking nice" had a lot of influence on their choice of renter.

NOL financial needs can also play a role in conservation decisions. NOLs who prioritize short-term rental income over long-term land value appreciation may be less motivated by benefits of sustainable agriculture, which often take many years to occur. Carolan et al. (2004) found that operators expressed a desire for information that compares the profitability of conventional practices to sustainable practices to defend their interest in sustainable practices to NOLs. A survey of NOLs in the Great Lakes Basin by Petrzelka and Marquart-Pyatt (2011) found that female NOLs' odds of involvement in conservation practices decreased when they indicated their reliance on the land for income as high, but this variable was not significant for male respondents.

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