How Do Crop Insurance Indemnities Differ for Black/African-American Farmers?

Exploring the Roles of History and Geography

Alice M. Kilduff, North Carolina State University, amkilduf@ncsu.edu

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Introduction

The Federal Crop Insurance Program (FCIP) is a cornerstone of the farm safety net in the U.S. Previous research has found some evidence for differences for Black/African-American producers in key program metrics, such as participation and loss ratios. This project investigates whether there is evidence for different levels of indemnities for Black/African-American producers and examines how geography and history may influence these differences.

Background

- **Only 6.4% of Black/African-American farmers are enrolled in crop insurance,** compared to 14.7% of white farmers (Belasco et al. 2023).
- Previous literature has found some evidence for **higher loss ratios (corn and soy) and lower loss ratios (cotton)** in counties in the Southeastern U.S. with higher proportions of Black/African-American producers (Teal and Stevens 2023).

While premiums are set in a standardized fashion by the Risk Management Agency, insurance agents have greater discretion when it comes to claims adjustments.

Research Questions

- Do Black/African-American farmers receive different indemnities from crop insurance?
- If so, to what extent are any differences driven by individual discriminatory actions or by structural racism?
- **Hypotheses:** If indemnities are
  1. **Lower:** Claims denied that should be approved (interpersonal discrimination)
  2. **Lower:** Expected value of production systematically lower (structural/historical bias)
  3. **Higher:** More likely to experience downside risk (structural/historical bias)

Methods

The model estimated is given:

$$Indem_{c,t} = PropBL_{c,t}\alpha + X_{c,t}\beta + CountyEffects + YearEffects + \epsilon_{c,t}$$

- $Indem_{c,t}$ - Indemnities ($) in County c in year t
- $PropBL_{c,t}$ - Proportion of operators in County c who identify as Black/African-American in year t
- $X_{c,t}$ - Time- and county-varying controls, including weather (Growing Day Degrees, precipitation) and insurance variables (coverage level, plan type)

Three versions of the model are estimated:

1. **Two-Way Fixed Effects Model** for all crops and all counties.
2. **Subset to states with legal slavery in 1860** (Fig. 2).
3. **Only include confounding covariates from conceptual model**, shown in (Fig. 3).

The Role of Geography

Black farm operators are concentrated in the Southeastern U.S., often in counties where the proportion of the population that was enslaved in 1860 was the highest. This may influence both exposure to discriminatory behavior and factors such as land quality, crop choice, and farm size.

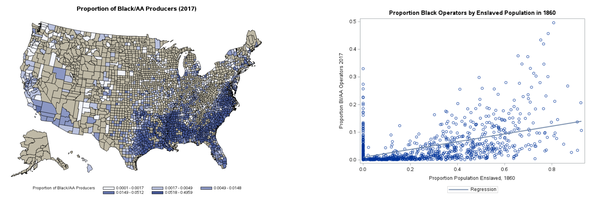

Figure 1. Many Black/African-American operators are located in areas where slavery was prevalent in 1860.

The sample is restricted to all states in which slavery was legal in 1860: AL, AR, DE, FL, GA, KY, LA, MD, MO, MS, NC, SC, TN, TX, VA, and WV.

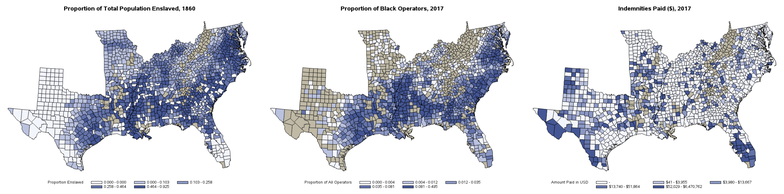

Figure 2. Locations of Black/African-American operators and indemnities paid (2017): Legacies of slavery?

Conceptual Model

In situations like this, it is difficult to provide a direct causal interpretation of race. Rather, race is a proxy for a complex tangle of contemporary and historical factors. Just examining the direct "effect of race" on crop insurance outcomes might ignore the ways in which other business characteristics, such as farm value or captial stock, may be systematically different for minority farmers.

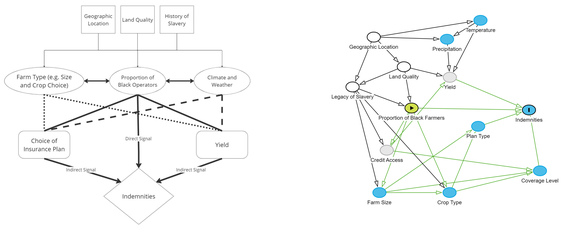

Figure 3. Conceptual model (left) and DAG (right)

Location, land quality, and the historical presence of slavery may influence the presence of Black operators today. These are accounted for in Model 3. Furthermore, many other covariates can be shaped by race, so the full extent of race-based differences may be masked by the initial model.

Data Sources

Covariates	Data Set	Institution
Demographics	Census of Agriculture (2007, 2012, 2017)	USDA and ICPSR
Insurance	Summary of Business	USDA RMA
Weather	PRISM	Oregon State University
Land Quality	NRI	USDA NRCS
Historical Demographics	US Census 1860	ICPSR

Results

Preliminary results suggest 1% Increase in proportion of Black operators is associated with $1,900 fewer indemnities in counties with history of slavery. When explicitly controlling for the prevalence of slavery in 1860, a 1% Increase in proportion of Black operators associated with $1,300 fewer indemnities in these same counties.

Model	(1)	(2)	(3)
Prop. Black/AA Producers	124,550.74	-192,273.98***	-134,995.42**
	(107,835.82)	(71939.96)	(55,104.42)
Prop. Enslaved, 1860	-	-	-19,564.12
	-	-	(13,411.92)
Erosivity	-3,809.49***	1,830.16	1,911.63**
	(1,447.78)	(1,445.74)	(889.24)
Acres in Farmland	0.49***	-0.05	0.01
	(0.02)	(0.03)	(0.02)
Fixed Effects	Yes	Yes	Yes
Sample	All States	Southeastern Subset	Southeastern Subset
Additional Controls	Yes	Yes	No

Next Steps

Alternative empirical approaches will be explored, including quantile regresssion to capture the effects of extreme outliers on results. Spatial dependence may be better modeled by a spatially explicit model. Additional years (2002 and 2022) will be added to expand the panel. The sample can be restricted to specific crops or insurance plan types, and transformations of the dependent variable will be considered (taking logarithms or indemnities per acre).

References

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Acknowledgements

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