POWER FOR THE PUBLIC GOOD:
ENERGY, RACE AND CLASS IN THE UNITED STATES

by

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Dedicated to...

Jesse, Lola Mae, Suzie, Beverly and Leon (*my foundation*),

Jerrilyn, Jordyn, Janelle and baby peanut (*my future*),

Jesus (*my forever*)!

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ABSTRACT

Racial discrimination has led to measurable disparities in many domains, including such areas as housing, education and banking. Numerous studies within these domains of social and economic life illustrate that discrimination is a significant barrier to the full and equitable deployment of products and services to those who need or desire them. However, very little research exists for understanding the existence and impact of discrimination specifically within the energy domain. This absence of examination prompted the central question of this dissertation: To what extent does discrimination directly impact access to electricity?

Utilizing the Tennessee Valley Authority (TVA) as the site of investigation, I approached the central question by asking three sub-questions: 1) does electric utility ownership mode matter in the delivery of energy services; 2) did discriminatory practices exist in the policy formation and implementation of the TVA; and 3) how and to what extent does discrimination impact outcomes of energy distribution and access in the United States today? Because the study of discrimination can be a complex mix of social, political and economic dynamics, I applied quantitative and qualitative tools to this investigation. The application of multi-methods research is consistent with historical and policy studies that seek a comprehensive understanding of how discrimination originated, its effects, and its on-going impacts.

Through this research, I argue that the TVA operated from a discriminatory framework and suggest that the racialized context within which the TVA existed led to discriminatory outcomes that run counter to the TVA's original vision and goals. One central finding of this research is that certain groups were systematically excluded from access to, and thus the benefits of, energy. Having identified outcome differences that may be attributed to discrimination, I also identified measurable impacts of this discrimination.

This dissertation is significant in that it is the first systematic examination of the role that group differences (race and class) play in access to electricity. The findings speak to the need for additional research to better understand the impact of energy discrimination on various populations and to more closely examine the role of energy policies in fostering or preventing discriminatory outcomes.

Thesis Supervisor: J. Phillip Thompson

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Table of Contents

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1 – INTRODUCTION

"We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness." –The Declaration of Independence, July 4, 1776

Since its infancy, the United States has struggled to live up to its creed that all men are created equal and that all men are endowed with certain rights—rights that cannot be taken or given away. This struggle has at times been evident and disruptive, at times it has been subtle and ubiquitous, but it has never ceased. It has been a struggle around whether or not individuals are treated differently based upon the group, class or category to which they belong (i.e., discrimination)[1]. Periods in history when the creed seemed a fragile and distant ideal have experienced such atrocities as the wholesale annihilation of indigenous populations, the violent enslavement of free labor, and the legal denial of basic rights and privileges solely on the basis of skin color. Yet moments of victory, when the creed was a firm pillar close enough to be grasped, have successfully achieved the likes of emancipation from slavery, women's suffrage, and legal protection from discriminatory practices.

No matter the period in history, scholars have found great insight from studying the existence and impact of discrimination within various domains of social life. These domains include, but are not limited to, areas that have significant bearing on daily life—for example, housing, education, lending, business, health and transportation. The impetus for exploring discrimination's role is often the existence of unexplained inequities and the goal of the exploration is typically to understand

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[1] This is a very limited framing of discrimination. A more comprehensive discussion will be outlined in later sections.

[2] In economics, "public good" is defined as a commodity or service that is provided without profit to

discrimination's role in preventing equity, e.g., housing equity, education equity or healthcare equity. Indeed, discrimination has led to measurable inequities in many domains: from housing and education (Galster 1992, Fix and Struyk 1993, Yinger 1997, Farkas 2003), to banking and farming (Davis 1935, Trotter 1996), to employment and policing (Noue 1997). Studies of "social and economic life" illustrate that discrimination is a significant barrier to equitable deployment of products and services to those who need or desire them (Blank, Dabady et al. 2004).

The energy domain, despite its significance and centrality to modern existence, is conspicuously absent from the list of domains that have been explored by scholars. Through this first of its kind research, I explore the existence and impact of discrimination within the energy domain—specifically discriminations impact on access to energy. Using studies from other domains as a starting point this research probes the relationship between discrimination and energy access to better understand if the power is truly for the public good.

This chapter begins by framing discrimination and the energy domain. It then details the focus of this dissertation and outlines the key research questions that guide this inquiry.

Race and Class Discrimination

While there are many forms of discrimination, I focus primarily on race discrimination with a more limited discussion of class discrimination. Chapter 2 – Literature Review, provides greater detail regarding the various forms of discrimination and the role of both race and class discrimination in determining social outcomes.

By race, I am referring to the social construct that categorizes a group of people based upon their physical characteristics. This definition is a simplified version of one espoused by the economics professor Glenn Loury, in his book *The Anatomy of Racial Inequality* (2009). He defines race as a "cluster of inheritable bodily markings carried by a largely endogamous group of individuals, markings that can be observed by other with ease, that can be changed or misrepresented only with great difficulty, and that have come to be invested in a particular society at a given historical moment with social meaning". This definition acknowledges, as does sociologist Eduardo Bonilla-Silva, that race is a "social reality", which "produces real effects on the actors racialized" (Bonilla-Silva 2010). Similarly, by class, I am referring to the social construct that categorizes a group of people based upon their economic standing.

Significance of the Energy Domain

The energy domain is important because it is central to our modern quality of life and arguably our existence (Nader and Beckerman 1978, Pasten and Santamarina 2012). Globally, energy is one of the key ingredients in all productive, subsistence and leisure activity (Khamati-Njenga and Clancy 2003). This centrality has led to consistent calls for energy to be a public good[2], more specifically that energy be "accessible to all" (Colton 1990). Energy is framed as fundamental to modern society so much so that development and quality of life are totally dependent on energy supply (Gomez-Exposito, Conejo et al. 2008). Modern transportation, healthcare, housing, communications and education systems are

[2] In economics, "public good" is defined as a commodity or service that is provided without profit to all members of a society, either by the government or a private individual or organization

wholly dependent upon adequate access to energy. Yet access to energy is a pervasive and growing concern for low-income groups and certain racial groups. Geography Professors Conor Harrison and Jeff Popke, in their article that explores the impact of energy policy in rural North Carolina, introduced the term *energy poverty* to describe a "situation in which a household cannot afford to maintain their home's indoor temperature at a level that allows for a comfortable or healthy lifestyle" (2011). While this definition of energy poverty does not comprehensively describe the global (in the geographic sense) situation, it does adequately describe a relatively unstudied condition that many low-income individuals in the United States have to deal with. For example, in 2012 the average annual U.S. household energy expenditure was $3000[3]. The poverty threshold (below which 16% of the population lived) for a family of four in that same year was approximately $23,000[4]. Low-income households tend to have a combination of less energy efficient homes, greater health challenges, greater distances to travel for employment, and fewer low cost health food options. Thus, it is no wonder that they are at times left unable to adequately heat or cool their homes[5]. In other words, the cost of energy disproportionately impacts low-income people and people of color (Sovacool 2009). To highlight the importance of energy for people of color, the American Association of Blacks in Energy (AABE) and the National Association for the Advancement of Colored People (NAACP) released reports outlining several concerns regarding the

[3] Data Source: **EIA State Energy Data System**
[4] Data Source: US Census Bureau
[5] Not to mention the possible reality that there are limited incentives for landlords to provide appropriate energy services for tenants.

provision of energy to communities of color[6], including concerns around vulnerability to energy prices and energy related health affects (Patterson 2013) (AABE 2004).

Energy has been key to the development of industrial society, which was premised on "improving the standard of living, and increasing discretionary wealth and leisure time by replacing human effort with mechanical, electrical, chemical and other nonhuman energy" (Ball 1977). Simply put, energy is important.

It is my perspective that such an important domain requires the level of investigation received in other domains, and yet gaps exist.

Is the lack of study because aspects of the energy domain make it immune to discrimination[7]? This is not true. Evidence has been collected showing rural Black farmers being denied access to electrification, despite the fact that their farms were geographically more appropriate than White farms[8]. In their examination of President Franklin Roosevelt's New Deal project, The Tennessee Valley Authority, Professors Alderman and Brown note that, "while earth engineering is obviously a technically- and physically-based process, it is also a social practice that involves and impacts humans in selective and sometimes negative ways. Megaprojects bring about dramatic change, but they also play a more under analyzed role in reproducing traditional power relations and maintaining control over marginalized groups such as racial and ethnic minorities" (Alderman and Brown 2011).

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[6] Both reports refer to communities of color, however they almost exclusively refer to African-American communities. This point in no way minimizes the reports' relevance to non-African-American communities.

[7] The Massachusetts Department of Public Utilities found evidence of discrimination against the poor in electricity conservation programs Colton, R. D. (1990). "Discrimination as a Sword for the Poor: Use of an Effects Test in Public Utility Litigation." Wash. UJ Urb. & Contemp. L. **37**: 97..

[8] Rural Electrification Administration Appraiser appendix, 1949.

Is the lack of scholarly study on this topic because the impact of discrimination within the energy domain is miniscule? This is also unlikely, given the 1987 case brought by the Massachusetts Department of Public Utilities (Mass DPU) against Western Massachusetts Electric Company. The case found that programs offered by utilities in Massachusetts unreasonably discriminated against the poor (Colton, 1990, p. 125). Organizations such as The Energy Equity Alliance and The Emerald Cities Collaborative, have organized to provide a "voice for low income and minority energy consumers on national and state issues impacting energy safety and affordability, and environmental pollution"[9] and "advance a sustainable environment while creating greater economic opportunities for all"[10]. These organizations were created and gained traction specifically because inequities, impacting people of color and low-income people, were evident within the energy domain. Additionally, energy related health issues have been explored in great detail by Dr. Robert Bullard (1993). Professor Bullard[11], often referred to as the "father of environmental justice", explains that part of the energy equation for people of color is to realize the significant negative impact (air pollution, industrial pollution in school, waste from power plants, etc.) of certain energy and energy systems.

Is the lack of research because the technical nature of the domain is too rigorous for Civil Rights activists to comprehend? Is it because the regulatory

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[9] http://energyequityalliance.org
[10] http://emeraldcities.org
[11] Professor Bullard is the Dean of the Barbara Jordan-Mickey Leland School of Public Affairs at Texas Southern University. He is the author of numerous books on sustainable development, environmental racism, urban land use, climate justice, emergency response, smart growth, and regional equity.

regime of the energy domain is not transparent? Is it because end user energy costs are historically low relative to the costs of housing or education, thus removing the economic concern? Is the perception of energy one of being less critical to the public than other domains? Any number of these factors may have contributed to the dearth of analysis. Regardless of the factors contributing to the lack of study of discrimination in the energy domain, energy is important to our way of life and energy equity is vital for access to that way of life. It is therefore important to understand if discrimination plays a non-trivial role within the energy domain.

Dissertation Focus

This dissertation focuses on and explores the social dynamics of what has historically been seen as an exclusively technical domain—in part because the issues and challenges are highly technical[12]. However Thomas Hughes, in his examination of how technology and culture interact, notes that technical problems have a substantive and substantial relationship to social dynamics (Hughes 2004). These social dynamics range from political influences to religious inspirations.

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[12] For example, the provision of electricity is a topic of conversation that dominates public policy and popular media from the global to the local scale Lovins, A. B. (1976). "Energy strategy: the road not taken." Foreign Aff. **55**: 65, Al-Faris, A. R. F. (2002). "The demand for electricity in the GCC countries." Energy Policy **30**(2): 117-124, Moniz, E. (2011). "Why we still need nuclear power: making clean energy safe and affordable." Foreign Affairs: 83-94, Severance, C. A. (2011). "A Practical, Affordable (and Least Business Risk) Plan to Achieve "80% Clean Electricity" by 2035." The Electricity Journal **24**(6): 8-26, Everett, R., G. Boyle, S. Peake and J. Ramage (2012). Energy systems and sustainability: power for a sustainable future, Oxford Univerity Press, Hawken, P., A. B. Lovins and L. H. Lovins (2013). Natural capitalism: the next industrial revolution, Routledge.. Yet, full-scale deployment of clean, safe and cheap energy faces enormous challenges Smeloff, E. (1997). Reinventing electric utilities: Competition, citizen action, and clean power, Island Press, Armaroli, N. and V. Balzani (2007). "The future of energy supply: challenges and opportunities." Angewandte Chemie International Edition **46**(1 - 2): 52-66, Wolfson, A., D. Tavor, S. Mark, M. Schermann and H. Krcmar (2011). "Better Place: a case study of the reciprocal relations between sustainability and service." Service Science **3**(2): 172-181.; challenges that have been commonly understood, framed, and shaped as technical problems to be overcome by new widgets. Technical problems like the topography of fuel sources, geographic distance to the end user, safe storage of useful energy, reduction of waste by-products, and the efficient management of load are by no means trivial.

This idea that social dynamics could play a role in technological development led me to more deeply explore whether or not race and class are social dynamics that are as influential in the energy domain as they are in other domains.

What I quickly found was that with limited exceptions— focused on either employment within the energy domain (Grant 1990) or the environmental impact of energy on people of color and low-income people (Bullard 1993)—an examination of the dynamic of race within the energy domain is missing. Bullard examines the byproducts (costs) of energy production and consumption for their impact. In the case of Nancy Grant (1990), the focus was on the employment practices of a federal energy initiative, the Tennessee Valley Authority. Her investigation was an important instrumental (yet underutilized) body of work. However, it did not explore the key facets of the energy lifecycle; i.e., the generation, transmission and distribution of energy. I also found a limited number of advocacy and non-scholarly pieces that speak to the relationship between energy and race and/or class. What was missing from both was an academic analysis of discrimination as it relates to some or all aspects of the energy lifecycle.

A comprehensive study of discrimination within the entire energy domain is beyond the scope of this dissertation. Such a study would require an examination across many energy types from heat to electrical to nuclear energy; all facets of the energy life cycle, from generation to transmission to distribution; multiple geographies that range from urban to rural—anywhere around the globe; and across many periods in history. Building off of the question of "absence", I chose to

explore three lines of inquiry: *a quantitative exploration of the way utilities deliver certain technologies and services; a mixed methods examination of a particular case for the existence of discrimination;* and *a comparison of group outcomes to understand differences that emerge over time.* Each of these lines of inquiry led to specific research questions that are outlined in the methodology section.

I narrowed the investigation to electricity in the United States. The facet of the energy cycle that I concentrated on is distribution, specifically access and delivery. Distribution is the part of the energy cycle that most directly and consistently engages individuals (end users). I selected a federally owned utility, the Tennessee Valley Authority (TVA), as the case study (my site of investigation). The TVA is interesting for a number of reasons, not the least of which is its scope and scale, which I discuss in a later section. This case draws the study to the geography of the U.S. South and a time-period from the 1930s until the early 2000s. I give particular emphasis to the 1930s-1940s, which is when the TVA began its work. In the next section, I provide a detailed description of the scope of this dissertation and explain why this particular scope was chosen. I then lay out the specific research questions that guided the research.

Electricity

To better understand whether race and class discrimination play a role within the energy domain, I focus specifically on electricity. Electricity was chosen for two primary reasons: it has become ubiquitous and essential to life, and because there were distinct and well-documented periods in history when electricity spread throughout the US Electricity is also a reasonable focus area because it is essential to

nearly every aspect of our lives[13]. It is needed for financial transactions, it is used to purify water and prepare food. Nearly every occupation—from farming and construction to education and hedge fund management—requires electricity for economic success. We use it to disseminate knowledge and communicate in emergencies. Electricity is now embedded in nearly all transportation vehicles. We utilize electricity for social desires and medical needs alike. Even as we walk along the streets and sidewalks, electricity is traveling beneath and above us. Electricity has become fully integrated in the way of life in the U.S.

The second reason for focusing on electricity is because there were distinct periods in the history of the United States when electricity usage experienced significant growth. These periods include pre-electrification; the early electrification of primarily urban areas; the state regulation of privately owned electric utilities; the expansion of municipal ownership of electric utilities; the growth of federally owned electric utilities; and the expansion of electricity into rural areas. These periods are well documented by engineers and scientists, business owners, policy makers, politicians, advocacy groups, academics, community groups and the media. All of this documentation and analysis provide a rich basis from which to pull useful information.

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[13] In the truest sense, electricity has been known since the time of Ancient Egyptians, when they called the electric fish the "Thunderer of the Nile". It was not until the 17th Century that physician-scientist William Gilbert began to carefully study electricity and magnetism. He conducted extensive experiments on the lodestone, a magnetic iron ore that was used in the magnetic compass. His experimentation, which he included in his seminal work *De Magnete* Gilbert, W. (1958). De magnete, Courier Corporation., led him to make the first clear distinction between magnetism and static electricity. This seemingly simple distinction is one of the core foundations for the manipulation of electricity. With a "slight wave the hand" and a "fast-forward through time" we are now in the 21st Century where electricity is ubiquitous.

Distribution and Access

I decided to further narrow my focus to the third of the three stages of the energy cycle—distribution, which is the stage that precedes access. Typically, and simplistically, electricity includes generation, transmission and distribution. There is a wealth of information available on each stage of this cycle, so I will resist the temptation to expound in great detail here. Generally speaking, generation is the stage of the energy that is concerned with turning a resource (primarily natural, i.e., coal, natural gas, wind, solar) until useful energy (electricity for example). Transmission is the stage of the energy cycle that is concerned with transporting the useful energy from the site of generation to within relatively close proximity of the site of use. Distribution is concerned with taking the useful energy and distributing it the "last mile[14]" to the user. This final stage, distribution, is the stage that includes the most data on individual users (data on access and consumption) of electricity. For this reason, it is an adequate and preferable stage for investigation.

Electric Utility Ownership Types

I elected to analyze a federally owned utility because of one key factor: availability of data. From the utility type perspective, there are two broad categories of ownership, private utilities and public utilities. Each broad category has its own distinct characteristics. Private utilities, which are called investor-owned utilities (IOUs), issue stock to investors, sell bonds, and are regulated at the state level by regulatory commissions (Warwick 2002). Public utility ownership consists of municipally owned utilities, cooperatively owned utilities and utilities owned by the

[14] The "last mile" is a term used to describe the movement of people and goods from a transportation hub to a final destination in the area.

federal government—federally owned utilities. There is also what some consider a third class of utilities that are called holding companies (Warwick 2002). Holding companies are corporations that own subsidiary companies, and these subsidiary companies house the utility operations. Holding companies are not under state regulation. They are, however, regulated by the Security and Exchange Commission (Arzi, Shedlesky et al.) at the Federal level. The Public Utilities Holding Company Act of 1935 (PUCHA) provided the SEC with this regulatory authority.

The Energy Information Administration (EIA) collects and evaluates data from each category of utility and has been doing so for nearly half a century. EIA data was enormously useful to my work in this dissertation; however, federally owned utilities were even more useful because of their need for Congressional approval and oversight, have extensive, well archived records on the beginning and evolution of individual utilities in addition to the EIA data. This rich availability of data was instrumental in my decision to select federally owned utilities.

Tennessee Valley Authority

More specific than just federally owned utilities, I selected the Tennessee Valley Authority (TVA), created by a Congressional Charter in May 1933. Currently the nation's largest public power provider, the TVA was created to address a wide range of environmental, economic, and technological issues throughout the Tennessee Valley Region. The Charter included the delivery of low-cost electricity and the management of natural resources[15]. The scale and original scope of the TVA make it an interesting case to explore relative to the expansion of electricity

[15] Act of May 18, 1933 (Tennessee Valley Authority Act), Public Law 73-17, 48 STAT 58

throughout a large but well-defined geographic region. The TVA was a massive federal investment that was intended to benefit all citizens—according to President Franklin Roosevelt. It laid the foundation for rural electrification and industrialization of the Tennessee River Valley and has been called one of the largest and most significant megaprojects in United States history (Reed 2001, Boyce 2004). Of course, the TVA was not without its share of critics:

> "Utility executives argued that there would be no market for the power TVA dams would produce; Representative Joe Martin of Massachusetts declared the TVA was 'patterned closely after one of the soviet dreams'; and *The New York Times* commented: 'Enactment of any such bill at this time would mark the 'low' of Congressional folly'" (Leuchtenburg 1963).

The TVA was created not only to bring renewed life to the Tennessee Valley, but was also to "treat all the valley inhabitants fairly regardless of race, giving each equal consideration" (Grant 1990). This promise, made by TVA leadership, was of great importance, especially in light of the extreme racial discrimination occurring in the Tennessee Valley states in the 1930s. It is highly unlikely that this promise was met, given the unmet promises of other New Deal programs. Political scientist, Professor Robert Lieberman, in his study of Social Security for example, found that there are historical and political roots of enduring racial conflict in American welfare policy, beginning with the New Deal (2014). Because the TVA was a significant part of Roosevelt's New Deal, this unprecedented level investment, juxtaposed against a landscape of discrimination (the Jim Crow South in the 1930s) and a promise of equality, provided me the opportunity to study those geographic

areas that were "treated" with investment of electricity and those that were not—as a means of measuring impact.

1930s South

In order to study the Tennessee Valley Authority, the discussion has a geographic dimension pertaining to the U.S. South circa 1930s-1940s. A challenging and interesting function of selecting the U.S. South in the 1930s is that this was the region and time-period that can be considered ground zero at a peak in U.S. racial tensions. "Jim Crow"[16] was alive and rampant; the Great Depression had ravaged the economic conditions of the country; and the Industrial Revolution had taken hold. Taken together, these set the stage for discrimination to exist in any and all domains, including the energy domain. The question remains as to whether or not racial animus played on this stage. Karen Ferguson, Professor of History and Urban Studies at Simon Fraser University has studied this era in her book *Black Politics in New Deal Atlanta* (2002). In it, she explores how President Roosevelt's "New Deal opened unprecedented opportunities for black Atlantans struggling to achieve full citizenship the intricate relations", yet she also notes the lasting negative repercussion of southern social interactions at that time.

Progression of Electricity in the United States

The development and progression of electricity in the United States is important contextual understanding. From a technology perspective, this progression of electricity arguably began with Thomas Edison's Pearl Street electric

[16] Jim Crow was a series of laws that were in response to the progress that blacks achieved immediately after the Civil War (The Reconstruction Era). These laws were intended to be a constant reminder that blacks were subject to the will of whites and were relegated to a permanent subordinate position to whites.

power generating station—which powered a few dozen customers in the lower Manhattan area of New York in the late 1800s, and eventually moved to the electrification of isolated rural areas by the Rural Electrification Administration (REA) several decades later. From a utility industry perspective, this progression began with the development of the investor owned electric utility and would eventually include government owned electric utilities and those owned by groups of individuals working cooperatively together. In the following sections, I briefly explore this progression of electricity (in the context of the United States)[17].

Early electrification, state regulation and municipal expansion

At the turn of the 20th Century, electrification won praise as a new technology that would "revolutionize home and industrial life[18]" and by 1907, twenty-five years after Thomas Edison's central station, the Pearl Street power station, in New York City, electricity was seen as a "necessary service"[19]—a power necessary for the public good—and was provided by a few privately owned utilities. A utility typically provides commodities and services that are considered vital to the general public. These electric utilities were under state regulation, particularly with respect to pricing and service terms and conditions. In part because of their perceived overall benefit to society, they were also granted certain rights, called monopoly rights: which are rights that result from it being more efficient, from a long-term cost perspective, for a single firm to be responsible for all production versus multiple

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[17] Historian Thomas Hughes, in his book *Networks of power: electrification in Western society, 1880-1930* Hughes, T. P. (1993). Networks of power: electrification in Western society, 1880-1930, Johns Hopkins Univ Pr., provides a comprehensive examination of the evolution of electricity during this period.

[18] americanhistory.si.edu/powering/past/h1main.htm

[19] Excerpt from William and Mary Law Review, Volume 14:589, page 592

firms being in competition with each other (Warwick 2002). This regulated monopoly status was believed to help prevent price gouging and encourage widespread access. The goal of this heavily state-regulated model was for electric utilities to achieve cost efficiencies and provide adequate services to the public. This model proved to be enormously effective for a time, both in terms of electricity generation and prices. During the period between 1907 and 1927, electrical output from utility companies exploded from 5.9 million kWh to 75.4 million kWh, while the real price of electricity declined 55%.

Electric Utility Holding Companies

With this massive growth in electricity generation between 1907 and 1927 came the growth of holding companies. These were companies that did not produce electricity goods or provide services, but instead owned shares and held assets of multiple electric utilities that produced goods and provided services. The holding companies offered management and operations services, which, in concert with the innovative financing holding companies offered, supported the industry scaling at a rapid pace.

However, during the 1920s, the holding company business structure began to be exploited and it became more of a pyramid scheme of one sub-holding company on top of another, to the point where the number of holding companies nearly doubled in the 1920s while the number of operating utilities decreased by 30%. These holding companies crossed state boundaries; therefore they were exempt from state regulatory commissions.

The loophole allowed holding companies to actively participate in unregulated business. These companies grew to control the lion's share of electric utility assets such that by 1932 only eight holding companies controlled nearly 75% of the investor-owned utility business. This gave holding companies immense power[20]. It also put them under extreme scrutiny by the public, who held antagonism towards these companies after the stock market crash of 1929. Backlash against these powerful holding companies was a part of Franklin Roosevelt's run for U.S. President in 1932 and ultimately gave him additional political capital for his New Deal plan. One of Roosevelt's solutions to addressing the power that holding companies possessed was to sign the Public Utility Holding Company Act of 1935[21] (Lloyd 1965), a Congressional bill that outlawed the holding company structure and effectively diluted the power of holding companies. It also forced all businesses producing electricity to register with the newly created[22] Securities and Exchange Commission (Arzi, Shedlesky et al.), which closed the crossing state boundaries loophole that holding companies were exploiting and brought them under regulatory oversight.

Another of Roosevelt's solutions was the creation of government agencies that generated and distributed electricity to segments of the public neglected by the investor owned utilities—specifically rural areas. Consequently, the Tennessee Valley Authority (TVA) was created in 1933. At the charge of the President, the TVA

[20] One holding company alone controlled over $500 million in assets
[21] PUHC is also known as the Wheeler-Rayburn Act
[22] The SEC was created by the Securities Exchange Act of 1934.

set out to show that electrification of even the poorest households could raise standards of living of the inhabitants and produce good income to suppliers.

Research Questions

The major hypothesis guiding this research was that measurable differences in energy related outcomes (i.e., energy inequities) exist for certain groups and that these differences have important consequences that can also be measured. I explored the central question: how and to what extent does discrimination impact energy distribution and access in the US?

To provide additional focus to this central question, I focused on several sub-questions. Those questions were as follows:

- *Q1: Does electric utility ownership mode matter in the delivery of energy services?*
- *Q2: Did significant discriminatory practices exist in the policy formation and implementation of the TVA?*
- *Q3: How and to what extent does discrimination impact outcomes of energy distribution and access in the U.S. today?*

The first question is focused on identifying variances in the way electric utilities deliver technologies and services to customers, irrespective of customer characteristics. To narrow the scope of this particular question, I examined energy efficiency and renewable generation technologies and services exclusively[23]. With this question, I sought to understand whether or not differences in how electric utilities deploy energy efficiency and renewable generation technologies and

[23]Utilities are typically categorized as either public or private—more specifically, investor-owned, municipally owned, cooperatively owned and federally owned.

services are associated with utility ownership structure. The hypothesis was that there are identifiable differences, by utility ownership structure, in how the technologies and services are deployed. In the methodology chapter, I provide greater detail into the relevance of this question to my central question.

For the second question, I examine the issue of discrimination more directly, asking whether or not it existed in a significant way at the outset of a major energy program. The hypothesis for this sub-question was that discrimination could be identified in the early development stages of the TVA. To further illuminate identified discrimination, I drew upon approaches that identify three discriminatory mechanisms: exclusion, local control and allowance (Kleck 1981, Colton 1990, Moreno 1999). In the context of this question, I also categorized the impact of discrimination based on whether it was a direct, an indirect or a disparate impact (Grant, 1990; Moreno, 1999; Williams & Mohammed, 2009). This categorization is for identification purposes.

In the third and final question I analyze, qualitatively and quantitatively, the impact of electric utility—specifically the TVA—practices and place an economic value on this impact. The hypothesis is that blacks and whites—of similar economic conditions—and poorer geographic areas[24], with similar racial proportions, have been impacted differently as a result of TVA energy policies and practices.

[24] I chose the county-level as the unit of analysis. This decision was based primarily on the availability of data.

Taken together, this investigation provides the foundation for creating a model that can be used to measure the impact of discrimination not only within the electric utility industry, but also in other utility industries such as water.

This dissertation is organized into six chapters. I begin with a literature review (Chapter 2), where I explore the bodies of literature that were essential to this inquiry. Then in Chapter 3 (Methodology) I detail the methodology and methods used to address the three central research questions. In the Case Study Chapter (Chapter 4), I paint a historical and contemporary picture of the site of exploration, The Tennessee Valley Authority. In Chapter 5 (Findings), I highlight the key research findings and give some commentary on their implications. I end this dissertation with concluding remarks along with policy and research recommendations (Chapter 6 - Conclusion and Recommendations).

CHAPTER 2 – LITERATURE REVIEW

Many racial and ethnic groups in the United States, including blacks, Hispanics, Asians, American Indians, and others, have historically faced severe discrimination—pervasive and open denial of civil, social, political, educational, and economic opportunities. Today, large differences in outcomes among racial and ethnic groups continue to exist in employment, income and wealth, housing, education, criminal justice, health, and other areas. Although many factors may contribute to such differences, their size and extent suggest that various forms of discriminatory treatment persist in U.S. society and serve to undercut the achievement of equal opportunity. (Blank, Dabady et al. 2004)

In order to approach and understand discrimination within the energy sector, I rely extensively on the following bodies of literature: discrimination; race; class; cumulative disadvantage; and structuration. As I began my exploration, it became apparent to me that in order to understand the link between historical dynamics and contemporary conditions, I would also need to explore literature on cumulative disadvantage, which would provide a frame for understanding effects over time. Once I selected the Tennessee Valley Authority as my case study, it was evident that I needed to also explore literature on the New Deal and the climate and context surrounding that period of time. The body of literature on structuration provided a means of reconciling the reality that discrimination does not exist in a vacuum (meaning separate and apart from the contextual situation), and the phenomenon that systems and institutions impact people and that people conversely impact systems and institutions. What follows is a review of these bodies of literature.

Discrimination

Discrimination can be quite a loaded term in that it has taken on a range of meanings from species identification to race, class and gender prejudice. It includes what economists call statistical discrimination, which presumes that in some

instances, people will rationally rely on race as a proxy for other traits, such as skills and training[25]. It can manifest itself in different forms from laws to policies, and it shows up at varying scales from the individual to the global. It originates from individuals, from groups and from structures and institutions. In its most neutral technical sense, discrimination is about making a distinction. Yet, discrimination becomes problematic when it takes the form of an action that treats people unfairly because they belong to a particular group[26]. Whether intentional or not, unfair treatment often has a consequential impact on the individual or group being discriminated against, and this has led to numerous and extensive studies on the origins, evolution and impact of discrimination, particularly discrimination in the U.S. in the areas of housing, education, health, bank lending, transportation, the criminal justice system (Kleck 1981, Galster 1992, Turner 1992, Fix and Struyk 1993, Ladd 1998, Farkas 2003, Mickelson 2003, Cook 2011, Monteiro, Villela et al. 2013). The literature is extensive and broad in its examination of various forms of discrimination (i.e., class, gender, race, age). However, the dominant forms—in the United States over the past 100 years or so—have been race and class discrimination. For this reason, I focus primarily on these forms of discrimination in this dissertation.

Just because discrimination has been studied so extensively does not mean it is a clear and agreed upon concept. There were a number of key questions that continuously emerged in my investigation, including: Does discrimination exist? If so, who cares and does it matter? How is discrimination promulgated and where

[25] Psychologist refer to this as unconscious bias
[26] http://cyberschoolbus.un.org/discrim/id_8_ud_print.asp

does it show up in society? Who does discrimination impact and when can something be done to prevent and reduce discrimination? These questions go hand-in-hand with the fundamental question of what discrimination is and how it should be defined. Discrimination can be an elusive concept (Moran 2003), which makes identifying empirical evidence to definitively isolate any particular form of discrimination as challenging as defining and understanding discrimination.

The National Academies of Science's (NAS) Committee on National Statistics convened a Panel on Methods for Assessing Discrimination in 2001 to define racial discrimination; review and critique existing methods used to measure such discrimination; identify new approaches; and make recommendations regarding the best methods, as well as promising areas for future research. One of their conclusions was that no single empirical approach has emerged as the silver bullet to identifying the existence and measuring the impact of discrimination (Blank, Dabady et al. 2004). In a similar conclusion, Patrick L. Mason, whose work contributed to the NAS Panel, later suggested that it is often more informative to examine various forms of discrimination as they persist over time than to attempt to pin-point discrimination (Boston 2002). Mason's approach addresses the *ahistorical fallacy*[27] by underscoring the significance of examining discrimination, in context, over multiple times. Mason's approach and perspective provides a view of the dynamics of discrimination that help to illuminate patterns and forms which otherwise would not be understood. Economics professor, Glenn Loury makes a

[27] ahistorical fallacy is the false belief that the period of time when the United States did not extend basic rights to people of color is inconsequential today Desmond, M. and M. Emirbayer (2009). "What is racial domination?" Du Bois Review: Social Science Research on Race **6**(02): 335-355..

similar point when he notes that "liberal theory, as it has come to be practiced, gives insufficient weight to history—especially to the enduring and deeply rooted racial disparity in life chances characteristic of American society. Mason's approach was useful in my examination of contemporary dynamics impacted by race and class based differences in prior times.

The NAS Panel on discrimination was convened based on the recognition that "large differences in outcomes among racial and ethnic groups continue to exist in employment, income and wealth, housing, education, criminal justice, health, and other areas" (Blank, Dabady et al. 2004). In a charge that was intended for their panel but is applicable more generally to other areas including this research, the committee further acknowledged that, "although many factors may contribute to such differences, their size and extent suggest that various forms of discriminatory treatment persist in U.S. society and serve to undercut the achievement of equal opportunity". The Panel report stressed the criticality of both identifying "where racial discrimination occurs" and measuring "the extent to which discrimination may contribute to racial and ethnic disparities." These two critical points became the basis for my dissertation exploration.

As mentioned above, discrimination is treated in various ways and has numerous denotations and connotations. According to the U.S. Equal Employment Opportunity Commission (EEOC), there are at least twelve different types of discrimination. The U.S. EEOC outlines its understanding of what each type of discrimination is and when it occurs—from the perspective of employment. For example, race discrimination *"involves treating someone (an applicant or employee)*

unfavorably because he/she is of a certain race or because of personal characteristics associated with race (such as hair texture, skin color, or certain facial features)". The EEOC similarly described age discrimination as involving the treatment of "*someone (an applicant or employee) less favorably because of his age*" and color discrimination as involving *"treating someone unfavorably because of skin color complexion".* Further expanding the complicated contours of discrimination, they explain that *"Race/color discrimination also can involve treating someone unfavorably because the person is married to (or associated with) a person of a certain race or color or because of a person's connection with a race-based organization or group, or an organization or group that is generally associated with people of a certain color..."* and that *"discrimination can occur when the victim and the person who inflicted the discrimination are the same race or color"*[28]. These definitions scarcely begin to capture the complexity of race discrimination, and the EEOC offers little, if any, guidance on class discrimination. While class discrimination is a somewhat straightforward concept to grasp, part of the challenge of understanding race discrimination is the very notion of race that is embedded in race discrimination. In addition to there being no universally accepted definition of discrimination, there is no single concept of race. The NAS panel proposed that race discrimination is thus best viewed as a complex subjective construct with socially significant meaning (Blank, Dabady et al. 2004).

In this dissertation, I utilize the Panel's view of race discrimination. According to the panel, race discrimination has two components in the social

[28] http://www.eeoc.gov/laws/types/

science arena: 1) differential treatment on the basis of race that disadvantages a racial group and 2) differential treatment on the basis of inadequately justified factors other than race that disadvantages a racial group. In other words, discriminatory treatment can occur when race is the explicit reason and/or when race has a proxy—e.g., geographic location, educational attainment, or socio-economic status.

The NAS Panel suggested that it is incumbent upon researchers to understand both the impact of racial discrimination and the systems and structures that foster discrimination. Building on this, I use a framework for examining the *mechanisms* and *impacts* of discrimination that is based on work in the social science and judicial arenas. I outline the framework in further in the methodology section.

Studies in housing, education, policing, lending, car buying and many other areas have shown that both race and class have served, and serve, as the basis of discrimination. However, which construct, race or class, has been most impactful in shaping economic outcomes? The answer to this question is highly contextualized and based on many factors—i.e., the time, geography, economic climate, and political dynamics. The following section explores literature on the role that class and race play in society, from a non-contextualized perspective. This non-contextualized perspective provided the bases for my focus on race and class as the primary constructs of significance in shaping economic outcomes related to energy.

Race and Class

Central questions that have occupied fields of study of human behavior, are how societies maintain stability, how societies change and what are motivations for

individual action (Joas, Knöbl et al. 2009). In relation to this dissertation, stability would include the equity throughout society and action includes the action of discriminatory behavior. In many cases race and class have both been used as explanatory mechanisms for understanding these questions. A core question consistently asked is: which construct, race or class, has been most impactful in shaping life economic outcomes? In specific relation to this dissertation, that question becomes: is energy equity more a function of race or class? Scholars have looked to race as a way of understanding the vices and virtues of society and they similarly looked to class. Inquires that come from a race-centered perspective claim that racial differences are key to understanding differences in economic, political or cultural outcomes. While inquiries that come from a class-centered perspective claim that economic, political or cultural differences that lead to particular, and group dependent, outcomes in society are the result of individual or group economic position. This mixed understanding leads me to ask the question: which factor, race or class, matters most in shaping these outcomes? Oliver Cromwell Cox, a noted Trinidadian-American sociologist and member of the Chicago school of sociology, believed that both race and class are important considerations. From Cox's perspective, "race relations could best be studied as a form of class exploitation" (Cox 1945). His article explained that race relations in the United States were distinctly different from the Brahamanic-Indian society caste relations[29]. Cox underscores the interconnectedness of race and class in the United States. Similarly, in their book on the Sociology of Race in America, Desmond & Emirbayer explain

[29] The Indian caste system is a system of social stratification , which permanently partitioned communities into thousands of specific hereditary groups castes.

that race is best understood as a system of social relations and that there is intersectionality between race, ethnicity, class and gender. Though they see all social dynamics as being important, race, however, remains the primary focus throughout their book.

Below, I have summarized the major ideas about the impact that race and class have had in shaping life economic outcomes, with a particular reference to the writings of Karl Marx, W.E.B. DuBois, and Robert Park. These intellectual leaders used class-centered arguments to understand social dynamics in the economy, in politics and in cultural life. I begin with a discussion of literature on using class as a fundamental and primary basis for understanding social dynamics (in this case discrimination). An examination of the literature on race as the fundamental and primary basis follows. I end this section by exploring how these two perspectives link.

Before proceeding, I should note that class-centered perspectives for understanding social dynamics claim that economic, political or cultural differences that lead to stability or change in society are the result of individual or group economic position. These perspectives contend that an understanding of class dynamics matters most for gaining an understanding of dynamics in society. I should also note that race-centered perspectives for understanding social dynamics focus on race is the key factor to understanding how societies organize and how they change. These arguments claim that economic, political or cultural differences that lead to the overall structure of society are primarily the result of racial differences.

Karl Marx, born in 1818 to a middle class family in the Kingdom of Prussia, was a philosopher, an economist and sociologist. He was writing during a time before the modern Western State had fully developed and before democracy had taken hold in the United States. He was witnessing a growth in the dominance of economic markets. Locally and globally, however, it was still a time when control of political power was concentrated in the hands of few.

Marx's theories are the subject of much debate and his methodology is widely utilized. His approach, in the simplest of terms, was to consider social conditions as internally dynamic, (i.e., marked by tensions and contradictions to shape and define the conditions within which they exist). Marx identified problems and tensions and utilized observational techniques to understand how those challenges evolve within society. Marx also stressed the importance of experiential and historical knowledge in his writings. He thought that understanding historical context was an important part of understanding society. Events were of utmost important to Marx and thus he paid careful attention to them in his observations and in his writings. He made the contention that you understand what will come in the future by understanding the struggle of the present. At the same time, he emphasized that understanding any present struggle required historical framing. Marx also believed that people create physical environments and those physical environments in turn shape peoples' consciousness. The emerging physical environment of Marxian analysis was the factory and, for example, dynamics among workers. His analysis led him to believe that the physical closeness of factory workers is what allowed them to come together. However, he thought it was the fact

that workers saw what society could be (potentiality) that would ultimately spur these workers to action. Self-interest motivated workers, but not animalistic self-interest.

Marx, as he explained in his *Preface to the Critique of Political Economy* (1904), saw society as divided into two parts, the base (what he calls the economic structure of society) and the superstructure. The base was comprised of the modes of production—the economic sphere. Marx believed that understanding this base was key to understanding society and that the base determined other parts of society (i.e., the superstructure). Marx understood the superstructure to include the non-economic aspects of society (i.e., political systems, institutions, culture). His particular analysis falls short in that it places an enormous premium on economic sector activity. Since Marx's writings, modern society has developed to a point where the political and cultural spheres play a more significant role. Class differences, in Marx's analysis, were the central dynamic in society and the economy (base) was the fundamental sphere in which this dynamic operated. It is useful to include his quote:

> *In the social production of their existence, men inevitably enter into definite relations, which are independent of their will, namely relations of production appropriate to a given stage in the development of their material forces of production. The totality of these relations of production constitutes the economic structure (emphasis added) of society, the real foundation, on which arises a legal and political superstructure (emphasis added) and to which correspond definite forms of social consciousness.*

Marx views society's "real foundation" and its subsequent legal and political superstructure, as being real and interconnected. For Marx, the base, or economy, is the catalyst for societal transformation. When he says that "changes in the economic foundation lead sooner or later to the transformation of the whole immense superstructure" (1904), it becomes clear that he believes that the entire legal and political system is immensely impacted by the economic foundation upon which it rests. At a primitive level, self-interest, specifically economic self-interest, caused individuals to act in such a way as to control these relations. Marx traced production relations historically from tribal periods (and the use of primitive accumulation to rapidly gain power and control) to what was at his time an emerging modern capitalism (1904).

These production relations created a divide between those who perform labor and those who benefit from labor. Those who performed labor, as Marx saw it, would see the vast differences in how life "could be experienced" and how it "was being experienced" and this contrast would give agency to the workers. I see this notion of agency, based on ones' perception of unrealized potential, as a useful tool. However, I believe that it fails to explain how group agency comes about and leaves several questions unanswered. For example, it fails to address the question of causality with respect to workers solidarity. It also fails to explain how consciousness is realized in workers.

Marx understood the political sphere (part of the superstructure) as the mechanism by which the owning class gained and maintained its ruling status (Marx and Simon 1994) [page 233]. The State was a product and manifestation of class

antagonisms that were irreconcilable and the function of the State was to serve as a means by which one class could oppress another, thereby maintaining order in society. He did not see it as a mechanism for class reconciliation, and in fact went so far as to say that the State "was the form in which the individuals of a ruling class assert their common interests" (Marx and Engels 1970). It is quite possible that evidence today would lead even Marx to see this view of the State as incorrect, however this perception is understandable given the time period in which Marx was writing. It was a time before the modern State[30].

Similar to his views on the state, Marx viewed the cultural as a part of the superstructure. He understood culture as an ideology and thought that the ruling class used this ideology as a way to maintain dominance and oppression (Marx and Engels 1970). Marx held, in a non-dogmatic way, the notion that economic structures and systems heavily influence culture and cultural institutions. In other words, he viewed class, the economic base, as the core driver of societal dynamics. He explained that all workers faced some level of oppression and at the same time race imposed an additional level of economic oppression. He saw this additional oppression as resulting from class conditions and resulted in the creation of more social order. He paralleled the dynamics between the English and Irish proletariat with those between poor whites and slaves in the US (Marx 1870).

> *Every industrial and commercial centre in England now possesses a working class divided into two hostile camps, English proletarians and Irish*

[30] This is before the modern State as it exists today, with significantly more form, function and influence, though Marx did note that North America was the most perfect example of the modern State

proletarians. The ordinary English worker hates the Irish worker as a competitor who lowers his standard of life. In relation to the Irish worker he regards himself as a member of the ruling nation and consequently he becomes a tool of the English aristocrats and capitalists against Ireland, thus strengthening their domination over himself. He cherishes religious, social, and national prejudices against the Irish worker. His attitude towards him is much the same as that of the "poor whites" to the Negroes in the former slave states of the U.S.A. The Irishman pays him back with interest in his own money. He sees in the English worker both the accomplice and the stupid tool of the English rulers in Ireland.

He believed that the economic class division—created and maintained by the ruling class—was a stronger dividing force (that needed to be overcome) than the race division. In *Poverty of Philosophy (Marx 1956),* Marx notes that, "slavery is an economic category like any other" (page 49). He goes on to note that, "slavery, because it is an economic category, has always existed among the institutions of the peoples. Modern nations have been able only to disguise slavery in their own countries, but they have imposed it without disguise upon the New World" (page 50). In this way, Marx did not sufficiently underscore the significance of color and color barriers in America. Interestingly, he did go so far as to see slavery as a paralyzing hindrance to movements (social change) for independence.

This limitation of Marx's analysis is a result of the context within which he existed. He did not sufficiently articulate the role that the superstructure (the cultural and political realm) had in shaping the economic base. Marx assumes that

individuals, specifically the working class, would ultimately act rationally and according to their own economic self-interest. This view fails to explain the significance of other social dynamics[31] like race, as manifested in the Jim Crow South for example, which suggest that individuals can and will act against their own economic self-interest and instead act emotionally and cling to race, nationality, and religion. Fortunately, Marx was keenly aware that historical context, or what he would call the historical phases in the development of production[32]", mattered. W.E.B. DuBois provides an analysis that accounts for Marx's analytical shortcomings and incorporates social dynamics that seemed to envelop the context of his (DuBois's) time.

Born in Massachusetts in 1868, W. E. B. DuBois was an American sociologist, economic sociologist and historian. He was the first African-American to earn a doctorate from Harvard. He has produced several seminal works related to the role that race plays in society. DuBois was writing during a time when the modern State was well into formation. Democracy had become a reality, but only for certain segments of the population. The transition from an agricultural economy to an industrial one had occurred and the black cultural movement known as the Harlem Renaissance was in full bloom. It was a period in American history when racism was explicitly emanating from the economy, the political structures and the cultural institutions throughout society. It was also a period where Black political thought

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[31] Marx would classify these dynamics as existing in the superstructure, i.e., the cultural realm.
[32] In his March 5, 1892 letter to J. Weydemeyer, he wrote that he took no credit for discovering the existence of classes in modern society, but that his contribution "that was new was to prove: (1) that the existence of classes is only bound up with the particular, historical phases in the development of production...".

was critical of dominant social and political theories and DuBois was one of the most outspoken critics.

DuBois approached his work from a deductive analysis perspective—developing a hypothesis from existing theory and then testing that hypothesis (Green and Smith 1983). He was one of the first sociologists to rigorously apply quantitative data, mapping and ethnographic methods to social questions.

DuBois extended Marx's belief that people create their physical environment, to include the ideas and identity that people create. In turn, it was this physical environment, along with the individual's (and group's) ideas and identity that ultimately shaped human behavior (Du Bois 1995). To DuBois, an individual's understanding of their own identity and how their identity has been socially fabricated is critical in shaping societal dynamics. The question is whether DuBois believed that it was class or race that most affected life economic outcomes. This question comes in part because DuBois was so explicit and focused on race, stating clearly that "the problem of the Twentieth Century is the problem of the color-line" (Du Bois 1995). Yet, at the same time DuBois believed, like Marx, that the ruling class wanted to keep power away from the working class. David L. Lewis, Professor of History at New York University, writes that DuBois viewed slavery as a driver of world industrialization and an "indissoluble link between profit from unfree labor and the financing of modern capitalism (Lewis 1994)." DuBois, in an opinion piece published in the August 1921 edition of *The Crisis* magazine, himself stated that, " theoretically we are part of the world proletariat in the sense that we are mainly an exploited class of cheap labor" (DuBois 1921).

Ultimately, DuBois believed that class distinctions were important, but that race distinctions were much more fundamental. In that same 1921 opinion piece, DuBois makes it clear that practically "we are not a part of the white proletariat and are not recognized by that proletariat to any great extent" (DuBois 1921). DuBois believed that American labor was more conscious of race and color than it was of economic need. He was far more definitive than Marx in making the case that racial constructs were fundamental to civil society in America. In *Dusk of Dawn*, his autobiography that expounds on the systemic problem of race in America, DuBois calls his own life "the autobiography of a race concept" (Du Bois 2007). With the problem of race clearly in his sights, DuBois maintained that the State was a powerful force for social change. He saw enormous potential for a social democratic state to bring about a new order in society. DuBois' understanding of the interconnectedness of society's spheres is interesting. He theorized a directionality of social change that led from Cultural Revolution—by dealing with the issue of race—through political mobilization and ultimately to economic transformation. This is significantly different from Marx's theorized directionality of social change. Marx's vision was that economic solidarity—through class-consciousness—would lead to the lessening utility of the political system[33] and ultimately end in cultural solidarity.

A student of John Dewey, William James, Georg Simmel and Booker T. Washington, Robert Park was born in Pennsylvania in 1864 and was one of the leading figures in the development of the Chicago School of sociology. Because of his

[33] Marx believed that the state was only necessary because of class tensions.

work in Chicago, Robert Park was an important figure for discussions of the urban environment—i.e., the city. Park was a contemporary of DuBois and, like DuBois, focused heavily on race as the key driver influencing social outcomes. Park, however, had a different perspective on racial dynamics and how social change would occur—quite possibly due to the influence of Booker T. Washington.

Park's approach to understanding social interactions was scientific, more specifically, Darwinian in nature. He understood the city as developing in an ecological fashion. He takes cues from Marx's playbook in that he believed people create physical environments and those physical environments in turn shape people. Unlike DuBois and Marx, Park more ideologue, believing that the social process was an evolution from conflict ultimately to assimilation (Park 1928, Park 1950). The environment that Park chose to focus on was the city. Unfortunately, he says little about how human actions can change existing social conditions in this context. This lack of discussion of human agency is one of Park's major shortcomings. Whereas Marx focused on class, Park is in some respects approaching social conditions similar to DuBois in emphasizing the significance of race. A limitation in Park's analysis, particularly in answering the question of whether race or class is of greater import, is that he makes little mention of class except to say that class distinctions arise out of cultural distinctions and are maintained through the geographic arrangements of the city.

However, the perspective that Park took was that the cultural realm was key to understanding how society was ordered and how it changed (Park 1950), which suggest that he believed race was key. He did see social distance, arising in large

part from physical differences, as a precursor to economic distinctions (Park 1924). These physical differences were primarily about racial and ethnic differences. Park believed that social order evolved from domination by the more powerful races or groups.

Ultimately all three scholars—Karl Marx, W.E.B. DuBois and Robert Park—underscored the important role that both race and class play in the determination of social outcomes. When examining their work in aggregate, and in the context of still persistent racial differences in social and economic outcomes, I believe that race is the primary factor in these outcomes, but class dynamics are significant enough to warrant investigation as well. Focusing on one—race or class—and not the other is counterproductive to the sociological pursuit (Oliver and Shapiro 1996). As commonly practiced, a focus on race alone leads to a neglect of important structural issues (Wilson 1980, McKee 1993), while focusing on class alone neglects critical cultural issues (Cox 1970, Brubaker 2005, Alexander 2006).

Cumulative Disadvantage

Contemporary dialogue is rife with questions about the existence of discrimination and discriminatory practices in modern society (Blank, Dabady et al. 2004). The questions hinge on a belief about discrimination as being outdated. Not only does evidence suggest that prior discrimination continues to affect the "allocation of contemporary opportunities" (Pager and Shepherd 2008), there is also sufficient reason to believe that the impact of discrimination is multidimensional (i.e., across time and domain). Traditional explorations fail to examine the origins and impact of discrimination over time and across sectors because they assume

discrimination to be a "phenomenon that occurs at one point in time in a particular process or stage in a particular domain (e.g., initial hires by employees)" (Blank, Dabady et al. 2004).

The NAS Panel concluded that this "episodic view" of discrimination is likely inadequate (Blank, Dabady et al. 2004) and that discrimination may have effects that accumulate. The concept of cumulative disadvantage illustrates the ways that discrimination can have direct and indirect impacts that accumulate "over time, across generations, and between structural levels in society" (Rugh, Albright et al. 2015). Gunnar Myrdal used the phrase "vicious circles of cumulative causation" to describe the self-sustaining processes in which the failure of blacks to make progress justified for whites the very prejudicial attitudes that, when reflected in social and political action, served to ensure that blacks would not advance"[34]. Cumulative disadvantage[35] is effectively the idea that one group can accumulate disadvantages that lead to the creation of or increase in inequities. In an article entitled "The Matthew Effect in Science, II", Robert Merton (1988) explains that the concept of cumulative advantage (the other side of disadvantage) "directs our attention to the ways in which initial comparative advantage of trained capacity, structural location, and available resources make for successive increments of advantage such that the gaps between the haves and the have-nots in science (as in

[34] Myrdal, G. (1944). "An American dilemma; the Negro problem and modern democracy.(2 vols.)." as quoted in Loury, G. C. and G. C. Loury (2009). The anatomy of racial inequality, Harvard University Press.

[35] The idea of cumulative disadvantage is commonly referred by phrases like: "the poor get poorer" and "vicious cycle" DiPrete, T. A. and G. M. Eirich (2006). "Cumulative advantage as a mechanism for inequality: A review of theoretical and empirical developments." Annual review of sociology: 271-297..

other domains of social life) widen until dampened by countervailing processes." This conceptual explanation is a straightforward framing of the mechanisms for perpetuating inequity.

Dale Dannefer provides a more formal definition of cumulative advantage/disadvantage as the "systemic tendency for interindividual divergence in a given characteristic (e.g., money, health, or status) with the passage of time" (2003). Fortunately, he also explains what is meant by both systemic tendency, which indicates that divergence "results from the interaction of complex forces" and interindividual divergence, which according to Dannefer, implies that "cumulative advantage/disadvantage is not a property of individuals but of populations or other collectivities (such as cohorts), for which an identifiable set of members can be ranked.

The National Academies Panel defined three primary ways through which discrimination might cumulate. These are outlined in Table 1 and subsequently explained in detail.

Table 1: Ways Through Which Discrimination Might Cumulate

Across Generations	Discrimination in one generation that negatively affects a particular group may diminish opportunities for later generations.
Across Processes Within a Domain	Within a domain (e.g., housing, the labor market, health care, criminal justice, education), discrimination at an earlier stage may affect later outcomes.
Across domains	Discrimination in one domain may diminish opportunities in other domains.

Discrimination across generations occurs when discrimination in one generation that negatively affects health, economic opportunity, or wealth accumulation for a particular group diminishes opportunities for later generations. Discrimination need not happen today for the impact to be felt today (Gandy 2012) (Dannefer 2003). For instance, parents' poor health or employment status may limit their ability to monitor or support their child's education, which in turn may lower the child's educational success, and subsequently, his or her socioeconomic success as an adult (Blank, Dabady et al. 2004).

Discrimination that occurs across processes within a domain, or sector, refers to discrimination experienced at an earlier stage in the domain, which affect outcomes at a later stage in that domain. For instance, discrimination in elementary school may negatively affect outcomes in secondary school and diminish opportunities to attend college. Going further on this point, the NAS Panel explained that even single instances of discrimination at a key decision point might have long-term cumulative affects. For example, discriminatory behavior in juvenile policing practices might increase the probability of future discrimination in sentencing. The final means outlined by the NAS Panel by which discrimination may cumulate is across domains. In this case, discrimination in one domain may diminish opportunities in other domains. The example they provide is families that live in segregated neighborhoods may have limited access to adequate employment and health care (Blank, Dabady et al. 2004).

John Yinger, Professor of Public Administration and Economics, The Maxwell School, Syracuse University, estimates that housing discrimination lowers the total

net worth of black households by $1,335 billion and of Hispanic households by $600 billion (Yinger 1995). The panel notes that few studies can definitively link discrimination experienced by parents directly to the outcomes of their children, however research has suggested "a variety of channels through which such a link may occur". In particular, they cite the racial segregation in housing that has ongoing implications for wealth levels and accumulation in future generations (Conley, 1999; Oliver and Shapiro, 1995).

At the time of the NAS Panel, there was limited research that attempted to model or estimate the cumulative effects of discrimination. Subsequent to the NAS Panel report, there have been numerous examples of research, particularly health related research, into the cumulative effects of discrimination (Chen 2008, Robertson and Mason 2008, Cardarelli, Cardarelli et al. 2010, Saegert, Fields et al. 2011, Gerrard, Stock et al. 2012, Lips 2013, Stock, Gibbons et al. 2013, Rugh, Albright et al. 2015).

Structuration

It can be argued that American industry is composed of individuals who operate within institutions and systems based on a set of guidelines (i.e., policies, procedures, rules, practices). I rely on the theory of structuration to understand how these individuals and systems interact to shape society. According to John B. Thompson, structuration refers to an analysis of how structures (e.g., systems, institutions, networks) and agents (e.g., individuals, groups, culture) interact to create and reproduce social systems (Thompson 1984). Thompson's framing of

structuration was based on the theory developed by Anthony Giddens (Giddens 1979).

British sociologist Anthony Giddens developed the theory of structuration in response to the question of whether it was individuals or social forces that shaped the social realm. Scholars attribute him with having done more to advance the understanding of the complex ways in which action and structure intersect in the routine activities of everyday life than any other thinker. John Thompson extended Giddens' idea of structuration beyond the notion that action and social structure are contradictory and complementary. Thompson proposed that action and social structure are instead "two poles which stand in a relation of tension with one another", and that "while social structure is reproduced and transformed by action, it is also the case that the range of options available to individuals and groups of individuals are differently distributed and structurally circumscribed" (Thompson 1984). Thompson's last point is particularly relevant in framing the role that discrimination plays. Discrimination can negatively shape the range of options (or "life chances" as Max Weber calls them) available to certain groups. For example, if an individual's gender or race is the cause of denial of the ability to purchase a home in certain neighborhoods (i.e., discrimination), then they have far fewer home choices (i.e., the range of options available).

The two primary aspects of structuration that are particularly relevant to this dissertation are: culture's influence on institutional structures and institutional structure's influence on culture.

Culture's Influence on Institutional Structures

Culture can influence institutional structures when it (culture) exerts pressure on these structures and systems and as a result, the institutional structure is altered in a tangible way. One intended (but not always actualized) outcome of most mass movements is to shift some aspect of institutional structure (e.g., the 99% movement and financial systems; or the #BlackLivesMovement and policing systems). Karl Marx joins Giddens and Thompson in their analysis of individuals and structure. Marx writes from the perspective that people create the physical environment and that those physical environments in turn shape people's consciousness. The emerging physical environment of Marxian analysis was the factory and I understand his analysis to have led him to believe that the physical proximity (more than other characteristics) of factory workers is what allowed those workers to come together. However, I believe that it was the fact that workers saw society's potential, in their consciousness, that Marx thought would ultimately spur these very workers to action. In this way, Marx is saying culture influences institutional structures. DuBois was more explicit on this in that he saw race as a part of culture that bled into shaping economics and politics.

Institutional Structure's Influence on Culture

Institutional structure can also influence culture. They (institutional structures) do so by shaping the ideology of individuals in society. Giddens defines structure as the "structuring properties allowing the 'binding' of time-space in social systems, the properties which make it possible for discernibly similar social practices to exist across varying spans of time and space and which lend them 'systemic' form" (1984). I believe that this "binding of time-space" gives "shape" to

culture and is "shaped" by the culture in which it exists. It is within these structures that actors relate. I also agree with Giddens' analysis that structures and agents are inextricably linked. He notes that, "in social theory, the notions of action and structure *presuppose one another*; but that recognition of this dependence, which is a dialectical relation, necessitates a reworking both of a series of concepts linked to each of these terms, and of the terms themselves" (1979).

I rely extensively on literature regarding discrimination; race; class; cumulative disadvantage; The New Deal; and structuration. This provided a framework for understanding dynamics of discrimination that occurred at a distinct place and time in U.S. history (The New Deal/Jim Crow South of the 1930s-40s). It is evident from my review that not only does context matter in shaping social relationships, historical dynamics matter in shaping contemporary conditions. This framework was important in answering my three research questions, which are about the relationship between structures and agents (Q1: how utilities provide services to customers), the existence of discrimination (Q2: did discrimination exist in the TVA) and the impact of discrimination (Q3: what was the impact of this discrimination). In the next chapter, I go into further detail about these three research questions and my approach to addressing them.

CHAPTER 3 – METHODOLOGY

This chapter describes the methodology utilized to answer three key research questions guiding this research:

- *Q1: Does electric utility ownership mode matter in the delivery of energy services?*
- *Q2: Did discriminatory practices exist in the policy formation and implementation of the TVA?*
- *Q3: How and to what extent does discrimination impact expected of energy distribution and access in the U.S. today?*

The methodology includes two primary research components that address the three research questions: archival analysis (qualitative) and statistical regression (quantitative). This chapter begins with a discussion of the use of both qualitative and quantitative research methods and then explains the two primary research components.

Use of Mixed-Methods

The study of race and class discrimination can be a complex mix of social, political and economic dynamics (Blank, Dabady et al. 2004). In order to understand this complex mix, I apply quantitative and qualitative tools to this investigation (Pager and Shepherd 2008). The application of multiple quantitative and qualitative tools (i.e., multi-methods research) is consistent with historical and policy studies that sought a comprehensive understanding of how discrimination originated, its effects, and perhaps even its "on-going" impacts (Blank, Dabady et al. 2004). According to a report from the Office of Behavioral and Social Sciences Research

(Creswell JW, 2011 #519), one of the best uses of mixed methods is when there is a recognition that the "social world and the issues and problems we seek to research are multi-dimensional". The research questions posed in this dissertation are contemporary *(Q1 and Q3)* and historical *(Q2)*, and they are qualitative *(Q2 and Q3)* and quantitative *(Q1, Q2 and Q3),* therefore different approaches are required in order for these questions to be answered adequately and effectively. I structured the analysis into three parts that correspond to the three research questions. This enabled me to account for and appreciate the multidimensionality and complexity of the research.

Research Questions

I approach question 1, *does electric utility ownership mode matter in the delivery of energy services,* within a comparative framework. The comparison was of measurable outcomes of utility ownership modes to determine if there were differences in delivery of services to their customers. There are multiple reasons why this was the appropriate choice. First, utility ownership modes are deeply rooted in ideological paradigms. For example, municipally owned utilities emerged from the belief that public ownership of electric utilities would increase the likelihood of providing low-cost reliable electricity to all customers. These paradigms shaped the structure and operations of each utility mode, with some ownership modes being more heavily regulated (Investor Owned) than others (municipally owned) and some controlled by a broad membership base (cooperatives), with others controlled by a central government (federally owned). The question was whether these differences led to tangible differences in what the

customer experienced. Beginning with this question allowed me to establish a baseline before asking questions of discrimination. In it, I sought to understand if municipally owned electric utilities (munis) more effectively deliver energy efficiency and renewable generation technologies and services to their customers than do cooperatively owned utilities (coops). The other reason for beginning with this question was to glean useful insight for case selection. Because municipally owned and cooperative utilities are more effective at delivering services to customers (see findings), I selected a case that included the delivery of technology and services via munis and coops. The theory undergirding this question is that utilities that are better at providing services to all customers will be better at providing services to sub-groups of customers[36]. This question required the statistical analysis of publicly available electric utility data.

I approach question 2, *did discriminatory practices exist in the policy formation and implementation of the TVA,* using both historical analysis and statistical methods. The question focused on a prior period (the 1930s). It has a geographic framing—i.e., the Tennessee Valley Authority is confined to a specific geography. This question is one of existence and is important to ask because of the lack of research regarding the existence of discrimination within the energy domain specifically. It is also a question that may provide additional insight into factors that perpetuate discrimination (i.e., the mechanisms of discrimination). The theory

[36] This theory does come in direct conflict with the fallacy of compositions, which occurs when it is logically reasoned that if something is true for the whole, it must be true for all or some of the parts. This fallacy should not apply here because of utility sector dynamics. Economies of scale and the technical need for consistency are motivators for utilities having commonalities at the individual and aggregate level. In other words, utilities have a strong incentive to be consistent in the way they do business. This incentive is economic, technical and regulatory.

guiding this question is that either the impact of local and regional discriminatory practices was enough to outweigh the federal desire to provide opportunities equally throughout the region and/or there was explicit discrimination in the development of TVA policies at the federal level. One component of this question is an examination of policy formation, which includes the study of historical records through an archival analysis and the examination of public perception through a media analysis. The other component, for which statistical analysis was used, is an investigation into whether or not discrimination was evident in the implementation of TVA electricity throughout the Tennessee River Valley region.

I approach question 3, *how and to what extent does discrimination impact outcomes of energy distribution and access in the US,* using statistical methods as the primary tool. The *outcomes* are economic (e.g., indicators of wealth). Guiding this question is the theory that structures put in place and decisions made decades ago will continue to show in the present time (cumulative disadvantage). The question also has spatial dimensions, showing the geographic places where individuals feel the impact of discrimination.

In summary, I began by *benchmarking* the electric utility sector to gain insight into the delivery of energy services, which is question 1. Following this *benchmarking* was an examination of the mechanisms of discrimination within the sector to understand the *existence* of discrimination, which is question 2. Finally, I conducted an *impact* analysis, which is question 3. Taken together, these three parts illuminate whether there is a need for further investigation of discrimination within the energy domain. The benefit of this approach was that it did not presume that

each inquiry fit together neatly like a perfect puzzle. The challenge of this approach was maintaining the "creative tension" between approaches in a way that underscores their points of difference while respecting their differences (Mason 2006). The following section outlines each of these methods in detail and explains how they related to answer each research question.

Question 1: Benchmarking - Statistical Analysis

As a pre-cursor to the questions of *existence* (does discrimination exist in energy service delivery and access) and *impact* (if so, what is the impact of discrimination), it is helpful to understand if differences in how electric utilities deploy technologies and services to the public (i.e., all customers[37] irrespective of characteristics like race) are associated with utility ownership mode. The question that guided this portion of the research was: *Does electric utility ownership mode matter in the delivery of energy services?*

I used this particular question to gain insight into whether or not there is a connection between ownership modes and technology/service delivery. As mentioned earlier, the question derived from the theory that utilities that are better at providing services to all customers will be better at providing services to sub-groups of customers. Because electric utility ownership mode is in essence a proxy for the underlying mission and values of the utility[38], and because the ownership modes each grew out of particular responses to and concerns for the public good, insight into how these modes function today is helpful as an entry into

[37] Here "customers" is used broadly to mean individuals receiving energy services. Cooperatives often use the term members, IOUs the term ratepayers, etc.
[38] See appendix for an explanation of the utility ownership modes.

understanding their ability to serve and service the public writ large. I should note that while it is an interesting and important question, this dissertation does not explore the race and class implications for each ownership mode. Instead, for reasons I will explain, I examine only one particular ownership mode for race and class effects.

The focus of this question is on three ownership modes: investor-owned, cooperatives, municipally owned. I excluded other modes from the analysis because of the limited number of plants in operation, which significantly smaller in comparison to the three modes mentioned above. Focusing on these three ownership modes is not in contradiction with my selection of a federally owned utility (the Tennessee Valley Authority) as the case of study because the TVA is a supplier of generated electricity to local and regional utilities (IOUs, coops and munis). The TVA would enter into power contracts with these utilities and subsequently, the local and regional utility would provide electricity and services to customers.

To perform this analysis, I used linear regression and tested the following hypothesis: *that the delivery of services is not consistent across electric utility ownership modes.* I chose linear analysis because it allowed me to estimate the relationship among variables and determine the relationship between the dependent variables (energy efficiency and renewable energy variables: advanced metering infrastructure, percent green pricing and percent net metering[39]) and the

[39] Green pricing customers reflect the number of customers enrolled in voluntary programs where customers pay extra fees to purchase electricity generated from renewable sources as a percent of total operator customers.

independent variables (utility ownership modes: muni, coop, IOU). There were a number of possible variables to select from in choosing dependent variables. I pulled from the set of energy efficiency and renewable energy variables (see Table 15 in APPENDIX A – Variables for Statistical Analysis) because utility expansion of renewable energy services, though not new, is a relatively recent dynamic in terms of the degree of investment.

The regression model that I used expands previous utility performance models and includes renewable energy variables selected from the EIA datasets[40][41]. Table 2 below outlines the previous models. The table is explained in detail in the next section.

Table 2: Utility Performance Studies

Name	Scope	# Of Firms	Results
Averch and Leland (1962)	Telephone/ telegraph industry	2 (Bell Telephone and Western Union)	Regulated firms will not produce at min cost
Meyer (1975)	Public and private electric utilities	150 public/private	Ownership mode matters in economic sense, but unsure why
Koh (1996)	Public and private electric utilities	182 (121 private/61 public)	Ownership mode impact is scale dependent

[40] Specific energy efficiency measures were not available via EIA, in sufficient form, until 2007

[41] Data for this analysis were taking from *Form EIA-860, Annual Electric Generator Report; Form EIA-861, Annual Electric Power Industry Report; and Form EIA-923, Power Plant Operations Report.* A brief description of the various EIA forms is provided below.

> *Form EIA-860 collects data on the status of existing electric generating plants and associated equipment in the United States, and those scheduled for initial commercial operation within 10 years of the filing of this report.*
>
> *Form EIA-861 is the electric utility data file that includes electricity sales, revenues, customer counts, loads, electric purchases, demand-side management programs, green pricing and net metering programs and distributed generation capacity.*

Form EIA-923 collects detailed electric power data on electricity generation, fuel consumption, fossil fuel stocks, and receipts at the power plant and prime mover level.

Utility Sector Performance Studies

Questions about performance of public versus private, regulated versus unregulated, competitive versus monopolistic firms are not new. These questions are also not restricted in scope. In the 1960s, for instance, Averch and Leland (1962) sought to understand performance and concluded that regulated firms will not produce at a minimum cost relative to unregulated firms. There have also been comparisons of the economic performance of publicly owned and privately owned electric utilities. Robert Meyer (1975) concluded from his study that mode of ownership does matter in an economic sense. He found, from a sample that relied heavily on cheaper electric power, that publicly owned electric utilities have lower costs than privately owned utilities. These studies create a solid foundation and seem to indicate that there may be differences based on utility ownership modes, in the way that these utilities perform.

One limitation of this prior work, however, is that none directly addressed the question of service delivery. Another major limitation of the studies that have been conducted, including Meyer's, is that they have been based on small samples of publicly owned utilities, with several being drawn from no more than 30 public utilities (Yunker 1975, Fare, Grosskopfand et al. 1989). These studies nonetheless yielded inconclusive evidence on the relative efficiency of publicly owned and private owned electric utilities (Koh, Berg et al. 1996), and yet they have been the basis of utility operational theory. Koh's sample included more than sixty public utilities and found that publicly owned utilities become less efficient relative to privately owned utilities as energy output rises. Again, those studies focused on economic performance of utility generation writ large and not on renewables

specifically. This dissertation both expands the size of the study population (significantly more electric utilities) and it directly addresses the question of delivery of energy technologies and services.

Electric power operators periodically report a wide range of detailed operational and performance metrics to the Energy Information Administration (EIA). The public availability of data allow for their use in this research[42]. I analyzed data collected from these forms for the calendar year 2010. These data provide basic information about 2,984 utility operators operating 7,258 power plants. I aggregated the data from *Form EIA-861* by the total operations of each operator in each state or territory. I selected three variables from the EIA datasets, which allow for an examination of the degree to which customers engage in renewable generation and energy efficiency services (which I term customer uptake) and I used them to analyze differences among electric power utilities. Operators vary significantly in size and in ways that can affect customer uptake. In order to produce substantively meaningful comparisons, I scaled each performance measure by the amount of electricity sold by each operator (in megawatt-hours), by the total number of consumers an operator serves, or by the total revenues of that operator.

In these data, 3,332 plants reported ownership mode. Table 3 presents the distribution of plants by ownership mode. The table illustrates that a majority of utilities are owned by municipalities (55.2%). In as much as municipal, cooperative and investor-owned are the largest categories in the data, I limited this analysis to a comparison of these three modes.

[42] This is secondary data from the EIA, which is a highly cited and trusted source.

Table 3: Distribution of Utility Plants by Ownership Mode

Ownership Modality	Number of plants
Transmission	9 (<1%)
Federal	15 (<1%)
Municipal Marketing Authority	19 (<1%)
State	25 (<1%)
Wholesale Power Marketer	43 (1.3%)
Political Subdivision	128 (3.8%)
Retail Power Marketer	130 (3.9%)
Investor-Owned	228 (6.3%)
Cooperative	886 (26.6%)
Municipal	1,839 (55.2%)

Historical and Contemporary Dynamics

A challenge of this approach is that it is modeling contemporary dynamics in order to gain insight into historical dynamics. More specifically, the EIA does not have utility data for 1930s as it does for recent years. This approach is appropriate however because of similarities between early electrification and the rollout today of energy efficiency and renewable generation and energy efficiency technologies and services. By analyzing the current delivery of these technologies and services relative to their ownership modes, I was able to gain insight into how utility modes vary in their delivery. There are two significant similarities between the TVA's rollout of technologies and services[43], and the rollout of renewable generation and energy efficiency technologies and services. One is that they both exist within a context that is firmly established—a context of fossil fuel generation/efficiency disincentives for the current utility context and a context of discrimination and

[43] Noting that the TVA is a federally owned utility that relied and relies heavily on munis and coops for distribution of electricity.

segregation for TVA providing power to all. The other is that they both need(ed) internal and external leadership to overcome these barriers[44]. Current renewable generation/energy efficiency practices and TVA electrification of the segregated South both serve as possible disruptions to their context (i.e., possible opportunities to re-shape the context) and thus one can be utilized to understand the other.

Question 2: Existence - Archival Analysis

The next aspect of my research was to understand how discrimination manifested itself in the implementation of the Tennessee Valley Authority (TVA) plan for electrification and renewal of the Tennessee Valley region. Specifically, I focus on whether or not there is evidence of discriminatory practices, i.e., *did discriminatory practices exist in the policy formation and implementation of the TVA?*

The hypothesis, *that discriminatory practices existed during the policy formation and implementation of the Tennessee Valley Authority*, was informed by research which demonstrated the existence of discrimination in the policy formation and implementation of several sectors (housing, banking, education, etc.) (Gandy 2012). This hypothesis was also informed by an appreciation of the context within which the TVA emerged, which was highly racialized in terms of pervasive and institutional segregation (Alderman and Brown 2011). I used archival analysis, specifically content analysis, to determine the degree to which race and class were influential in the formations of Tennessee Valley Authority policies[45]. A content analysis of the relevant issues reported in the popular media and newspapers was

[44] The issue of leadership (or lack thereof) is an interesting issue to explore in a different research project.
[45] Regardless of whether there were explicit goals to address race or class

useful in understanding historical developments that provided contextual information (Winter 1992, Neuendorf 2002, Kohlbacher 2006). I used statistical analysis, specifically regression analysis, to determine the existence of discrimination in the implementation of the TVA. The section below outlines the archival analysis approach, and is followed by an outline of the regression analysis approach.

Mechanisms of Discrimination

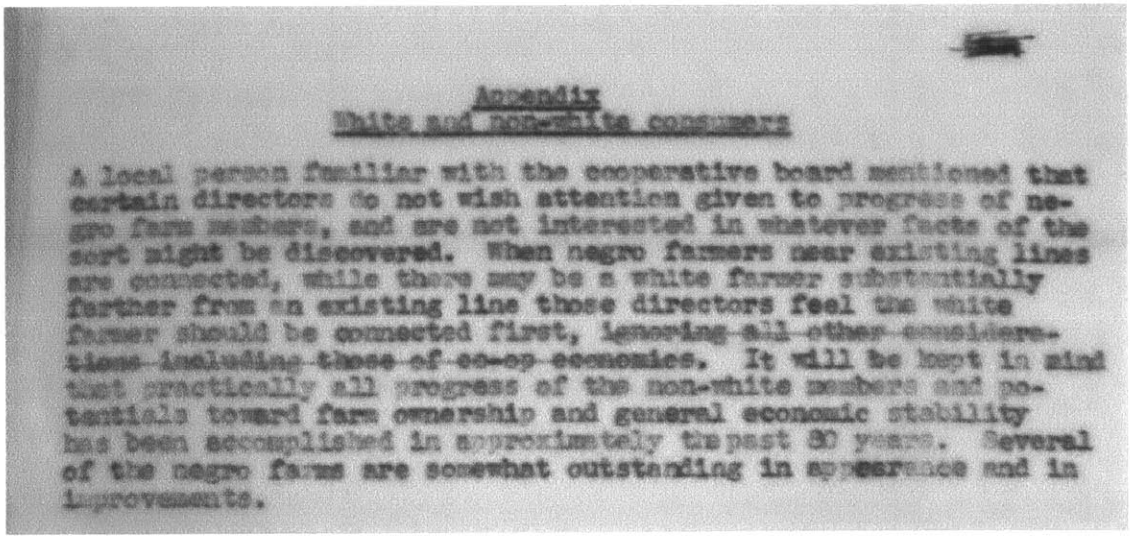
I examined archival documents to determine the use of one of three mechanisms of discrimination (Katznelson 2006). Those mechanisms were *exclusion, local control and allowance.* Table 4 outlines each mechanism.

Table 4: Mechanisms of Discrimination

Mechanism	What it is	Example
Exclusion	Leaving out as many members of a particular group as possible	Choosing not to electrify regions that have high concentrations of one particular group
Local Control	Within the existence of intense racial segregation, insisting that the administration of policies and laws be placed in the hands of local officials, thereby local biases and prejudices take precedence	Allowing local electric utilities (munis and coops) to have final decision-making authority.
Allowance	Preventing explicit anti-discrimination provisions from being included, ultimately allowing for increased discriminatory practices.	No inclusion of mandates to ensure electrification of regions with high concentrations of particular groups

I chose this taxonomy because it provides a concise framework for categorizing the deployment mechanisms for discrimination. I reviewed numerous

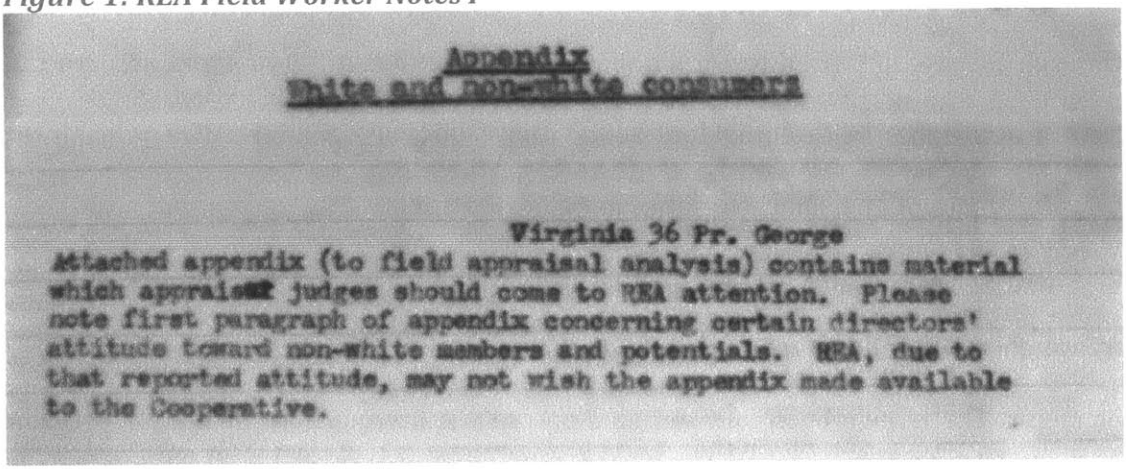
documents and coded various sections of these documents based their relevance to each mechanism. For example, a Rural Electrification Administration (REA) fieldworker indicates, in their 1949 field notes, that despite higher land quality and closer proximity of a black owned farm, the white owned farm should receive electrification. I coded this reference as both *exclusion* because of the cooperative members' willingness to "ignore all other considerations including those of co-op economies" and forego the electrification of Negro farms (see Figure 1 below). The threshold for inclusion within a mechanism category was low. As an example, the REA fieldworker reference was also coded as *local control* because the comment that the "REA, due to that reported attitude, may not wish the appendix made available to the Cooperative" could indicate the REA's unwillingness to allow local customs and practices to prevail (see Figure 2 below).



Appendix
White and non-white consumers

A local person familiar with the cooperative board mentioned that certain directors do not wish attention given to progress of negro farm members, and are not interested in whatever facts of the sort might be discovered. When negro farmers near existing lines are connected, while there may be a white farmer substantially farther from an existing line those directors feel the white farmer should be connected first, ignoring all other considerations including those of co-op economics. It will be kept in mind that practically all progress of the non-white members and potentials toward farm ownership and general economic stability has been accomplished in approximately the past 20 years. Several of the negro farms are somewhat outstanding in appearance and in improvements.

Figure 1: REA Field Worker Notes I



Appendix
White and non-white consumers

Virginia 36 Pr. George
Attached appendix (to field appraisal analysis) contains material which appraiser judges should come to REA attention. Please note first paragraph of appendix concerning certain directors' attitude toward non-white members and potentials. REA, due to that reported attitude, may not wish the appendix made available to the Cooperative.

Figure 2: REA Field Worker Notes II

Existence of Impacts of Discrimination

Documents were also examined for evidence of the existence of impacts of discrimination: *direct, indirect,* and *disparate impact* (Katznelson 2006). This was not an analysis of the actual impact of discrimination (question 3), but instead it is an examination for evidence of the existence of impacts of discrimination. Table 5 below outlines these categories. The process that I used for identifying impacts of discrimination mirrored the process I used for identifying mechanisms of discrimination. An analysis of longer-term impact was conducted in question three (3), however, I determined that it would be instructive to examine archival content for immediate (i.e., historical) and direct impacts.

George Galster (1992) posits that in housing markets there are two methods of detecting discrimination: an indirect approach and a direct approach. The indirect approach to detecting discrimination is one that was initially used by Robert Weaver (1948), the first United States Secretary of Housing and Urban Development (HUD) and the first African American to hold a cabinet-level position in the United States. This approach attempts to identify consequences of discrimination in order

to deduce its existence. The direct method of observing discriminatory behavior is through the use of paired testers; a methodology in which "two testers assume the role of applicants, with equivalent social and economic characteristics, who differ only in terms of the characteristic being tested for discrimination, such as race, disability status, or marital status"[46]. The results of each tester's inquiry and the treatment experienced are reported, documented and analyzed for discriminatory behavior. There have been four national paired tester studies performed by HUD in 1977, 1989, 2000 and 2012. The most recent Housing Discrimination Study (HDS) found that people of color still face discrimination in the housing sector (2013). In housing, the study of race and discrimination dates to the early 1900s when T. J. Woofter examined Negro movement from the Southern Black Belt, which was in part a result of housing tensions (Woofter Jr 1923). Since that time there have been countless studies to show both evidence and impact of racial discrimination within this domain (Alonso 1964(Galster, 1992 #2, Yinger 1997, de Souza Briggs 2005, Pager and Shepherd 2008, Immergluck 2009). Similarly, the study of class discrimination has a long history in the United States. For example, Cockey (2003) describes a proposed ordinance in Maryland that would have the unintended consequence of making affordable rental housing less available to classes of disadvantaged residents, including the poor, minorities, and the disabled. In the health sector, where the story is also similar, access to adequate health care and health outcomes among Americans of color has been linked to institutionalized

[46] http://www.huduser.org/portal/periodicals/em/spring14/highlight2.html

racial structure, discrimination and systemic racism[47] (Feagin and Bennefield 2014). These examples informed the approach that I utilized. The following section outlines my approach to understanding the impact of discrimination.

Direct, Indirect and Disparate Impact

Direct impact is most often a straightforward form of discrimination. It focuses on the impact from unfair, or less favorable, treatment of a person or group because they belong to that particular group. For example, skilled crafts unions within the American Federation of Labor excluded blacks until the 1930s (Massey and Denton 1993), which had the "direct impact" of preventing blacks from the benefits of unions. Indirect impact discrimination focuses on practices, policies or procedures that seem fair because they apply to everyone equally, but that ultimately result in a negative effect on specific individuals or groups. For example, subsidies for purchasing high efficiency water heaters that are available to anyone, irrespective of socio-economic characteristics, are accessible only to those with sufficient disposable income to take advantage of the opportunity. Disparate impact is a form of discrimination that focuses on the outcome and not the intent of discrimination. It is a theory of U.S. anti-discrimination law that allows proof of discrimination without the need to prove intent. The U.S. Supreme Court, in the 1971 *Griggs v. Duke Power Co.* decision, approved the theory of disparate impact[48].

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[47] It is instructive to note that race is an important social dynamic, but it is not the only social dynamic of concern. I give some consideration to class as well. My focus on the latter is not to imply that other factors such as gender, ethnicity, age, national origin, sexual orientation, marital status, or veteran status, are insignificant. But I approach race and class as fundamentally necessary to discuss, and it is thus the focus of this dissertation.

[48] It is interesting that the theory of disparate impact emerged from a dispute within the energy sector. This case was in response to Duke Power Company's plant in North Carolina openly

The theory explains that you can consider practices in employment, in housing, or in other areas discriminatory and illegal if they have a disproportionate "adverse impact" on persons in a protected class. The housing sector has several examples of disparate impact. One particular example is when a housing complex only rents or leases to people with full-time jobs. This practice prevents disabled veterans, and others with disabilities (who may not be able to work full-time) from access the housing units even though they can afford the unit. On June 25, 2015, The U.S. Supreme Court (in a 5-4 decision) upheld the use of disparate impact under the Fair Housing Act.

Table 5: Impacts of Discrimination

Impact	Definition	Example	Reference
Direct	When a person or group receives intentional unfair, or less favorable, treatment because they belong to a particular group.	An agency is explicitly denying benefits to Blacks	(Kleck 1981, Colton 1990, Moreno 1999)
Indirect	When a practice, policy or procedure seems fair because it applies to everyone equally, but ultimately (and often unintentionally) results in a negative affect on individuals or groups.	An agency, or financial institutions are denying loans, subsidies, etc. because Blacks are assumed to not 'qualify' for such	(Davis 1935, Grant 1990)
Disparate	Considers "adverse impact" and not intent.	When the effects of implementation have racial/ethnic dimensions	(Kleck 1981, Turner, Fix et al. 1991, Trotter 1996, Moreno 1999, Williams and Mohammed 2009)

discriminating against African Americans. The plant policy was that African Americans could be employed only in the labor department, where the highest paying jobs paid less than the lowest paying jobs in the plant's four other departments.

Data Sources

The primary sources for documents were the United States Library of Congress, the National Archives Records Administration (NARA), in Atlanta, Georgia and Washington D.C., and the TVA archives in Knoxville, Tennessee. I visited the NARA, U.S. Library of Congress and the Atlanta Archives on multiple occasions and the TVA Library in Knoxville on one occasion[49]. Specific documents reviewed included TVA board minutes, TVA reports, correspondences, newspaper articles, U.S. Congressional reports and memoranda from advocacy/labor groups. The National Archives and Records Administration (NARA) is responsible for preserving and documenting government and historical records and thus I was able to access every Federal document related to the TVA. Specifically, records were pulled from NARA Record Group 128; Chapter 23-Records of the Joint Committees of Congress 1789-1968. A listing of each record is included in Table 6.

Table 6: Archival Analysis Records

Source	**Number of Documents viewed or reviewed**
The U.S. Library of Congress	Approximately 400 pages of U.S. Congressional documents
Georgia TVA Archives	Over 3000 pages of documents and reports
The National Archives	The entirety of Record Group 128; Chapter 23-Records of the Joint Committees of Congress
Knoxville TVA Library	1200 document pages, over 700 newspaper clippings

During each site visit, I performed an initial scan to determine the number of records pertaining to the TVA that were available. The first pass at narrowing was to select out records pertaining to the beginning decade of the TVA. Then I took following steps:

1. Eliminate non-relevant technical records

[49] Although I must give many thanks to TVA Librarian, Nancy Proctor, with whom I had numerous email and phone communications.

2. Eliminate non-relevant financial records
3. Review relevant technical and financial records
4. Review documents from social planning department
5. Review documents relevant to the geographic areas in question

Once I had identified appropriate documents, I reviewed them for evidence of mechanisms and impacts of discrimination and input that evidence into a spreadsheet for further analysis.

Several publications produced, during the early to mid 1900s, proved illustrative as well. Such newspapers and publications included *The Chicago Defender, The Knoxville News Semitar, The New York Times, The NAACP Crisis Magazine,* and *The Pittsburgh Courier*. The primary, but not exclusive, focus was on articles from the period 1930-1945. In order to obtain relevant materials, I conducted a ProQuest, Newspapers.com, and Google Archives search using keywords Tennessee Valley Authority (TVA) and Negro from the period 1930-1950. That search yielded 143 returns. The TVA Library in Knoxville also holds every newspaper article written about the TVA for its first 50 years of existence.

I took the materials collected and analyzed the data using two approaches: one for media and one for non-media content. For media content, I utilized the following steps:

1. I read the articles to see if they were positive/negative/neutral with respect to the TVA. The standard I used considered the frequency of words that were positive/negative/neutral, which I identified within the article. I put this information into an excel database.

2. Then, I pulled out other characteristics from the articles (geographic, race, discrimination, employment) that were relevant to either understanding the context of that time or for identifying discriminatory references. I included these details with each reference in the database.
3. Finally, I added tags that indicated which mechanism or impact cluster the article fell in (if any).

For non-media content, I took the following steps:

1. I reviewed the documents for instances of mechanisms or impacts of discrimination and included this in an excel database.
2. I tagged each instance based on the most relevant cluster: mechanism or impact.
3. Within each cluster, I also tagged the entry based on the sub-cluster it fell into: exclusion, local control, allowance (mechanisms); and/or direct, indirect, disparate (impact).
4. I then looked for patterns within the sub-clusters.

Question 2: Existence – Statistical Analysis

I used regression analysis to further explore the question of existence of discrimination. I was interested in understanding whether or not there are statistically significant differences in the areas that received power from the TVA. I selected Tennessee, Alabama and Mississippi as the geographic region to analyze because these were the first three states to received TVA power. A list of the first TVA power contracts and date of initial service is included in Table 7.

Table 7: Initial TVA Power Contracts

Initial TVA Power Contracts				
Municipality	**State**	**1930 population**	**Date of earliest power contract**	**Date of initial TVA service**
Muscle Shoals	AL	719	17-Jan-35	14-Oct-33
Tupelo	MS	6,361	13-Nov-33	7-Feb-34
Athens	AL	4,238	6-Apr-34	1-Jun-34
Amory	MS	3,214	9-Mar-34	2-Sep-34
New Albany	MS	3,187	13-Sep-34	12-Nov-34
Pulaski	TN	3,367	8-Mar-34	4-Jan-35
Dayton	TN	2,006	12-Sep-34	1-Feb-33
Okolona	MS	2,235	23-Apr-35	14-Jul-35
Sheffield	AL	6,221	14-Mar-34	16-Mar-36
Dickson	TN	2,902	23-Oct-35	12-May-36
Holly Springs	MS	3,271	12-Nov-35	15-May-36
Florence	TN	11,729	12-Mar-34	15-Jul-36
Milan	TN	3,155	31-Dec-35	18-Jul-36
Jackson	TN	22,172	16-Oct-35	18-Jul-36
Bolivar	TN	1,217	31-Dec-35	20-Jul-36
Somerville	TN	1,333	31-Dec-35	25-Jul-36
Tuscumbia	AL	4,533	14-Mar-34	1-Apr-37
Trenton	TN	2,892	23-Aug-37	15-Nov-37
Knoxville	TN	105,802	1-Mar-34	12-Jan-38
Guntersville	AL	2,826	21-May-37	20-May-38
Memphis	TN	253,143	23-Nov-35	1-Jun-38
Russellville	AL	3,146	13-Mar-34	1-Sep-38

Though the TVA did not always "treat[50]" an entire county, the areas affected were effectively the entire county. Thus, "TVA-ness" is as a county-level variable. There were several census variables available.

Appendix C provides a list of available variables by census year from 1930-2010. Using 1930 census data, I looked for a relationship between the percentage of farms that had black heads of household (in a given county in 1930) and their receipt of TVA power (at any point in time). My hypothesis was that counties with a

[50] By treat, I merely mean that the area received power that was produced by the TVA.

higher percentage of Black owned farms were less likely to have received power from the TVA than those with higher percentages of White owned farms. The following is the linear regression equation used:

TVA = Bo + B2 Total Population + B3 Percent blacks head of farm household + B4 County + e

In order to understand class dynamics, I ran the regression model controlling for farm value. My hypothesis was that farm value was an indication of economic position or wealth and counties with higher farm values were more likely to receive power from the TVA. The value of farms is a better measure of wealth than the number of farms and home value measures are included in recent Census data. The following is the linear regression equation used:

TVA = Bo + B2 Total Population + B3 Percent blacks head of farm household + B4 Farm Value + B5 County + e

Question 3: Impact – Wealth Analysis

In general, the approach I took to understand the economic impact of discriminatory practices within the TVA was to: chose a specific geography (i.e., all counties in Tennessee, Alabama and Mississippi [51]); then examine initial conditions—in the 1930s before TVA interventions and during early stages of TVA development; and finally examine the change that resulted from those early stages to the present day. I conducted a regression analysis to begin to understand whether or not provision of TVA power to a county led to better economic outcomes for one group over another.

I was interested in measures of wealth, as opposed to measure of income. In their book, Black Wealth/White Wealth, Oliver and Shapiro (1996) Black

[51] This was determined in the process of answering question 2

demonstrate that the deep economic divide between blacks and whites in America can be traced to disparities in private wealth. They stress that inequality is more a function of wealth than it is a function of income. Taking this approach, I looked for measures of wealth that were available across decades (from the 1930s until the present day). I determined that homeownership was a key indicator. There are issues with this determination however. Chief among them was the issue with consistency of measurements. Homeownership metrics do not exist in the Tennessee Valley region for the years that would allow me to see pre and post TVA electrification. I ultimately chose to examine two variables to analyze and understand: farm values (1930 Census) and home values (2009-2013 American Communities Survey). I assumed 2013 aggregate home values for the county as a present day measure of county wealth. I then took this measure and analyzed its relationship to receipt of TVA power.

The benefit of this approach is that it resonates with the philosophical foundation of the TVA, which was wealth and asset accumulation. The TVA provided the potential for massive asset accumulation, through various means, including the provision of electricity to homes and farms. My approach helps to better understand the ways in which electricity contributed to asset accumulation in one group and a lack of asset accumulation in another.

The specific question I asked was: In Tennessee, Mississippi and Alabama, do counties with higher percentages of black farms have better economic outcomes in the present day?

The following is the linear regression equation used:

Total property value (millions) = B0 + B1 TVA + B2 Per capita income 2010 white + B3 Per capita income 2010 black + B4 State Characteristics Variable + e

Supporting Conversations

I also conducted a series of informal conversations with various individuals. These conversations served as a way to shape and clarify my understanding of contextual information. I classified the supportive conversations into three categories:

- TVA officials, which included, former Secretary of the TVA Board, current TVA employee;
- Historians, which included TVA archivist, Atlanta NARA archivist, Professor of TVA history; and
- Local residents (United States. Congress. Senate. Committee on Agriculture and Forestry. Subcommittee on S. 2925.) and a journalist in Tennessee.

These supporting conversations added texture and insight to the analysis. They were not conducted as formal interviews, nor did they follow any particular format. The intent of the conversations was to guide and to verify the analysis and overall direction of my research.

The next chapter is a case study[52] of the Tennessee Valley Authority. It outlines the history and evolution of the TVA and several contextual matters—national and local—that are relevant to understanding the TVA. In this chapter, I also begin to highlight some of the key findings from my research. Before moving on to that chapter, I provide a few comments on why I chose to the Tennessee Valley Authority and the Tennessee Valley Region as my site of exploration.

[52] I use "case study" and "site of exploration" interchangeably

Case Selection

There were several reasons for selecting the Tennessee Valley Authority as my case. As can be expected, I was looking for a case that provided the appropriate amount of available and useful data. This was important irrespective of the other parameters and the TVA far exceeded this criterion. There was a wealth of quantitative and qualitative information available on the TVA. This information existed in internal TVA documents. It also existed in U.S. Congressional records—beyond the normal records held for programs that utilize public dollars, the TVA was under U.S. Congressional investigation in 1938. The TVA was a large and very public project, thus it became the darling, and then the target, of local and national media.

Another reason for selecting the TVA was the magnitude of investment appropriated for the initiative. Federal dollars in excess of $2 Billion (adjusted to 2014) went into the TVA project[53]. In addition to the magnitude of investment that created the TVA, the overall scale of the project was an important factor. In 2014, it provides electricity to 9 million people in seven states, is currently the largest public power company in America, assists utilities, states and local governments with economic development, and provides flood control, navigation and land management.

The TVA is significant as a site of exploration because of its focus on the very publicly expressed goals and vision of economic development for the entire Tennessee Valley Region. President Franklin Roosevelt expressed the TVA vision on numerous occasions and TVA executives operationalized and passionately pursued

[53] Source: U.S. Federal Budget and TVA Board records.

these goals. Passionately, and often with great controversy, they pursued the ideal of economic development for all people in the region.

One factor that makes the TVA a great, and at the same time challenging, case to study is the context within which it existed: a context filled with race and class tensions. The 1930s Jim Crow South was "righteously indignant" about its racism, and shameless in its advocacy of discriminatory practices. White leaders and locals throughout the South made it their mission to oppress Blacks. Class tensions were evident, as the United States was in the midst of the Great Depression during the entire first decade of the TVA. Poor whites were vying for economic advancements and at the same time they were distressed by the vast inequalities they experienced.

Another reason for selecting the TVA as my site of evaluation is provided in Nancy Grant's book, *TVA and Black Americans: Planning for the Status Quo* (1990). Her depiction of the situation within the Tennessee Valley, the significance of the TVA for black people, and the role that planning can play—positively or negatively—in shaping the American landscape, represents an important statement regarding the significance of the TVA as a nexus for understanding race, energy and public policy during its early stages.

CHAPTER 4 – CASE STUDY: TENNESSEE VALLEY AUTHORITY

"We are working towards no less a goal than the electrification of America."
–David Lilienthal, TVA Director

This chapter will discuss the TVA from the context of its mission to transform the Tennessee Valley Region. In this chapter, I will highlight key aspects of national and local context that led to and engulfed the TVA: in particular the Great Depression, which was a catalyst for the TVA; and Jim Crow, which threatened to dismantle the TVA—if not the whole of America. I will also focus on the role that President Franklin D. Roosevelt played in the TVA and the relevant aspects of his New Deal, of which the TVA was one major aspect. A comprehensive review of the Great Depression, Jim Crow, President Roosevelt, New Deal and the TVA is expansive and far beyond the scope of my dissertation. Fortunately, there are countless books and articles written on each of these topics.

Equity relates to the fair or unfair distribution of resources. There have been and continue to be countless debates about the value of equity and the mechanisms that interfere with equity. There are far fewer conversations about specific actions that lead to equitable outcomes and even fewer examples of mega-scale projects aimed at achieving equity. The Tennessee Valley Authority (TVA) is not the only one of these examples; but it is quite arguably in a league of its own and "frequently cited as the most significant of the 'New Deal' developments" (Hodge 1938).

National Context 1920s and 30s

The Great Depression

The Great Depression was one of the most pivotal points in American, and World, history. It lasted through the 1930s, represents the full-scale collapse of

infrastructure, and was by all accounts the worst economic event in the history of the Western industrialized world. Though the seeds of a crash were planted long before, the beginning of the Great Depression is marked by four days from Thursday, October 24, until Tuesday, October 29, 1929: also known as Black Thursday, Black Monday and Black Tuesday. At close of business on Tuesday, October 29, 1929, the Wall Street stock market had dropped 25% and lost $30 Billion, which was ten times more than the Federal Budget in 1929 and more than the U.S. had spent in World War I[54]. The 1929 market prices hit their lowest point on November 13 a point at which the total loss, in just two weeks, or 11 business days, was over $100 Billion—nearly $1.4 Trillion in 2015 terms. There was global impact and this crash brought the previous decade, known as the Roaring Twenties, to complete silence.

Scholars have engaged in vigorous debate as to the ultimate causes of the Great Depression: some attribute it to a massive, sudden, and emotional loss of confidence in the market and a subsequent reduction in spending; some believe that it started as a normal recession, but a reduction in the availability of money caused it to spiral out of control; others hold a range of varying views. The impact of this severe worldwide economic depression is less debatable and was different from country to country.

In the U.S., there were unprecedented bank closings and rapid and deep declines in employment. By 1932, "industrial construction had slumped from $949 million to an unbelievable $74 million", with steel plants operating at 12 percent of

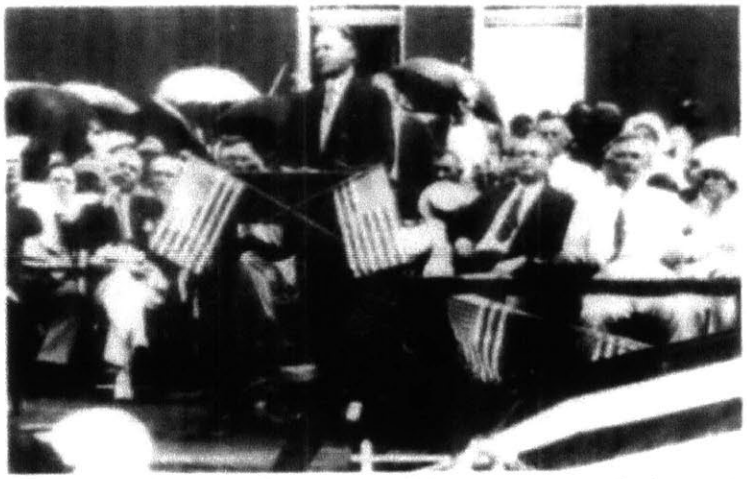
[54] http://useconomy.about.com/od/glossary/g/Black_Tuesday.htm

capacity. By 1933, between 13 and 15 million Americans were unemployed and the crash of five thousand banks had wiped out nine million savings accounts (Leuchtenburg 1963).

President Herbert Hoover

Four years prior, President Herbert Clark Hoover started his Presidency with great promise and potential, yet ended with disappointment and frustration. Despite having no prior experience in elected office, Hoover defeated his Democratic opponent, Al Smith, by more than 6 million votes and took office on March 4, 1929. His victory was in part the result of a booming economy. The economy was doing so well that after he won the Republican Presidential nomination, Hoover declared that, "We in America today are nearer to the final triumph over poverty than ever before in the history of any land[55]". Hoover's victory has also been attribute to his response to the Great Mississippi River Flood of 1927. Hoover, who was Secretary of Commerce and Chair of the 1927 Flood Relief Organization, spent over two months in the flooded states. While there, he was the primary voice on national radio and in newspapers; often being referred to as the "Great Humanitarian" and the "Great Engineer". Many photographs exist of him speaking in these flood-damaged areas (see Figure 3 below), which only heightened his public profile and enhanced his reputation as a national leader. Ultimately, this all contributed to his rapid rise to become the 31st President of the United States.

[55] Source: https://www.whitehouse.gov/1600/presidents/herberthoover



Herbert Hoover, Secretary of Commerce and chair of 1927 Flood Relief Organization, speaks in Pine Bluff, May 1927. Courtesy of Herbert Hoover Presidential Museum

Figure 3: Herbert Hoover speaks in Pine Bluff, Arkansas, May 1927

Hoover's fall was more rapid than his rise. It was only a few short months after he assumed office that the stock market crashed, sending the Country into a tailspin. Hoover's initial reaction to the crash was indicative of the belief among most economic experts at the time. In November of 1929, he noted that: "Any lack of confidence in the economic future or the basic strength of business in the United States is foolish". He worked tirelessly to respond to the crumbling economy by founding government agencies and corporations like the National Credit Corporation (NCC), which used a $500 Million reserve to support small and insolvent banks, or the Reconstruction Finance Corporation (RFC), which gave billions in aid and loans to state and local governments.

Hoover's efforts were not enough and met intense opposition and loud calls to do more. Despite President Hoover's early actions and the calls for more action, Hoover fundamentally opposed federal intervention in the economy and believed

that "volunteerism and individual effort would solve the countries economic woes"[56]. This belief led Hoover to resist the intense calls and ultimately provided the fodder for his overwhelming defeat in the 1932 Presidential election.

Racial Tensions

As difficult as the Great Depression was for the whole of America, the situation was greatly exacerbated and far more distressing and depressing for African-Americans[57]. The Depression was one more layer of disaster on top of layers that had been mounting for centuries. Historian Nancy Grant writes:

> *In the South, blacks suffered along with other agricultural workers and tenant farmers through the decade-long recession in crop prices and the ravages of the boll weevil and the Mississippi River. After the crash of 1929, unemployed whites took over traditional "Negro" jobs as waiters, bellman, porters, and truck drivers. The Depression curtailed occupational gains that blacks had made in such industries as iron, steel, meatpacking, shipbuilding, and auto manufacturing. (Grant 1990)*

By the time the 1930s arrived, Blacks had literally been living a great depression well before it hit Wall Street and Main Street. They had suffered from 225 years of legalized slavery[58], followed by 12 years of a hopeful Reconstruction

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[56] Source: University of Virginia, Miller Center. American President: A Reference Resource. http://millercenter.org/president

[57] I use Black and African-American interchangeably throughout this dissertation. However, there are two points worth mentioning: the term "Black" in practice refers to any whose skin is darker than the perceived normal, while African-American refers to an American who is of African decent; though I do not use it in this dissertation, the term "Negro" or "Nigger" was more commonly used in the 1930s to describe African-Americans.

[58] John Punch is considered to be first official slave in the English Colonies: In 1640, a Virginia Courts sentenced Punch to serve "his masters or his assigns" for the rest of his life. The 13th Amendment abolished slavery in the United States, except as a punishment for crime, on December 6, 1865.

Era, and 53 years of oppressive Jim Crow laws. By 1929, Jim Crow laws were a burden that was having a profound impact on blacks.

Jim Crow laws were a series of laws, enacted at the state and local level, that regulated the social, economic and political dynamics between whites and blacks. These laws intended to subjugate African-Americans to the will of whites and they found their beginning in the mid 17th Century in the form of slave codes and later, post-Civil War, in the form of Black codes. In his book, *The Anatomy of Racial Inequality*, Glenn Loury, Professor of Economics, includes a quote from Alexis de Tocqueville, which dates to 1848 (Loury and Loury 2009). Tocqueville remarks: "that the prejudice rejecting the Negroes seems to increase in proportion to their emancipation, and inequality cuts deep into mores as it is effaced from the laws."

Slave Codes

The slave codes were a series of laws that defined the status of slaves and outlined the rights and responsibilities of slave owners. These laws were the early codification of the dominant social structure in American—slavery[59]. These slave codes collectively created an intricate and savage system of legalized slavery.

Black Codes

The Black Codes were another form of oppressive laws that defined the social interaction between Whites and other groups, particularly Blacks. These

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[59] Examples of these laws include:
Maryland's 1664 law: That whatsoever free-born [English] woman shall intermarry with any slave [...] shall serve the master of such slave during the life of her husband; and that all the issue of such free-born women, so married shall be slaves as their fathers were.
Virginia's 1705 law: All servants imported and brought into the Country...who were not Christians in their native Country...shall be accounted and be slaves. All Negro, mulatto and Indian slaves within this dominion...shall be held to be real estate.
And Louisiana's 1724 law: The slave who, having struck his master, his mistress, or the husband of his mistress, or their children, shall have produced a bruise, or the shedding of blood in the face, shall suffer capital punishment.

codes were passed by Southern States in the two years following the Civil War, were in response to the emancipation, and were intended to restrict the freedom of newly freed Blacks and effectively force them to work in a low wage labor economy. These included, among other things: harsh contract laws that penalized anyone attempting to leave a job before an advance had been worked off; vagrancy statutes that made it a crime to be unemployed; and prohibitions against blacks carrying firearms—all of which were enforced vigorously and violently against blacks.

Similar to the slave codes, which operationalized and institutionalized the oppressive system of slavery, and the Black codes, which were in direct response to the *de jure* freedom that resulted from the Civil War, Jim Crow laws played a significant role in shaping the social structures of 19th, 20th, and 21st Century America. Jim Crow laws were a new[60] form of legal restriction cast upon Blacks and were in direct response to the advances of the Reconstruction Era (Alexander 2012). Though they varied from state to state, Jim Crow laws mandated the segregation of public schools, public places and public transportation, restrooms, restaurants and drinking fountains (Alexander 2012). It was commonplace to see signs like the ones in Figure 4, which illustrates the hostile business environment towards Blacks, and Figure 5, which shows "white and colored" or "white only" signs that demonstrate the explicit and intentional nature of segregation.

[60] New in 1877

Figure 4

Figure 5

The geographic barriers and constraints imposed on blacks both supported and strengthened these laws. A great example is what James W. Loewen calls "sundown towns". These towns existed in communities throughout the country and were explicit in their efforts to keep Blacks out by "force, law, or custom" (Loewen 2005) and they literally posted signs at their city limits that typically read "Nigger, Don't Let the Sun Go Down On You In ____." See Figure 6 and Figure 7: Sundown Town Article.

Figure 6: Sundown Town Sign


WHITE MEN SHOOT UP CHURCH

EAST AND WEST WAIT AT GATE

GROUP IS TOLD "NO N----RS ALLOWED AFTER SUNDOWN"

5,384 GALL STONES TAKEN FROM WOMAN

Gua
In C

Figure 7: Sundown Town Article

Franklin Delano Roosevelt Emerges from This Context

It is within this context—the Great Depression, national segregationist laws, and a failing Hoover economy—that Franklin D. Roosevelt emerges as a leader. He believed that the issues crippling America should be and could be faced head on and famously stated in his first inaugural address that the "only thing we have to fear is fear itself". Ascending to the Presidency at such a time of crisis in the United States, Roosevelt desperately needed to communicate these ideas.

Franklin Delano Roosevelt, often referred to as "FDR", was born in 1882 to a wealthy and prominent New York State family. His family had amassed their fortune in businesses that ranged from real estate to trade and he was the cousin of President Theodore Roosevelt. His privilege afforded FDR the opportunity to attend the exclusive Groton School in Massachusetts, then Harvard University and Columbia Law School. During his early years, FDR spent considerable time in Europe with his mother and not only learned German and French, but was also physically active, learning everything from tennis to rowing to polo. Roosevelt entered politics in 1910, serving as a New York State Senator and he would eventually become Governor of New York in 1928. His experience as Governor shaped many of his New Deal ideas—the TVA in particular.

Seeds of New Deal

At the turn of the century, New York State was at the nexus of the public and private power traditions. In his account of the battle between the TVA and private electric utilities, Thomas McCraw (1971) captures the unique and complex mix of energy dynamics that faced the state when he notes that New York was,

> *The home of Edison's original central station, of the prototype regulatory commission, of General Electric, of the capital market, of most holding companies, one of the greatest hydroelectric potentials east of the Mississippi. And facing New York, just across Niagara Falls, stood the continent's single magnificent example of regional public power, the Ontario Hydroelectric Commission. (1971)*

FDR's experiences, vision and convictions about public power were sealed within this crucible. Thomas K. McCraw gives an excellent account of the circumstances and notes how Roosevelt "dealt directly and almost constantly with its two constituent parts—with public ownership, represented by the fight over St. Lawrence hydropower, and with regulation, embodied in his running battle with the utility commission" (McCraw 1971). During his governorship, Roosevelt saw first hand the discrepancy in electric rates—from areas located in close geographic proximity. He would send staff throughout the state and into Ontario to collect data on electricity rates and discovered that for every $1 paid in Ontario, the same about of electricity cost more than twice as much if it came from the municipal plant, and approximately six times more in Manhattan and Albany. Roosevelt resolved to address these discrepancies.

Elected to a second term a governor of New York in 1930, Roosevelt decided that his strong base of support in such a large state was the foundation he needed to mount a run for the U.S. Presidency. Despite a heavily contested Democratic primary, and fierce competition at the Democratic Convention, Roosevelt was ultimately nominated and in his acceptance speech pronounced, "I pledge you, I pledge myself, to a new deal for the American people"[61]; giving name to his long journey to reshaping the American landscape—figuratively and literally. Roosevelt would go on to defeat incumbent Herbert Hoover by a greater margin[62] than Hoover's defeat of Al Smith four years earlier.

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[61] http://www.presidency.ucsb.edu/ws/?pid=75174

[62] Roosevelt carried 42 states while Hoover only carried six (6): Vermont, New Hampshire, Main, Connecticut, Massachusetts, and Delaware.

Figure 8: Franklin D. Roosevelt 1932 Campaign Button

FDR became the 32nd President of the United States when the country was in the depths of the worst economic crisis it had ever experienced: an unprecedented number of banks were closed; millions were unemployed and poor; thousands were living from soup kitchen to soup kitchen; tons of crops rotted in their storage bins; and families were forced to abandon their homestead as farm income vanished[63]. As promised on the campaign trail, Roosevelt was ready, on day one, with a series of economic measures structured to provide balm for the painful effects of the depression and point the country in a new direction. FDR and his team would ultimately enact a series of laws that created a new social compact between the Federal Government and the American public.

The Roosevelt era "marked a greater upheaval in American institutions than any similar period in our history, save perhaps for the impact on the South of the Civil War" (Leuchtenburg 1963). To address the complete loss of confidence in the national banking system, they created the Banking Act of 1933. They established the Federal Deposit Insurance Corporation (FDIC) to provide an assurance of safety for money deposited in banks. To put people back to work, they formed the Works

[63] http://rooseveltinstitute.org/policy-and-ideasroosevelt-historyfdr/new-deal#Legislation

Progress Administration (WPA), the Civilian Conservation Corps (CCC) and the Agricultural Adjustment Administration (AAA). The 1935 Social Security Act established the Social Security Administration and created a national pension, unemployment compensation, granted federal financial support to dependent children, the handicapped and the blind. FDR's vision and determination to address the country's most pressing ills caused him to establish the Securities and Exchange Commission (Arzi, Shedlesky et al.), the National Labor Relations Board (NLRB), the Federal Communications Commission (FCC) and the Federal Housing Administration (FHA) and The Tennessee Valley Authority (TVA). The New Deal set out to address real needs and restore confidence in the greatness of America.


The Atlanta Journal

FINAL HOME EDITION

ROOSEVELT PLEDGES QUICK ACTION IN EMERGENCY IN MOMENTOUS ADDRESS AT HIS INAUGURATION

Garner Takes Oath as Congress Ends Eventful Session

BANK HOLIDAY PREVAILS OVER UNITED STATES

Clearing House Banks Or City Issue Statement

JOHN N. GARNER TAKES OATH AS VICE PRESIDENT

Takes Office as 32nd President

BROAD POWERS TO BE INVOKED NATION IS TOLD

Text of Roosevelt's Talk: U. S. to Grow and Prosper

LEADERS DISCUSS U. S. GUARANTEE OF DEPOSITS IN BANKS

COTTON POOL BILL FAILS TO RECEIVE HOOVER APPROVAL

HOOVER CROWDING CONGRESS VIEWS OF WORK IN DAY

ASSEMBLY BOARD TO STUDY GEORGIA BANK PROTECTION

Figure 9: Atlanta Journal Article on FDR

The New Deal was enormously effective by almost every measure. Yet, some of Roosevelt's critics complained that his policies went too far with government intervention in the economy, while others were disappointed that they did not go

far enough. The admiration and critique was more evident in the TVA than possibly any other place.

Tennessee Valley Authority

The Tennessee Valley Authority was one of Roosevelt's most innovative ideas. It showed great promise across multiple dimensions; was a key, yet complex, New Deal program; and benefited from the "strong presidential and congressional support" and the large budget that it received (Grant 1990). Republican Senator George Norris was the staunchest proponent of the TVA, which was the key legislation that focused on developing a region of the country known as the Tennessee Valley Region. Norris asserted that a "system of dams along the unpredictable and flood-prone Tennessee River, would not only improve the farmlands in the valley through the use of nitrate fertilizer, but would also provide hydroelectric power and electricity for the valley." (Grant 1990)

Tennessee Valley Region

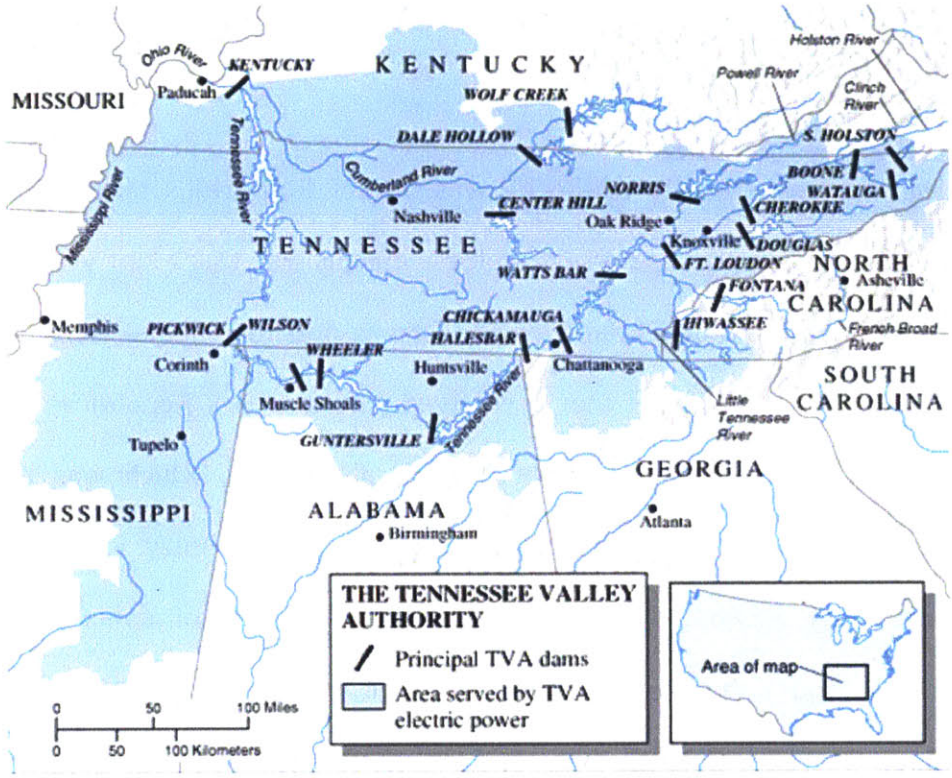

Figure 10: Map of Tennessee Valley Region

The Tennessee Valley Region (Figure 10) comprises parts of seven states[64] and spans the geography from southwest Kentucky to north Georgia and from northeast Mississippi to the mountains of Virginia and North Carolina. This region was vast and due to its lack of economic diversity and reliance on farming, it suffered heartily from the pain of the Great Depression. Figure 11 is a map of the Tennessee Valley Region in 1930.

[64] Virginia, North Carolina, Georgia, Alabama, Mississippi, Tennessee, and Kentucky

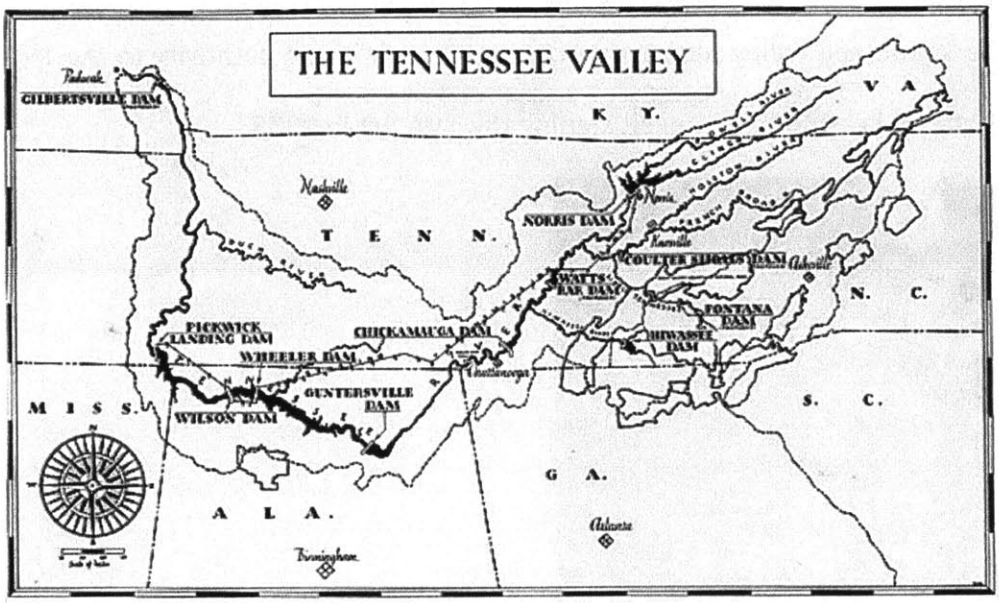

Figure 11: Map of Tennessee Valley Region 1930[65]

Prior to 1933, only six percent (6%) of property owners and two percent (2%) of tenants in the area had electricity (Alderman and Brown 2011). The region had a sizable black population, which topped forty percent (40%) in parts of Northern Alabama and Western Kentucky. Table 8 shows the 1930 total population, farm value[66] and percent black and white population for the seven (7) Tennessee Valley states.

Table 8: 1930 Statistics for Tennessee Valley Region[67]

State	Total Population	Farm Value (Per Capita)	Percent Black	Percent White
Alabama	2,646,250	$2,950	35.7%	64.3%
Georgia	2,908,500	$3,070	36.8%	63.2%
Kentucky	2,614,600	$4,990	8.7%	91.4%
Mississippi	2,010,000	$4,410	50.2%	49.7%
North Carolina	3,170,000	$4,110	29%	70.5%
Tennessee	2,616,500	$4,360	18.3%	81.7%
Virginia	2,421,900	$5,580	26.9%	73.1%

[65] http://media.nara.gov/media/images/27/8/27-0788a.gif
[66] Farm values are adjusted for inflation to 2013
[67] Source: U.S. Census Data

TVA Act

The Tennessee Valley Authority Act granted very broad authority to the TVA. Figure 12 shows President Roosevelt signing the TVA Act in 1933.

Figure 12: President Franklin signs the TVA Act[68]

It could operate along the Tennessee drainage basin and its "adjoining territory" and it could distribute its power to customers within an arbitrarily defined "transmission distance" of its power generation. Figure 13 is a map of the states within "transmission distance" of the TVA ten-dam power system.

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[68] *United States President Franklin D. Roosevelt signs the TVA Act, which established the Tennessee Valley Authority. Senator George Norris is on the far right. Taken from: http://www.tva.gov/75th/quilt/3.htm (direct link)*

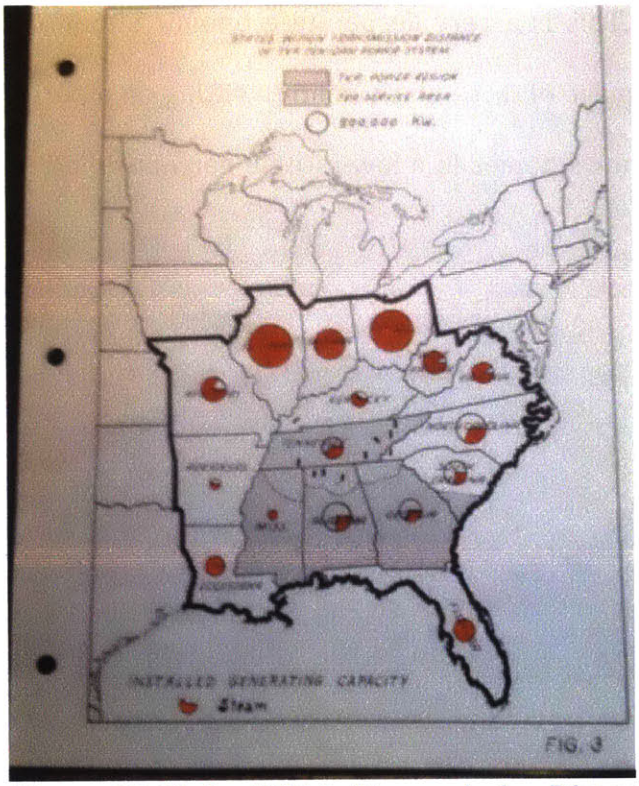

Figure 13: States Within Transmission Distance of the Ten-Dam Power System [69]

This reach allowed the TVA to ambitiously seek the revitalization of the entire Tennessee Valley Region, with the heart of its power generation work existed in Tennessee, Mississippi and Alabama. Though they enjoyed the agricultural boom of the 1920s, they experienced the devastation of constant flooding, and suffered the ruin of the Great Depression more than other areas. TVA Chairman Arthur Morgan summarized the conditions of the region in his testimony to the House Committee on Military Affairs, noting that there "is a situation down there that I think the American people as a whole do not realize. ... In the fall of 1933, there were counties in the southern highlands with more than 50 per cent of the families on relief. One county had 87 per cent of their families on relief. There are many prosperous communities in that region, but there is also a considerable part of that population

[69] Source: U.S. Joint Congressional Investigation Report

that is on the verge of starvation. ...This is a very desperate economic situation" (Hodge 1938). Figure 14 is a 1930s image of three black children sitting on a porch in the Mississippi Delta. Figure 15 shows homes in a low-income neighborhood in Alabama in the 1930s.

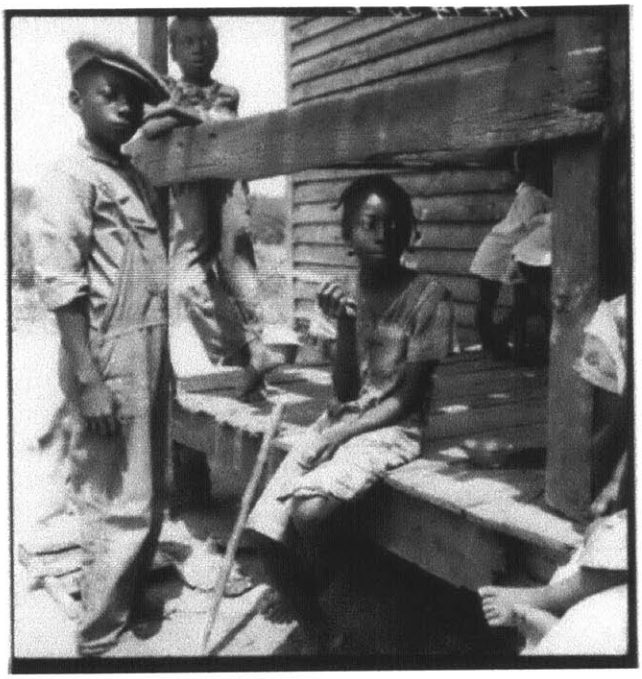

Figure 14[70]

Figure 15[71]

Initial Vision and Vision

The TVA Act included objectives that were general enough to provide broad authority to TVA leaders. The Act outlines the following objectives: "That for the

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[70] Source: TVA Archives

[71] Source: http://www.encyclopediaofalabama.org/article/m-2904

purpose of maintaining and operating the properties now owned by the United States in the vicinity of Muscle Shoals, Alabama, in the interest of the national defense and for agricultural and industrial development, and to improve navigation in the Tennessee River and to control the destructive flood waters in the Tennessee River and Mississippi River Basins, there is hereby created a body corporate by the name of the 'Tennessee Valley Authority'"(Hodge 1938). The TVA Act gave this authority to the TVA, with the most audacious being the authority to "improve the economic and social well-being of the people living in said river basin".

Hodge (1938) notes that the Act objectives are likely intentionally vague[72] on the power production authority and that it "conspicuously omits all mention of hydro-electric power development". However, the *General Information*[73] states that the "work of the Tennessee Valley Authority includes the generation and the sale of power, the building of dams, power plants and transmission lines" President Roosevelt, in an address to Congress on the St. Lawrence Waterway project, openly shares his keen interest in the ability to develop power. FDR stated, "As you know, I have advocated the development of four great power areas in the United States, each to serve as a yardstick" (Roosevelt 1938).

Role of electricity provision

Power production and electricity provision were a central component of the TVA Act and the TVA from the very beginning and the TVA marketing team made certain to highlight this focus at every turn. Figure 16 shows an early drawing the

[72] Hodge believes that it could have been vague in anticipation of a legal dispute as to whether the legislation comes within the purview of constitutional powers granted the Federal Government Hodge, C. L. (1938). The Tennessee Valley Authority: A national experiment in regionalism, The American University Press..

[73] General Information of the TVA Act

TVA's promotion of electricity. TVA leaders were acutely aware of both the need for power and the opportunity to meet this need for all. With their understanding of the regional context and climate, TVA officials had an early understanding of what Hodge later wrote about: "the power potentialities of the region may be appreciated when it is observed that up to 1933 throughout the Tennessee River Valley only two percent of the farms had electricity, and about three out of every one hundred farmers had access to electric current" (Hodge 1938). There was widespread excitement about fulfilling this power potential.

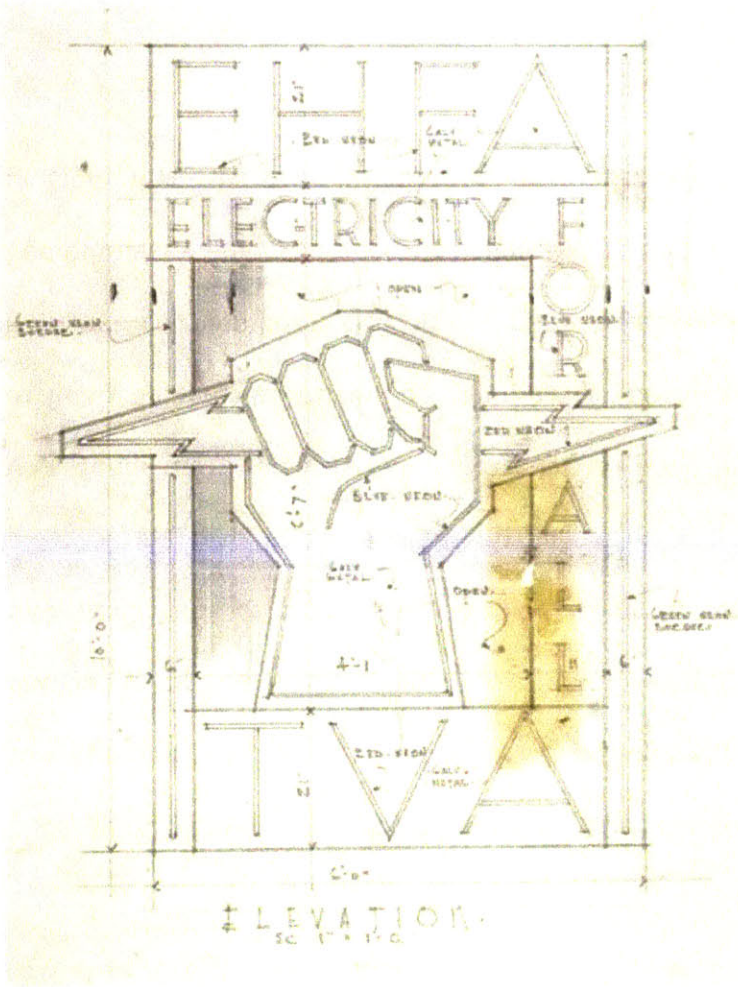


Figure 16: Electricity for All Graphic

Opposition

Not everyone was optimistic and excited about the ideas behind the Tennessee Valley Authority. Opponents were not without reason (valid and otherwise) to be concerned and were often angry. The TVA was primarily funded (via taxes) by those who did not live in the Tennessee Valley, it flooded nearly three-quarters of a million acres of land behind its dams, and over fifteen thousand people were forced out of their homes. While farm owners received cash settlements for condemned property, tenant farmers, a large portion of who were black, received no compensation.

Interaction with region

In total, the interaction with and response to the TVA was mixed. Supporters were proclaiming the revitalization of the region through economic development, infrastructure building, and electrification (which was promoted as enabling increased productivity and increased leisure time). Opponents reacted negatively to forced relocation (in order to flood certain areas) and exclusion from many TVA benefits. To address the opposition and encourage supporters, the TVA invested heavily in marketing the benefits of TVA power. The TVA also spent time and resources on training, on a range of topics, for those in the region. Whenever possible, the TVA praised and celebrated victories. They considered the first power plant in Muscle Shoals, Alabama and the first electricity contract in Tupelo, Mississippi, as early victories.

Muscle Shoals and Tupelo became the start of a significant line of power contracts throughout the region. The first wave of power contracts (1933-1938),

were varied in terms of population size, geographic location and socio-economic status. Figure 17 and Figure 18 show the first 69 power contracts, signed between 1933 and 1938.

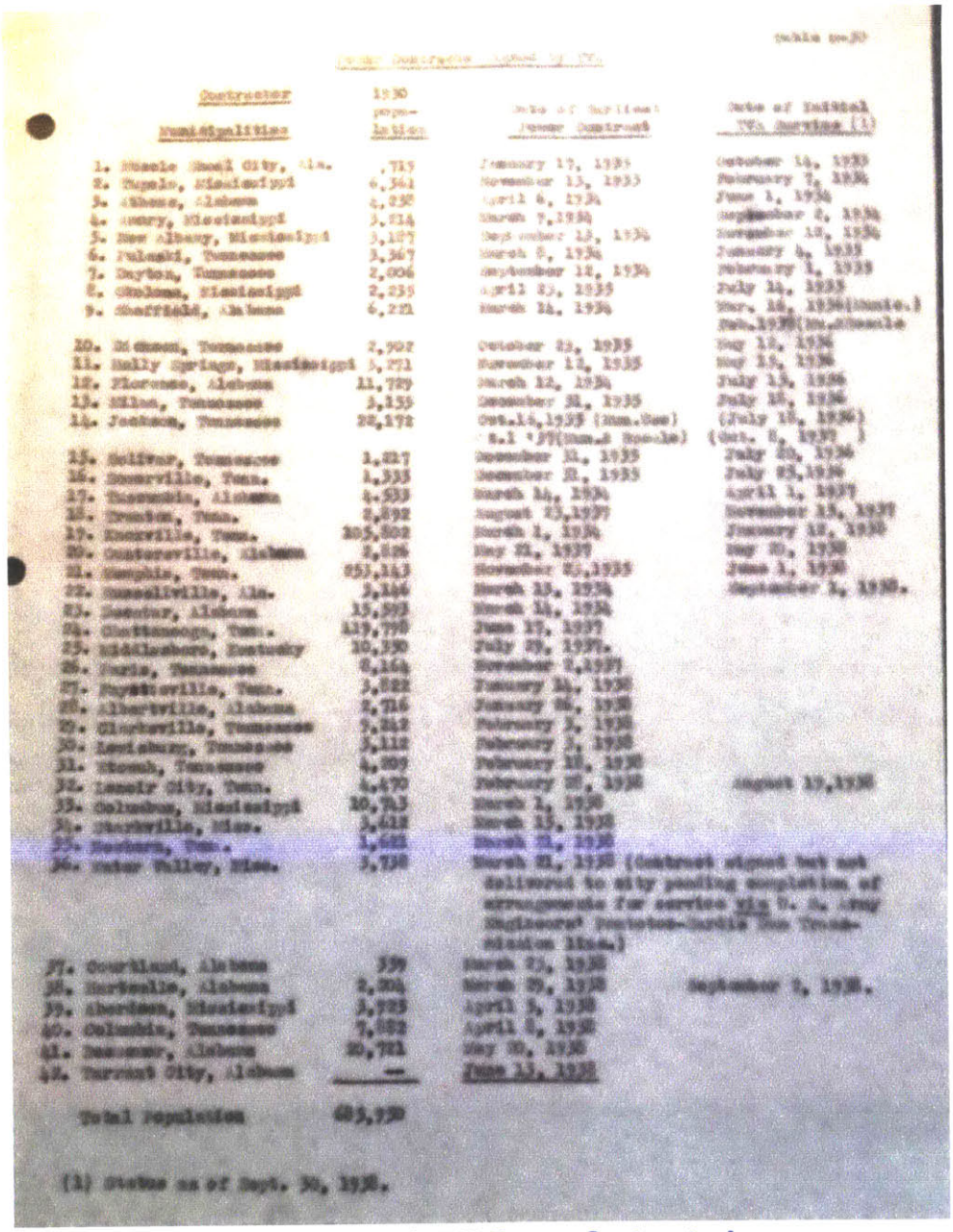


Figure 17: First Sixty-nine (69) TVA Power Contracts-A

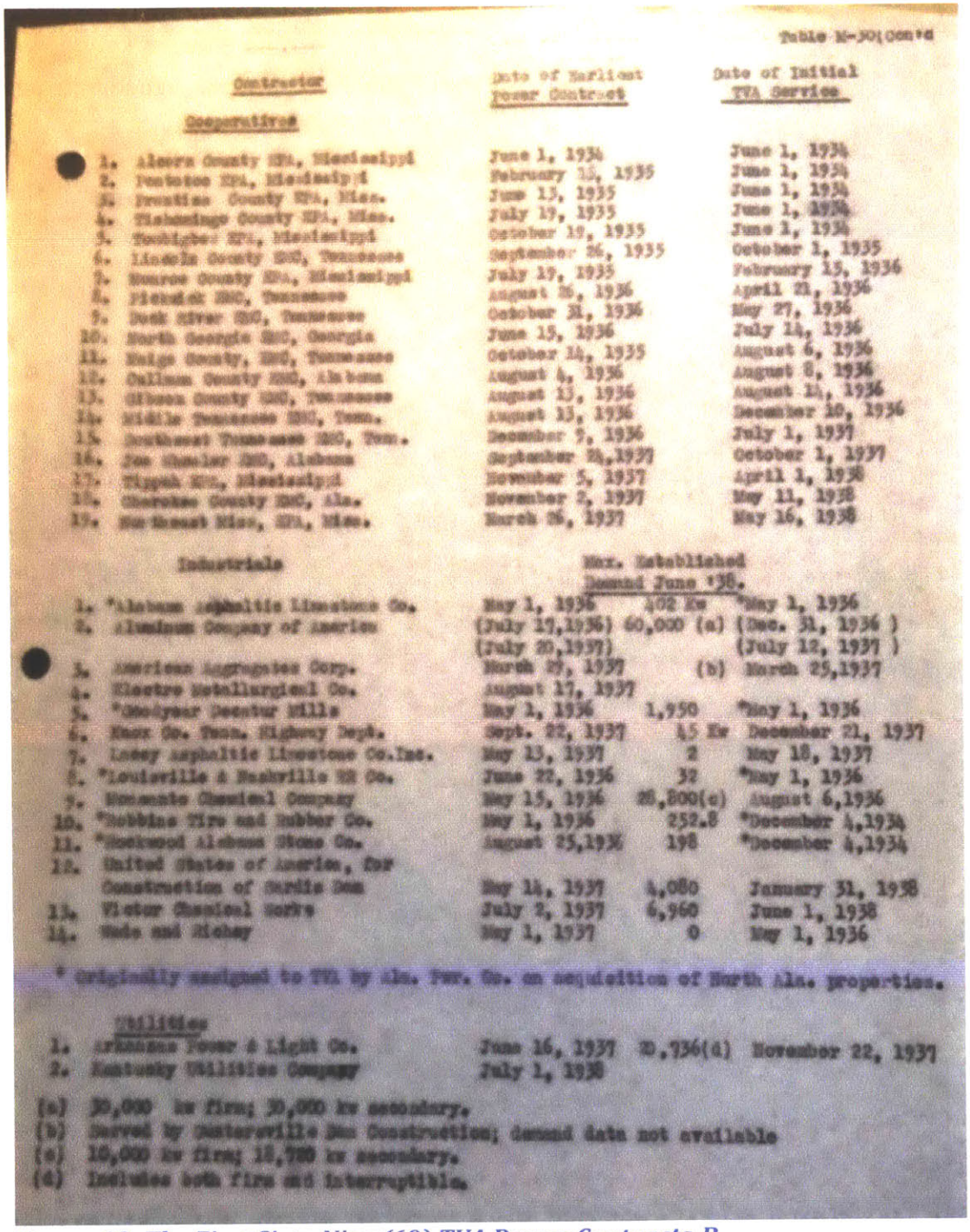


Table M-30(cont'd

	Contractor	Date of Earliest Power Contract	Date of Initial TVA Service
	Cooperatives		
1.	Alcorn County EPA, Mississippi	June 1, 1934	June 1, 1934
2.	Pontotoc EPA, Mississippi	February 15, 1935	June 1, 1934
3.	Prentiss County EPA, Miss.	June 13, 1935	June 1, 1934
4.	Tishomingo County EPA, Miss.	July 19, 1935	June 1, 1934
5.	Tombigbee EPA, Mississippi	October 19, 1935	June 1, 1934
6.	Lincoln County EMC, Tennessee	September 26, 1935	October 1, 1935
7.	Monroe County EPA, Mississippi	July 19, 1935	February 15, 1936
8.	Pickwick EMC, Tennessee	August 26, 1936	April 21, 1936
9.	Duck River EMC, Tennessee	October 31, 1936	May 27, 1936
10.	North Georgia EMC, Georgia	June 19, 1936	July 14, 1936
11.	Meigs County, EMC, Tennessee	October 14, 1935	August 6, 1936
12.	Cullman County EMC, Alabama	August 4, 1936	August 8, 1936
13.	Gibson County EMC, Tennessee	August 13, 1936	August 14, 1936
14.	Middle Tennessee EMC, Tenn.	August 13, 1936	December 10, 1936
15.	Southwest Tennessee EMC, Tenn.	December 9, 1936	July 1, 1937
16.	Joe Wheeler EMC, Alabama	September 24,1937	October 1, 1937
17.	Tippah EPA, Mississippi	November 5, 1937	April 1, 1938
18.	Cherokee County EMC, Ala.	November 2, 1937	May 11, 1938
19.	Northeast Miss, EPA, Miss.	March 26, 1937	May 16, 1938
	Industrials		Max. Established Demand June '38.
1.	*Alabama Asphaltic Limestone Co.	May 1, 1936	402 Kw *May 1, 1936
2.	Aluminum Company of America	(July 17,1936) 60,000 (a)	(Dec. 31, 1936)
		(July 20,1937)	(July 12, 1937)
3.	American Aggregates Corp.	March 29, 1937 (b)	March 25,1937
4.	Electro Metallurgical Co.	August 17, 1937	
5.	*Goodyear Decatur Mills	May 1, 1936 1,950	*May 1, 1936
6.	Knox Co. Tenn. Highway Dept.	Sept. 22, 1937 45 Kw	December 21, 1937
7.	Lacey Asphaltic Limestone Co.Inc.	May 13, 1937 2	May 18, 1937
8.	*Louisville & Nashville RR Co.	June 22, 1936 32	*May 1, 1936
9.	Monsanto Chemical Company	May 15, 1936 28,800(c)	August 6,1936
10.	*Robbins Tire and Rubber Co.	May 1, 1936 252.8	*December 4,1934
11.	*Rockwood Alabama Stone Co.	August 25,1936 198	*December 4,1934
12.	United States of America, for Construction of Gardis Dam	May 14, 1937 4,080	January 31, 1938
13.	Victor Chemical Works	July 2, 1937 6,960	June 1, 1938
14.	Wade and Hickey	May 1, 1937 0	May 1, 1936

* Originally assigned to TVA by Ala. Pwr. Co. on acquisition of North Ala. properties.

	Utilities		
1.	Arkansas Power & Light Co.	June 16, 1937 20,736(d)	November 22, 1937
2.	Kentucky Utilities Company	July 1, 1938	

(a) 30,000 kw firm; 30,000 kw secondary.
(b) Served by Centerville Dam Construction; demand data not available
(c) 12,000 kw firm; 16,788 kw secondary.
(d) Includes both firm and interruptible.

Figure 18: The First Sixty-Nine (69) TVA Power Contracts-B

CHAPTER 5 – FINDINGS

In this chapter, I present the findings from each research question. I divide the chapter into three main sections that correspond to the three central research questions. I begin each section with brief comments on the question. I then share the findings and provide a discussion of the implications of these findings. I present these findings in the same order of the questions discussed earlier in this dissertation. This ordering is not an indication of significance to the overarching question.

The three central questions that I explored in this dissertation are:

- *Q1: Does electric utility ownership mode matter in the delivery of energy services?*
- *Q2: Did discriminatory practices exist in the policy formation and implementation of the TVA?*
- *Q3: How and to what extent does discrimination impact outcomes of energy distribution and access in the US today?*

The major hypothesis guiding this research was that measurable differences in energy related outcomes (i.e., energy inequities) exist for certain groups and these differences have important consequences on energy distribution and access that also can be measured. This hypothesis and the corresponding questions attempt to frame discussions of energy equity. The following sections provide more detail on this analysis.

Question 1 Findings: Benchmark

The first question in this dissertation was to understand whether or not differences in how electric utilities deploy energy efficiency and renewable energy technologies and services are associated with utility ownership structure. The working hypothesis was that there are identifiable differences, by utility ownership structure, in the deployment of technologies and services. Prior research has identified differences among utility ownership structures. However, this research does not provide insight into historical dynamics, which is what the results of this question have provided.

Specific Findings

Results suggest that an electric utility's ownership mode impacts its ability to deploy advanced metering infrastructure (AMI) meters to its customers. For a given cooperative, there was a statistically significant finding that municipally owned utilities (and IOUs) have fewer advanced metering infrastructure (AMI) meters per megawatt hour (MWh) sold. This means that cooperatives have a higher proportion of customers with the technology necessary for real-time monitoring of their electricity consumption than munis and IOUs. Additionally, for a given cooperative, there was a statistically significant finding that municipally-owned utilities (and IOUs) have fewer Green Pricing Customers.

Both munis and coops are more effective and efficient at delivering AMI metering to their customers than IOUs. Table 9, Table 10, and
Table 11 show the results of the linear regression, respectively holding munis, coops, and IOUs constant.

Table 9: Regression Table with Muni as Control

Muni as control			
	% AMI Metering	% Green Pricing Customers	% Net Metering Customers
Investor Owned	0.03	-0.009*	-0.002
	-0.045	-0.004	-0.003
Cooperative	0.422***	-0.006*	-0.002
	-0.035	-0.003	-0.003
Constant	0.065	0.025*	0.003
	-0.05	-0.01	-0.002
N	578	674	622
* p<0.05, ** p<0.01, *** p<0.001			

Table 10: Regression Table with Coop as Control

Coop as control			
	% AMI Metering	% Green Pricing Customers	% Net Metering Customers
Investor Owned	-0.392***	-0.003	0
	-0.046	-0.005	0
Municipal	-0.422***	0.006*	0.002
	-0.035	-0.003	-0.003
Constant	0.487***	0.019	0
	-0.054	-0.01	-0.001
N	578	674	622
* p<0.05, ** p<0.01, *** p<0.001			

Table 11: Regression Table with IOU as Control

IOU as control			
	% AMI Metering	% Green Pricing Customers	% Net Metering Customers
Cooperative	0.392***	0.003	0
	-0.046	-0.005	0
Municipal	-0.03	0.009*	0.002
	-0.045	-0.004	-0.003
Constant	0.095	0.016	0
	-0.057	-0.01	-0.001
N	578	674	622
* p<0.05, ** p<0.01, *** p<0.001			

Table 12: Comparison of percentage AMI Metering provides a summary table of the each utility ownership mode's performance at deploying AMI Metering, relative to the other ownership modes[74].

[74] The table should be read as: for a given utility ownership mode (column headings) a different ownership mode (row headings) has a statistically significant lower (minus sign) or higher (plus sign) percentage of AMI meters per MWh sold.

Table 12: Comparison of percentage AMI Metering

	% AMI Metering		
	Muni	Coop	IOU
Muni		–	–
Coop	+		+
IOU	+	–	

Implications of Findings

Utility ownership mode matters for the deployment of AMI Metering to customers and to a lesser degree it matters for the deployment of Green Pricing Services. These results suggest that ownership mode does impact some aspects of energy efficiency and renewable energy technologies and services.

The finding that munis and coops are more efficient and effective at delivering products and services to their customers has a number of implications. It implies that an investment to deliver these products and services to people of color and low-income individuals is likely to have greater impact if made into munis and coops. According to a report released by the American Association of Blacks in Energy (AABE), African Americans are more than twice as likely to live in poverty as non-African Americans. The amount of money spent on fuel and electricity purchases represents a sizeable portion of household expenditure.

The AABE report also notes that African Americans spend a "significantly higher fraction of their expenditures on direct energy purchases than non-African Americans across every income decile". If you are poor and African American, you spend more on energy than if you are poor and non-African American; and if you are wealthy and African American, you spend more on energy than if you are wealthy and non-African American (AABE 2004). With less income available for energy purchases and higher energy costs, people of color and low-income people are less

likely be able to take advantage of products and services like AMI metering and Green Pricing without additional support in the form of incentives and subsidies.

Question 2 Findings: Existence

The second question in this dissertation explored the possibility of identifying discriminatory practices in the early formation of the Tennessee Valley Authority. It is a question of existence. The analysis suggests that identifiable discriminatory practices existed. The following sections provide more detail on this analysis.

Specific Findings

There is evidence to suggest that discrimination existed in the policy formation and implementation of the TVA. The evidence suggests that certain groups in the Tennessee Valley Region received TVA electricity based on their race. Five (5) findings from the qualitative and quantitative analysis support this conclusion. The findings are as follows:

1) Local control and allowance shaped implementation;

2) Black farms, in Mississippi, Tennessee and Alabama, were statistically less likely to receive TVA power;

3) Black farms in Mississippi were more valuable (in 1930) than White farms;

4) Overall, farms in Mississippi were more likely receive TVA power than farms in Alabama[75]; and

5) That the TVA was embedded in a racialized context.

The next sections detail each of the five (5) findings.

[75] Every county in Tennessee received TVA power

Local Control and Allowance played a major role

The archival analysis yielded a few relatively insignificant cases of explicit discrimination. Relevant documents spoke to the overall goals of employment inclusion and training for Blacks. However, there were over 50 references to allowing the local context to dictate the terms of engagement. John P. Davis identified most of these references in his 1938 report to the NAACP entitled *The Negro and TVA (*Figure 22*).* His report focused heavily on employment practices, but it does provide a window into the TVA operations. Through local control and allowance, Blacks faced the direct impact of denial of services and employment. This corresponds to other studies of discrimination within New Deal initiatives.

In the following excerpt, Ronald Boyce, professor emeritus of geography at Seattle Pacific University, writes about the geography profession's contributions to the development of the Tennessee Valley Authority.

> *TVA legislation required that fertilizer and power be available to farmers at the lowest possible prices. The legislation also specified that some farmland that had been heavily eroded by the growing of row crops-especially cotton, tobacco, and corn-on steep slopes be taken out of production and reforested. Another issue was the need to aid existing businesses and attract new industry. To accomplish these goals the TVA was to seek state and local cooperation through the democratic process that today is referred to as "grassroots democracy." To its many critics, "grassroots democracy" simply meant that local power groups such as the Farm Bureau Federation and the Agricultural Extension Service had to bow to TVA demands, particularly those that would benefit large landholders, such as white planters... (Boyce 2004)*

This is another example of *local control* at play within the TVA. These mechanisms are important because they illustrate and operationalize the earlier discussion on race and class. More specifically, identifying instances of exclusion, local control and allowance casts a net broad enough to capture both structural and cultural issues. As noted in the literature review: *a focus on race alone leads to a neglect of important structural issues (Wilson 1980, McKee 1993), while focusing on class alone neglects critical cultural issues (Cox 1970, Brubaker 2005, Alexander 2006).*

Black farms less likely to receive TVA power

The linear regression indicates the possibility of direct impact discrimination. The results suggest that counties in Mississippi and Alabama, with higher numbers of Black owned farms, were less likely to receive power from the TVA. Controlling for the total value of farmland and the county's population, there is a strong negative relationship between the percent of rural farm families headed by blacks and a county getting TVA. It is significant at the .01 level. Counties with higher percentages of black-headed farms were less likely to receive power from the TVA. Table 13 shows the results of the linear regression. The results show that a 1% increase in black farm owners, within a county, decreased that county's probability of getting TVA by nearly 3%.

One response to these results is questioning whether or not the land within the arbitrary 300-mile distance to the TVA 10-dam region had a higher population of whites, before the TVA intervention. Figure 19 shows the percentage population whites and blacks in 1930. In this figure, the White population is represented in

green and the Black population in blue. It is true that counties closer to the 10-dam region had a higher percentage of whites. However, this does not explain the counties on the north-central Mississippi/Alabama border, which have a higher percentage of blacks. Geography would dictate that these counties receive TVA power. Additionally, the 300-mile distance was not a technically imposed distance. Technology would have allowed the transmission of electricity across greater distances.

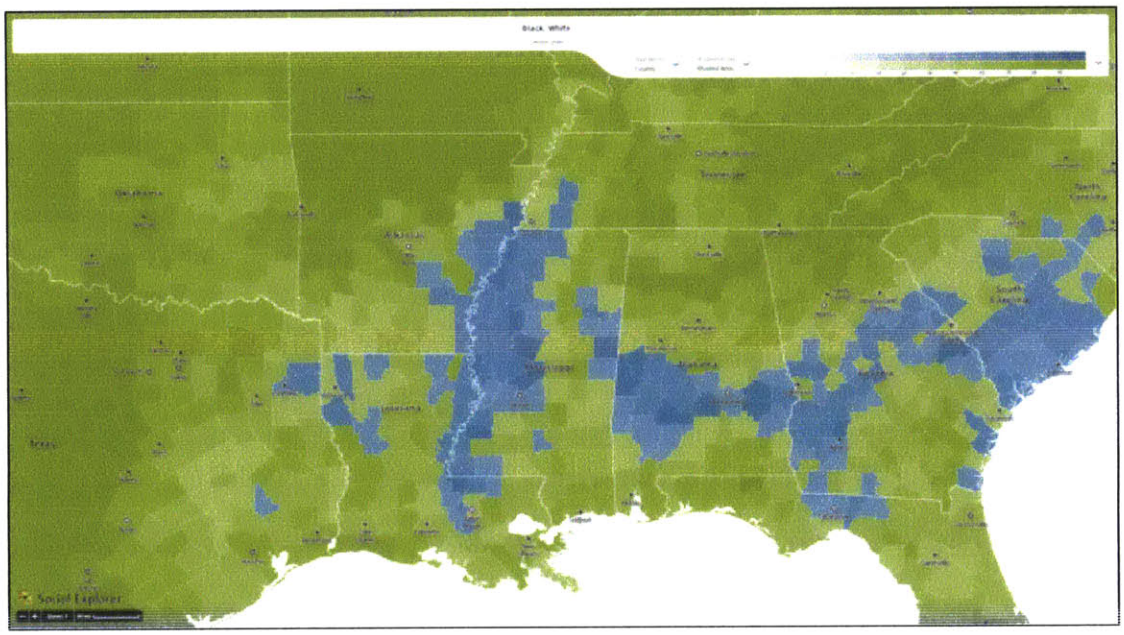


Figure 19: 1930 Black-White Populations

An overlay of Figure 19 with the TVA service area, Figure 20 below, further suggests that geographic distance was not a technical constraint.

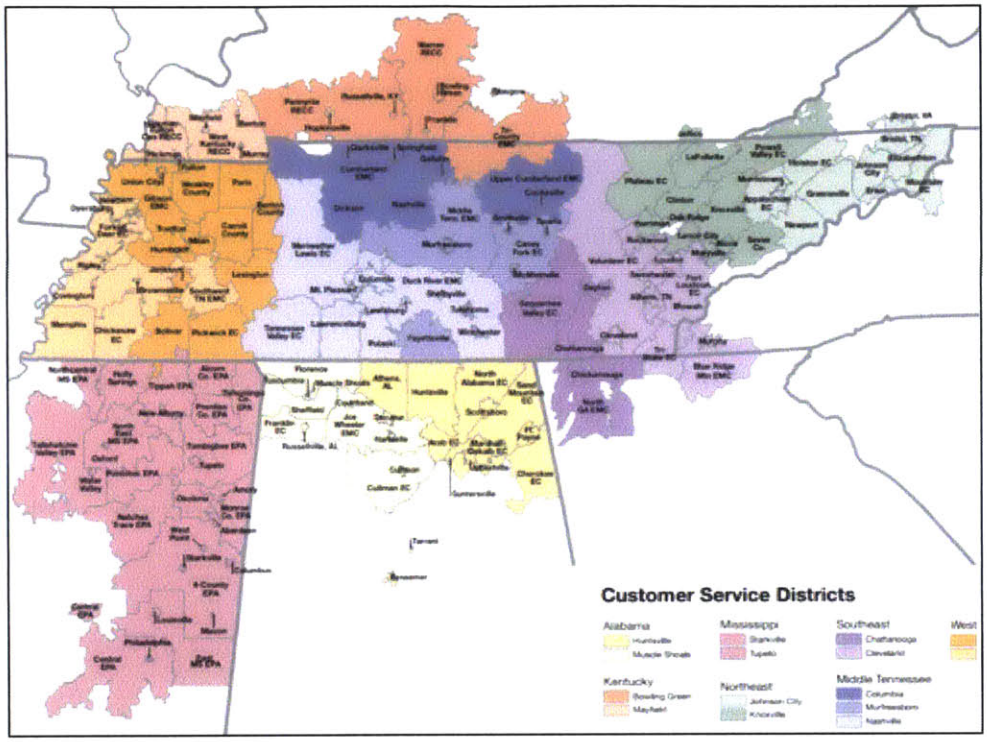
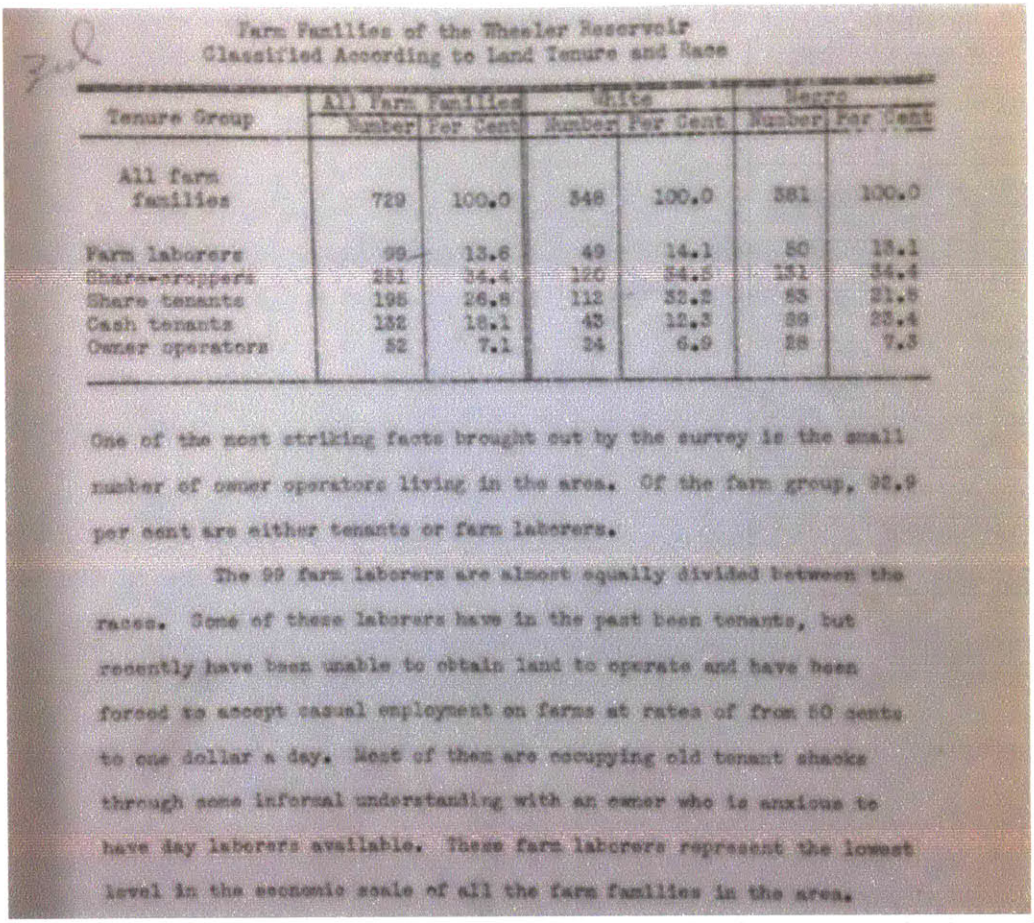


Figure 20: TVA Service Area

I found that this also played out in specific examples. In the instance of Wheeler Dam, in Wheeler Alabama, a Preliminary and Confidential Report of "Families of the Wheeler Reservoir Area (September 12, 1935)[76], notes that approximately 50% of the farming population was black. Figure 21 below shows that there were 381 "Negro" farm families and 348 "White" farm families, which were "almost equally divided between the races". These points taken together suggest that geography and existing population demographics are not significant contributing factors to the inequity in electricity provision.

[76] Laura Daws, Professor of Communications at Southern Polytechnic State University in an email dated October 14, 2014, provided this information and report.



Farm Families of the Wheeler Reservoir
Classified According to Land Tenure and Race

Tenure Group	All Farm Families		White		Negro	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
All farm families	729	100.0	548	100.0	381	100.0
Farm laborers	99	13.6	49	14.1	50	13.1
Share-croppers	251	34.4	126	34.5	131	34.4
Share tenants	196	26.8	112	32.2	85	21.6
Cash tenants	132	18.1	43	12.3	89	23.4
Owner operators	52	7.1	24	6.9	28	7.3

One of the most striking facts brought out by the survey is the small number of owner operators living in the area. Of the farm group, 92.9 per cent are either tenants or farm laborers.

The 99 farm laborers are almost equally divided between the races. Some of these laborers have in the past been tenants, but recently have been unable to obtain land to operate and have been forced to accept casual employment on farms at rates of from 50 cents to one dollar a day. Most of them are occupying old tenant shacks through some informal understanding with an owner who is anxious to have day laborers available. These farm laborers represent the lowest level in the economic scale of all the farm families in the area.

Figure 21: Breakdown of Farm Families in Wheeler Reservoir Area (United States. Congress. Conference committees 1935. [from old catalog], McSwain et al.)

Table 13: Linear Regression Results Likelihood of TVA Power

Likelihood of receiving TVA power	
Total Value of all farms in state	4.78e-08
	(1.55)
Total Population	0.00000360
	(0.60)
Percent Black Farms	-0.0267***
	(-3.40)
Misssissippi	1.406**
	(3.29)
_cons	-0.876*
	(-2.01)
N	149
t statistics in parentheses	
="* p<0.05	** p<0.01
Alabama was omitted	

Black Farms in MS more valuable in 1930 than White Farms

Interestingly, Black farms in Mississippi (circa 1930) were on average, more valuable than White farms in that state. This is not a surprising finding. It is however interesting when considered with the next finding.

Farms in Mississippi were more likely to receive TVA power

Farms in Mississippi were more likely to receive TVA power than those in Alabama and yet Black owned farms in Mississippi, which were more valuable, were still less likely to receive TVA power than White farms in Alabama.

Racialized context impacted TVA engagement

All TVA operations in the south existed in a context of racial segregation and discrimination. As mentioned in the case study, Jim Crow laws were the ruling order. Therefore, via local control and allowance, the TVA was "maintaining the status quo" (Grant 1990).

For example, there was clear and evident racial discrimination through the mechanism of employment practices. People were prevented from an opportunity

to express or advocate for their interest and Blacks were directly excluded from economic opportunities. William Leuchtenburg, in referencing TVA Director, David Lilienthal, noted that, "He [Director Lilienthal] had neutralized opposition to public power at the high cost of acquiescence to Morgan's administration of the TVA's farm program in the interests of the more prosperous white planters." (Leuchtenburg 1963) Figure 23: NAACP to Tell of TVA Jim Crow (Chicago Defender Article, Figure 24: Negroes Charge Race Oppression under New Deal (Chicago Tribune, *and* Figure 25: Economic Status of Race (Chicago Defender, are examples from the media analysis.

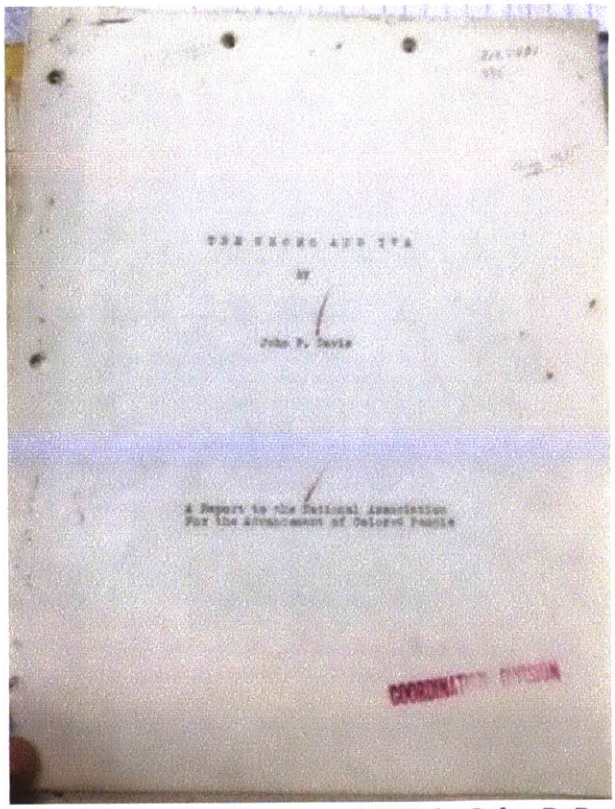


Figure 22: The Negro and TVA by John P. Davis

N.A.A.C.P. To Tell Of TVA Jim Crow
The Chicago Defender (National edition) (1921-1967); Aug 20, 1938;
ProQuest Historical Newspapers: Chicago Defender
pg. 5

N.A.A.C.P. To Tell Of TVA Jim Crow

KNOXVILLE, Tenn., Aug. 19—Discrimination against members of the race by the Tennessee Valley Authority in living conditions and in the field of labor relations will be brought before the Joint Congressional Investigating committee now holding hearings here on the TVA by officials of the National Association for the Advancement of Colored People.

Charles H. Houston and Thurgood Marshall, members of the association's legal staff are here compiling the results of their investigation preparatory to testifying before the committee immediately following the disposal of testimony involving the sale of Tennessee marble by Major George Berry.

Figure 23: NAACP to Tell of TVA Jim Crow (Chicago Defender Article)

NEGROES CHARGE RACE OPPRESSION UNDER NEW DEAL: Discriminations Cited by G.
Chicago Daily Tribune (1923-1963); Oct 20, 1940; ProQuest Historical Newspapers: Chicago Tribune
pg. 14

NEGROES CHARGE RACE OPPRESSION UNDER NEW DEAL

Discriminations Cited by G. O. P. Campaign Group.

More than 60 prominent Negroes from 32 states, members of the national planning board of colored voters of the Republican national committee, yesterday assailed the Roosevelt administration's treatment of their race.

Meeting in Republican headquarters at 120 South La Salle street, the board called upon all colored citizens to vote for Wendell L. Willkie, the G. O. P. nominee for President, as a protest against racial intolerance and segregation which they charge has been fostered by the New Deal.

"We view with great alarm the pass to which the present leadership of our government has brought the American Negro," the board said in a resolution presented by Francis E. Rivers, an assistant district attorney under Thomas E. Dewey in New York City.

AAA Discrimination Charged.

The resolution charged that the New Deal discriminated against the Negro by:

1. Appointment of only four colored field agents out of 115,000 in the Agricultural Adjustment administration, altho 2 million Negroes are gainfully employed in agriculture.
2. Confinement of Negroes to unskilled labor in the Tennessee Valley authority.
3. Exclusion of Negroes from Greenbelt, Md., the government's 14 million dollar model community outside Washington, D. C.
4. Adoption of laws and policies "which enable prejudiced unions to exclude Negroes from employment in private enterprise and assign the colored applicant for work to inferior classes."
5. Promotion of residential segregation in the New Deal's handling of the Federal Housing administration, Home Owners' Loan corporation, and the United States Housing authority.
6. Discrimination and segregation in the administration of work relief.

Army Program Assailed.

"On Oct. 9, 1940," the resolution continued, "the New Deal showed its true colors when it brazenly stated the elaborate program of segregation for the Negro in our armed forces, the most vicious act of segregation ever perpetrated by the New Deal in that it recognizes and institutes a separte caste system."

The meeting was attended by Perry W. Howard, national Republican committeeman from Mississippi and the only Negro on the national committee; Sidney R. Redmond, director of the western colored division of the national committee, state and national Negro leaders, and other prominent colored citizens.

John D. M. Hamilton, executive secretary of the Republican national committee and Col. Theodore Roosevelt Jr. addressed the group. Hamilton said he had never been "more confident of victory in my 25 years in politics."

Wire from Willkie Read.

Rivers, who is director of the eastern colored division, read commendatory telegrams from Willkie, Joseph W. Martin Jr., chairman of the national committee and other Republican leaders.

Attorney Alex L. Jackson of the colored division of the Associated Willkie Clubs of Illinois yesterday countered Democratic claims that the Negro vote of Chicago's south side is "in the bag."

He said 145 local clubs have been formed in the colored sections of five wards and 43 per cent of the members voted for Roosevelt in 1936. Jackson asserted that Negroes are supporting Willkie in the hope he will keep the nation out of war and cause business prosperity to return.

Negro Republican Leaders Meet

(Story in adjoining column.)

[TRIBUNE Photo.]

Some of the prominent Negroes who met yesterday at Republican headquarters. Left to right: Perry W. Howard, Francis E. Rivers, Emmet J. Scott, Sidney R. Redmond, Mrs. Charlotta A. Bass, and Mrs. Sarah Pelham Speaks.

Figure 24: Negroes Charge Race Oppression under New Deal (Chicago Tribune)

ECONOMIC STATUS OF RACE STRESSED IN MEET REPORT
The Chicago Defender (National edition) (1921-1967); Jul 8, 1933;
ProQuest Historical Newspapers: Chicago Defender
pg. 10

ECONOMIC STATUS OF RACE STRESSED IN MEET REPORT

Stressing the principle that the economic status of the Race worker is linked with that of American labor generally, the findings and action committee appointed by the conference on the economic status of the Negro held in Washington, D. C., May 11 to 13, made public this week through the Julius Rosenwald fund, sponsor of the conference, a definite program of recommendations.

Calling of regional economic conferences to formulate plans to "improve the position of Negroes, both in industry and agriculture," was recommended in the program formulated by the committee. Recommendation was also made that "there be more extensive employment of Negro technical experts in federal relief services which are of special importance to Negroes, in administration of agricultural benefits, the United States employment exchanges, and such other national programs as the Tennessee valley authority."

The findings and action committee which made the report was composed of Chairman Charles S. Johnson, director of the department of social sciences, Fisk university; W. W. Alexander, president of Dillard university, New Orleans; Bishop George C. Clements, A. M. E. Zion church; T. Arnold Hill, director, National Urban league; Dean Kelly Miller, Howard university; Prof. Broadus Mitchell, Johns Hopkins university; R. R. Moton, principal, Tuskegee institute, and Walter White, author and secretary, National Association for Advancement of Colored People.

OFFERS SOME SOUND SUGGESTIONS

"It was the feeling of the committee that the chief and surest programs on behalf of Negroes involve both their original education and re-education, and persistent labors to help them provide for themselves a surer economic base upon which they may, on their own initiative and in the freedom and satisfaction of economic security, live their own lives, unenvious and unenvied in peace with their fellows," the report says in summary.

Neither the Negro nor the white farmer can be benefitted until the present tenant and credit systems have been radically reorganized on a basis which offers greater independence and sharing by the tenant of his own improvements on the land, permits more favorable terms of credit, and gives the tenant farmer an opportunity to purchase his farm, the committee agrees.

"The economic future of the Negro worker is linked with the economic future of American labor generally," the report says. "Although Negro workers are held below the level of American labor generally, neither group has attained, under the present system, an adequate standard of living. The greatest and most far-reaching improvement of Negro labor will come as the gains of democracy are broadly distributed among all the people."

EXCLUSION POLICY IS DANGEROUS

Exclusion or discrimination against one group of workers by organized labor is a danger, both to organized labor and the excluded group, the statement emphasizes. Separate salvation for Race workers is neither posible nor expected, but no improvement of the status of American workers should be considered without the full inclusion of Race workers.

"Competent Negroes to participate in those branches of the federal relief service, which have special importance for the race, can be drawn from such agencies as the Smith-Hughes and Smith-Lever programs and the staffs of Negro agricultural colleges," the statement says. The committee points out that "many Negroes with special training, such as the farm demonstration agents, are peculiarly fitted to serve with leadership in the administration of agricultural benefits, the employment exchanges, and the Tennessee valley authority."

The committee recommends that the basis of any agreement between capital and labor, under the sponsorship of the government, should include the provision that there be no discrimination on account of race or color. Other measures recommended include insistence upon more direct and impartial supervision of federal relief measures; further investigation of federal relief through feed, seed and fertilizer loans, the various agencies of the Reconstruction Finance corporation, reforestation projects, and public relief programs. Race farmers are urged to enter into cooperative agricultural enterprises whenever possible.

The concluding recommendation that, "In view of the increasing importance of Negro vote, which is no longer expressed through a single party, opportunity is at hand for Negroes to participate more directly in the determination of governmental policies."

Figure 25: Economic Status of Race (Chicago Defender)

Implications of findings

In the 1930s, state and local governments were influential and their practice of segregation had a major impact on TVA decisions. Black interests did not get the kind of attention that they might have gotten in a non-segregated context. The TVA may not have been the trigger to discrimination, but it was part of a racialized and segregated context. Examining the decision-making in the racialized and segregated context shows that Black homeowners and farmers did not have the same access and opportunities as White homeowners and farmers. In a situation of segregation, TVA could not implement solutions that were racially neutral. This is the basis of the Croson decision in 1984, which is the classic modern decision in defining discrimination. The 5-4 decision noted that a finding of discrimination (as in this case), justifies a remedy. I discuss possible remedies in the recommendations and conclusions chapter.

Question 3 Findings: Impact

This question focused on the impact of discriminatory practices to determine whether or not there are quantifiable differences in outcomes for different groups.

Specific Findings

Three (3) primary findings were the result of answering this question of impact. The first result may be obvious: that wealthier White homeowners have land that is worth more. The next two results may be less obvious: that 2013 land values in Mississippi are lower than those in Alabama (despite Mississippi land values being higher in 1930) and that counties that received TVA power are worth more than those counties that did not receive TVA power.

When White people are wealthy, their land is worth more

Linear regression suggests that there is a statistically significant relationship between the per capita income of Whites in a county and the total property value for that county. In other words, counties with wealthier White residents have higher property values. See Table 14 for regression results.

Table 14: Linear Regression Results_County Property Values (Millions)

Property Value (Millions)	
Received TVA Power	1.989**
	(3.18)
Per Capita Income-Whites	0.000667***
	(11.51)
Per Capita Income-Blacks	0.0000850
	(1.47)
Mississippi	-1.650**
	(-2.74)
Tennessee	0.262
	(0.36)
_cons	-14.85***
	(-10.83)
N	244
t statistics in parentheses	
* p<0.05; ** p<0.01; *** p<0.001"	

Land values in Mississippi lower than in Alabama

The linear regression results also suggest that, all other things being equal, a county in Mississippi is going to be worth $1.6 million less in aggregate home value than a similar county in Alabama. Despite the fact that home values in Mississippi were greater than those in Alabama, circa in 1930, they were unable to maintain that value difference. See Table 14 for regression results.

Counties that received TVA power are worth $2M more than those that did not

The linear regression appears to suggest that if a county received power from the TVA, then its aggregate home value is worth nearly $2 million more than if the county did not receive TVA power. This is a tangible and measurable economic impact that may have resulted from the presence of TVA power.

Implications of findings

These results imply that discrimination not only existed, but that it had a measurable economic impact.

In the context of TVA's impact on individuals, this research shows that the provision of energy was not a direct impact to individuals. Federal mandates and resources first went through organizational structures and process and then through local influencers before reaching individuals. This is represented in Figure 26. In the case of the TVA, this impact on individuals may have ultimately led to significant disparaties in wealth.

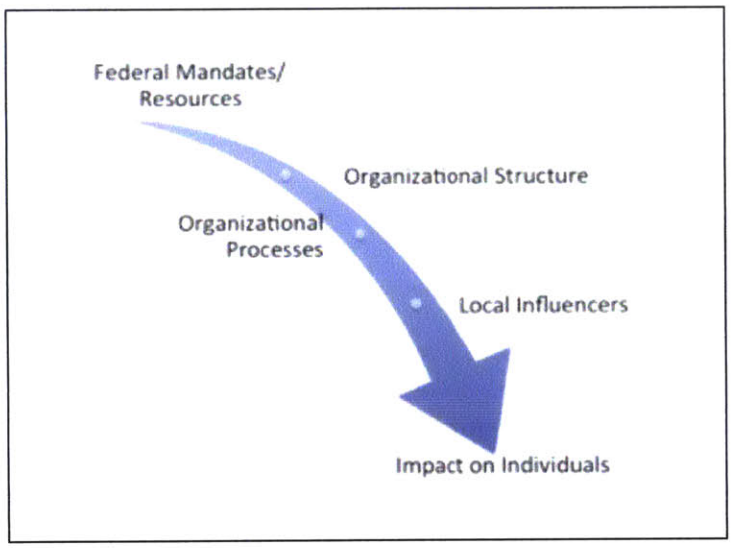


Figure 26: Flow of Impact

Limitations of research

This research was challenging for a number of reasons. To begin with, there was a lack of a base of literature on discrimination within the energy domain. This served as both a limiting and a motivating factor. I utilized this challenge as an opportunity to create a framework for addressing problems of discrimination in this domain. The research was also challenging as a result of data issues. There was a lack of directly relevant and consistent impact data. Fortunately, there was a wealth of data (in the form of letters/memos and reports) that was unfiltered in addressing the issue of racial discrimination. This is in large part due to the U.S. Joint

Congressional Investigation of the TVA. Finally, there was the challenge of having access to an enormous amount of data. Because the TVA, and its leadership, was such a heavily scrutinized organization, there was an abundance of data that required significant sifting.

What follows is a final chapter, with recommendations that stem from this research and a few concluding remarks.

CHAPTER 6 – CONCLUSION AND RECOMMENDATIONS

America in the 1930s was in an intense struggle with its own discriminatory beliefs and practices. This struggle manifest itself in many forms, of which one was the violent Jim Crow laws, and it created a segregated context that supported and encouraged discriminatory practices in every facet of American form. It is clear that while The Tennessee Valley Authority (TVA) may not have been the trigger for discrimination, it existed in this racialized and segregated context and was unable to alter this context.

Through this research, I echo the understanding that the TVA operated from a discriminatory framework (Mary Chalmers 1934, 1938, 1938, 1939, By 1939, Grant 1990). I also suggest that the racialized context within which the TVA existed, led to discriminatory outcomes that may have run counter to the TVA's original vision and goals. This point is important because it shows that in the context of discrimination and segregation, the TVA could not implement solutions that were racially neutral. I have begun to address gaps in the literature regarding discrimination in the energy domain. I began by examining whether or not there is evidence to suggest that discrimination is a relevant factor in the energy domain. By analyzing counties that received power from the TVA, I was able to identify a measurable difference between counties that were predominantly black and those that were predominantly white—with "black" counties receiving TVA power at a lower rate. I conclude that these differences may have been attributable to discrimination.

Media and content analysis support this finding of inequity. While the overwhelming majority of relevant articles were positive in nature, there were several dozen articles, from numerous sources, which referenced broad discriminatory practices at that TVA during the 1930s and 40s. Reports from the U.S. Congressional investigation also point to a discriminatory climate.

Having identified outcome differences that may be attributed to discrimination, I then explored the impact of this possible discrimination. There is evidence to suggest that the impact of this discrimination was significant—counties that received TVA power[77] had 2010 home values that were $2M greater than those that did not receive TVA power[78].

It is quite possible to dismiss the results of this research as narrowly focused on a specific energy service provider, within a confined geographic space and around a very specific time in the distant past, making it impossible to generalize to contemporary energy systems and policies. However, dismissal of these results would miss the compelling evidence of energy and environmental discrimination that exists today—from inappropriate location of fracking systems, to transport and disposal of nuclear wastes, to exclusionary policies that prevent renters, those with a lack of disposable income, and those with inadequate housing conditions from accessing government subsidies and thus the benefits of energy efficient (money saving) technologies.

So what does this all mean? What does this say about energy equity and the things that the energy domain needs to focus on? What does it say specifically to

[77] Note that these counties were more likely to be predominantly white.
[78] Note that these counties were more likely to be predominantly black.

people of color, poor people and those who advocate on behalf of people of color and the poor? More importantly, why does it matter? In this chapter, I will build upon the implications that were outlined in Chapter 5 – Findings, and discuss recommendations. I end with a range of conclusions for policy makers, researchers and those within the energy field.

Policy Recommendations

Impact Analysis

The first set of recommendations is geared towards policy makers engaged in the energy domain or who are concerned with energy policies that impact large portions of the population. This research supports the notion that decisions regarding energy policies and practices may result in economic outcomes that are undesirable to certain populations. One way to understand these related outcomes is to perform impact analysis that specifically explores race and class dynamics. This impact analysis should be incorporated into assessments of energy investments. For example, public subsidies for investment in energy efficiency technologies are often biased towards groups (economic classes) who have access to sufficient disposable income (Colton 1990). Investment of public funds in energy infrastructure should include, as a condition of using these public dollars, an impact analysis that not only takes into account the contemporary impacts of energy policy on marginalized groups, but that also accounts for historical discrimination that are at play as well.

One great example of this can be found in the work that the Energy Equity Alliance is doing around LIHEAP (the Low-Income Home Energy Assistance Program)[79]

Data Availability

One of the challenges with conducting this research was the available of relevant data. Fortunately, I was able to identify a case, the Tennessee Valley Authority, which had a wealth of available data. This is not typical within the energy domain. Policy makers should support and encourage making a larger set of energy related data available more broadly. The Department of Energy (DOE) has recently put tremendous effort into making data publicly available. However, to encourage additional progress, policy makers should convene a panel of experts who would help determine the appropriate data to track and make that data available to the public.

Broader Focus on Energy Discrimination

Given the centrality of energy and the undeniable impact of discrimination, advocacy groups should add energy discrimination impact to their areas of focus, similar to their work in housing, jobs and lending. There are groups, the American Association of Blacks in Energy (AABE) and the Energy Equity Alliance, who serve as

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[79] *LIHEAP and other energy assistance programs disproportionately benefit African Americans. African Americans comprise 12.7% of the overall population. Based on an eligibility model and self-reporting, blacks are estimated to receive an estimated 23-25% of LIHEAP funds. In 2003, 23% of the $1.8 billion in LIHEAP appropriations amounted to roughly $400 million in home energy assistance for African Americans. In the few states for which data is available, blacks receive an even greater proportion of LIHEAP funds than suggested by their percentage of eligible recipients. Updating the antiquated state block grant allocation formula would increase the percentage of African American households eligible to receive LIHEAP funds. In constant dollar terms (annually adjusted by the CPI), LIHEAP funding has approximately been halved over the past two decades. Variable funding poses a significant obstacle to improving LIHEAP services. The number of African American households helped in FY 2000 is estimated to be between 830,000 and 1,150,000. FROM AABE REPORT*

an example and who are consistently raising concern about the unfair and unbalanced distribution of energy costs and benefits.

Research Recommendations

It is also important that the research community seek to understand issues of discrimination in the energy domain. I have two key recommendations: the first is to conduct and support additional research into the impact of energy discrimination; and the second is to develop tools and methods for conducting impact analysis on current energy projects. These recommends are explained in greater detail below.

Additional research into the impact of energy discrimination

There has been very limited research on the impact of energy discrimination. This research begins to expand on that literature. In this dissertation, I asked questions about the impact of a massive federal program within the energy sector. Yet I left many questions unanswered. What is the impact of discrimination within the private electric utility sector? What are the historical factors that have created cumulative disadvantage within the energy sector and what impact do these factors have today? In what ways does energy discrimination serve as a barrier to engagement within the energy sector, by groups discriminated against? Given the call for energy to be for the public good, an understanding of the impact of energy discrimination should be a part of the research enterprise.

Energy discrimination impact analysis for current energy projects

Energy discrimination impact analysis should focus on current energy efficiency and renewable generation projects. In order to do so, the research community should develop appropriate tools of analysis and apply these tools

broadly. Because these projects typically do not accelerate without the private market utilizing public resources, the public has a stake in ensuring that they are available for all (Patterson 2013).

Conclusion

This research is the first methodical examination of the existence and impact of discriminatory practices in the delivery of electricity. Building on decades of research in other domains, I began this research project by *benchmarking* the electric utility sector to gain insight into the delivery of energy services, which addresses question 1. This *benchmarking* was followed by an examination of the mechanisms of discrimination within the sector to understand the *existence* of discrimination, which addresses question 2. Finally, I conducted an *impact* analysis, which addresses question 3. Taken together, these three parts illuminate whether there is a need for further investigation of discrimination within the energy sector.

One central outcome of this research is the suggestion that Blacks, in the case of the TVA, were systematically excluded from access to, and thus the benefits of, energy. Another core outcome of this research is evidence of the link between structures created in the past and the impact that they continue to have in the present. What I found was that there is evidence to suggest that the energy policies of the TVA from generations ago have resulted in decreased home values for certain groups. While not a focus of this work, it is important to note that discrimination does not need decades to have an impact or to be measured. In other words, one can look to investments in energy subsidies and see that it takes not more than several

months for the impact of discrimination to be seen. It is equally important to note that this approach can be applied to other utility sectors.

Additional research is needed to better understand the impact of energy discrimination on various populations and to more closely examine the path dependency of energy policies. Having a better understanding of these dynamics will lead to, among other things, increased efficiencies in the investment of public dollars. More importantly, understanding these dynamics can provide insight into creating new systems and ownership structures that are far more equitable than those systems and structures that currently exist. For example, there are efforts underway, by some communities of color and low-income communities, to take over ownership of their local utilities. In theory, this can be an effective shift. However, lessons from the TVA must be heeded, lest these new systems and structures serve to entrench the same dynamics that existed under the old systems and structures.

The energy domain is a domain that impacts nearly every aspect of our lives with ever increasing significance. It has great potential to aid in the struggle to live up to the ideals espoused in The Declaration of Independence: *that all are endowed with certain rights—rights that cannot be taken or given away*. How we shape the future of the energy domain must be informed by the past and must not be confined by the structural boundaries of the present. If shaped correctly, the energy domain has the potential to truly be a *power for the public good.*

APPENDIX A – Variables for Statistical Analysis

Table 15: EIA Variables lists the variables that were available from EIA forms. I selected a subset of these variables for the statistical analysis.

Table 15: EIA Variables

EIA Variable		
UTILITY_ID	PLANT_CODE	GENERATOR_ID
UTILITY_NAME	STATE	STATUS
OWNERSHIP_ID	OWNER_NAME	PERCENT_OWNED
PLANT_NAME	NERC	PRIMARY_PURPOSE
REGULATORY_STATUS	SECTOR_NAME	SECTOR_NUMBER
FERC_COGEN	COUNTY	ENERGY_SOURCE_1
OWNERSHIP_GEN	COGENERATOR	OWNERSHIP
NERC_LOCATION	NET_GENERATION	WHEELED_NET
TOTAL_LOSSES	RETAIL_REVENUES	OPERATES_GENERATING_PLANT
ACTIVITY_GENERATION	ACTIVITY_TRANSMISSION	ACTIVITY_DISTRIBUTION
RESIDENTIAL_SALES	RESIDENTIAL_CONSUMERS	COMMERCIAL_SALES
COMMERCIAL_CONSUMERS	INDUSTRIAL_SALES	INDUSTRIAL_CONSUMERS
TOTAL_REVENUES	TOTAL_SALES	TOTAL_CONSUMERS
ENERGYEFFINCTOT	ENERGYEFFANNTOT	LOADMNGEFFANNTOT
LMPOTENTPEAKREDINCTOT	DIRECTCOSTEEFRES	DIRECTCOSTEEFCOM
DIRECTCOSTEEFIND	INCENTIVEEEFRES	INCENTIVEEEFCOM
INCENTIVEEEFIND	INCENTIVEEEF	INDIRECTCOST
TOTALCOSTRES	TOTALCOSTCOM	TOTALCOSTIND
TOTALCOST		

APPENDIX B – Tennessee Valley Authority (TVA) Act Of 1933[80]

TENNESSEE VALLEY AUTHORITY ACT

AN ACT

To improve the navigability and to provide for the flood control of the Tennessee River; to provide for reforestation and the proper use of marginal lands in the Tennessee Valley; to provide for the agricultural and industrial development of said valley; to provide for the national defense by the creation of a corporation for the operation of Government properties at and near Muscle Shoals in the State of Alabama, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purpose of maintaining and operating the properties now owned by the United States in the vicinity of Muscle Shoals, Alabama, in the interest of the national defense and for agricultural and industrial development, and to improve navigation in the Tennessee River and to control the destructive flood water in the Tennessee River and Mississippi River Basins, there is hereby created a body corporate by the name of the "Tennessee Valley Authority" (hereinafter referred to as the "Corporation"). The Board of Directors first appointed shall be deemed the incorporator, and the incorporation shall be held to have been effected from the date of the first meeting of the Board. This Act may be cited as the "Tennessee Valley Authority Act of 1933." [48 Stat. 58-59, 16 U.S.C. sec. 831][1]

Sec. 2. MEMBERSHIP, OPERATION, AND DUTIES OF THE BOARD OF DIRECTORS.

(a) MEMBERSHIP.--

(1) APPOINTMENT.--The Board of Directors of the Corporation (referred to in this Act as the "Board") shall be composed of 9 members appointed by the President by and with the advice and consent of the Senate, at least 7 of whom shall be a legal resident of the service area of the Corporation.

(2) CHAIRMAN.--The members of the Board shall select 1 of the members to act as chairman of the Board.

(b) QUALIFICATIONS.--To be eligible to be appointed as a member of the Board, an individual--

(1) shall be a citizen of the United States;

(2) shall have management expertise relative to a large for-profit or nonprofit corporate, government, or academic structure;

(3) shall not be an employee of the Corporation;

(4) shall make full disclosure to Congress of any investment or other financial interest that the individual holds in the energy industry; and

(5) shall affirm support for the objectives and missions, of the Corporation, including being a national leader in technological innovation, low-cost power, and environmental stewardship.

[1] For the purpose of identifying the sections that appeared in the original Act of 1933 and those that have been brought into the Act by amendment, references have been placed at the end of the sections. For example, the reference at the end of section 1, 48 Stat. 58-59, indicates that this section will be found in volume 48 of the Statutes at Large on pages 58 and 59.

[80] The image captures only the first page of the TVA Act of 1933. For the full document see: https://www.tva.com/file_source/TVA/Site%20Content/About%20TVA/TVA_Act.pdf

APPENDIX C – Archival Analysis; Regression Models; Census Data Tables

Regression Models-I

```
// Regression Modeling Do File for Load Management and Energy
Efficiency. Also controlling for NERC location.
Clear all
use epri.dta
// generate new dependent variables
// costs are in thousands of dollars
///variables for direct costs of load management and energy efficiency.
How much companies spend on all their energy efficiency and LM (LM is a
proxy for RG)
gen perf1 = (directcostlm*1000.0)/retail_sales
label var perf1 "Direct Costs LM/MWh Sold"
gen perf2 = (directcosteef*1000.0)/retail_sales
label var perf2 "Direct Costs EE/MWh Sold"
//these variables represent how much the company provides to customers
to do EE and LM
replace incentivelm = (incentivelm*1000.0)/retail_sales
label var incentivelm "Incentive Cost LM/MWh Sold"
replace incentiveeef = (incentiveeef*1000.0)/retail_sales
label var incentiveeef "Incentive Cost EE/MWh Sold"
// these variables represent customer participation and infrastructure
// replace distnumgenlmw = distnumgenlmw /saleskwh
gen pct_ami_metering = ami_metering_total/total_consumers
label var pct_ami_metering "% AMI Metering"
gen pct_green_cust = green_cust_total/total_consumers
label var pct_green_cust "% Green Pricing Customers"
gen pct_net_metering_cust = net_metering_cust_total/total_consumers
label var pct_net_metering_cust "% Net Metering Customers"
local dvs = "perf1 perf2 incentivelm incentiveeef pct_ami_metering
pct_green_cust pct_net_metering_cust"
sum `dvs'
// produce ownership variables
drop if ownership == ""
char ownership[omit] "Municipal"
gen municipal = 0
replace municipal = 1 if ownership == "Municipal"
label var municipal "Municipal"
gen investor_owned = 0
replace investor_owned = 1 if ownership == "Investor Owned"
label var investor_owned "Investor Owned"
gen cooperative = 0
replace cooperative = 1 if ownership == "Cooperative"
label var cooperative "Cooperative"
// only analyze those in these three categories?
drop if municipal !=1 & investor_owned !=1 & cooperative != 1
// produce nerc location variables
foreach l in MRO NPCC RFC SERC SPP WECC {
      local lower = lower("`l'")
      gen nerc_l_`lower' = 0
      replace nerc_l_`lower' = 1 if nerc_location == "`l'"
      label var nerc_l_`lower' "NERC LOCATION - `l'"}
```

```
// xi i.ownership, pre(_O)
// produce state variables
// panel by state
// encode state_code, gen(pvar)
// xtset pvar
local modeln = "1"
foreach dv of varlist `dvs' {
      local dvlabel: var label `dv'
      regress `dv' cooperative municipal nerc_l_*, cluster(utility_id)
      estimates store m`modeln', title("`dvlabel'")
      local models = "`models' m`modeln'"
      local modeln = `modeln' + 1}
estout `models' using models.txt, ///
  replace cells(b(star fmt(3)) se(par fmt(3))) ///
  legend label varlabels(_cons Constant) ///
  stats(N r2_a) numbers
```

Census Variables

Census data collection

Started with 1930 because TVA began in 1934. Population, Age, Sex and Race have been collected every census since 1930. Age and Sex are not useful measures for this study. It may be useful for a follow-up study, but this one focuses on racial differences. Education and Housing was also collected each year since 1930. Of the two, housing is a better measure of wealth. Examined the percentage of owners and renters by race. Level of education is not a good measure of wealth accumulation, nor is it clear the impact that electricity access has on education. I argue that access to electricity increases productivity in the home and also increases the value of the home. In other words, those who start as homeowners have a greater ability to accumulate wealth if their homes are electrified. That wealth accumulation is passed on through generations.

Farm versus non-farm is collected in 1930, after which occupation is collected (1940 onward). In this case, a look at farm vs. non-farm in 1930 is instructive. Therefore, the key census measures that I analyzed are as follows:

1. *Population*
2. *Race*
3. *Farm*
4. *Farm Value*

Table 16 and Table 17 below show the high-level census categories collected since 1930.

Table 16: 1930-2002 Census Variables

	1930	1940	1950	1960	1970	1980	1990	2000	2002
Population	X	X	X	X	X	X	X	X	
Age	X	X	X	X	X	X	X	X	
Sex	X	X	X	X	X	X	X	X	
Race	X	X	X	X	X	X	X	X	
Income			X	X	X	X	X	X	
Family Structure	X			X	X	X	X	X	
Marital Status	X		X	X	X	X	X	X	
Group Quarters				X	X	X	X	X	
Unmarried Partners								X	
Education	X	X	X	X	X	X	X	X	
Housing	X	X	X	X	X	X	X	X	
House Value				X	X		X	X	
Labor Force		X	X	X	X	X	X	X	
Employment Sector		X	X	X	X	X		X	
Occupation		X	X	X	X	X	X	X	
Unemployment	X	X	X	X	X	X	X	X	
Poverty					X	X	X	X	
Travel Time to Work							X	X	
Transportation				X	X	X	X	X	
Veterans					X	X	X	X	
Residence			X	X	X	X		X	
Native/Foreign Born	X	X	X	X	X	X	X	X	
Ancestry	X			X	X	X	X	X	
Asian and Hispanic Groups						X	X	X	
Disabilities									
Farms	X								
Slavery									
Religion						X	X	X	
Carbon Emission									X

Table 17: 2006-2013 Census Variables

	2006	2007	2008	2009	2010	2011	2012	2013
Population	X	X	X	X	X	X	X	X
Age	X	X	X	X	X	X	X	X
Sex	X	X	X	X	X	X	X	X
Race	X	X	X	X	X	X	X	X
Income	X	X	X	X	X	X	X	X
Family Structure	X	X	X	X	X	X	X	X
Marital Status	X	X	X	X	X	X	X	X
Group Quarters	X	X	X	X	X	X	X	X
Unmarried Partners	X	X	X	X	X	X	X	X
Education	X	X	X	X	X	X	X	X
Housing	X	X	X	X	X	X	X	X
House Value	X	X	X	X	X	X	X	X
Labor Force	X	X	X	X	X	X	X	X
Employment Sector	X	X	X	X	X	X	X	X
Occupation	X	X	X	X	X	X	X	X
Unemployment	X	X	X	X	X	X	X	X
Poverty	X	X	X	X	X	X	X	X
Travel Time to Work	X	X	X	X	X	X	X	X
Transportation	X	X	X	X	X	X	X	X
Veterans	X	X	X	X	X	X	X	X
Residence	X	X	X	X	X	X	X	X
Native/Foreign Born	X	X	X	X	X	X	X	X
Ancestry	X	X	X	X	X	X	X	X
Asian and Hispanic Groups	X	X	X	X	X	X	X	X
Disabilities								
Farms								
Slavery								
Religion				X	X			
Carbon Emission								

Regression Models-II

The following is a set of questions used and steps taken for analysis of counties receiving TVA power.

A. Is there a difference in probability of a county getting TVA power based on percent black?

- Created a dichotomous variable for got TVA power (based on whether they were on the list you got from TVA)
- Looked to see if there was variation in percent black between the counties -- there was.
- Created dummy variables for the three states
- Regressed the dummy TVA variable on percent black, total population, overall value of farms and state

B. Does getting TVA power have an effect on property values in 2010?

- Merged 2010 ACS data into dataset
- Regressed the aggregate value of all property in the county on TVA, population, median income, controlling for state

```
// Regression Modeling Do File for Existence of Discrimination Using
1930 Census Data./*
* TODO: 1. Place the .txt data file and the dictionary file you downloaded in the work
folder, or enter the full path to these files!
*      2. You may have to increase memory using the 'set mem' statement. It is
commented out in the code bellow.
* If you have any questions or need assistance contact info@socialexplorer.com.
///set mem 512m
set more off
infile using "C:\Desktop\ChrisDissertation\1930_All Counties_TN_MS_AL.dct",
using("C:\ Desktop\ChrisDissertation\1930_All Counties_TN_MS_AL.csv")
*delete the extra lines*
drop if name==""
tab name, mi
*sort and save for merging*
sort FIPS
save "C:\Desktop\ChrisDissertation\1930_All Counties_TN_MS_AL.dta", replace
clear
use "C:\Users\pblakely\Desktop\ChrisDissertation\TVAfips.dta", clear
generate TVA=1
rename calcfips FIPS
save "C:\Desktop\ChrisDissertation\TVAfips.dta", replace
clear
*merge the fips dataset into the master dataset*
use "C:\ Desktop\ChrisDissertation\1930_All Counties_TN_MS_AL.dta"
*have to make fips into a numeric variable so they match between the two datasets*
destring FIPS, replace
sort FIPS
```

```
merge FIPS using "C:\Desktop\ChrisDissertation\TVAfips.dta"
*replace TVA to 0 for the counties that are in the all counties list and not the tva list*
tab _merge
replace TVA=0 if _merge==1
tab TVA, mi
drop _merge
**************************start to do analysis**********************
*is there variation in the percent black
*generate a variable that is rural farm families with black head/all rural farm
families
generate PctRurFarmBlk= T078_003/ T078_001*100
*look at that variable
sum  PctRurFarmBlk, *make dummy variables for the states
generate Al=0
replace Al=1 if STATE=="010"
generate Mippi=0
replace Mippi=1 if STATE=="280"
generate Tenn=0
replace Tenn=1 if STATE=="470"
*save the combined file*
save "C:\Desktop\ChrisDissertation\1930allcountieswithfips.dta", replace
*regress TVA on percent black, overall value of farms, state
eststo: regress TVA  T169_001 T004_001 PctRurFarmBlk Mippi Tenn
esttab using "C:\Desktop\ChrisDissertation\discriminationregression.csv", replace
estimates clear
eststo: logit TVA  T169_001 T004_001 PctRurFarmBlk Mippi Tenn
esttab using "C:\Desktop\ChrisDissertation\discriminationlogit.csv", replace
estimates clear
*these models ask for odds ratios. they don't seem to work with essto, so the output
doesnt' show the odds ratio but the screen is right*
eststo: logit TVA  T169_001 T004_001 PctRurFarmBlk Mippi Tenn, or
esttab using "C:\Desktop\ChrisDissertation\discriminationlogitodds.csv", replace
estimates clear
eststo: logit TVA  T169_001 T004_001 PctRurFarmBlk Mippi if  Tenn==0, or
esttab using "C:\ChrisDissertation\discriminationlogitnoTenn.csv", replace
estimates clear
```

Regression Models-III

```
// Regression Modeling Do File for Impact of Discrimination Using 1930
and 2010 Census Data.

/* * TODO: 1. Place the .txt data file and the dictionary file you downloaded in the
work folder, or enter the full path to these files!
*      2. You may have to increase memory using the 'set mem' statement. It is
commented out in the code bellow.
* If you have any questions or need assistance contact info@socialexplorer.com.
*////set mem 512m
set more off
infile using "C:\Users\pblakely\Desktop\ChrisDissertation\2010_ACS_All
Counties_TN_MS_AL.dct"
**********make the fips codes match the 1930 dataset*
*extra lines in dataset. drop those*
drop if NAME==""
*make fips variables numeric*
*caution: this method drops leading zeros. fips that start with 0 are unique
identifiers in this dataset, but not consistent with other datasets*
destring STATE, replace
generate stateten=STATE*100000
destring COUNTY, replace
generate countyten=COUNTY*10
generate FIPS1930=stateten+countyten
*make names consistent with 1930 dataset*
rename FIPS ACSFIPS
rename FIPS1930 FIPS
*merge 1930s data into 2010 ACS data*
sort FIPS
merge using  "C:\Desktop\ChrisDissertation\1930allcountieswithfips.dta"
tab _merge
drop _merge
*regress the aggregated value of all property*
generate PropValMill=B25082001/1000000000
eststo: regress PropValMill TVA  B19301A001 B19301B001 Mippi Tenn
esttab using "C:\ Desktop\ChrisDissertation\propertyvalregression.csv", replace
estimates clear
```

APPENDIX D – Utility Ownership Modes

Table 18 shows the characteristics of all U.S. electric utility ownership modes

Table 18: Major Characteristics of U.S. Electric Utilities (1998)

Ownership	Major Characteristics
Investor-Owned Utilities (IOUs)	
IOUs account for about three-quarters of all utility generation and capacity. There are 239 IOUs in the United States, and they operate in all States except Nebraska. They are also referred to as privately owned utilities.	Earn a return for investors; either distribute their profits to stockholders as dividends or reinvest the profits.
	Are granted service monopolies in specified geographic areas.
	Have obligation to serve and to provide reliable electric power.
	Are regulated by State and Federal governments, which in turn approve rates that allow a fair rate of return on investment.
	Most are operating companies that provide basic services for generation, transmission, and distribution.
Federally Owned Utilities	
There are 9 Federally owned utilities in the United States, and they operate in all areas except the Northeast, the upper Midwest, and Hawaii.	Power not generated for profit.
	Publicly owned utilities, cooperatives, and other nonprofit entities are given preference in purchasing from them.
	Primarily producers and wholesalers.
	Producing agencies for some are the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation, and the International Water and Boundary Commission.
	Electricity generated by these agencies is marketed by Federal power marketing administrations in the U.S. Department of Energy.
	The Tennessee Valley Authority is the largest producer of electricity in this category and markets at both wholesale and retail levels.
Other Publicly Owned Utilities	Are nonprofit State and local government agencies.
Other publicly owned utilities include: Municipals, Public Power Districts, State Authorities, Irrigation Districts, Other State Organizations. There are 2,009 in the United States.	Serve at cost; return excess funds to the consumers in the form of community contributions and reduced rates.
	Most municipals just distribute power, although some large ones produce and transmit electricity; they are financed from municipal treasuries and revenue bonds.
	Public power districts and projects are concentrated in Nebraska, Washington, Oregon, Arizona, and California; voters in a public power district elect commissioners or directors to govern the district independent of any municipal government.
	Irrigation districts may have still other forms of organization (e.g., in the Salt River Project Agricultural Improvement and Power District in Arizona, votes for the Board of Directors are apportioned according to the size of landholdings).
	State authorities, such as the New York Power Authority and the South Carolina Public Service Authority, are agents of their respective State governments.
Cooperatively Owned Utilities	Owned by members (rural farmers and communities).
There are 912 cooperatively owned utilities in the United States, and they operate in all States except Connecticut, Hawaii, Rhode Island, and the District of Columbia.	Provide service mostly to members.
	Incorporated under State law and directed by an elected board of directors which, in turn, selects a manager.
	The Rural Utilities Service (formerly the Rural Electrification Administration) in the U.S. Department of Agriculture was established under the Rural Electrification Act of 1936 with the purpose of extending credit to co-ops to provide electric service to small rural communities (usually fewer than 1,500 consumers) and farms where it was relatively expensive to provide service.
Power Marketers	Some are utility-affiliated while others are independent.
There are 194 active power marketers in the United States.	Buy and sell electricity.
	Do not own or operate generation, transmission, or distribution facilities.
Source: Energy Information Administration, Office of Coal, Nuclear, Electric and Alternate Fuels.	

Bibliography

(1938). N.A.A.C.P. To Tell Of TVA Jim Crow. The Chicago Defender (National edition) (1921-1967). Chicago, Ill.: 5.

(1938). Bias Charge Against Tva Brings Probe. The Chicago Defender (National edition) (1921-1967). Chicago, Ill.: 5.

(1939). TVA Discrimination Is Supported By Evidence. The Chicago Defender (National edition) (1921-1967). Chicago, Ill.: 24.

(1939). TVA Deals Create Tax Crises In Area. New York Times (1923-Current file). New York, N.Y.: 30.

AABE (2004). Energy, Economics, and the Environment: Effects on African Americans. Oakland, CA, Redefining Progress.

Al-Faris, A. R. F. (2002). "The demand for electricity in the GCC countries." Energy Policy **30**(2): 117-124.

Alderman, D. H. and R. N. Brown (2011). When a New Deal is Actually an Old Deal: The Role of TVA in Engineering a Jim Crow Racialized Landscape. Engineering Earth, Springer: 1901-1916.

Alexander, J. C. (2006). The civil sphere, Oxford University Press.

Alexander, J. C. (2006). Bringing Democracy Back In: Realism, Morality, Solidarity The Civil Sphere (pp. 37-50). New York City: Oxford University Press.

Alexander, M., & West, C. (2012). The New Jim Crow: New Press.

Alexander, M. (2012). The new Jim Crow: Mass incarceration in the age of colorblindness, The New Press.

Alonso, W. (1964). "The Historic and the Structural Theories of Urban Form: Their Implications for Urban Renewal." Land Economics **40**(2): 227-231.

Armaroli, N. and V. Balzani (2007). "The future of energy supply: challenges and opportunities." Angewandte Chemie International Edition **46**(1 - 2): 52-66.

Arzi, A., L. Shedlesky, L. Secundo and N. Sobel (2014). "Mirror sniffing: humans mimic olfactory sampling behavior." Chem Senses **39**(4): 277-281.

Averch, H. and L. L. Johnson (1962). "Behavior of the firm under regulatory constraint." The American Economic Review: 1052-1069.

Ball, B. C. (1977). "Energy policy: what is really at issue."

Bernstein, R. J. (2010). The Pragmatic Turn: John Wiley & Sons.

Blank, R. M., M. Dabady and C. F. Citro (2004). Measuring racial discrimination, National Academies Press.

Bonilla-Silva, E. (2010). Racism without racists: Color-blind racism and racial inequality in contemporary America, Rowman & Littlefield.

Boston, T. D. (2002). A Different Vision: Race and Public Policy, Taylor & Francis.

Boyce, R. R. (2004). "Geographers and the Tennessee Valley Authority*." Geographical Review **94**(1): 23-42.

Brubaker, R. (2005). "Rethinking classical theory." After Bourdieu: 25-64.

Bullard, R. D. (1993). "Legacy of American Apartheid and Environmental Racism, The.". John's J. Legal Comment. **9**: 445.

Cardarelli, R., K. M. Cardarelli, K. G. Fulda, A. Espinoza, C. Cage, J. Vishwanatha, R. Young, D. N. Steele and J. Carroll (2010). "Self-reported racial discrimination,

response to unfair treatment, and coronary calcification in asymptomatic adults-the North Texas Healthy Heart study." BMC public health **10**(1): 285.
Chen, E. Y. (2008). "Cumulative disadvantage and racial and ethnic disparities in California felony sentencing."
Cockey, R. R. (2003). "Where Left Meets Right: A Case Study Of Class-Based Economic Discrimination Through Zoning In Salisbury, Maryland." Margins Law Journal **3**: 71.
Collins, R. (1994). Four sociological traditions: Oxford University Press.
Colton, R. D. (1990). "Discrimination as a Sword for the Poor: Use of an Effects Test in Public Utility Litigation." Wash. UJ Urb. & Contemp. L. **37**: 97.
Cook, R. J. (2011). "Structures of Discrimination." Macalester International Journal **28**: 33-60.
Cox, O. C. (1945). "Race and caste: A distinction." American Journal of Sociology: 360-368.
Cox, O. C. (1950). Max Weber on Social Stratification: A Critique. American Sociological Review, 15(2), 223-227.
Cox, O. C. (1970). Caste, class, & race: a study in social dynamics, Modern Reader Paperbacks.
Dannefer, D. (2003). "Cumulative advantage/disadvantage and the life course: cross-fertilizing age and social science theory." The Journals Of Gerontology. Series B, Psychological Sciences And Social Sciences **58**(6): S327-S337.
Davis, J. P. (1935). "Plight of the Negro in the Tennessee Valley." The Crisis: A Record of the Darker Races: 294-295.
de Souza Briggs, X. (2005). The geography of opportunity: Race and housing choice in metropolitan America, Brookings Inst Pr.
Desmond, M. and M. Emirbayer (2009). "What is racial domination?" Du Bois Review: Social Science Research on Race **6**(02): 335-355.
Deutch, J. M. (2011). *The Crisis in Energy Policy*: Harvard University Press.
DiPrete, T. A. and G. M. Eirich (2006). "Cumulative advantage as a mechanism for inequality: A review of theoretical and empirical developments." Annual review of sociology: 271-297.
Droege, P. In the hothouse, beyond the peak: the logic of the urban energy revolution. In Wiley-Academy (Ed.), The Renewable City: A comprehensive guide to an urban revolution (pp. 14-57).
Du Bois, W. E. B. (1995). The Souls of Black Folk, Demco Media.
Du Bois, W. E. B. (2007). Dusk of Dawn: An Essay Toward an Autobiography of a Race Concept: The Oxford WEB Du Bois, Oxford University Press.
DuBois, W. E. B. (1921). The Class Struggle. The Crisis Magazine. **22:** 151.
Everett, R., G. Boyle, S. Peake and J. Ramage (2012). Energy systems and sustainability: power for a sustainable future, Oxford Univerity Press.
Fare, R., S. Grosskopfand and C. Pasurka (1989). "The effect of environmental regulations on the efficiency of electric utilities: 1969 versus 1975." Applied Economics **21**(2): 225-235.
Farkas, G. (2003). "Racial disparities and discrimination in education: What do we know, how do we know it, and what do we need to know?" The Teachers College Record **105**(6): 1119-1146.

Feagin, J. and Z. Bennefield (2014). "Systemic racism and U.S. health care." Soc Sci Med **103**: 7-14.
Ferguson, K. J. (2002). Black Politics in New Deal Atlanta, Univ of North Carolina Press.
Fix, M. and R. Struyk (1993). Clear and convincing evidence: Measurement of discrimination in America, The Field Experiments Website.
Galster, G. C. (1992). "Research on discrimination in housing and mortgage markets: Assessment and future directions." Housing Policy Debate **3**(2): 637-683.
Gandy, P. O. H. (2012). Coming to Terms with Chance: Engaging Rational Discrimination and Cumulative Disadvantage, Ashgate Publishing Limited.
Gerrard, M., M. L. Stock, M. E. Roberts, F. X. Gibbons, R. E. O'Hara, C.-Y. Weng and T. A. Wills (2012). "Coping with racial discrimination: The role of substance use." Psychology of Addictive Behaviors **26**(3): 550.
Giddens, A. (1979). Central problems in social theory: Action, structure, and contradiction in social analysis, Univ of California Press.
Giddens, A. (1984). The constitution of society: Outline of the theory of structuration, Univ of California Press.
Giddens, A. (2011). The Politics of Climate Change: John Wiley & Sons.
Gilbert, W. (1958). De magnete, Courier Corporation.
Gomez-Exposito, A., A. J. Conejo and C. Cañizares (2008). Electric energy systems: analysis and operation, CRC Press.
Gorz, A., & Turner, C. (2010). Ecologica: Seagull Books.
Gottlieb, P. A., T. Delong, R. L. Baker, L. Fitzgerald-Miller, R. Wagner, G. Cook, M. R. Rewers, A. Michels and K. Haskins (2014). "Chromogranin A is a T cell antigen in human type 1 diabetes." J Autoimmun **50**: 38-41.
Grant, N. (1990). TVA and Black Americans: Planning for the Status Quo. Philadelphia, Temple Univeristy Press.
Grant, N. (1990). Tva and Black Americans: Planning for the Status Quo, Temple University Press.
Green, D. S. and E. Smith (1983). "W.E.B. DuBois and the Concepts of Race and Class." Phylon (1960-) **44**(4): 262-272.
Gruenspecht, H. (2010). U.S. Electricity Outlook and Issues. Independent Statistics and Analysis [Presentation]. Washington, DC: Energy Information Administration.
Harrison, C. and J. Popke (2011). ""Because you got to have heat": the networked assemblage of energy poverty in Eastern North Carolina." Annals of the Association of American Geographers **101**(4): 949-961.
Hawken, P., A. B. Lovins and L. H. Lovins (2013). Natural capitalism: the next industrial revolution, Routledge.
Henderson, R. M., & Newell, R. G. (2011). Accelerating Energy Innovation: Insights from Multiple Sectors: University of Chicago Press.
Hodge, C. L. (1938). The Tennessee Valley Authority: A national experiment in regionalism, The American University Press.
Hook, S., & Hook, E. B. (2002). Towards the understanding of Karl Marx: a revolutionary interpretation: Prometheus Books.

Hughes, T. P. (1993). Networks of power: electrification in Western society, 1880-1930, Johns Hopkins Univ Pr.
Hughes, T. P. (2004). Human-built world: how to think about technology and culture, Univerity of Chicago Press.
IEA. (2011). Climate and Electricity Annual 2011: OECD Publishing.
Illich, I. (1974). Energy and equity: Harper & Row.
Immergluck, D. (2009). "The Foreclosure Crisis, Foreclosed Properties, and Federal Policy: Some Implications for Housing and Community Development Planning." Journal of American Planning Association **75**(4): 406-423.
Joas, H., W. Knöbl and A. Skinner (2009). Social theory: twenty introductory lectures, Cambridge University Press.
Katznelson, I. (2006). When Affirmative Action Was White: An Untold History of Racial Inequality in Twentieth-Century America, W. W. Norton.
Khamati-Njenga, B. and J. Clancy (2003). "Concepts and issues in gender and energy."
Kleck, G. (1981). "Racial discrimination in criminal sentencing: A critical evaluation of the evidence with additional evidence on the death penalty." American Sociological Review: 783-805.
Koh, D.-S., S. V. Berg and L. W. Kenny (1996). "A comparison of costs in privately owned and publicly owned electric utilities: the role of scale." Land Economics: 56-65.
Kohlbacher, F. (2006). The use of qualitative content analysis in case study research. Forum Qualitative Sozialforschung/Forum: Qualitative Social Research.
Kwoka Jr, J. E. (2005). The comparative advantage of public ownership: Evidence from US electric utilities. Canadian Journal of Economics/Revue canadienne d'économique, 38(2), 622-640.
Ladd, H. F. (1998). "Evidence on discrimination in mortgage lending." The Journal of Economic Perspectives **12**(2): 41-62.
Leuchtenburg, W. E. (1963). "Franklin D. Roosevelt and the New Deal, 1932-1940."
Lewis, D. L. (1994). W.E.B. Dubois: Biography of a Race, 1868-1919, Demco Media.
Lips, H. M. (2013). "Acknowledging discrimination as a key to the gender pay gap." Sex roles **68**(3-4): 223-230.
Lloyd, C. J. (1965). "Public Utility Holding Company Act of 1935, The." BC Indus. & Com. L. Rev. **7**: 716.
Loewen, J. W. (2005). Sundown towns: A hidden dimension of American racism, The New Press.
Loury, G. C. and G. C. Loury (2009). The anatomy of racial inequality, Harvard University Press.
Lovins, A. B. (1976). "Energy strategy: the road not taken." Foreign Aff. **55**: 65.
Lovins, A., Odum, M., Rowe, J. W., & Rowe, J. W. (2011). Reinventing Fire: Bold Business Solutions for the New Energy Era: Chelsea Green Publishing Company.
Margolis, R. M., & Kammen, D. M. (1999). Evidence of Under-investment in Energy R&D in the United States and the Impact of Federal Policy. Energy Policy, 27(10), 575-584.

Marx, K. (1870). "Marx to Sigfrid Meyer and August Vogt in New York." April **9**: 1870.
Marx, K. (1904). A contribution to the critique of political economy, International Library Publishing Company; London, Kegan Paul, Trench Trubner, Limited.
Marx, K. (1956). The poverty of philosophy, Digireads. com Publishing.
Marx, K. and F. Engels (1970). The german ideology, International Publishers Co.
Marx, K. and L. H. Simon (1994). Selected Writings, Hackett.
Mary Chalmers, H. (1934). TVA Discrimination Seen. New York Times (1923-Current file). New York, N.Y.: 16.
Mason, J. (2006). "Six strategies for mixing methods and linking data in social science research."
Massey, D. S. and N. A. Denton (1993). American apartheid: Segregation and the making of the underclass, Harvard University Press.
McCraw, T. K. (1971). "TVA and the Power Fight, 1933-1939."
McKee, J. B. (1993). Sociology and the race problem: the failure of a perspective, University of Illinois Press.
Merton, R. K. (1988). "The Matthew effect in science, II: Cumulative advantage and the symbolism of intellectual property." Isis: 606-623.
Meyer, R. A. (1975). "Publicly owned versus privately owned utilities: A policy choice." The Review of Economics and Statistics: 391-399.
Mickelson, R. (2003). "When are racial disparities in education the result of racial discrimination? A social science perspective." The Teachers College Record **105**(6): 1052-1086.
Mills, C. W. (1998). Blackness visible: Essays on philosophy and race: Cornell Univ Press.
Moniz, E. (2011). "Why we still need nuclear power: making clean energy safe and affordable." Foreign Affairs: 83-94.
Monteiro, S. S., W. V. Villela and P. S. Soares (2013). "The interaction between axes of inequality in studies on discrimination, stigma and HIV/AIDS: contributions to the recent international literature." Glob Public Health **8**(5): 519-533.
Moran, R. F. (2003). The elusive nature of discrimination, JSTOR.
Moreno, P. D. (1999). From Direct Action to Affirmative Action: Fair Employment Law and Policy in America, 1933-1972, Louisiana State University Press.
Myrdal, G. (1944). "An American dilemma; the Negro problem and modern democracy.(2 vols.)."
Nader, L. and S. Beckerman (1978). "Energy as it relates to the quality and style of life. [Review]." Annu. Rev. Energy; (United States): 1.
Neuendorf, K. A. (2002). The content analysis guidebook, Sage.
Noue, G. R. L. (1997). "The Impact Of Croson On Equal Protection Law And Policy." Albany Law Review **61**: 1.
Oliver, M. L. and T. M. Shapiro (1996). Black wealth/white wealth: a new perspective on racial inequality, Routledge.
Pager, D. and H. Shepherd (2008). "The Sociology of Discrimination: Racial Discrimination in Employment, Housing, Credit, and Consumer Markets." Annu Rev Sociol **34**: 181-209.

Park, R. (1924). "The concept of social distance as applied to the study of racial attitudes and racial relations." Journal of Applied Sociology **8**: 339-344.
Park, R. E. (1928). "The bases of race prejudice." Annals of the American academy of political and Social Science **140**: 11-20.
Park, R. E. (1950). "Race and culture."
Pasten, C. and J. C. Santamarina (2012). "Energy and quality of life." Energy Policy **49**: 468-476.
Patterson, J. F., Katie; Grant, Camille; Terry, Sabrina; Rosenberg, Rachel; Hamilton, Lisa; Kriegsman, Rachel (2013). A State by State Guide to Energy Efficiency and Renewable Energy Policies. Baltimore, NAACP.
Peirce, C. S. (1868). On a new list of categories.
Pescatrice, D. R., & Trapani, J. M. (1980). The performance and objectives of public and private utilities operating in the United States. *Journal of Public Economics, 13*(2), 259-276.
Portes, A. (2010). Economic sociology: a systematic inquiry. Princeton University Press.
Reed, J. S. (2001). "Forty defining moments of the twentieth-century south." Southern Cultures **7**(2): 94-97.
Robertson, R. V. and D. Mason (2008). "What Works? A Qualitative Examination of the Factors Related to the Academic Success of African American Males at a Predominantly White College in the South." Challenge: A Journal of Research on African American Men **14**(2): 67-89.
Roosevelt, F. D. (1938). Public Papers of the Presidents of the United States: F.D. Roosevelt, 1934, Volume 3, Best Books on.
Rugh, J. S., L. Albright and D. S. Massey (2015). "Race, space, and cumulative disadvantage: A case study of the subprime lending collapse." Social Problems **62**(2): 186-218.
Saegert, S., D. Fields and K. Libman (2011). "Mortgage foreclosure and health disparities: serial displacement as asset extraction in African American populations." Journal of Urban Health **88**(3): 390-402.
Severance, C. A. (2011). "A Practical, Affordable (and Least Business Risk) Plan to Achieve "80% Clean Electricity" by 2035." The Electricity Journal **24**(6): 8-26.
Shelby, T. (2007). We Who Are Dark: The Philosophical Foundations of Black Solidarity: Harvard University Press.
Siomopoulos, A. (2012). Hollywood Melodrama and the New Deal: Public Daydreams: Taylor & Francis.
Smeloff, E. (1997). Reinventing electric utilities: Competition, citizen action, and clean power, Island Press.
Sovacool, B. K. (2009). "The importance of comprehensiveness in renewable electricity and energy-efficiency policy." Energy Policy **37**(4): 1529-1541.
Stock, M. L., F. X. Gibbons, L. M. Peterson and M. Gerrard (2013). "The effects of racial discrimination on the HIV-risk cognitions and behaviors of Black adolescents and young adults." Health Psychology **32**(5): 543.
Thompson, J. B. (1984). Studies in the Theory of Ideology, Univ of California Press.

Trotter, J. W. (1996). From a Raw Deal to a New Deal: African Americans 1929-1945, Oxford University Press, USA.
Turner, M. A. (1992). "Discrimination in urban housing markets: Lessons from fair housing audits." Housing Policy Debate **3**(2): 183-215.
Turner, M. A. (2013). "Housing Discrimination Against Racial and Ethnic Minorities."
Turner, M. A., M. Fix and R. J. Struyk (1991). Opportunities denied, opportunities diminished: Racial discrimination in hiring, Urban Inst Press.
United States. Congress. Conference committees 1935. [from old catalog], J. J. McSwain and E. D. Smith (1935). Amending the Tennessee valley authority act. Washington,, U. S. Govt. print. off.
United States. Congress. Senate. Committee on Agriculture and Forestry. Subcommittee on S. 2925. (1940). To Amend Tennessee Valley Authority Act of 1933: hearing before a subcommittee of the Committee on Agriculture and Forestry, United States Senate, Seventy-sixth Congress, third session, on S. 2925, a bill to amend the Tennessee Valley Authority Act of 1933. February 23, 1940. Washington,, U.S. Govt. print. off.
Vining, A. R., & Boardman, A. E. (1992). Ownership versus competition: Efficiency in public enterprise. Public choice, 73(2), 205-239.
Warwick, W. M. (2002). A primer on electric utilities, deregulation, and restructuring of US electricity markets, Pacific Northwest National Laboratory (PNNL), Richland, WA (US).
Weaver, R. C. (1948). The Negro Ghetto, Russell & Russell.
Williams, D. R. and S. A. Mohammed (2009). "Discrimination and racial disparities in health." Journal of behavioral medicine **32**(1): 20-47.
Wilson, W. J. (1980). The declining significance of race: Blacks and changing American institutions, University of Chicago Press.
Wilson, W. (2010). More Than Just Race: Being Black and Poor in the Inner City: W. W. Norton & Company.
Winter, D. G. (1992). "Content analysis of archival materials, personal documents, and everyday verbal productions."
Wolfson, A., D. Tavor, S. Mark, M. Schermann and H. Krcmar (2011). "Better Place: a case study of the reciprocal relations between sustainability and service." Service Science **3**(2): 172-181.
Woofter Jr, T. J. (1923). "The Negro On A Strike." Journal of Social Forces **2**(1): 84.
Yinger, J. (1995). Closed doors, opportunities lost: The continuing costs of housing discrimination, Russell Sage Foundation.
Yinger, J. (1997). "Cash in your face: The cost of racial and ethnic discrimination in housing." Journal of Urban Economics **42**(3): 339-365.
Yunker, J. A. (1975). "Economic Performance Of Public And Private Enterprise-Case Of United-States Electric Utilities." Journal of Economics and Business **28**(1): 60-67.