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Agricultural Service Disparities between White and Non-White Farmers Provided by the Federal Extension Service during the Jim Crow Era

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ABSTRACT. The Federal Extension Service (FES) of the United States Department of Agriculture (USDA) was segregated during the Jim Crow era. FES farm agents provided agricultural education and outreach; they answered questions in office, hosted meetings, and made farm visits. Agents also ran 4-H, which educated youth about agriculture through camps, and demonstrated farming activities carried out by participants. This study investigated whether segregation of services led to disparities between white and non-white (mostly African American) farm operators and families among four South Carolina regions. We compared the level of service provided to white and non-white operators and youth based on data from the federal extension reports of 1947 as well as the South Carolina census of agriculture from 1945 and 1950. The difference in acreage operated by white and non-white farm operators was accounted for in analyses. We found disparities between white and non-white farm operators in some of the services provided, including calls and telephone calls, farm visits, meetings, and meeting attendance. However, there were no significant differences in 4-H participation or demonstrations between white and non-white youth. In conclusion, the study demonstrated differences in services provided to white and non-white operators. The degree of disparity of services for white versus non-white operators was similar among the four South Carolina regions. Racial disparities in 4-H-related participation or level of engagement were not detected. Reduced levels of FES service to non-white farmers may have limited opportunities for agricultural production and income.

JOSÉ LEONEL RAMÍREZ SOLÍS

I initially got involved with undergraduate research at the end of my undergraduate career because I wanted the opportunity to work independently and put my biological background to the test. Dr. Montgomery was kind enough to provide me with an interesting topic for research along with his support. The topic of interest was to investigate the segregation of agricultural services in the Jim Crow era and its effect on service equality in South Carolina. As I began to learn the history, I gained a lot of interest in revealing the consequences of segregation through science! My favorite part of the research experience was making sense of the collected data and being able to visualize through graphs how discrimination towards non-white farmers and children led to disparities in their services. Overall, this experience gave me a great deal of satisfaction with the skills I have acquired as a student of USC Upstate. In the near future, I hope to complete a graduate program and eventually attend medical school. This experience gave me the confidence to work alongside faculty and to draw my own conclusions by following the scientific method. I would advise students interested in conducting research to study something of interest to them and to really learn the topic before diving into the writing. Take some significant time with the literature and really use all available resources to get a deeper understanding of the topic. Currently, I am working as a medical assistant for a local urgent care facility. Furthermore, as a hobby, I study classical guitar at the Strings at Lawson Academy at Converse College and in my spare time, I coach tennis and travel to tournaments!

BENJAMIN R. MONTGOMERY is a plant evolutionary ecologist with an interest in the ecology and evolution of plant pollination strategies. Ben started studying pollination biology as an undergraduate and continued in this field at the University of Michigan, where he earned his PhD. He pursued post-doctoral research at Indiana University before arriving at USC Upstate in 2010. He has recently published in Plant Sciences Bulletin and has presented research at multiple Botany meetings. Ben is excited about José's research, which represents a departure from traditional botanical work. He explains "Underrepresentation of scientists from marginalized groups is a problem in botany and related fields. Given that agriculture extension and 4-H educational programs were avenues for training relevant to botany, I was interested in whether segregated extension services provided reduced services to Black farmers and youth. José pursued this topic by scouring census and extension reports to build and analyze a data set. He also delved into the existing literature about disparities in segregated extension services to contextualize his findings. His work lends quantitative support to the body of research showing that services to Black farmers and youth were unequal during a period of segregated extension."

Introduction

Racial disparities between African Americans and white people have existed throughout the United States history and were evident at the peak of segregation during the Jim Crow Era. Within this era, the lower-class status of African Americans was codified in the American south, for example, by the separate and unequal segregation of public schools. Other public services such as the United States Department of Agriculture's (USDA) Federal Extension Service (FES) also promoted racial segregation by providing unequal services and opportunities for African Americans [1]. The FES was responsible for providing agricultural services through farm agents who answered questions in office, made farm visits, and hosted meetings and 4-H camps for the youth in order to enhance agricultural output in the United States.

Crosby [2] and Harris [3] have reviewed the history of the FES with regard to racial disparities. The passage of the Smith-Lever Act of 1914 allowed cooperative control of extension work to be shared among federal, state, and local governments and prohibited private funding from outside of a state for extension work. This was considered by scholars a way for southern congressmen to take control of local demonstration work and reduce the number of black agents in the program [2]. Consequently, African American extension work in the southern states was placed under the administration of white land-grant colleges. The segregation of the extension service led to unequal funding, services, and opportunities in the southern United States. For example, in 1950 the average salary of extension workers in South Carolina was $2,791 for a black county agent compared to $4,297 for a white county agent [4].

The South Carolina agricultural education program that would evolve into 4-H was led by the Cooperative Extension Service at Clemson University as early as 1914 with the passage of the Smith-Lever Act [5]. These clubs promoted hands-on learning for the youth through individual agricultural projects, demonstrations, and record keeping focused on improving rural life. Club members competed at county, state, and national levels for awards, prizes, and educational opportunities. The 4-H program for white youth developed earlier and was much more extensive [1], while most of the participation and types of activities and were the same for both races [5]. The state of South Carolina began funding and operating a statewide camp for white youth in 1933. Later, despite many challenges, local black extension leaders gathered enough community funding and support to establish the first statewide African American 4-H camp of the United

States in South Carolina [1]. Segregation of the national 4-H camps was maintained from their inauguration up until the late 1960's. This was due to several factors including expressions of support for segregated camps from African American FES agents whose tenuous employment compelled them to support agency positions [1]. The 4-H camps in South Carolina were eventually desegregated with federal pressure and the passage of the Civil Rights Act of 1964 which prohibited extension agents from assisting clubs where segregation continued [4].

The purpose of this study was to determine if segregation of the extension program led to quantifiable agricultural service disparities between white and non-white farm operators and families during the Jim Crow era in South Carolina, with the non-white group being predominantly African American. This study analyzed the extent of service provided to white and non-white farm operators and 4-H programs by looking at county level data from federal extension reports of 1947 as well as the South Carolina census of agriculture from 1945 and 1950. We hypothesized that FES services provided in South Carolina would be significantly greater for white than non-white farmers and youth even after accounting for differences in amount of acreage operated and number of operators between the two groups.

Methods

To evaluate the relationship between racial category (white and non-white) and services provided, we analyzed FES reports as well as census data. Using the Clemson libraries digital archive, we located the segregated white and African American extension service reports from 1947 (only year digitally available). We collected county-level data for number of operators (farm owners, part owners, managers, tenants, and croppers) for white and non-white operators from the 1945 USDA National Agricultural Census for South Carolina (County Table V Part 2 – Farms by Tenure of Operator, Censuses of 1945 and 1950) and acreage operated by white and non-white operators from the 1950 USDA National Agricultural Census for South Carolina (County Table 2a – Farms by Color and Tenure). From the extension reports, we collected data on services provided by the FES per county such as farm visits, different farm visits, calls and telephone calls (summed and treated as a single variable in our analysis), meetings, meeting attendance, number of 4-H participants, and number of 4-H demonstrations completed. Calls are in-person visits to an office by an individual or group seeking agricultural or economic information. Telephone calls differ from calls as the information is provided via telephone call which may be outgoing or incoming. The 4-H completion ratio was calculated by dividing the number of participants by the number of demonstrations completed. We divided counties into four regions (Upstate, Midlands, Pee Dee, and Low Country). We transposed farm visits and different farm visits for Bamberg and Kershaw County to correct transposition errors in the original extension reports. Only the 29 counties of the state's 46 counties for which both reports were available digitally in the Clemson archive were analyzed; the remaining counties lacked African American extension agents (C. Harris pers. comm.). Agronomical data, such as crop yield and number of crops for which information was available in the reports per county, was also collected but is not reported here.

We analyzed data using linear mixed effects (lme) models with the nlme-package in R statistical software. Counties were analyzed as a random effect and all other variables were analyzed as fixed effects. Acreage operated was included in analyses of services provided to distinguish between effects of farm size and effects of racial disparities. We initially omitted acreage operated from variables related to farmer and youth participation (meeting attendance and 4-H related variables) because we expected individuals to be similarly motivated to seek services to maximize production or educational opportunities regardless of the amount of land

they operated. However, we also reanalyzed these variables including acreage operated to determine whether omission of this variable affected analyses.

Results

There was significantly more acreage of white than non-white operated farms on average per county, and there was no difference in the acreage operated in the four South Carolina regions (Table 1A). In the analysis including number of operators and acreage operated, there were significantly more farm visits to white operated farms than non-white operated farms (Figure 1A), and there was no difference in the number of farm visits among the four South Carolina regions (Table 1B). In the analysis including number of operators and acreage being operated, there were significantly more calls and telephone calls in white operated farms than non-white operated farms (Figure 1B), and calls and telephone calls did not differ by region or by number of operators (Table 1C). In the analysis including number of operators and acreage being operated, there was no difference in the number of meetings by race or region (Figure 1C; Table 1D). In the analysis including number of operators but not acreage operated, meeting attendance was significantly lower for non-white than white farmers (Figure 1D; Table 1E). However, in reanalysis including acreage operated as another covariate, the effect of race on meeting attendance became only marginally significant (p-value = 0.09).

The 4-H results showed that in the analyses including number of operators, there were no differences between white and non-white youth for number of participants (Figure 2A, Table 2A), demonstrations completed (Figure 2B, Table 2B), or demonstration completion ratio (Figure 2C, Table 2C). Adding acreage operated to the analyses did not meaningfully change statistical significance for any of the 4H-related variables.

Discussion

The results reflect that even after accounting for the difference in acreage operated by white and non-white famers, there were still more services provided on average for white than non-white farmers as indicated by multiple variables. Some difference in service could be explained by the fact that there was more acreage operated by white than non-white farmers. However, even after accounting for this variable there were still disparities. This is evident for farm visits as well as calls and telephone calls, with a similar trend for the number of meetings. Non-white farmers could have had less access to telephones than white farmers, contributing to the difference in calls and telephone calls. The disparity in services statewide is substantially greater than suggested by within-county comparisons because most or all counties not analyzed here did not have any black extension agents (C. Harris pers. comm.). Consequently, if our analysis had included all counties, disparities in services would have been substantially greater.

The higher meeting attendance by white compared to non-white farmers was also significant. We speculate that this might be due to transportation disparities. Once acreage operated was included in the analysis, the statistical significance of effect of race on meeting attendance between races became non-significant, which suggests that the difference in acreage operated may account for the racial disparity in meeting attendance in the initial analysis. Therefore, we cannot tell whether meeting attendance relates to race or if the difference in attendance was due to non-whites having less acreage to operate.

While there were racial disparities in services provided and used by operators, there were no differences in 4-H participation or demonstrations between white and non-white youth during the late 1940s among the counties we analyzed in the four South Carolina regions. However,

disparities would likely have been greater in the counties we omitted from analysis due to not having Black agents. The data for the ratio of participants to demonstration completions displayed no difference between the two races indicating a similar level of engagement between white and non-white participants. This suggests a similarly high level of support for 4-H in the African American communities. This could have been a result of agent leaders like Harry Daniels, state supervisor of African American extension work, who raised enough money and support needed to improve 4-H camp opportunities in South Carolina. Furthermore, 1946 was considered to be a pivotal year for the challenge of racially discriminatory practices post-World War II [1]. This challenge might have led to increased 4-H support for the African American youth.

Our study has a number of limitations. First, we only analyzed 29 out of 46 counties in South Carolina due to the absence of several 1947 extension reports from the Clemson libraries digital archive. Second, we compared 1947 extension report data to 1945 and 1950 census data, because the 5-year census cycle did not coincide with the year for which digital extension reports were available. We did not compare the number of white and non-white agents as another measure of services, and future research could address this. Lastly, we did not compare crop data to extension service data to observe possible agronomical disparities between white and non-white operators.

In summary, this study demonstrated that there were substantial differences in extension services provided to white and non-white operators after accounting for differences in acreage and/or number of operators. The study demonstrated no differences in the disparity of services provided among the four South Carolina regions for white and non-white operators. Similarly, we did not observe differences in 4-H-related activity between race or region of South Carolina after accounting for differences in the number of operators. The lower level of extension service provided to non-white farmers, most of whom were African American, could have resulted in lower agricultural productivity and reduced income, thus reinforcing economic disparities in the state.

Acknowledgements

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Table 1: ANOVAs of linear mixed effects models (lme's) for effects of number of operators, acreage operated, race (white, non-white), and region (Upstate, Midlands, Pee Dee, Lowcountry) on the following variables: acreage operated (A), farm visits (B), calls and telephone calls (C), meetings (D) and meeting attendance (E). Some analyses included only a subset of independent variables.

ANOVAs

(A) *Acreage operated*				
-------	numDF	denDF	F-value	p-value
(Intercept)	1	28	225.93	<.0001
Region	3	25	0.27	0.8492
Race	1	28	121.37	<.0001
(B) *Farm visits*				
-------	numDF	denDF	F-value	p-value
(Intercept)	1	25	320.40	<.0001
Number of operators	1	25	19.09	0.0002
Acreage operated	1	25	35.75	<.0001
Region	3	25	0.97	0.4239
Race	1	25	6.33	0.0186
(C) *Calls + telephone calls*				
-------	numDF	denDF	F-value	p-value
(Intercept)	1	25	141.65	<.0001
Number of operators	1	25	2.77	0.1084
Acreage operated	1	25	56.92	<.0001
Region	3	25	0.41	0.7472
Race	1	25	11.76	0.0021
(D) *Meetings*				
-------	numDF	denDF	F-value	p-value
(Intercept)	1	25	311.11	<.0001
Number of operators	1	22	25.03	0.0001
Acreage operated	1	22	40.35	<.0001
Region	3	25	2.76	0.0632
Race	1	22	3.56	0.0725
E) *Meeting attendance*				
-------	numDF	denDF	F-value	p-value
(Intercept)	1	25	59.80	<.0001
Number of operators	1	24	6.12	0.0209
Region	3	25	1.37	0.2761
Race	1	24	23.03	0.0001

Table 2: ANOVAs of linear mixed effects models (lme's) for effects of number of operators, race (white, non-white), and region (Upstate, Midlands, Pee Dee, Lowcountry) on the following variables: 4-H participants, 4-H completions, and 4-H completion ratio.

ANOVAs

(A) *4-H participants*

------	numDF	denDF	F-value	p-value
(Intercept)	1	25	467.49	<.0001
Number of operators	1	21	25.98	<.0001
Region	1	21	0.26	0.6123
Race	3	21	1.76	0.1855

(B) *4-H completions*

-------	numDF	denDF	F-value	p-value
(Intercept)	1	25	349.47	<.0001
Number of operators	1	22	18.08	0.0004
Region	3	25	0.28	0.8279
Race	1	22	2.33	0.6321

(C) *4-H completion ratio*

-------	numDF	denDF	F-value	p-value
(Intercept)	1	25	556.38	<.0001
Number of operators	1	20	0.28	0.6041
Region	3	25	0.35	0.7878
Race	1	20	1.44	0.2446

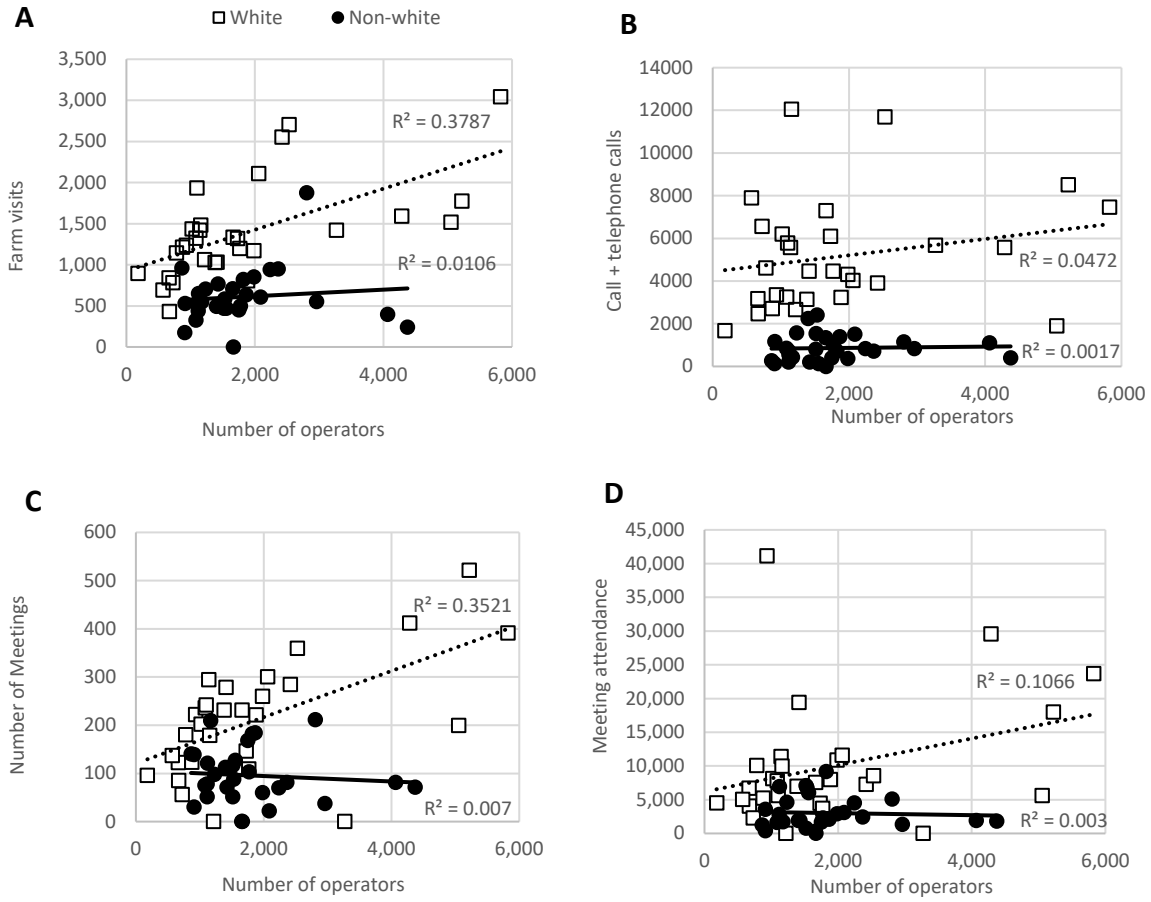

Figure 1: Relationship between number of operators and farm visits (A), calls + telephone calls (B), number of meetings (C), and meeting attendance (D) for white (squares) and non-white (circles) operated farms with linear best fits and coefficients of determination for each racial category.

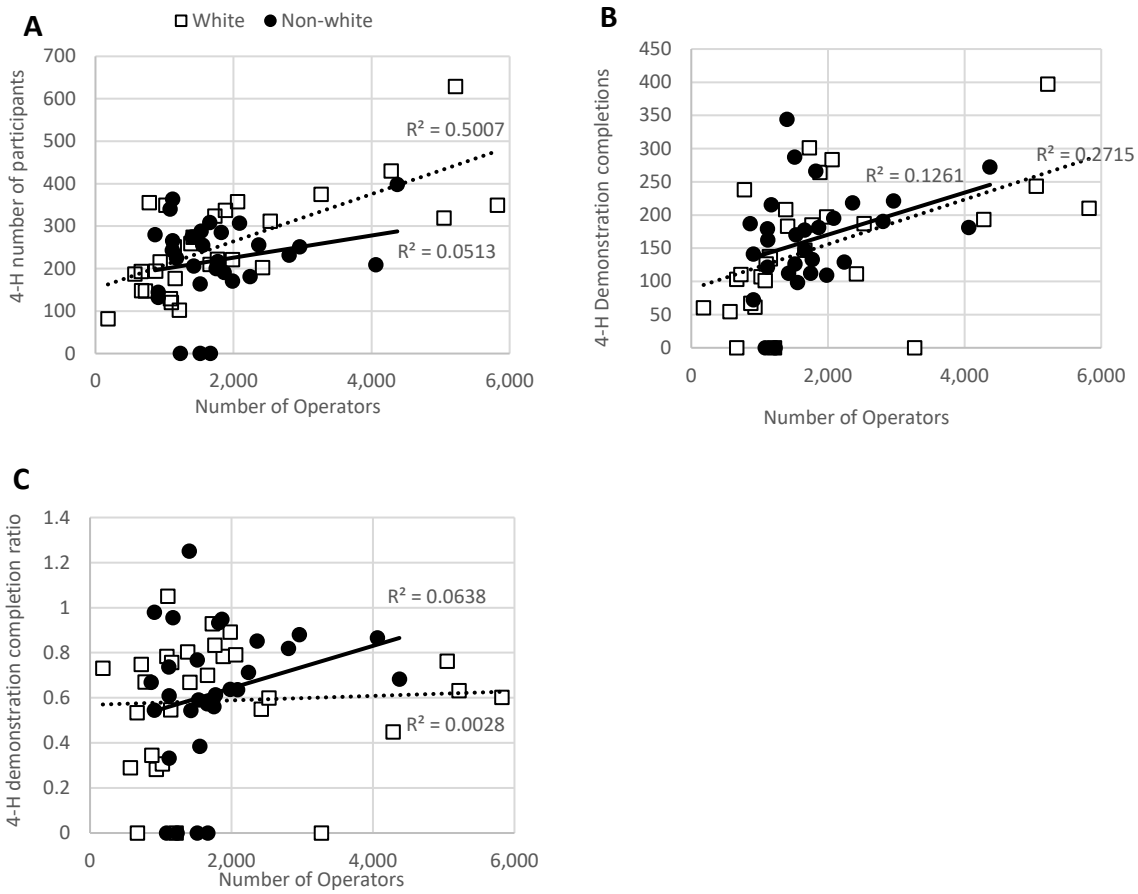

Figure 2: Relationship between 4-H number of operators and number of 4-H participants (A), 4-H demonstration completions (B), and 4-H demonstration completion ratio (completions per participant) (C) for white (squares) and non-white (circles) operated farms with linear best fits and coefficients of determination for each racial category.