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IN THE CAROLINAS

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Classical Liberals
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POLITICAL ECONOMY

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FROM THE EDITOR

Dr. Roy Cordato, Editor
John Locke Foundation, Raleigh, NC
North Carolina State University

Welcome to volume 3 of Political Economy in the Carolinas, the peer-reviewed academic journal of Classical Liberals in the Carolinas. In this issue we are featuring a symposium on the economic history of North and South Carolina, edited by Professor Robert Whaples of Wake Forest University. This is the first issue of PEC to feature such a symposium, and we hope that this kind of coming together of experts, focusing on a single topic, can be a regular feature going forward. We want to thank all of the authors that were willing to contribute to this symposium. It is an honor for our journal to host such highly regarded scholars. We especially appreciate Professor Whaples's willingness to edit this symposium. It is a huge undertaking that requires approaching potential authors, making sure deadlines are met, and editing all of the papers once they are received. In addition to this, he also found time to contribute an essay of his own to the discussion. If our plan to have more issues like this one in the future is to succeed, we will need more scholars like Professor Whaples to help us. If you have an idea for a symposium issue of the journal and are willing to take on the work of assembling and editing the collection of papers, please let us know.

While we are highlighting the symposium, the rest of the work of the journal goes on. To round out the "Articles" section of the issue, we have a paper by Marco Lam and Thomas D'Angelo on the nature of local government expenditures and its implications for local government decision making. The focus of the paper is on North Carolina counties. In addition, we have two interesting essays in our "Notes and Commentary" section. The first is by Jason Sorens (Saint Anselm College), examining the status of personal and economic freedom in the Carolinas, and the second is by Professor Paul Cwik (Mount Olive University), commemorating the centennial of Ludwig von Mises's classic 1920 article "Economic Calculation in the

Socialist Commonwealth." Lastly, we have our book-review section, which features reviews of new books by Bradley Thomson, Mike Munger, and Deirdre McCloskey. Reviews are by Mitch Kokai (the John Locke Foundation), Peter Boettke (George Mason University), and George Leef (Martin Center for Academic Renewal), respectively.

In addition to thanking Professor Whaples for his work on the symposium, I also want to, once again, extend my thanks to Managing Editor Adam C. Smith for all of his hard work in making sure that the real nuts-and-bolts work of putting together a publication like this gets done. As always, we are grateful to all of those scholars who are willing to act as referees for our submissions. Without them our journal couldn't exist. And lastly, we'd like to extend our gratitude to the John William Pope Foundation for its continued financial support of the journal.

THE POLITICAL ECONOMY OF THE CAROLINAS CONSIDERED HISTORICALLY: AN INTRODUCTION

By Robert Whaples

In its first two volumes, *Political Economy in the Carolinas* addressed an intriguing array of current policy issues—including highway construction, nuclear power projects, craft beer brewing, charter schools, college athletics, antimonopoly laws, and judicial elections. In addition, it has shown a clear regard for the importance of thinking *historically*.

This historical thinking is implicit in James Otteson's (2018) opening essay in the journal's inaugural volume, "Intellectual Diversity and Academic Professionalism," which proposes that modern universities return to the methods of inquiry that have actually advanced knowledge, those pioneered in the ancient Greek city-state of Milos—namely, inquiry that is anchored by verification and falsification, rather than partisanship. This historical approach is epitomized by Richard Ebeling's note "Classical Liberalism's History, Heritage, and Relevancy to Our Times" (2018). Ebeling traces the historical development of classical liberal ideas: the crusades to end slavery and advance civil liberties, economic freedom, political freedom, and international peace. These ideas were articulated by thinkers such as John Locke, David Hume, William Blackstone, Edward Coke, Adam Smith, John Stuart Mill, the framers of the American Constitution, and Thomas Cooper. Thomas Cooper?

Thomas Cooper, president of South Carolina College (now the University of South Carolina, or USC) was the author of *Lectures on the Elements of Political Economy* (1826). Ebeling quotes his ideas on free markets and free trade at length in his essay. Cooper is a springboard for the symposium in this issue of *Political Economy in the Carolinas*, whose goal is to trace the history of the economics profession in the Carolinas and the history of the Carolinas' economies.

The symposium begins with my own essay, "Classical Liberalism and the History of Economics in the Carolinas." The essay notes that although it has been "marked by a wide diversity of approaches, economics in the Carolinas has demonstrated a strong classical liberal tradition." It begins with Thomas Cooper and his successor at South Carolina College, Francis Lieber, who continued Cooper's tradition of attacking tariffs and who wrote an economic indictment of slavery, which caused him to lose his position at the college.

The essay surveys the economists at the five R1 (doctoral) departments in the Carolinas—USC, Clemson, North Carolina State, Duke, and the University of North Carolina at Chapel Hill—from the beginning of each program up to the present. Clemson University has had an especially noticeable classical liberal bent since the late 1960s, when department head Harvey Wheeler advanced the goal of recruiting capable faculty members with an orientation toward "teaching classical economics with an emphasis on the efficiencies of free markets." Some of the ideas produced at Clemson have become internationally influential, especially the bootleggers-and-Baptists paradigm developed by Bruce Yandle, dean emeritus of Clemson's College of Business and Behavioral Science, who contributed one of the essays to the symposium. The essay highlights the strengths of each department—NC State's empirical and statistical bent and Duke's commitment to research on the history of economics, for example. It also shows the tug of war between competing ideas in many of the departments—the tension at UNC between Harold Hotelling's influential model of extracting a fixed stock of natural resources and Erich Zimmerman's dynamic view of natural resource discovery and development, for example. After introducing dozens of Carolina economists—many internationally recognized, others whose names risk being forgotten—it closes with UNC's Clarence Philbrook. His "Capitalism and the Rule of Love"—a true gem—takes on those who aim to destroy capitalism because they desire a world of universal human benevolence and brotherly love. His corrective explains that "capitalism does less violence to the rule of love than would any other system so far conceived," so the "destruction of capitalism would constitute a tragedy to the human species" (Philbrick 1953, p. 459).

My contribution to the issue is followed by three articles that explore important events in the history of North and South Carolina. Lee Craig of North Carolina State University authored "The Carolinian Economy through Two World Wars." He concludes that "without discounting the sacrifice of the Carolinians who were maimed or perished in either the First or Second World War, or the resulting losses, emotional and financial, suffered by their families, it is safe to conclude that both wars provided an unambiguous boost to the region's economy. . . . However, the long-run impacts varied by war. Those accompanying World War I were narrow and proved to be short-lived; whereas those associated with World War II were larger, broader-based, and longer-lasting." Craig details trends in wages, incomes, employment, output, and migration plus changes in cotton, tobacco, and manufacturing, with a critical analysis of debates over the size of the fiscal spending multiplier in both wars.

Jaya Jha and Fred H. Smith, both at Davidson College, wrote "A Brief History of Urbanization in North and South Carolina." In 1900 the Carolinas were among the least urbanized states in the union, with only 10 percent of North Carolina's population living in urban areas and 13 percent in South Carolina. Today about two-thirds in both states live in urban areas. Jha and Smith chart trends in urbanization over two centuries and the emergence of major metropolitan areas in recent decades—metropolitan areas that are far less monocentric than in northern states. They examine two cities—Charlotte and Charleston—in greater detail, exploring the roots of Charlotte's emergence as "national powerhouse in banking and finance" and Charleston's post–Civil War stagnation and later reemergence as an important hub of growth centered on tourism, advanced manufacturing, the military, and a port that ranks ninth in the United States in cargo value. They predict that "the lower density urban areas of the Carolinas may look like increasingly attractive options for firms that have been adversely affected by the [COVID-19] pandemic in high population density cities in the North," but they caution that many cities in the Carolinas have struggled to offer opportunities for upward economic mobility.

Finally, Bruce Yandle charts how, over the last half century, North Carolina and South Carolina have emerged from their agricultural and textile-based economies to become more sophisticated, knowledge-based advanced-manufacturing and services-based economies. Favored by a location in the Sunbelt, the states have become popular destinations for individuals and families seeking to flourish. "As a result of favorable migration and strong home-grown efforts to improve access to education, human capital has been enhanced. There are more brains in the Carolinas now, and they are deployed in more productive ways. F. A. Hayek's knowledge problem—that knowledge is dispersed and must be matched somehow to problems and opportunities—has at least been partly solved just as Hayek recommended: by market forces. . . . As a result, the long-standing gap between per capita personal income for each state and the nation has narrowed." Yandle details these changes in "Narrowing the Income Gap between the Carolinas and the Nation by Getting the Brains in the Right Places." He concludes that "market forces [are] the driving force that matches brains to opportunity. Where that can happen, productivity improves, incomes rise, and human communities prosper. Such has been the case in the two Carolinas" in recent decades.

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CLASSICAL LIBERALISM AND THE HISTORY OF ECONOMICS IN THE CAROLINAS

By: Robert Whaples, Department of Economics, Wake Forest University, Winston-Salem, NC[1]

ABSTRACT

Economists in the Carolinas have a long history of rigorous economic research and handing on economic insights to ensuing generations. Although marked by a wide diversity of approaches, economics in the Carolinas has demonstrated a strong classical liberal tradition. I begin by examining the first two prominent economists in the Carolinas, Thomas Cooper and Francis Lieber (both presidents of South Carolina College), who were strong proponents of free trade and economic liberty. Then I survey the history of economics in the Carolinas' five R1 (doctoral) universities – the University of South Carolina, Clemson, North Carolina State, UNC Chapel Hill, and Duke – with special attention to classical liberals in these departments. Economists discussed include George Hubert Aull, Martin Bronfenbrenner, Robert Clower, William Glasson, Earl Hamilton, Calvin Hoover, Harold Hotelling, Juanita Kreps, Stephen Margolis, Clarence Philbrook, Joseph Spengler, Robert Tollison, Bruce Yandle, and Erich Zimmerman.

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B0, B3

There has never been a Carolina school of economics. To the north, Virginia is the home of the Virginia school of political economy—known for its critical analysis of public sector institutions, its development of public choice theory, and its broad agreement with classical liberal principles. Further inland is another fairly classical liberal school, the Chicago school of economics—marked by an "uncompromising belief in the usefulness and insight of neoclassical price theory, and a normative position that favors and promotes economic liberalism and free markets" (Kaufman 2010, p. 133).

1. I am grateful to the many people who have helped me with this paper by providing comments and especially by sending me material on the five economics departments examined in this study. They are Howard Bodenhorn, Raymond Sauer, and Bruce Yandle (Clemson); Bruce Caldwell and E. Roy Weintraub (Duke); Lee Craig (NC State); Andrew Yates (UNC Chapel Hill); Janice Breuer Bass and William Phillips (USC).

Like these schools, the Carolinas have a long history of rigorous economic research and handing on economic insights to ensuing generations. Although marked by a wide diversity of approaches, economics in the Carolinas has demonstrated a strong classical liberal tradition and a history of caring about history.

Economics departments in the Carolinas have had a disproportionate regional influence. For example, of the ninety-two presidents of the Southern Economic Association (SEA), twenty-three of them (25 percent) were affiliated with universities in North and South Carolina—noticeably higher than the two states' share of the region's population (15 percent).[2] All but one of those twenty-three SEA presidents hailed from the five R1 (doctoral) universities located in the Carolinas—Clemson University, Duke University, North Carolina State University (NC State), the University of North Carolina at Chapel Hill (UNC), and the University of South Carolina (USC)—which are the focus of this study.

Like the history of economics in the United States as a whole, the roots of economics in the Carolinas are in the early nineteenth century, when academic moral philosophers began to examine questions of political economy. Often these courses were taught by university presidents with training in theology, such as Francis Wayland (1796–1865), a Baptist pastor, who was president of Brown University. Wayland was the author of *Elements of Political Economy* (1837), which became the principal economics textbook in American colleges. His book "inveighed against the statism of the French Revolution . . . the 'tyranny' of labor unions, and the evils of helping the undeserving poor." He argued that "the most important obligations of the state were to foster education and promote morality." And he exhibited "unqualified support of free trade" (Cross 1999). Thomas Cooper and Francis Lieber—both presidents of South Carolina College—shared much of Wayland's economic outlook and are examined below.

Beginning in the late 1800s, the field of economics emerged out of these earlier traditions, with the establishment of doctoral training in economics, the formation of professional organizations, such as the American Economic Association (AEA, founded in 1885), and the emergence of neoclassical economics. Although neoclassical economics focuses on the interactions of rational individuals aiming to

2. Those presidents are Albert S. Keister (Women's College of North Carolina, now UNC Greensboro, 1934–35), C. B. Hoover (Duke, 1936–37; he also served as president of the American Economic Association), John Woosley (UNC, 1939–40), Joseph Spengler (Duke, 1946–47), G. T. Schwenning (UNC, 1947–48), George Aull (Clemson, 1948–49), Ben Ratchford (Duke, 1952–53), Milton Heath (UNC, 1956–57), Frank Devyver (Duke, 1960–61), Ralph Pfouts (UNC, 1965–66), James Ingram (UNC, 1972–73), Juanita Kreps (Duke, 1975–76), Robert Gallman (UNC, 1977–78), Robert Tollison (Clemson, 1984–85), V. Kerry Smith (NC State, 1988–89), Charles Clotfelter (Duke, 1991–92), Robert Clower (USC, 1992–93), William "Sandy" Darity (UNC, 1996–97), Marjorie McElroy (Duke, 2000–2001), Bruce Caldwell (Duke, 2011–12), V. Joseph Hotz (Duke, 2013–14), and Donna Gilleski (UNC, 2018–19). The Carolinas currently make up 14.5 percent of the population of the eleven states that joined the Confederacy. They made up 15.4 percent of the area's population in 1970.

maximize their utility or profits and demonstrates the remarkable success of free markets in efficiently allocating resources and generating wealth, many leading economists of this period actively sought to expand the role of government. Thomas Leonard (2016) shows that many of the reformers who professionalized American economics from the 1880s to the 1920s—men such as Richard Ely, Edward Ross, Simon Patten, John Commons, and Irving Fisher—descended from old New England families, had studied in Germany, and were sons of ministers and missionaries. They attacked individualism and were crucial in building the fourth branch of government: the vast administrative, bureaucratic, regulatory state. These men "combined their extravagant faith in science and the state with an outsized confidence in their own expertise" (p. 35) resulting in a "braiding together of the admirable and the reprehensible" (p. 189). Leonard shows that their thinking was pervaded by an elitist Lamarckian Darwinism that often viewed society as an organism that was being poisoned by unemployable parasites—including minorities, immigrants, and others from "the human rubbish heap"—who threatened their "betters." Many of them advocated "eugenic" sterilization of "defectives" and promoted high minimum wages so that "unemployables" would leave the country or be shunted aside. The professionalization of economics occurred fairly slowly in the Carolinas and in the South more generally. Only one founding member of the AEA was from below the Mason-Dixon Line, and almost thirty years later (1914), only eight Carolinians were members of the association. Economists in the Carolinas tended to take a less statist view than their "betters" during this period.

The Keynesian revolution swept through the economics profession during the Great Depression and World War II, a period that brought many economists (including many in the Carolinas) out of the academy and into government jobs that replaced the collective wisdom of the market with the dictates of bureaucrats. In this era, many economists turned to the state to help solve economic problems, although the Keynesian tide ebbed when it became unmistakably clear that interventions were causing inefficiency and inflation. Since the late 1970s, the American economics profession has regained a balance in which many economists reflexively look to government to solve problems while many others warn of and examine the pitfalls and shortcomings of government intervention. This national evolution is generally mirrored in the history of economics in the Carolinas, as will become apparent below as I examine economics at each of the five R1 institutions.

THE UNIVERSITY OF SOUTH CAROLINA

The first notable economists in the Carolinas were Thomas Cooper and Francis Lieber of South Carolina College (now USC). Cooper (1759–1839) studied law, medicine, and the natural sciences in England, before moving to the United States in 1794. He was a supporter of Thomas Jefferson and was even jailed for violating the Sedition Act with his attacks on President John Adams. When he became a professor of chemistry at South Carolina College in 1819, the state was "at the apex of its economic importance" (Bordo and Phillips [1988] 1993, p. 44) and was dominated by the outlook of the plantation-owning aristocracy. Cooper, who had previously taught at the University of Pennsylvania, was soon elevated to the college's presidency, which gave him the job of teaching moral-philosophy courses. The purpose of such classes was "to provide the soon-to-be-graduates with a generalized humanistic view of the state of knowledge and its application to the human condition. It not only provided basic prescriptions for the proper conduct of one's personal life but also presented the sound doctrine of the day regarding the proper relationship of man to society and thus the correct course of public policy" (p. 48).

Cooper developed his lecture notes into one of the first American political-economy textbooks, *Lectures on the Elements of Political Economy* (1826), which was widely praised but not widely adopted at other colleges, because of its materialistic (rather than religious) underpinnings. (Scottish economist John McCulloch praised it as "the best of the American works on political economy what we have met with" [Bordo and Phillips (1988) 1993, p. 50].) The textbook largely agreed with the positions of Adam Smith and David Ricardo, although it was critical of some of their positions. Most tellingly, Cooper—who published a pamphlet titled "On the Proposed Alteration of the Tariff" (1823) "in which he initiated the southern economic attack against northern tariff policy" (p. 50)—was a "militant free-trade advocate." His firm "laissez-faire principles" (p. 52) accorded well with the economic interests of South Carolina, which threatened to annul the Tariff of Abominations of 1828. The tariff worsened the terms of trade of South Carolina because reducing the exportation of British goods to the United States made it more difficult for the British to pay for the cotton they imported from the state, thus reducing the price of cotton while also making goods imported to the state more expensive. Michael Bordo and William Phillips conclude that it was the "forcefulness of Cooper's opinions, not their originality, that pushed them into public view" (p. 53). His students knew "that they were being taught by an extraordinary man. What his scholarship lacked in originality it made up in activity" (p. 54). In 1834, however, Cooper lost his position because of his unorthodox, outspoken religious positions, which triggered a boycott of the college and an enrollment collapse.

Francis Lieber (1798–1872), born in Prussia, edited the original *Encyclopaedia Americana* and later wrote the *Code for the Government of Armies in the Field* during the Civil War, which is considered to be the first document to comprehensively outline rules regulating the conduct of land war and which laid the foundation for the Geneva Conventions. Lieber taught at South Carolina College from 1835 to 1856. Like Cooper, Lieber was an "ardent free-trader" (Bordo and Phillips [1988] 1993, p. 60). He supplemented his teaching of Jean-Baptiste Say's *Treatise on Political Economy* with his own *Essays on Property and Law* (1842). His arguments and conclusions were in the classical liberal tradition. He rejected labor unions: "Wages . . . were determined by demand and supply, and just as attempts to regulated demand and supply in markets always failed, so too would policies designed to raise wages above their natural level of the value of labor. . . . If wages were forced up by combinations of labor, the return to capital would fall, factories would close, and labor's gains would disappear" (Bordo and Phillips [1988] 1993, pp. 61–62). Bordo and Phillips (p. 62) continue, "His faith in free trade was complete. . . . He continued to hold these opinions strongly, even after the Civil War, when he was a prominent official of the tariff-supporting Radical Republican party," and he published "Notes on the Fallacies of American Protectionists" (1869). While Cooper accommodated his ideas to the slavery of antebellum South Carolina (even becoming a slave owner), Lieber wrote an economic indictment of slavery, which caused him to lose his position at the college.

Cooper and Lieber were the preeminent scholars at South Carolina College during their respective eras. Bordo and Phillips ([1988] 1993, p. 67) lament the quality of economics at the college after the Civil War: "Some instructors were effective and dedicated teachers, and some were not. But in no sense were the college's post-bellum economics teachers scholars in the research sense." The advent of better times began with the hiring of George McCutchen (1876–1951) in 1899, the university's first teacher to specialize completely in economics. His classes ushered neoclassical economics into the university. He worked with the Federal Trade Commission on a meat-packing-monopoly case in 1917, taught a dizzying array of courses—money and banking, public finance, labor problems, corporation finance, business law, accounting, marketing, and insurance—and warned students that "I shall perform the office of a whetstone, which can make other things sharp though it is itself incapable of cutting" (Floyd 2019, p. 17).

USC's economics department was founded in 1910, became part of the School of Commerce in 1919, and is now housed in the Darla Moore School of Business.

Heather Floyd's *100 Years of Business Education at the University of South Carolina*, published to celebrate the centennial of the school of business, makes it clear that the Moore School's goal is to educate students to participate in South Carolina's export-based international businesses and to aid businesses competing in the globalized economy. Further, "second only to providing a world-class business education, the Moore School's key priority is conducting world-class research to advance business knowledge and the economy of the state and nation" (Floyd 2019, p. 165). This tradition of working closely with local businesses goes back to the business school's founding of a research program in the 1920s designed "to do for the business men of the State what the extension service of the department of agriculture . . . has done for farmers" (p. 106).

The economics department is embedded in a school that embraces the capitalist system. Darla Moore, a 1975 graduate of USC, made a gift of $25 million to the business school in 1998 and another of $45 million in 2005. *Fortune* magazine dubbed her "the toughest babe in business" on its cover in 1997, while she was serving as president of private investment firm Rainwater. In making her gifts, Moore explained, "I have had the good fortune to benefit from the capitalist system. . . . Those of us who have been so fortunate are obligated to return some of the fruits of that system" (*Chronicle of Higher Education* 1998). Five of the seven academic departments in the Moore School rank in the top twenty-five worldwide for research productivity: human resources, international business, experimental accounting, supply chain management, and marketing. One of the two that are not internationally ranked is the Department of Economics, which ranks a respectable 108th in the United States (IDEAS/RePEc 2020b) and receives regrettably little attention in Floyd's book.

Probably the most influential modern economist at the university was Robert Clower (1926–2011), who was a Rhodes Scholar and served as president of the SEA. Clower became a distinguished professor at USC near the end of his career, after serving as editor of the *American Economic Review* and teaching at Northwestern and UCLA. Clower ranks among the most influential monetary economists of the second half of the twentieth century—along with figures such as Milton Friedman, Paul Samuelson, James Tobin, and Don Patinkin (Velupillai 2011, p. 22). He tellingly critiqued the proposed synthesis between neoclassical economics and Keynesian economics that had developed after World War II, arguing that it was wrong to regard established microeconomic theory as a suitable foundation for macroeconomic theory because microeconomic theory is incapable of understanding the short-run disequilibrium adjustment process of the macroeconomy (p. 27). Clower sought to make money play a realistic role in economic models. The Clower constraint is sometimes stated this way: one cannot spend without having some money to do the spending with.

CLEMSON UNIVERSITY

Clemson was founded in 1893 as an agricultural college—but it also was an all-male military school with students housed in barracks, eating in a mess hall, meeting in formations throughout the day, and subject to military discipline up until the 1950s. Its earliest catalogue lists economics as part of a history course. Beginning in 1902, the subject was listed as a separate course. Economics had a hard time gaining traction, but "while economics languished, *agricultural* economics was expanding" (Macaulay and Grecu 2002, p. 4, emphasis added).

Clemson's Division of Agricultural Economics was established within the Department of Agriculture in 1926 and soon began offering graduate classes. The head of the agricultural-economics program from 1936 to 1963 was George Hubert Aull (1899–1988), who became president of the SEA and of the American Farm Economics Association. Aull, who entered Clemson as an undergraduate at age fifteen, served as the senior administrative officer in South Carolina for the Land Policy Section of the Agricultural Adjustment Administration during the New Deal and on the regional National War Labor Board during World War II. A focus of his research was tax equalization in the state. Aull (1939) compared agricultural tax assessments across South Carolina with appraised market values and found important discrepancies, with the ratio of assessed to appraised values much higher for small farmers and those with low values per acre, which benefited the wealthy at the expense of the poor. He concluded that the "system of assessing property in South Carolina is such that equality of taxation is virtually impossible. Based as it is upon the idea of self-assessment followed by 'equalization' at the hands of local boards (appointed by the Governor upon recommendation of the legislative delegations from the various counties) the entire system has degenerated into a farce and has been described as 'a classic example of wholesale public lying'" (p. 347). Accordingly, Aull led a push to depoliticize the process and was named Man of the Year by *Progressive Farmer* in 1945.

Aull's presidential address to the SEA is especially interesting. "The Economics of the Bible" (1950) notes that the Bible is not a text in economic theory yet is full of economic insights. Jesus condemned "the rich fool" not because he was rich but because he was so naive as to believe that his great wealth involved no social and economic responsibilities. Aull argued that the years immediately following World War I witnessed "a most ungodly display of national greed and selfishness, and nothing did more to hasten the concentration of wealth, the spread of poverty, [and] the disintegration of society" (p. 398) that led up to the Great Depression and World War II, "than the iniquitous barriers [that] were placed in the way of a free flow of trade (and good will) between the nations of the earth." He closed by observing that neither economists nor anyone else should simply take people as they are: "Economics is concerned with the satisfaction of human wants, whatever those wants may be. Christianity is concerned with the nature of human wants and can make its influence best felt not by changing economic systems but by changing human wants and human motives. Systems can never rise above those who create them and cause them to function. Therefore, even 'Bible Economics' will break down unless production and consumption are more and more brought under control of individuals who themselves measure up to the high standards of the Christian Ethic" (p. 399).[3]

While agricultural economics thrived, Clemson's current economics department—the John E. Walker Department of Economics—continued to languish: "The end of the Great Depression saw a faculty of three [in economics] teaching three truly economic courses" (Macaulay and Grecu 2002, p. 4).[4] After World War II, enrollments began to rise, but space was cramped: "When four instructors in economics were added in 1949 . . . [t]heir office was a long narrow room that had previously been used as a broom closet" (p. 5). Faculty members taught fifteen academic hours per week, and "research was not actively promoted" (p. 7) until the late 1950s.

After this slow start, economics began to flourish at Clemson. In 1967 Clemson's new Department of Economics moved out of the Department of Social Sciences. Dean Wallace Trevillian chose Harvey Wheeler (1930–70) to head the department, with the general policy that Wheeler should "recruit capable faculty members, and that the general orientation of the department should be toward teaching classical economics with an emphasis on the efficiencies of free markets" (Macaulay and Grecu 2002, p. 10). Clemson economist Hugh Macaulay, who did his graduate work with classical liberal Nobel laureate George Stigler, calls this "a brave new approach considering prevailing opinion among economists and the general public at that time. . . . There was almost universal acceptance among economists that Keynesian intrusions were needed to stabilize the economy, that the Communist system as practiced in Russia was empirically superior in economic growth and a

3. Clemson's agricultural-economics department eventually became the Department of Applied Economics and Statistics, but it was disbanded in 2011.

4. The department resisted a move to the business school, fearing that it would "divert their research and teaching from classical economics to a business-oriented presentation of the subject" (Macaulay and Grecu 2002, p. 9).

fair distribution of goods. . . . In addition, John Kenneth Galbraith was receiving wide acclaim for his books stressing the need for strong unions, business groups, and government to offset each other with countervailing power. . . . Fortunately, Dr. Wheeler understood classical economics and its efficient operation, and was committed to building a department that would test and teach these principles" (Macaulay and Grecu 2002, p. 10).

It did. Clemson hired a string of economists who embodied the classical liberal tradition. These include Daniel K. Benjamin, Gerald Dwyer, Donald Gordon (1923–2001), Robert Hébert, Cotton Lindsay (1940–2015), Hugh Macaulay (1924–2005), Robert McCormick, Richard McKenzie, Clark Nardinelli, Russell Shannon (1938–96), William F. Shughart II, Robert Staaf, Robert Tollison (1942–2016), John Warner, and Bruce Yandle.

Yandle, a prolific scholar in environmental economics, the economics of regulation, and public choice economics and dean emeritus of Clemson's College of Business and Behavioral Science, served as executive director of the Federal Trade Commission (FTC) during the Reagan administration. While in this position, he wrote a path-breaking analysis of what he had witnessed in Washington, DC, in doing so establishing the bootleggers-and-Baptists paradigm (Yandle 1983). After dealing with proposed regulations from agencies including the FTC, Environmental Protection Agency, and Department of Transportation, he had an epiphany: "Instead of assuming that regulators really intended to minimize costs but somehow proceeded to make crazy mistakes, I began to assume that they were not trying to minimize costs at all—at least not the costs I had been concerned with. They were trying to minimize *their* costs, just as most sensible people do" (p. 13, emphasis in the original). These costs include the costs of making a mistake, the costs of enforcement, and political costs. With this in mind, he realized that what industry and labor really want from the federal government is enduring "protection from competition, from technological change, and from losses that threaten profits and jobs" (p. 13).

His central insight was that "durable social regulation evolves when it is demanded by both of two distinctly different groups. 'Baptists' point to the moral high ground and give vital and vocal endorsement of laudable public benefits promised by a desired regulation. Baptists flourish when their moral message forms a visible foundation for political action. 'Bootleggers' are much less visible but no less vital. Bootleggers, who expect to profit from the very regulatory restrictions desired by Baptists, grease the political machinery with some of their expected proceeds. They are simply in it for the money" (Yandle 1999, p. 5). Prohibition, for example, combined the interests of anti-alcohol reformers (Baptists) and the lawbreakers (bootleggers) who earned above-normal profits in supplying the contraband product.

But the idea can be—and has been—widely applied: "The infamous scrubber regulations in the 1977 Clean Air Act, which should win the bootlegger-Baptist award for the 1970s, offer the best illustration of bootleggers benefiting from Baptist-supported, technology-based standards. The statute required costly scrubbers to be installed at all newly constructed coal-fired electric plants, whether or not a particular plant burned dirty coal. Interest groups tied to high-sulfur coal production in the eastern United States celebrated the statute, as did most environmental groups. Miners of western low-sulfur coal, consumers of electricity, and (in some cases) lovers of clean air had no cause for celebration" (p. 6). Google Scholar lists over six thousand citations to Yandle's bootleggers-and-Baptists concept.

Another Clemson economist in the classical liberal tradition had a similar reaction after work in Washington. Robert Tollison was director of the Bureau of Economics in the FTC from 1981 to 1983, which prompted him to write "Antitrust in the Reagan Administration: A Report from the Belly of the Beast" (1983). He explained that the "Orwellian-named Bureau of Competition" and its sister the Bureau of Consumer Protection didn't accomplish their putative missions but tended to squelch competition and harm consumers (Shughart 2017, p. 154). Tollison examined merger guidelines, the general drift of antitrust policy, deregulatory initiatives, and consumer-protection policy. "The conclusions drawn," he reported, "are not very sanguine in a normative sense. Perhaps our solace lies in the positive study of why the antitrust bureaucracies behave as they do." In addition, Tollison coedited the first scholarly volume to examine rent-seeking, *Toward a Theory of the Rent-Seeking Society* (1980), and served as an expert witness in a case that awarded a $66 million judgment against the college football cartel's practice of limiting salaries of assistant football coaches (Shughart 2017).

Finally, the Clemson economics department has a history of outreach to the public, exemplified by a column in the *Greenville News*, written by faculty members and published every Monday morning for many years, largely under the leadership of Russell Shannon, who was also a frequent contributor to the classical liberal journal the *Freeman*. Another aspect of this outreach is that at one point around 1980, "five of the leading principles textbooks had been written by members of the Clemson faculty or by economists who had enjoyed [an] association with the department," including Roger Leroy Miller. In addition, the department developed a program to teach economic principles to high school teachers, as Holley Ulbrich organized the Center for Economic Education at Clemson.

NORTH CAROLINA STATE UNIVERSITY

Like Clemson, North Carolina State University is a land-grant college, with its roots in agricultural extension. Its first economics course, Agricultural Economics, was offered in 1897 (North Carolina State University 1974). Like Clemson, it has had two economics departments, although they were joined together before 1927 and between 1965 and 1990. As in other places, early economics courses were taught by members of other departments, such as Economics 130 in 1909, which was taught by an English professor (North Carolina State University 1965).

Leading economists in NC State's early years include Reuben O. Moen (1892–1966), who served in the Office of Price Administration during World War II and published *The Federal Reserve System* (1922) and *Rural Credit Unions in the United States* (1931). Emol Atwood Fails did a great amount of consulting work and became director of research of the Heating and Air Conditioning Research and Development Association and received the Man of the Year Award from the National Warm Air Heating and Air Conditioning Association in 1965.

The agricultural-economics department, headed by Garnet Wolsey Forster from 1924 to 1950, focused its research on practical aspects of farm management and marketing: "We would select at random farms in various counties and with proper instruments . . . we made a careful survey of the farm, the size and shapes of the fields. We . . . checked the time required to plow or cultivate different shapes and sizes of fields—long narrow fields, square fields, rectangular fields—and computed the time saved in the various sizes and shapes of fields" (History of the Department of Economics and Business, p. 3). Throughout the 1920s and '30s, about two dozen of its research reports were published in the bulletin series of the Agricultural Experiment Station. Representative publications include *Profitable Farm Combinations Adapted to the Lower Coastal Plain of North Carolina, Farm Income and Taxation in North Carolina,* and *Migration of Sons and Daughters of White Farmers in Wake County, 1929*. In 1952 the department began publication of the *Tarheel Farm Economist*, and it soon became one of the major communication vehicles of the department. Beginning with four thousand copies, its circulation reached fourteen thousand in the mid-1970s, with most copies mailed in bulk from Raleigh to the one hundred county extension offices in the state. In 1960 the Agricultural Policy Institute opened. During the decade of its existence, the institute sponsored or cosponsored fifty-two conferences, fifteen workshops, and thirty-six seminars.

While the agricultural-economics program made strides, in the first couple decades after World War II the economics program at NC State struggled to attract and hold high-caliber faculty members because of low pay, inadequate research support, and the fact that there were few economics courses to teach above the sophomore level. Like their compatriots in agricultural economics, the department's faculty were active in extension teaching, which included courses at military bases, evening classes, and correspondence courses.

After the merger of the two economics departments in 1965, these programs were joined with the business and accounting programs in the 1970s, but the overall focus continued to be on agriculture. The department produced four presidents of the Agricultural and Applied Economics Association (C. E. Bishop, 1967–68; Richard King, 1979–80; Jon Brandt, 2003–4; and Barry Goodwin, 2014–15), and two presidents were former members of the department's faculty (Richard Shumway, 1998–99; and Bruce Gardner, 2000–2001).[5]

By 1980 the Department of Economics and Business was the largest department on campus with almost one hundred tenure-track faculty members (Bishop and Hoover 2003) although the conglomeration came to an end in 1990. It was during this period that modern academic economic research began to flourish in Raleigh. Economic research at NC State has long had a noticeable empirical and statistical bent, and the economics and statistics departments maintained a close relationship over the years. This is shown in the work of Clifford Hildreth, developer of the Hildreth-Lu method for adjusting a linear model in response to the presence of serial correlation in the error term. David Dickey, whose Dickey-Fuller test tests the null hypothesis that a unit root is present in an autoregressive model, is a long-time member of NC State's Statistics Department with an associate appointment in economics since 1976. T. Dudley Wallace (now at Duke) taught at NC State for fifteen years and is the coauthor of a leading econometrics textbook. A. Ronald Gallant, who is a fellow of the Econometrics Society and co-developer of the efficient method of moments, spent much of his career at NC State.

This empirical bent can be seen in the research of the leading economists currently working at NC State, including Robert Clark (an expert on retirement and Social Security), Barry Goodwin (an expert on agricultural markets), economic historian Lee Craig, macroeconomists Douglas Pearce, John Seater, and James Nason, and natural resource and environmental economist Walter Thurman. Richard Stroup finished his long and distinguished career at NC State. Thurman and Stroup maintained long-term affiliations with the classical liberal Property and Environment Research Center (PERC). Michael Walden is another representative of NC State in the classical liberal tradition. Walden is the author of the biweekly You Decide newspaper column (carried by forty newspapers in the state), has daily radio

5. Fourteen fellows of the Agricultural and Applied Economics Association were NC State faculty members or former members: Forster (1957), Bishop (1970), King (1978), Gardner (1989), Daniel Sumner (1999), Shumway and Michael Wohlgenant (2001), V. Kerry Smith (2002), Gerald Carlson (2004), Goodwin (2006), Matthew Holt (2009), Walter Thurman (2010), Bruce Babcock (2013), and John Beghin (2018).

programs aired on stations around North Carolina, and is a contributing editor to the classical liberal John Locke Foundation's *Carolina Journal*.

When the Department of Economics split from the Department of Agricultural Economics in 1990, economics at NC State was dominated by a connection to UCLA. About a quarter of the department's faculty had done graduate work at UCLA under Armen Alchian, Harold Demsetz, and Jack Hirschleifer, all of whom carried the Chicago school of economics' tradition of neoclassical economics and free markets to the West Coast. These economists include David Flath, Craig Newmark, Charles Knoeber, Stephen Margolis, and Stan Liebowitz. Perhaps the most prominent of this group were Margolis and Liebowitz, who were best known for their research challenging the QWERTY parable (Boettke 2019).

Supporters of the QWERTY parable argue that it is easy for inefficient systems—such as the standard QWERTY keyboard—to become locked in, damaging economic efficiency and suggesting that top-down economic planning is preferable. Margolis and Liebowitz demonstrated that much of the story as reported by economist Paul David and others is inaccurate. As Boettke (2019, p. 445) writes, "All the evidence that purported to show the superiority of the Dvorak keyboard was either of dubious origins or lacked any scientific rigor. For example, August Dvorak, the inventor behind the simplified keyboard and owner of its patent, was involved with the earliest 'experiments' aimed at establishing which of the alternative keyboard styles was truly superior." Margolis and Liebowitz conclude that "because real-world situations present opportunities for agents to profit from changing to a superior standard, we cannot simply rely on an abstract model to conclude that an inferior standard has persisted. Such a claim demands empirical examination" (Liebowitz and Margolis 1990, p. 21). Later empirical work debunked other QWERTY-like stories, such as Betamax versus VHS. Combining empirical and insightful theoretical work, Margolis and Liebowitz demonstrate that the "literature on network effects and increasing returns, rather than leading to a richer understanding of the ongoing market process of adaptation, adjustment, and amelioration, impoverished our understanding of the entrepreneurial dynamics at work" (Boettke 2019, p. 446).

DUKE UNIVERSITY

Duke has emerged as the top-rated economics department in the Carolinas in recent decades. IDEAS/RePEc (2020b), for example, lists Duke's economics department as the twenty-eighth-ranked program in the United States. IDEAS/RePEc (2020a) also ranks the top economists in the world. Of the forty highest-rated economists in the Carolinas, twenty-eight are in Duke's economics department, its

Fuqua School of Business, or its Sanford School of Public Policy.

Duke University's economics department has had a history of caring about history. Fittingly, Duke is the only one of the five departments to include a history of its department online (History of the Duke Department of Economics n.d.).

The first notable economist at Duke was William H. Glasson (1874–1946), who came to Trinity College (before it became Duke University) in 1902, chaired the economics department until 1930, and served as the first dean of the Graduate School. Glasson was attracted to Trinity by its progressive reputation and led the effort to protect the academic freedom of a fellow faculty member who published a piece that called Booker T. Washington "the greatest man, save General Lee, born in the South in a hundred years" (Glasson 1938, p. 2). He played a leading role in Durham's adoption of the city-manager form of government, was advisory editor of the *National Municipal Review* for a decade, and led the effort to get North Carolina to adopt the secret ballot. Inside the classroom, he explained that he "endeavored to present . . . a fair-minded and just account of the many aspects" (Glasson 1938, p. 4) of economic questions such as prosecution of the trusts and monopolies, movements to forbid child labor, and efforts to limit the working hours of women, inspect working conditions in factories, and enact other types of labor legislation. He "felt that he could do more to aid right action . . . by calm discussion and teaching in the class room than by undertaking outside leadership or propaganda" (Glasson 1938, p. 4). His pioneering research focused on the history of military pensions in the United States, including *History of Military Pension Legislation in the United States* (1900) and *Federal Military Pensions in the United States* (1918). He noted that his three most successful hires as department chair were Earl Hamilton, Calvin Hoover, and Joseph Spengler.

Earl Hamilton (1899–1989) spent much of his career studying the impact of gold and silver from the Americas on prices, wages, and money in Spain in three books: *American Treasure and the Price Revolution in Spain, 1501–1650 (1934), Money, Prices and Wages in Valencia, Aragon and Navarre, 1351–1500* (1936), and *War and Prices in Spain, 1651–1800* (1947). Emmett (1999) writes:

> One of the earliest quantitative studies in economic history, Hamilton's work showed economists how price data could be assembled from archival records; it also showed historians how the tools of economic analysis could be used to reconstruct that data in order to highlight certain key relationships. His conclusion was that the price level in Spain in the sixteenth century rose more than fourfold because of the importation of precious metals from the Americas (previous studies had estimated price increases of anywhere from twofold to tenfold). His study also showed that the importation of more silver than gold changed the

bimetallic ratio of gold and silver, thereby making silver the monetary standard in most of western Europe.

Calvin Hoover (1897–1974) secured leaves of absence to hold research fellowships in Europe. After using a grant from the Social Science Research Fund to spend 1929–30 in Moscow, Hoover, who grew up in a working-class family and called himself as "primitive socialist" (Silk 1999), wrote "Some Economic and Social Consequences of Soviet Communism" (1930) and *The Economic Life of Soviet Russia* (1931). Severely hampered by the secrecy and lies of the USSR, Hoover nonetheless saw great achievements underway and hinted that central planning had great promise. He concluded that "unless the Capitalistic world can utilise the experimental data which are being worked out in Soviet Russia to strengthen itself against the day when Communism, supported materially and spiritually by success on the economic front, registers its first conquests outside of Russia, the only real question may be whether the World Revolution spreads first towards Berlin or towards Bombay. Communism strains every nerve to copy the enviable features of the productive technique of Capitalism. Capitalism may find itself forced to learn some lessons from the Soviet system if it is to be the conqueror in the coming world struggle" (Hoover 1930, p. 444). Subsequently, Hoover traveled to and researched the economies of Germany, Italy, France, Poland, Czechoslovakia, Denmark, Sweden, Norway, and Australia. In 1933 he published *Germany Enters the Third Reich*. Because of this body of work, he is considered to be the founder of the field of comparative economic systems and taught the first ever course on the subject.

Because of his knowledge of the Soviet Union and Nazi Germany, Hoover was called into service with the Office of Strategic Services (the predecessor of the Central Intelligence Agency) during World War II, eventually becoming head of Northern European operations in Sweden. His group was instrumental in finding German synthetic-oil plants, which led to their bombing and destruction. Immediately after the war concluded, Silk (1999) writes, "Hoover went to Berlin . . . to design a basic plan for reconstructing the devastated German economy." Silk continues:

> He designed a plan that called for restoring German steel capacity to 7.8 million tons a year and other industries to a level that would allow Germany to support itself. The report produced a political storm in the United States and the Soviet Union, especially among those who urged that Germany should be reduced to a weak, rural economy to prevent it from ever waging war again. Though a powerful anti-Nazi himself, Hoover believed that peace would be more likely to be preserved by economic health and growth than by wrecking the German economy; the Versailles treaty and Allied efforts after World War I to cripple

Germany had actually fed the rise of Hitler and bred World War II. Hoover's plan for rebuilding German industry prevailed . . . and the economic recovery of Germany furthered the unity of Western Europe and the Western defense against the Soviet Union in the Cold War.

President Harry Truman awarded him the Medal of Freedom in 1946.

Joseph Spengler (1902–91), who served as president of the SEA, the AEA, and the Population Association of America, combined interests in economic demography and the history of economics. Although, like many other prominent economists in the Carolinas, he worked for the federal government during World War II (in the Office of Price Administration, in his case), the experience "seems to have reinforced his aversion to governmental bureaucracy and to bureaucrats generally" (Brandis 1999). Spengler was a member of the Mont Pelerin Society and his classical liberal point of view shines forth in his SEA presidential address, "The Problem of Order in Economic Affairs" (1948):

> A centrally planned economy. . . almost certainly will neither maximize the rate of growth of per capita income nor bring about the particular kind of coordination that most men want. For the entrepreneurial state lacks and probably will continue to lack the know-how, the moral integrity, the inventiveness, the capacity to give incentive, and the flexibility of economic behavior requisite in a dynamic world. Moreover, because of the uncertainty inherent in human society and characteristic of human endeavor, the state is incapable of establishing for large numbers those complex arrangements which are presently brought about in the democratic world by continual mutual adjustments of the participating autonomous agents. (Spengler 1948, p. 26)

Combining his interests in demography and the history of economic thought, Spengler published *French Predecessors of Malthus* (1942). Toward the end of his career, he was instrumental in launching the journal *History of Political Economy* and helping to make Duke the international hub for the archiving of economists' papers and for research into the history of economic thought that it is today through its Center for the History of Political Economy.

The center is home to several internationally recognized historians of economic thought who are current or emeritus professors at Duke. These include Bruce Caldwell, Neil de Marchi, Kevin Hoover, Steven Medema, and E. Roy Weintraub.[6] Caldwell, who heads the center, is a classical liberal known for his work on economist

6. It is notable that ten of the forty-five presidents of the History of Economics Society have been in departments in the Carolinas. These include (in chronological order) Vincent Tarascio (UNC), Joseph Spengler, Craufurd Goodwin, Martin Bronfenbrenner, Robert Clower, Bruce Caldwell, J. Daniel Hammond (Wake Forest), Kevin Hoover, E. Roy Weintraub, and Steven Medema.

Friedrich Hayek and is the general editor of Hayek's *Collected Works*.

Martin Bronfenbrenner (1914–97), a genuine character, who served as vice president of the AEA and president of the SEA, completes the list of notable historians of economics at Duke. During World War II, Bronfenbrenner served in the Pacific, learned Japanese, and translated captured documents. After the surrender of Japan in 1945, he served in the Economic and Scientific Section, which presided over the dissolution of the huge zaibatsu holding companies that facilitated the prosecution of the Japanese war effort. He developed a deep interest and love for Japanese learning and culture and was a member of the Shoup Commission on the Japanese Tax System in 1949. He regularly taught courses on the Japanese economy and was a pioneer of Japanese studies in the United States. He held the Kenan Chair at Duke from 1971 until 1984, moved to Japan as a professor of international economics at the Aoyama Gakuin University in Tokyo for seven years, and finally returned to Duke, where he taught until his death.

When he was invited to serve as president of the History of Economics Society, Bronfenbrenner "insisted there must be some sort of mistake because . . . he was not a historian of economics" and explained that the association should "scout around to find the 'other' Martin Bronfenbrenner who, perhaps, better fit this description" (Moss 1999, pp. 493–94). In fact, it would be wrong to pigeonhole Bronfenbrenner into any subdiscipline of economics. A 1972 article in the *Journal of Political Economy* listed Bronfenbrenner as the sixth most prolific economist in the world. By the end of his career, he had published approximately 250 articles. Bronfenbrenner belonged to the "fast-disappearing class" of generalists in economics. He assessed his accomplishments by saying, "Doubtless I shall end, if I live long enough, 'knowing nothing about everything,' as against the specialist's "knowing everything about nothing'" (p. 492). He continued that the list of subjects about which he knew 'nothing' was vast and ranged "from income distribution theory, labor economics, Marxian economics, Japanese economics, and comparative economic systems, to radical economics, monetary theory, and the history of economic thought" (p. 492).

Colleagues, students, and collaborators noted "his unique personality. He was a specialist in self-effacement, peppered with liberal shakes of cynicism and sarcasm" (p. 492). Goodwin (1999, p. 511) writes, "It is not that he was unusually difficult or obstinate or ill-tempered; he was all of this and more. What you need to recall is that Martin was proud to have been simultaneously a member of the Mont Pelerin Society and the Union for Radical Political Economy."

The final Duke luminary is Juanita Kreps (1921–2010). Kreps earned her PhD in economics at Duke in 1948 and returned to Duke in 1955 after teaching at Denison University, Hofstra College, and Queens College and raising a family. At Duke she became the university's first female vice president. She was also the first woman director of the New York Stock Exchange (1972) and served on numerous corporate boards. A labor economist, her scholarship focused on women in the workforce and on aging and retirement. Her publications include *Sex in the Marketplace: American Women at Work* (1971) and *Sex, Age, and Work: The Changing Composition of the Labor Force* (1975).

In 1977, Kreps became secretary of commerce under President Jimmy Carter, the first woman to hold that position and fourth woman ever in the Cabinet. McFadden (2010) writes:

> Like her predecessors, Dr. Kreps was an advocate for the business community, promoting exports, international trade and domestic commerce amid rising inflation and unemployment. She became the nation's traveling saleswoman, taking trade missions to the Soviet Union, Europe, Africa and Asia. In 1979, she negotiated a historic trade agreement with China. While not in the inner circle of Carter advisers, she gave the president a crucial boost when his standing with business had ebbed, organizing meetings for him with corporate leaders in 1977 to map anti-inflation and economic strategies. . . . She . . . pressed business to look beyond profits and act with greater social responsibility toward employees, consumers and the public interest, with measures including affirmative-action programs and steps to protect the environment and strengthen corporate integrity. She was an advocate for women and older workers, the unemployed, minority-owned businesses, and development in depressed urban areas. (McFadden 2010)

THE UNIVERSITY OF NORTH CAROLINA

Throughout most of its history, UNC Chapel Hill's economics department has generally been ranked as the strongest in the Carolinas. Formal quantitative rankings, using measures based on criteria such as faculty publications and graduate student placements, began in the 1970s. In one well-known ranking (Graves, Marchand, and Thompson 1982), UNC's program ranked 16th in the United States and number one in the South. Duke ranked 40th, USC ranked 72nd, NC State ranked 83rd, and Clemson ranked 125th. However, its ranking has fallen since then.

UNC's economics department was established in 1901. Its first professor was Charles Lee Raper (1870–1951), whose graduate work at Columbia University was in history, rather than economics. Raper was the author of *Railway Transportation: A History of Its Economics and of Its Relations to the State* (1911). Fittingly, the program has been the home of some prominent economic historians throughout its history. These include the polymath Milton Heath (1928–2019), author of *Constructive Liberalism:*

The Role of the State in Economic Development in Georgia to 1860 (1954), James Ingram (1922–2011), author of *Economic Change in Thailand since 1850* (1955), and especially Robert Gallman. All three of these men served as presidents of the SEA.[7] Gallman (1926–98) may have done more to quantify the economic history of the United States than anyone else. Gallman was author, coauthor, and coeditor of numerous works. These include *Developing the American Colonies, 1607–1783* (1964), *Long-term Factors in American Economic Growth* (1992), *American Economic Growth and Standards of Living before the Civil War* (1993), *In Pursuit of Leviathan: Technology, Institutions, Productivity, and Profits in American Whaling, 1816–1906* (1997), the magisterial *Cambridge Economic History of the United States* (1996, 2000, 2000), and *Capital in the Nineteenth Century* (2019).

Perhaps the most influential economist at UNC Chapel Hill was Harold Hotelling (1895–1973). Hotelling was a distinguished professor in UNC's statistics department, although his courses in mathematical economics were cross-listed in the economics department. "As a scholar of international reputation, Professor Hotelling attended seminars and in others ways lent distinction" to UNC's economics department (UNC Economics Department 1991). Hotelling, who became president of the Econometrics Society and was named a distinguished fellow of the AEA, is known to statisticians because of Hotelling's T-squared distribution, a generalization of Student's t-distribution in a multivariate setting. He is especially well known among economists for two papers: "Stability in Competition" (*Economic Journal*, 1929), whose result came to be known as Hotelling's law; and "The Economics of Exhaustible Resources" (*Journal of Political Economy*, 1931), whose result is often called Hotelling's rule.

Hotelling's law is the finding that in some markets it is rational for producers to make their products as similar as possible—also known as the principle of minimum differentiation. A textbook example is that two ice cream vendors will locate at the same spot on an evenly populated, linear beach—right in the middle. Any other location will leave an individual seller with fewer customers who are closer. Recently this law has been used to explain why specialized retailers often locate next to each other, with Lowe's and Home Depot locating close to each other in many cities, for example. In politics, this has been used to explain why presidential candidates run to the left (Democrats) or right (Republicans) during the primaries, aiming for the center of their party. But when the general election comes, they run closer to

7. One should not omit Gallman's long-time collaborator William Parker (1919–2000), who left UNC after six years for Yale in 1963. As editor of the *Journal of Economic History* in the early 1960s, Parker presided over the flowering of quantitative research in economic history—the cliometric revolution. Likewise, Paul Rhode, now at the University of Michigan, worked with Gallman in the 1990s and recently published Gallman's articles, worksheets, and partial and completed unpublished manuscripts as *Capital in the Nineteenth Century* (2019). Daniel Buchanan was a widely recognized economic historian of Asia and author of *The Development of Capitalist Enterprise in India* (1934).

the center. Hotelling suggested that his finding implies that markets are inefficient because of this phenomenon.

Hotelling's rule begins by noting that profit maximization occurs when the marginal profit (price minus marginal cost) from selling a unit of a nonrenewable natural resource today is equal to the present value of the marginal profit from selling the unit next year. The model, which is a staple of natural resource economics textbooks, demonstrates that nonrenewable natural resource prices are expected to rise over time and output is expected to fall. Price rises at the discount rate. Thus, if the discount rate is 5 percent, prices rise at 5 percent per year; if the discount rate is higher, prices rise faster. While the model is a useful benchmark, it assumes that market participants are fully informed of future demand, marginal costs, and available supplies. In actual natural resource markets, these conditions don't hold: demand shifts in unknowable ways; and technology often changes, thereby increasing the supply of profitably extractable resources (for example, the recent development of fracking in oil and natural gas markets). Because shifts in demand and marginal costs are unpredictable, natural resource prices fluctuate over time (often quite dramatically since both supply and demand for many of them are very inelastic in the short run), rather than rising monotonically as the model suggests.

Unfortunately, some observers have overlooked the simplifying assumptions of the model and think of the supply of each natural resource as relentlessly diminishing over time. This thinking has led to doomsday predictions, such as those of biologist Paul Ehrlich, who lost a famous bet to economist Julian Simon in 1990 in which Simon correctly predicted that the real price of a basket of natural resources selected by Ehrlich would fall (Sabin 2013). Of the nineteen metals, precious metals, minerals, and fossil fuels examined by Jacks (2019), ten have seen their real prices fall since 1900, while nine have risen.

Another of UNC's most prominent economists, Erich Zimmerman (1888–1961), was also an internationally renowned expert on natural resources. Zimmerman's books include *World Resources and Industries* (1933, 1951) and *Conservation in the Production of Petroleum* (1957). Zimmerman rejected models such as Hotelling's that relied on the fixity of resources (Bradley 2004). Zimmermann (1951, pp. 814–15) writes, "Resources are highly dynamic functional concepts; they are *not*, they *become*, they evolve out of the triune interaction of nature, man, and culture, in which nature sets outer limits, but man and culture are largely responsible for the portion of physical totality that is made available for human use" (emphasis added). Zimmerman (1933, p. 3) also writes, "Previous to the emergence of man, the earth was replete with fertile soil, with trees and edible fruits, with rivers and waterfalls, with coal beds, oil pools, and mineral deposits; the forces of gravitation, of electromagnetism, of radio-activity were there; the sun set forth its life-bringing rays, gathered the clouds, raised the winds; *but there were no resources*" (emphasis added). Human actions turn the things given by nature into resources: "Knowledge is truly the mother of all resources" (Zimmermann 1951, p. 10).

Zimmerman's approach is far more insightful than Hotelling's model of fixed resources that are depleted over time. It has far different implications as to what will produce human flourishing: "If petroleum resources are dynamic entities that are unfolded only gradually in response to human efforts and cultural impacts, it would seem that the living might do more for posterity by creating a climate in which these resource-making forces thrive and, thriving, permit the full unfolding of petroleum reserves than by urging premature restraint in use long before the resources have been fully developed" (Zimmerman 1957, pp. 8–9). His ideas accord well with the classical liberal understanding that flourishing requires self-direction and a culture that supports entrepreneurial discovery, and they accord well with historical developments in natural resource markets.

UNC has been the home of many other prominent economists, among them John Woosley (an expert on banking), G. T. Schwenning, Ralph Pfouts, William Darity (now at Duke), and Donna Gilleskie (all of whom have been elected president of the SEA). Others include Claudius Murchison (1889–1968; he became director of the US Bureau of Foreign and Domestic Commerce, served on the board of directors of the Export-Import Bank, and became president of the Cotton Textile Association), Corydon Spruill (1899–1988; he consulted with the Office of Price Administration during World War II), Clarence Heer (1893–1987; he was appointed to Herbert Hoover's Research Commission in Social Trends and became director of the Interstate Commission on Conflicting Taxation under Franklin Roosevelt), and Edward Morris Bernstein (1904–96; he served as chief technical adviser and negotiator at the Bretton Woods Conference and participated in the formation of the International Monetary Fund).

Clarence Philbrook (1909–78) was another leading UNC economist and arguably the most prominent classical liberal at UNC, where he taught from 1947 until 1975. He is probably best known for "'Realism' in Policy Espousal" (*American Economic Review*, 1953) and a series of thoughtful articles published in the *Southern Economic Journal*. Philbrook was an active member of the Mont Pelerin Society and served as its treasurer from 1959 to 1969 (UNC Economics Department 1991, pp. 37–38). Philbrook enjoyed making rhetorical flourishes, as when he noted that "a crucial part of the populace, perhaps especially the intellectuals, tend to believe that we have won a victory for humanitarianism whenever we prevent a price from changing and thus performing its function" (Philbrook 1961, p. 210) and explained that unfettered economic forces are the surest route to prosperity: "It should be clear . . . that the hope of betterment of low-production areas rests exactly on the hope that on occasion new employers will come in to 'take advantage of low wage rates'" (Philbrook 1961, p. 212). Philbrook (1952, p. 21) defended "old-fashioned orthodoxy" against modern Keynesianism, seeing Keynesianism as a snake in the garden and rejecting its temptation of activist fiscal policy. He argued that "a sufficient reason for making public expenditure variation a device only of last resort is that no one . . . seriously means to *reduce* expenditures when aggregate demand needs reduction. A one-way control is no control" (p. 26, emphasis in the original). Philbrook concluded that "the reason for the policy of encouraging flexible wage rates is simply that a free-enterprise system cannot long function without it" (Philbrook, 1952, p. 27).

Philbrook's "Capitalism and the Rule of Love" (1953) is a true gem. It takes on those who aim to destroy capitalism out of a desire for universal human benevolence and brotherly love. His corrective explains that "capitalism does less violence to the rule of love than would any other system so far conceived," so the "destruction of capitalism would constitute a tragedy to the human species" (p. 459). He decries critics who want to compare actual capitalism, a "mangy beast" (p. 461), to a pig in a poke—a hypothetical system that bears little resemblance to alternative systems in practice. These critics have mutilated the best forms of capitalism, have attempted to politicize every price, have sought to put themselves into power, and have refused to let the impersonal market make "disagreeable but necessary adjustments" (p. 463). They cannot answer the most central question: "Once the market is repudiated, what principles—signals and incentives—are to perform the functions of prices—that is, the rationing of goods, the allocation of resources, and the distribution of incomes, in the light of the fact that the total product is drastically influenced by incentives to effort?" (p. 463). Free enterprise, "bad as it is in comparison to our dreams, seems to offer possibilities of embodying more of the rule of love than we so far see how to embody in any different system" (p. 464). Because we are all sinful, we cannot use coercion or allow the state to use coercion to get our way: "The thing to be guarded, even at tremendous cost if necessary is freedom, in the common-sense meaning of freedom from arbitrary dictation of one soul by another" (p. 465). And "decisions must stem from the tastes and ideals of men, freely developed and freely expressed. . . . Moreover, fantastically more brotherly love than has ever been exercised can be given expression through individual attitude, decision and action in a capitalistic society" (p. 466).

This is a fitting note to end upon.

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THE CAROLINIAN ECONOMY THROUGH TWO WORLD WARS

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ABSTRACT

I offer an economic history of North and South Carolina during the First and Second World Wars. Prior to World War I, nearly 90 percent of the region's labor force was employed in farming, and cotton and tobacco were the primary cash crops. The war provided an unambiguous, though temporary, boost to the region's economy. The wartime boom resulted from temporary disruptions in the supply chains of cotton and tobacco elsewhere in the world and an increase in domestic government purchases, which were financed principally by federal deficit spending. The economy boomed again during World War II, and the impacts of that war were larger, broader-based, and longer-lasting than those associated with World War I. Partly, this was because the region's economy had become more diverse during the interwar period. However, many of the region's post–World War II developments resulted from changes that began during the Great Depression—changes that were associated with the New Deal—and thus would have probably occurred even without the war. Among the most prominent impacts of both wars was the Great Migration, the movement to (primarily) northern cities of roughly one million African Americans from the Carolinas and millions more from across the South.

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INTRODUCTION: OLD CAROLINAS, NEW CAROLINAS

To the extent that one can speak of a Carolinian economy before World War I, it was dominated by agriculture. In the decade before the war, in South Carolina, the agricultural sector employed 87 percent of the labor force, and in North Carolina the figure stood at 90 percent. At the time, the US average was 60 percent, and only five states (Idaho, Oklahoma, North Dakota, Mississippi, and Arkansas) had a larger share of their labor force employed in agriculture than the Carolinas (Craig and Weiss 1998). Furthermore, throughout the region, cotton dominated the agricultural sector. In North Carolina, in the late nineteenth century, tobacco emerged as a second major cash crop, but cotton remained king in both states.[1] So any review of the impact of the Great War on the Carolinas must focus on the agricultural sector, and, particularly because of the large share of the labor force employed in agriculture, what happened on the farm had major impacts for the region's workforce.

Without discounting the losses of the Carolinians who were maimed or perished in either World War I or World War II, or the resulting losses, emotional and financial, suffered by their families, it is safe to say that both wars provided an unambiguous boost to the region's economy. Because of agriculture's dominance at the time, the positive impact of the Great War was most pronounced in that sector; however, that impact proved to be temporary in many important respects. The wartime boom was largely the result of temporary disruptions in the supply chains of cotton and tobacco elsewhere in the world and an increase in domestic government purchases, which were almost entirely military-related and which were financed principally by federal deficit spending.

Economists argue about the net aggregate wealth effects generated by fiscal expansions of the type typically associated with wartime government spending, but for the Carolinians who lived through one or both world wars, the impacts were unambiguously positive, at least as measured by traditional economic indicators, such as wages, output, and income. However, the economic impacts varied by war. Those accompanying World War I were narrow and proved to be short-lived; those associated with World War II were larger, broader-based, and longer-lasting. Partly this resulted from the sheer magnitude of the latter war effort; partly it was because the region's economy had become more diverse during the interwar period. It should be noted that many of the region's post–World War II developments resulted from changes that began during the Great Depression, changes that were associated with the New Deal—and thus would have probably occurred even without the war.

Among the most prominent impacts of both wars was the Great Migration, the movement to (primarily) northern cities of roughly one million African Americans

1. In their summary of the region's economy at midcentury, Hoover and Ratchford refer to cotton and tobacco as "the two great staple cash crops of the region" (1951, p. 2).

from the Carolinas and millions more from across the South. No regional history of the era would be complete without documenting that social phenomenon. While the migration is often viewed as one long trend dating from the onset of World War I to the 1960s, it had distinct stages that corresponded with the region's economic fate, which was strongly influenced by the two world wars.

THE GREAT WAR

In the years just prior to the onset of the Great War, the Carolinas produced roughly two million bales of cotton annually. During those years, the price of cotton, which had been as low as $0.05 a pound in the 1890s, fluctuated around $0.13 a pound (figure 1), making the Carolinas' cotton crop worth $125 million or so a year, or roughly $435 per cotton-producing farm. The Carolinas also produced around 165 million pounds of flue-cured tobacco in each of those years, and tobacco typically sold for around $0.12 per pound. Thus the annual tobacco crop generated around $20 million, or roughly $335 per tobacco-growing farm.[2]

All of these figures would increase dramatically with the war. Indeed, as one historian notes, "America's entry into the war ushered in a golden age" for the region's agricultural sector (Craig 2018, p. 131). By the end of the war, cotton output had increased to 2.3 million bales; prices had reached $0.30 per pound; and the annual cotton crop brought in more than $330 million, or roughly $975 per farm. The tobacco market expanded as well. By the end of the war, Carolina farmers were producing 350 million pounds of flue-cured tobacco annually, and, at its wartime peak, tobacco sold for around $0.30 per pound. Thus, the annual crop was worth $105 million, or about $925 per tobacco-producing farm.[3] In short, gross farm income from cotton and tobacco in the Carolinas doubled over the war years, and on a per-farm basis it more than doubled. Although these are nominal figures, the rate of growth in farm income exceeded the overall inflation rate by roughly 30 percentage points.[4]

Wartime shocks on both the supply side and the demand side of the cotton market largely benefited Carolina cotton farmers.[5] Partly the increase in demand

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2. South Carolina produced roughly twice as much cotton as North Carolina, whereas North Carolina produced roughly five times as much tobacco as South Carolina. Output figures and the number of farms are from USDA (1947a and 1947b). Prices are from US Department of Commerce (1975, pp. 199, 517–18). A bale of cotton weighs 480 pounds.

3. For sources, see footnote 2.

4. The Consumer Price Index was around 10 in the late summer of 1914, when the war began, and it reached 17 by the summer of 1919. See InflationData.com (2020).

5. I say "largely" because the boll weevil was working its way across the region during the 1910s, and, while the damage was usually short-lived, the pest could devastate production in a specific region (Lange et al. 2009).

resulted from a dramatic increase in worldwide military spending. Military high commands ordered cotton undergarments, socks, and various martial accouterments, many of which were made of canvas. In addition, cotton played a major role in the manufacture of munitions, the production of which was enormous.[6] In the United States, despite the country's dominant role in the world cotton market, the War Department expressed concern about the ability of US cotton farmers to meet the rising wartime demand, which in turn drove the quest for other sources of cellulose. A postwar report noted: "It early became evident [during the war] that the supply of cellulose, even though *all available sources of supply were utilized to the utmost*, would nevertheless be insufficient to meet our vast production program" (US Department of War 1919, p. 112, emphasis added).

The worldwide increase in the demand for cotton was particularly beneficial to US producers because of the simultaneous disruption in the supply chains of other key producers. While, on the eve of the Great War, the United States produced roughly 60 percent of the world's cotton, India and Egypt were also major cotton producers. Together, they supplied over half of the non-US world total. In 1913, the number of acres of land sown with cotton in Egypt exceeded that of North Carolina (1.7 versus 1.3 million acres)[7], and Indian production was several times larger than that of North and South Carolina combined (US Department of Commerce 1916, pp. 55–57). While both India and Egypt had small domestic textile industries, cotton from those countries had historically fueled British mills. By the time the United States entered the war, however, British textile production had declined to roughly 50 percent of its prewar level, as its international supply chain was severely disrupted by the Imperial German Navy's commerce raiding (Craig 2013, pp. 224–344; Liu 2020, p. 261).[8]

US tobacco production expanded as well. In the decade before the war, according to one historian of the era, Carolinian tobacco farmers were being "ruined by low prices" (Bennett 2018, p. 287). However, as with the cotton market, the demand for tobacco boomed as a result of an increase in US military demand and disruptions to supply chains elsewhere in the world. Although by the 1910s tobacco was already considered a vice, a soldier's right to smoke in the face of the risks and trials of war tended to dominate other social concerns. For example, the *New York Times* observed, "Tobacco may not be a necessary of life, in the ordinary sense of that term,

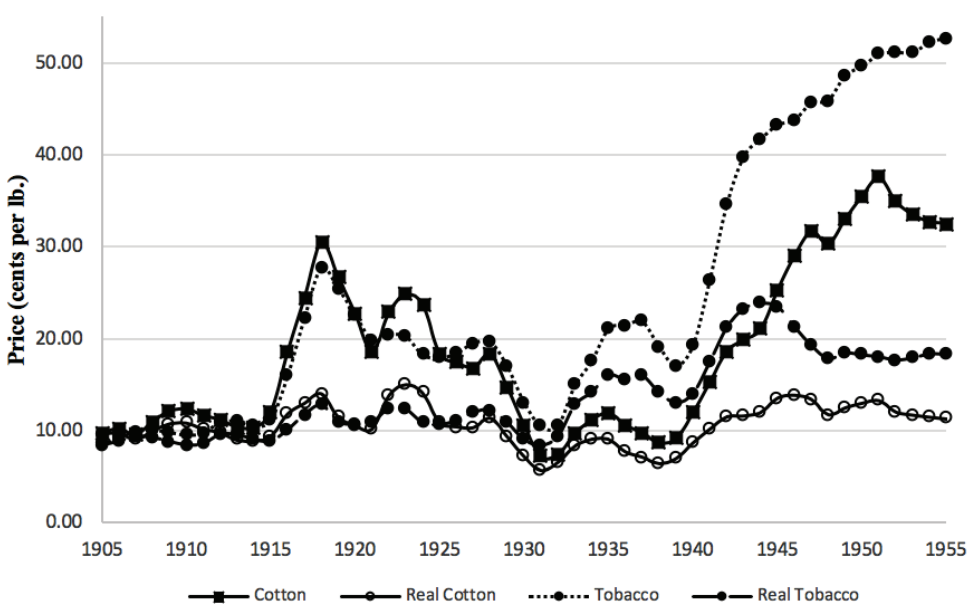
6. Cotton provided the cellulose base of gun-cotton, an important component of smokeless gunpowder.

7. The US figure is for 1909, the last US Census crop year before the war.

8. It is not a coincidence that Wright (1986, p. 10) lists India and Egypt, along with the American South, as examples of low-wage economies in which industrialization did not lead to overall economic prosperity.

but certainly it lightens the inevitable hardships of war as nothing else can do." General John Joseph "Black Jack" Pershing, commander-in-chief of the American Expeditionary Force, went further, saying, "You ask me what we need to win this war. I answer tobacco, as much as bullets" (quoted in Brandt 2007, p. 51).

Figure 1: Cotton and Tobacco Prices, 1905-1955
Three-year Moving Average



Once the United States entered the war, various volunteer groups, including the Salvation Army and the YMCA, provided soldiers with cigarettes at no charge; however, the free allotment from these groups tended to fall short of the troops' demands. As a result, a thriving tobacco market soon developed wherever the troops went.[9] Eventually, the War Department took command of the distribution of tobacco, with the goal of allotting the equivalent of four cigarettes per soldier per day. To meet this demand, in 1917 the War Department procured the entire output of the American Tobacco Company's Bull Durham line for distribution to the troops (Brandt 2007, p. 52). This quantity proved inadequate to meet the military's need, and, as a subsequent government report noted, in 1918, the War Department purchased "almost the entire production [i.e. total output] of tobacco from the manufacturers" (US House of Representatives 1921, p. 690). Overall, US tobacco sales tripled during the war (Bennett 2018, p. 290).

9. Because selling tobacco was not illegal, this was not strictly a black market, though to the extent the marketed cigarettes had come from the charitable institutions, there was a questionable moral component to the trade.

Although agriculture dominated the wartime economy in the Carolinas, just as it had before the war, there were two other positive developments for the Carolinian economy: a windfall for the region's textile industry and a spurt in local military spending on base construction. With respect to the textile industry, on the eve of the war, the South passed the North in the amount of cotton processed by the region's textile mills. Wartime military contracts only widened the gap. The region's cotton-textile output, measured by value, grew at an average annual compounded rate of 14.4 percent between 1914 and 1919 (Wood 1986, p. 66). From 1910 to 1920, manufacturing's share of the region's labor force increased by 4.2 percentage points (the fastest growth of any decade between the Civil War and World War II), the vast majority of which occurred in textiles (Perloff et al. 1960, pp. 622–35). Much of this was due to wartime government purchases of various military clothing items and equipment.

As families migrated from farms to mills during the war, the textile labor force went from being female dominated to male dominated (Wright 1986, figure 5.1 and tables 5.5 and 5.9). This shift resulted from the higher wages mill work paid relative to agricultural labor, the margins of which were composed of male farmhands and hardscrabble tenants. During the war, farm wages more than doubled, a rate of increase that outpaced inflation; meanwhile, textile wages more than quadrupled. The quasi-rents generated by the war in the cotton and tobacco subsectors disproportionately accrued to owners of agricultural land and established tenants. At the margins of the agricultural economy, the returns were not high enough to keep labor on the farm and out of the mill. This shift would have implications for the postwar adjustments in the two sectors.[10]

In addition to the impacts of the increase in the demand for key agricultural products, there was also a direct stimulus through the military's base-building program (Carlton 2003, pp. 155–56). Textiles dominated the Carolina's industrial sector; thus the region lacked the broader manufacturing base needed to take advantage of the increase in munitions production. However, land was relatively cheap and well supplied by rail, providing the two main requirements for military-base construction. With both houses of Congress and the White House controlled by Democrats, the region received more than its share of direct military spending. (North Carolina's Claude Kitchen was majority leader in the House, and South Carolina's Ben Tillman chaired the Senate's Committee on Naval Affairs.) Fayetteville, North Carolina, became the home of the sprawling Fort Bragg complex.

10. Wright (1986, pp. 138–50) emphasizes the substitutability between unskilled, entry-level textile workers and the poorest farm laborers and tenants.

Camp Jackson (later Fort Jackson) was built near Columbia, South Carolina, in 1916, on land previously owned by the Confederate general Wade Hampton, and the Charleston Navy Yard expanded dramatically.

FINANCING THE WAR

From 1915 (the first full fiscal year following the onset of the war) through 1919, the United States added $24 billion to its national debt. Combined federal spending during those five years exceeded all federal spending since the end of the Civil War (Gordon 1997, pp. 206–9). Roughly two out of every three of those wartime dollars were borrowed. In traditional Keynesian models, this "stimulus" spending should yield an increase in aggregate demand equal to the product of deficit spending and $1/(1-\text{MPC})$, where MPC is the marginal propensity to consume; $1/(1-\text{MPC})$ becomes the so-called Keynesian multiplier. For example, a marginal propensity to consume of 0.60 yields a spending multiplier of 2.5. In these models, deficit spending unambiguously leads to an increase in output, which, ignoring other factors, would be consistent with the wartime economic boom experienced in the Carolinas.

In contrast, neoclassical models are considerably less sanguine about the net output effects of government deficit spending. In his oft-cited attack on the Keynesian approach, Barro (1974) demonstrates that "the impact of changes in government debt cannot be satisfactorily analyzed without an explicit treatment of the associated tax liabilities" (p. 1115). Keynes ([1936] 1964, p. 251) recognized this, but he did not think that, in a recession, the negative impact of taxation would mathematically overwhelm the deficit spending's positive impact on output.[11] Once those future tax liabilities are accounted for, according to Barro, "there would be no marginal net-wealth effect of government bonds," and "the basic conclusion is that there is no persuasive theoretical case for treating government debt, at the margin, as a net component of perceived household wealth" (p. 1116). This conclusion came to be called Ricardian equivalence, after the classical economist David Ricardo, who, writing on British tax policy during the Napoleonic Wars, lamented that politicians had the vexing habit of deficit spending "to lessen the burden of taxation at the present, with the certainty of aggravating its pressure at a future day" (1848, p. 519).[12]

The multiplier lies within three possible ranges: greater than one, one to zero, and less than zero. The simple Keynesian model, as expressed above, suggests a

11. According to one of Keynes's biographers, Robert Skidelsky, Keynes characterized the concern about the potential negative impacts on the multiplier as having "a paralyzing and perverse effect on public policy" (1994, p. 610).

12. For a full treatment of the issue, see Seater (1993), who, curiously, does not cite Ricardo.

multiplier greater than one (Baxter and King 1993); future tax liabilities have no impact on current economic activity.[13] A strict interpretation of the Ricardian model generates a multiplier of zero; current debt is just future taxation, and taxpayers and bondholders can be relied upon to make the appropriate calculations and behave accordingly. In short, "'Ricardian equivalence . . . attributes no effects at all" to deficit spending (Seater 1993, p. 142).

In practice, other variables tend to be in play, and that can complicate the analysis. For example, in some models, government borrowing increases interest rates and crowds out private investment, which, because of the difference in the marginal product of private and public capital, actually reduces output. Similarly, while in the strict Ricardian model current debt is just future taxes, if those taxes are distortionary, then there will be a reduction in output. Depending on the size of these offsetting negative impacts, the multiplier may lie between one and zero or may even be negative. In a review of twelve studies that offer empirical estimates of aggregate multipliers, Ramey (2011, table 1) reports that they range from a high of 3.6 (during recessions in the post–World War II United States) to a low of −0.3 (during expansions in the post–World War II United States).

Of course the Ricardian-equivalence debate revolves around aggregate output, and the multipliers Ramey (2011) reports are largely from studies focusing on the impact on US real GDP. It is possible, perhaps even likely, that there will be distributional effects—across income groups, industries, and, importantly for our story, geographical regions—from deficit spending. Indeed, Fishback (2017) reviews dozens of studies that look at the regional, state, and local multipliers associated with New Deal spending, and Fishback and Kachanovskaya (2015, figure 2) provide a large set of wide-ranging state-level estimates for the same era.

With respect to the federal government's largesse during the Great War, while there might be debate about the size of the aggregate US multiplier, the narrative and quantitative evidence reported above suggests the multiplier was probably positive, and arguably large, for Carolinian cotton and tobacco farmers, textile-mill owners, and textile-machine operators. Of course it was probably negative for a prosperous Indianapolis dry goods merchant unconnected to war industries and paying the newly introduced federal income tax for the first time or for an Iowa farm boy who died in the Argonne Forest.

It is important to understand that the key mechanism through which government spending of the type experienced by the Carolinas during World War I affects

13. Keynes himself argued "that the multiplier, whilst greater than unity, is not very great" ([1936] 1964, p. 251).

output is through the labor market. Specifically, as Ramey (2011, p. 674) notes, "Absent instantaneous adjustment of the capital stock [an outcome that none of the models generate], total output can only rise in the short-run if hours worked rise." While this might well have happened in agriculture (Craig and Weiss 2000) as farm labor scrambled to harvest as much cotton and tobacco as the soil could yield, it did not happen in the manufacturing sector. Although the textile industry added shifts, the average workweek in manufacturing fell in both North and South Carolina during this period.[14] More generally, there is little evidence that the war-induced windfall enjoyed by Carolinians extended beyond the war.

POSTWAR TRANSITIONS

Following the war, worldwide demand for cotton stagnated and production outside the United States increased, thus putting downward pressure on the prices of cotton and tobacco, which hit bottom at less than 10 cents a pound (figure 1). Considered from a broader perspective, the agricultural sector regressed. The trend in farm size was downward throughout the era, and it was not arrested by the boom times associated with the next world war. By 1930, in both North and South Carolina, the ratio of farm size to rural population was half what it had been fifty years earlier. In the Midwest, to compare, the figure had increased by 50 percent over the same period, and by 1930 the average Midwestern farm was three times larger than the average Carolinian farm (Wright 1986, pp. 53–54). Thus, one could reasonably conclude that the wartime boom did not lead to a convergence between the region's agricultural sector and the country's other more prosperous agricultural areas. In fact, as Gavin Wright observed, "divergence continued at least until the Great Depression," and, as a result, the region "lost virtually all of the relative income gains achieved by 1920" (Wright 1986, pp. 54, 56). Indeed, "both the economic and cultural gaps [between the North and the South] widened and in many respects were greater in the 1920s and 1930s than they had been since the Civil War itself" (Wright 1986, p. 9).

In addition, the difference between the average farm wage in the Carolinas and the Midwest increased substantially following the war. The Carolinas in particular, and the South more generally, remained the "low-wage region in a high-wage country." Human capital acquired through formal education was not going to pull the region out of its economic backwardness. On the eve of the Great Depression, North and South Carolina spent less than 50 percent of the non-South average on

14. Average hours fell from 58.5 to 55.7 in North Carolina and from 58.0 to 55.7 in South Carolina. See US Department of Commerce (1922.). I thank Robert Whaples for directing me to these sources.

public education per pupil (Wright 1986, p. 66).

The government spending that fueled the region's wartime prosperity declined dramatically. The War Department closed Camp Jackson and severely cut its expenditures on Fort Bragg, and the Navy reduced operations at the Charleston Navy Yard. In manufacturing, the cutbacks were arguably even more dramatic. As farm labor flowed into the mills during the war, the owners introduced shift work and continuous, around-the-clock production, but with the drop-off in demand that followed the war, the marginal textile worker, now typically a male breadwinner for the household, faced unemployment. Labor did not passively respond to these cutbacks. There were twelve major strikes in North Carolina textile mills starting in 1919. While working conditions might have improved in response to the unrest, wages fell by 30 to 50 percent over the next two years. By 1920 nearly forty thousand North Carolina textile workers had joined unions (Cox 2018, p. 304). In early June 1921, nine thousand of them optimistically went on strike. However, capital proved more resilient than labor, and by the end of the summer the strikers began to trickle back into the mills. By early fall the strike collapsed, and with it went the last of the evidence of a positive war-induced multiplier for the Carolinas (Wood 1986, pp. 71–72). In conclusion, as one historian of that time and place puts it, "while World War I provided enormous short-term stimulus to the southern economy, much of it was evanescent" (Carlton 2003, p. 156).

THE GREAT MIGRATION

Among the Great War's most prominent impacts was the onset of the Great Migration, the movement from, primarily, the rural South to the urban North of more than six million African Americans between the war and the 1960s. The African American populations of northern cities exploded during the war. Detroit's African American population grew by more than 600 percent. Other cities followed: Philadelphia's African American population increased by 500 percent, Chicago's by 150 percent, and New York City's by more than 60 percent.[15]

It was no coincidence that the migration began during the war. In the Carolinas, African Americans did not share equally in the wartime gains experienced by white landowners, farmers, and textile workers. One of the main reasons was the increasing segregation of unskilled occupations, which was especially conspicuous in the region's manufacturing sector. In North and South Carolina, the state

15. Lemann (1992) offers an excellent accessible summary. Wright (1986, pp. 181–97) provides a more rigorous economic treatment of the same history.

legislatures codified this separation with explicit laws segregating the workplace. In the textile mills, workers were segregated physically by race, and they were further segregated into high-wage white positions and low-wage African American positions. African Americans held a fraction of 1 percent of the skilled jobs. Although wartime expediency led to some gains in wages and employment opportunities for African Americans in the mills, this "was temporary and did nothing to open the mills to more African-American labor after the war" (Cox 2018, p. 300). Overall, it is safe to say that manufacturing did not offer to African American families the escape from farm work and tenancy that it provided white families. Thus African Americans remained disproportionally on the margins of the declining agricultural sector at just the time when the boll weevil hit the region.

In the decade before the war, the African American population in the region grew by over 10 percent; in the decade following the war, it grew by just over 1 percent (Hoover and Ratchford 1951, p. 20). The decline in the growth rate resulted from the first phase of the Great Migration, which included roughly 150,000 African American migrants from the Carolinas. Unfortunately, the early 1920s was not an auspicious time to move north, because, unlike the war years, there was no guarantee of employment for southern migrants. As Wright summarizes, the "1920s were not good times for unskilled, inexperienced, poorly educated [African American migrants] to break into American industrial employment" (1986, p. 206). In the language of social scientists who study migration, the onset of the Great Migration during the war may have been driven by "pull" factors, but its continuation into the 1920s was driven more by "push" forces.

WORLD WAR II

In some important ways, the story of the Carolinian economy during and immediately after World War II is more straightforward, and therefore less interesting than that of the Great War. Furthermore, some of the most prominent changes, particularly those in the agricultural sector, were either put in motion before the war, largely through New Deal agricultural and labor programs, or occurred after the war, such as mechanization. In any case, as with the Great War, the federal government spent a lot of money, and the vast majority of it was borrowed; the accumulated debt from World War II exceeded that from World War I by a factor of eight (Gordon 1997, p. 209). Government spending as a percentage of GDP had ballooned from less than 5 percent in 1914 to roughly 25 percent during the Great War, and it was over 40 percent at its peak during World War II. Carolinian cotton and tobacco farmers received their share of these expenditures. The increase in the demand for cotton and tobacco, again driven by War Department and Navy Department purchases, and the wartime disruption in world supply chains, led to a 50 percent increase in the real price of cotton, and real tobacco prices more than doubled (figure 1). Similarly, the region's textile mills ran around the clock. More than eighty thousand net new jobs were added in the textile sector across the region; however, by the end of the war, as a percentage of total manufacturing employment, textiles had declined from a third to a quarter (Hoover and Ratchford 1951, p. 126), illustrating the increasing diversification of the Carolinian economy since the onset of the Great War.

In addition, military spending on base construction dwarfed even the considerable amounts spent during the Great War. In North Carolina, the War Department substantially expanded Fort Bragg's operations, and it constructed Seymour Johnson Air Base in Goldsboro and Camp Davis in Onslow County. The Navy Department created Camp Lejeune and the Marine Air Station at Cherry Point; and shipyards in Elizabeth City, New Bern, and Wilmington were converted to the construction of submarine chasers and minesweepers. In South Carolina, Fort Jackson was reactivated by the War Department, and the Navy expanded Parris Island and the Charleston Navy Yard. More than two dozen other smaller military bases opened across both states (US Department of the Navy 1945).[16]

What can we say about the Keynesian multiplier for World War II? With wartime unemployment around 1 percent and nominal GDP growing by 37 percent between 1942 and 1945, many reasonable observers would have considered it to be large, certainly greater than one. According to one of Keynes's biographers, the war "became a laboratory for Keynesianism" (Wapshott 2011, p. 228). The wartime federal Full Employment Bill represents the quintessential example of Keynesian legislation. It called on the executive branch to submit an annual budget, including a forecast of the difference between expected economic activity and that which would be consistent with "full employment"; any shortfall in expected activity would be subject to eradication through deficit spending (or "compensatory finance" in the language of the bill).

Gottfried von Haberler was one of the first to speak out against this view. He noted that unemployment tended to be concentrated in depressed sectors of the economy, whereas the stimulus tended to stimulate sectors already at or near full employment. Thus the stimulus was inflationary, and, not surprisingly, the Consumer Price Index increased by 16 percent between 1942 and 1945 (Haberler

16. The South, as a whole, received 40 percent of wartime base-construction expenditures (Carlton 2003, p. 160). Powell (1989, p. 502) estimates that 20 percent of federal contracts went to North Carolina alone, but this figure seems much too high.

1945, pp. 106–9). In support of Haberler, but with the additional perspective offered by time, Robert Higgs explicitly challenged the view that the "war got the economy out of the depression" (Higgs 1987, 2001). While Higgs might concede that borrowing money to defeat the Nazis was not the worst policy to ever come from Washington, he questioned the very essence of the Keynesian view of wartime prosperity. Higgs argued that the decline in unemployment was a side effect of conscription (together the War and Navy Departments conscripted ten million men) and the wartime boom was a chimera, "an artifact" of national income accounting. To Higgs, implicitly, the multiplier was unambiguously negative, and perhaps the largest long-run cost came from what he called "the Keynesian illusion," which was the view that, through deficit spending, the government could generate net new economic resources (1987, p. 226).

Despite the reservations of Haberler and Higgs, it is still possible that the distribution of the federal government's largesse was so unequally distributed across regions and sectors that, on net, the Carolinian economy benefited from the war, again disregarding the suffering of those doing the fighting and their loved ones. Output and real prices increased in the key agricultural markets; industrial employment and production boomed; real wages increased; and federal expenditures on military bases contributed to a substantial investment in the region's infrastructure (Carlton 2003).

While we may never know the answer to the sign and magnitude of the wartime Carolinian multiplier, we do know of three other major developments associated with the war and with each other: mechanization, the demise of the sharecropping system, and the next phase of the Great Migration. The timing of the adoption of mechanical cotton harvesters is subtle and tied to both the New Deal and the war. Cotton harvesting proved more difficult to mechanize than wheat or corn harvesting, but relatively few resources went into the effort until the war. But that was because the war immediately followed the Great Depression and the creation of New Deal agricultural and labor programs that put upward pressure on wages. Wright neatly summarizes this issue: "It is such a deeply imbedded part of the American tradition to equate 'mechanization' with 'technological progress' that we often hear one or the other of these concepts invoked as the explanation for the decline in sharecropping, as though that were the beginning and end of the story. But mechanization in the South was *induced* by economic incentives, and in the 1930s, these incentives were largely created by government programs. Broadly speaking, the southern economy was less mechanized before this time because southern labor was relatively cheap" (1986, p 233).

The war unambiguously drove up the price of agricultural labor. As a North

Carolina historian succinctly put it: "The scarcity of farm labor [during the war] was a serious handicap for farmers" (Powell 1989, p. 503). Following the war, the full thrust of the New Deal programs was felt across the region. The federal minimum wage became binding; the exceptional wartime military demand abated; and the New Deal supply constraints that accompanied the agricultural price-support programs ultimately killed the old New South. Although experimentation with mechanizing the cotton harvest went back decades, the notion was ridiculed up until the day it swept across the South. As late as 1949, only 6 percent of the US cotton crop was mechanically harvested, and in the following year, the distinguished agricultural historian Gilbert Fite could write that "the idea that mechanization would 'create a revolution in cotton production, or create any serious labor or social disturbances'" seemed implausible (1950, p. 21). Fifteen years later, 80 percent of the crop was mechanically harvested (US Department of Agriculture 1974, p. 218). To put it bluntly, white elites (both economic and political) no longer found it profitable to incur the costs of keeping cheap African American labor in the fields.

The mechanization of cotton harvesting and the decline of sharecropping did not immediately work to the advantage of African American labor. African American sharecroppers and farm workers could not simply leave the farm and successfully enter the region's growing industrial sector. Segregation in industrial employment, especially textiles, worsened after the war, and the number of African Americans employed in manufacturing jobs actually decreased (Persky and Kain 1971, p. 269) until the 1960s. These developments spurred the next round of the Great Migration. Over the next two decades, roughly six hundred thousand African Americans left the Carolinas, heading for northern cities. At the outset of World War II, more than 80 percent of African Americans lived in the South; by 1970, the figure was only 50 percent (Zodgekar and Seetharam 1972; Wright 1986, p. 256).

Any evaluation of the region's economy must take into account the impact of these missing inhabitants. Champions of the postwar southern economy often succumbed to a myopia that ignored the absence of millions of low-wage workers, the majority of whom were African Americans. Thus could two distinguished Duke University scholars, Calvin Hoover and B. U. Ratchford, write about the region's "substantial gains in income between 1929 and 1948," a time during which "per capita income in the South rose from 47 percent of the non-southern average . . . to 65 percent" (1951, p. 62), without in any way recognizing the impact of the Great Migration.

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A BRIEF HISTORY OF URBANIZATION IN NORTH AND SOUTH CAROLINA

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ABSTRACT

While the Carolinas remain rural with just over 66 percent of their residents living in urban areas (relative to 84 percent for the United States), the cities of the Carolinas have emerged as engines of economic growth. This paper explores the economic history of the urban areas of the Carolinas, with special attention to the Charlotte metropolitan area and Charleston. In the late nineteenth and early twentieth century, Charlotte's emergence as a powerhouse of economic activity in the South can be attributed to a strong economic foundation based on textiles, manufacturing, transportation, and branch banking. In the post-World War II period, Charlotte has emerged as a national powerhouse in banking and finance which has fueled dramatic population growth and urbanization. In contrast, Charleston's fortunes between 1850 and 1960 primarily relied on the US military and a large web of federal facilities. Additional growth in Charleston post-World War II has derived from manufacturing, healthcare, and a world class hospitality industry. Even as Charlotte and Charleston continue to fuel economic growth in the Carolinas, both cities will need to address their poor record in the area of upward economic mobility for its poorest residents, particularly in the African American community.

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I. INTRODUCTION

In 1910 the Carolinas were overwhelmingly rural states. Only 14.4 percent of North Carolinians and 14.8 percent of South Carolinians lived in urban areas. By

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comparison 45.6 percent of all US residents lived in urban areas.[1] Indeed, North Carolina was the seventh least urbanized state in the United States in 1910, and South Carolina ranked just behind as the eighth least urbanized state.[2] Fifty years later, the Carolinas remained predominantly rural even though they had many more residents living in urban areas. In 1960, 39.5 percent of North Carolina residents and 41.1 percent of South Carolina residents lived in urban areas. Nearly 70 percent of US residents lived in urban areas by 1960, and the Carolinas retained their rankings as the seventh and eighth least urbanized states in the nation. By 2010 more than 50 percent of Carolina residents lived in urban areas. North Carolina had become the fifteenth least urbanized state with 66.1 percent of its residents living in urban areas, and South Carolina was the seventeenth least urbanized state with 66.3 percent of its residents living in urban areas (Iowa State University, n.d.).

The United States has become an urban nation. As of 2018, 84 percent of US residents lived in urban areas, which represents a nearly 40 percentage point increase in urbanization in the past century (University of Michigan, n.d.). While the Carolinas remain comparatively rural, there can be no question that the cities of the Carolinas have emerged as engines of economic growth. Thus, an understanding of the Carolinas' most important cities is essential if one is to understand what the future holds for the residents of these states. In this paper we look to explore the economic history of the urban areas in the Carolinas in greater detail. The next section of the paper dives into data describing the population of the Carolinas' largest cities. It provides evidence that the Carolinas have a substantial number of urban areas that are important contributors to the states' economies. However, it also points to a need for exploring two of the urban areas in much greater detail. Accordingly, the paper undertakes an in-depth examination of Charlotte and Charleston. We conclude by offering thoughts on what the future might hold for the Carolinas' cities—in the short term and in the long term.

CAROLINA CITIES

The previous section demonstrated how the Carolinas have remained comparatively rural throughout the past century. In this section we take a closer look at how the populations of individual cities in the Carolinas have changed over time.

1. The definition of what constitutes an "urbanized area" has evolved over time. However, the Census Bureau began using something close to the current definition in 1910. Today, people are classified as living in an urban area if they live in either an urbanized area (UA) or an urban cluster (UC). A UA is a densely populated area with population greater than 50,000, and a UC is a densely populated area with population between 2,500 and 50,000. For more detailed information, please consult: https://www.census.gov/programs-surveys/geography/about/faq/2010-urban-area-faq.html.

2. This ranking treats all of the territories in 1910 (Arizona, New Mexico, Alaska, and Hawaii) as if they were already states. In 1910 both Alaska and New Mexico had a lower percentage of residents living in urban areas than did either of the Carolinas.

Table 1 shows the population rankings for select Carolina cities from 1790 until 2010. Several trends are immediately apparent. Being located on or near the coast played a particularly important role in determining city size before the Civil War. In 1820 only one city in North Carolina, New Bern, cracked the top fifty on the list of largest US cities. New Bern had served as the capital of the colony from 1743 until 1792, it is located on the Neuse River, and it is approximately fifty to sixty miles from open water in the Atlantic Ocean. However, the Neuse River has only "natural depths of 13 feet or more" for the first twenty-five miles above its mouth (NOAA n.d.). This eventually made it difficult for large ships with deep drafts to access the city of New Bern. In 2018 New Bern was a city of only thirty thousand residents.

In the antebellum period, the only other cities from North Carolina appearing on the list of the one hundred largest US cities included Raleigh, Fayetteville, and Wilmington. Raleigh and Fayetteville served as important inland cities for North Carolina—as the state capital and an important commercial city on the Cape Fear River, respectively—during and immediately after the American Revolution. Wilmington, as North Carolina's most important port city, retained its position on the list until the start of the Civil War.

In the postbellum period, North Carolina's railway network finally began to expand. Between 1880 and 1900 the network doubled in size as it went from 1,660 miles to 3,380 miles of track (Ready 2005, p. 274). Historian Milton Ready (2005, p.273) notes the strategic importance of the expanding railway network in North Carolina: "Over 70 percent of the state's freight and transshipments went north and south through Greensboro and Charlotte . . . the state's prosperity depended upon developing the towns as well as tobacco and textile industries along the route." As Southern entrepreneurs realized that cotton could be processed profitably in the South, textile mills popped up throughout the Piedmont. Historian Tom Hatchett notes that by 1920, the Piedmont of the Carolinas had "surpassed New England to become the nation's top cotton manufacturing district" (Hatchett n.d.).

The emergence of textile mills—along with furniture factories and tobacco-processing plants—resulted in a rather atypical pattern of urbanization. Instead of one or two cities emerging as industrial giants, North Carolina developed a constellation of large towns and small cities. Each of these urbanized areas played an important role in the North Carolina economy, yet no single city came to dominate the state the way that Detroit would come to dominate Michigan's economy or Cleveland would come to dominate the economy of northern Ohio. Ultimately, this development pattern left the state without a representative in the list of the one hundred largest US cities until 1940. In the decades since World War II, North

Table 1: Carolina Cities Appearing in the List of 100 Largest US Cities, 1790—2010.

STATE / CITY	1790	1800	1810	1820	1830	1840	1850	1860	1870	1880	1890	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	2010
NORTH CAROLINA																							
Charlotte	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91	70	59	60	47	35	26	18
Durham	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87
Fayetteville	-	-	-	51	86	98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Greensboro	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	96	-	88	78	70
New Bern	-	-	-	48	72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Raleigh	-	-	-	59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75	63	43
Wilmington	-	-	-	60	73	76	99	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Winston Salem	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	84
SOUTH CAROLINA																							
Charleston	4	5	5	6	6	10	15	22	26	36	53	68	90	-	-	-	-	-	-	-	-	-	-
Columbia	-	-	-	-	78	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Carolina has finally witnessed the emergence of a handful of cities that appear to be firmly entrenched in the top one hundred. Charlotte is the state's largest city, with 872,000 residents (as of 2018), but Raleigh is also in the top fifty, with more than 469,000 residents (US Bureau of the Census n.d.). Moreover, Greensboro, Winston-Salem, and Durham have also cracked the top one hundred. Each city has between 245,000 and 295,000 residents and finds itself ranked eighty-seventh or higher in the national rankings (US Bureau of the Census n.d.).

South Carolina's pattern of urbanization looks somewhat different from that of North Carolina. As shown in table 1, Charleston was one of the largest cities in the United States during the nation's first fifty years of existence. And, at the outbreak of the Civil War, Charleston was still one of the 25 largest cities in the United States. Charleston would eventually leave the top 100 at the beginning of the twentieth century, and today there isn't a single city in South Carolina that is among the 200 largest cities in the United States (US Bureau of the Census n.d.). Columbia is the only other South Carolina city to have appeared—in 1830 and 1840—on the list of the 100 largest cities in the United States. Today, Columbia is the state's 2nd-largest city and the 201st-largest city in the nation (US Bureau of the Census n.d.).

The data in table 2 show that most of the residents of the Carolinas living in urban areas are not residing in large cities. Rather, the pattern in the data reinforces the idea that what has emerged is a constellation of urban places and urban clusters. For example, the Raleigh-Durham area contains Raleigh, Durham, and Cary, but Burlington and Chapel Hill, urban areas of approximately 50,000 residents that do not appear in table 2, are also close by. Winston-Salem, Greensboro, and High Point form the state's "Triad." Taken together, these three cities contain nearly 700,000 residents. Moreover, the Triad's largest city—Greensboro—is nearly as large as the city of Cincinnati. (Greensboro has 294,000 residents, and Cincinnati has 302,000 [US Bureau of the Census n.d.]). However, a visit to each of the cities would leave one with the clear impression that Cincinnati was the true city. Cincinnati has a downtown core that contains a collection of high-rise buildings, two professional sports stadiums, and a recently redeveloped riverfront park. Greensboro has a much smaller downtown with fewer skyscrapers and a minor league baseball team. Appearances aside, Greensboro's population grew by more than 10 percent between 2010 and 2018. Cincinnati failed to grow by even 3 percent over the same time period. Thus, while the Triad may not possess the downtown core that we associate with larger cities of the North and Midwest, it remains a vibrant urban area that serves as an economic engine for the state's Piedmont. In fact, the Triad is sufficiently urban to have once been considered for a Major League Baseball team (Mollerus 2017).

South Carolina's urban areas have developed in a similar manner, though that is not immediately obvious when glancing at table 2. While the Charleston area (Charleston, North Charleston, and Mount Pleasant) has a combined population of nearly 350,000, it ranks third in the state in population density, behind Greenville County and Richland County. The city of Greenville is the urban area at the heart of Greenville County. While the city contained only 68,000 residents as of 2018, Greenville County had a population of nearly 525,000, which makes it the most densely populated part of the state. The city of Columbia is the urban area at the core of Richland County, and Columbia's population of nearly 134,000 represents more than a quarter of Richland's total population of 425,000 (US Bureau of the Census n.d.).

Table 2. Population of the Largest Cities in the Carolinas, 2018.

STATE / CITY	2018
North Carolina	
Charlotte	872,498
Raleigh	469,298
Greensboro	294,722
Durham	274,291
Winston-Salem	246,328
Fayetteville	209,468
Cary	168,160
Wilmington	122,607
High Point	112,316
Concord	94,130
Greenville	93,137
Asheville	92,452
South Carolina	
Charleston	136,208
Columbia	133,451
North Charleston	113,237
Mount Pleasant	89,338
Rock Hill	74,309
Greenville	68,563

Finally, it is important to note that the Charlotte metropolitan area contains urban areas and urban clusters on both sides of the North Carolina–South Carolina border. Among North Carolina cities, Charlotte and Concord appear in table 2 and Gastonia and Huntersville narrowly missed appearing in the table, with populations of 77,000 and 57,000 respectively. Rock Hill is situated just south of the state line, and it has nearly 75,000 residents.

While many cities have played a critical role in developing the Carolinas' economies, in the remainder of this paper we more comprehensively examine two of the most important: Charlotte and Charleston.

CHARLOTTE

Charlotte is a city of contradictions. As shown in table 3, it has grown tremendously over the past seventy years; moreover, many of the city's residents are prosperous. The city's median household income of $60,886 stands above US median household income ($60,293) and well above North Carolina's median household income ($52,413) (US Bureau of the Census n.d.). Yet many of the city's residents grow up in poverty and never escape it. Harvard economist Raj Chetty's recent work ranked Charlotte dead last among major U.S. cities in its least well-off residents' ability to climb the ladder of socioeconomic well-being. The residents at the bottom of the socioeconomic ladder in Charlotte are concentrated in a select group of neighborhoods, and the residents of these neighborhoods are overwhelmingly African American (Chetty et al. 2014). It is a cruel twist of fate that many of the residents of Charlotte's African American community suffer in these conditions when in the 1960s Charlotte received national attention for its "peaceful implementation of desegregation" (Lassiter 2010, p. 29). In fact, Charlotte's business leaders once admitted that their desire to promote economic growth in the city necessitated their "moderate stance on race relations" (Lassiter 2010, p. 29). In order to better understand how Charlotte has become a city of contradictions in the twenty-first century, we begin by discussing Charlotte's roots as a small town in an "unexceptional

Table 3. Population - Charlotte, Raleigh, Charleston, and Columbia

STATE/CITY	1940	1950	1960	1970	1980	1990	2000	2010	2018
Charlotte	100,899	134,042	201,564	241,420	315,474	395,934	540,828	738,534	872,498
% change		32.58	50.37	19.77	30.67	25.50	36.60	36.56	18.14
Charleston	71,275	70,174	60,288	66,945	69,779	80,414	96,650	120,911	136,208
% change		-1.54	-14.09	11.04	4.23	15.24	20.19	25.10	12.65

location" (Graves and Smith 2010, p. 1).

Charlotte, named after the English queen Charlotte (the wife of King George III), was chartered in 1768. Settled on a ridge that served as part of a Native American trading route, Charlotte was a very small town that nonetheless served as a "hornet's nest" of colonial rebellion during the Revolutionary War (Hatchett n.d.). In their 2010 volume *Charlotte, NC: The Global Evolution of a New South City*, geographers William Graves and Heather Smith describe Charlotte's location as "unexceptional" because it is not on the coast nor located on a major waterway of any kind. Charlotte's slow growth in the early national period can surely be attributed to its location.

In the decade leading to the Civil War, Charlotte had grown to a population of one thousand residents, and railroad connections linked Charlotte to Raleigh, North Carolina, and Columbia, South Carolina. Charlotte's population grew rapidly during the Reconstruction era. By 1880 the city had more than seven thousand residents and was located on the Southern Railroad, which linked Atlanta and Washington, DC. Charlotte's lack of access to navigable waterways was no longer a major obstacle to the city's growth (Hatchett n.d.).

The foundation for the modern economy in Charlotte was established in the second half of the nineteenth century. Charlotte's position on the Southern Railway line led it to play a role as an important transshipment point. Moreover, as described earlier in the paper, the textile industry had blossomed in the Carolina Piedmont as entrepreneurs realized there was profit to be made by producing textiles locally. By the turn of the century, more than half of the looms in the South were located within one hundred miles of Gastonia, Charlotte's neighbor just twenty-three miles away (Goldfield 2010, p. 12). The strength of the textile industry led to the emergence of another industry that has come to dominate the Charlotte economy in the twenty-first century: banking. Piedmont farmers and merchants provided the capital for the region's first banks, which, in turn, offered funds to the entrepreneurs in Piedmont towns at more favorable rates than those offered by Northern banks. Charlotte cemented its place in the banking community in 1927 when, surprisingly, it was selected as a site for a branch bank of the Federal Reserve. (Conventional wisdom had identified Columbia, South Carolina, as the most likely landing spot for the branch [Goldfield 2010, p. 13].)

In his essay "A Place to Come To," historian David Goldfield lays out the many challenges that Charlotte faced as it looked toward the future when World War II ended. The city possessed a strong economic foundation based on textiles, manufacturing, transportation, and banking, but it lacked a major research university and it suffered from the perception that it was a backward Southern city. Charlotte's community leaders made every effort to portray Charlotte as a city that had peacefully integrated and that had been spared the violence found in Little Rock, New Orleans, or Birmingham (Goldfield 2010, p. 17). While the desegregation of schools only took place after the landmark court case *Swann vs. Charlotte Mecklenburg School Board* (1971), Charlotte's experience with school desegregation was surprisingly successful and received attention from the national news media (Goldfield 2010, p. 16).

Charlotte's population growth from 1940 to 1980 shows that community leaders enjoyed a good deal of success in making Charlotte "a place to come to." Nonetheless, Charlotte's economy was about to undergo a seismic change. North Carolina was one of only nine states in the country that did not limit branch banking after the Great Depression. This regulatory environment allowed Wachovia (based out of Winston-Salem) to become the largest bank in the South in the 1950s, a position that Charlotte's North Carolina National Bank (NCNB) would take over in 1972 (Graves and Kozar 2010, p. 88). Federal regulation prohibited interstate branching after the Depression, but NCNB's chairman, Hugh McColl, found a loophole that allowed him to acquire First National Bank of Lake City, Florida, in 1982. Within five years McColl spearheaded an effort to form a cooperative agreement among banks in the Southeast, and the agreement paved the way for interstate banking in the Southeast. Eventually, deregulation in 1994 allowed for widespread interstate branch banking (Graves and Kozar 2010, p. 89). Charlotte would emerge as the nation's second-largest banking city (as measured by bank assets).

As Charlotte grew to be a national powerhouse in banking and finance, the city's population continued to explode. The city's population increased by 36 percent in the 1990s and then again by 36 percent in the 2000s. Urban growth was fueled by the rise of the banking industry, but other industries and firms found their home in Charlotte too. By the 2010s Charlotte's major employers included Lowe's (with a corporate campus just north of the city in Iredell County), Novant Health Care, Atrium Health Care, American Airlines, Duke Energy, and Harris Teeter.

Unfortunately, Charlotte's prosperity has not filtered down to all of its residents. Southeastern Charlotte's population has become increasingly white, and this section of the city has witnessed an increase in population density.[3] Median household income for this segment of the city is now two to four times higher than median household income in the predominantly African American communities that have formed or expanded on the city's north and west sides, an area of Charlotte that is frequently referred to as the crescent.[4] Many of these census tracts are now over 90 percent African

3. We identified these patterns and accessed the census data mentioned in this paragraph using Social Explorer at https://www.socialexplorer.com/explore-maps.

4. The crescent specifically refers to a band of census tracts stretching from West Charlotte to north of Uptown and over to the near northeast side of the city.

American, and these census tracts have some of the city's lowest-income residents. While segregation and limited economic opportunities for African Americans are problems that are widespread in the United States, Charlotte faces a more serious problem than the data might suggest. As we discussed in the opening paragraphs of this section, Harvard economist Raj Chetty's work on economic mobility suggests that Charlotte is an especially tough place in which to grow up at the bottom of the economic ladder. A careful look at data presented by Badger and Bui (2018) shows that children who grow up in poverty in one of the census tracts in the crescent can expect to live in households (as adults) that will earn income in the range of $17,000 to $22,000. This stands in stark contrast to a child who grows up in poverty in the southeastern part of Charlotte. A child from one of these census tracts can expect to grow up and live in a household that will earn $38,000 to $59,000 a year. In the years to come, one of Charlotte's greatest challenges will be to find a way to ensure that prosperity is attainable by all of its citizens—not just those who are fortunate enough to be born in the right neighborhood (Badger and Bui 2018).

CHARLESTON

The Lowcountry played an important role in colonial South Carolina's prosperity. In the early nineteenth century, South Carolina's trade network was largely based on trade in locally produced or imported commodities (furs, indigo, rice, and cotton), a natural harbor, and intracity transportation facilities (Moore 1979). The Civil War dealt a severe blow to South Carolina's economic prosperity as banking capital, property values, and tax revenues all fell sharply.

In the years following the Civil War, Charleston was the largest urban coastal city in the South, and the harbor was capacious enough to handle up to two hundred cargo vessels; besides, one-tenth of the nation's cotton crop was shipped out of Charleston. However, the industrial and technological revolution in the Northeast dealt further blows to the economy of Charleston (Moore 1979). In particular, three factors played a significant role in the decline of the city's economy.

Cotton production in South Carolina increased dramatically, from 225,000 bales in 1869–70 to just under 750,000 bales in 1889–90, and the number of cotton mills nearly tripled from twelve to thirty-four. However, over the same period, the portion of the US cotton crop that was processed in Charleston dropped from 11.5 percent to approximately 5.7 percent. Moreover, agricultural economic fortunes, now tied to a single crop, worsened when cotton prices began falling from 21 cents per pound in 1869–70 to under 7 cents in 1891–92 (Moore 1979).

Postbellum railroad development in South Carolina was characterized by undercapitalization and mismanagement, and several attempts to connect Charleston to the expanding markets in the West collapsed and failed to improve Charleston commerce (Jaher 1982). Railroad reorganization thereafter did not bring much benefit to Charleston, and ever-increasing proportions of cotton cloth and yarn were being transported by rail rather than by water. The value of foreign and domestic commerce routed through Charleston Harbor fell from $75 million in 1882 to $29.5 million in 1901. Merchandise trade going through the Port of Charleston fell from 5.6 percent of total US exports in 1856 to 0.2 percent in 1908 (Moore 1979).

Charleston lacked a manufacturing base well into the early twentieth century. Charleston's port was primarily geared toward moving bulk cargo, and in the absence of a strong manufacturing base, economic prosperity in Charleston was largely dependent upon cotton farming in the interior of the state. Ultimately, a manufacturing boom propelled by the textile industry in the Piedmont failed to have a major impact on Charleston, and the city's economy stagnated. Upcountry towns emerged as commercial centers in the last quarter of the nineteenth century, and collective effort to promote town building became an important concern for the affluent town merchants. Ford (1984) argues that "boosterism"—railroad expansion, building textile mills, improved school systems, electrification infrastructure, and other efforts to accelerate the towns' economic growth and development—became a critical element of a town merchant's civic duty. Between 1880 and 1910, over 80 percent of the largest one hundred textile firms in the state were located in the Upcountry, most of them in the upper Piedmont.

By comparison, Charleston lagged behind other maritime centers in every area of commercial capitalism. Jaher (1982) argues that the limited railroad network, which, expanded by further entrenching the plantation economy through increased cotton shipments, inhibited the development of an industrial base and the diversification of the economy. The city aristocracy's hostility and indifference to industrialism also played a role.

However, in the late nineteenth century and early twentieth century, Charleston's economy was strengthened by the US government's desire to transform it into a significant military base. In 1885, as part of a national coastal-defense system, Congress budgeted $3.4 million for the defense of Charleston Harbor. This brought a permanent army garrison to Charleston, and, soon thereafter, the Spanish-American war made Charleston a candidate for a naval base in the South. By 1908, the US Navy had moved the Port Royal Station to Charleston, and by 1910, the naval station's annual payroll in Charleston amounted to over half a million dollars

(Moore 1979). The outbreak of World War I brought additional coastal-defense projects, which solidified the city's economic links between the navy and the rest of the economy.

By 1941 the navy was the largest industry in Charleston (third largest in the entire state), bringing in more than $10 million per year to the city. During World War II, Charleston was receiving 80 percent of all federal defense appropriations for South Carolina. The spillover effects of the massive injection of federal money into the local economy were primarily in the form of services auxiliary to the navy: hospitals, housing units for staff, new docks and railroads, schools in military neighborhoods, and airports. By the 1960s, a substantial part of economic activity in various sectors of the local economy served, in one way or another, a large web of federal facilities that accounted for a third of the area's personal income (Moore 1979). Federal expenditures also brought to Charleston permanent port facilities and an improved regional transportation system. In the twenty-first century, Joint Base Charleston (a fusion of Charleston's naval and air force bases that was created in 2010) is the largest employer in Charleston County (Charleston County, SC n.d.).

While the US military remains a major employer in Charleston, several other sectors of the economy have succeeded in the post–World War II period. In the public sector, Charleston's second-biggest employer is the Medical University of South Carolina, one of four medical schools in the state (Charleston County, SC n.d.). In the private sector, manufacturing and health care are the two sectors with the most employees. Boeing and Mercedes-Benz are the largest employers in the manufacturing sector while Roper St. Francis and Trident rank first and second in the health care industry (Charleston County, SC n.d.). What obviously is missing from this discussion is employment in the service sector. While only one employer in the hospitality industry (The Kiawah Island Resort) ranks in the top ten employers in Charleston County, the accommodation-and-food-services industry ranks just behind the health care services industry by number of employees in the county (SC Department of Employment & Workforce 2020). Charleston is the home to dozens of hotels and restaurants, many of which are considered world class. Indeed, Charleston had six James Beard Award semifinalists in 2020, double the number of nominations of much larger cities such as Charlotte, North Carolina (Infante 2020).

Charleston's hospitality industry can trace the roots of its extraordinary success to the city's longstanding commitment to preserving its history. Dating all the way back to Susan Pringle Frost's pioneering effort in 1920 to save the Manigault House (built in 1802), Charleston has spent nearly a century trying to preserve the structures—and charm—that attract millions of tourists each year (Preservation Society of

Charleston n.d.). Instrumental to the success in building Charleston's reputation as a tourist destination was the leadership of Joseph Riley. First elected in 1975 at the age of thirty-two, Riley served as mayor for four decades. During his tenure, Riley oversaw the construction of the city's visitor center, the riverfront park on the Cooper River, and the International African American Museum.

Today, Charleston is the largest city in the state. Its population has grown by more than 700 percent during the past two centuries, from 16,359 in 1790 to 136,208 in 2018. As shown in table 3, population growth over the past seventy years has been irregular. After a brief period of decline between 1940 and 1960, Charleston has experienced sustained growth for more than fifty years. With growth in population, Charleston's demographic profile has also changed. In line with the nationwide trend, household size has declined from around 3.5 in 1960 to 2.18 in 2018. Meanwhile, the share of Charleston's population that is nonwhite is shrinking. Between 2000 and 2018, the share of white residents increased from 62.3 to 73.8 percent (US Bureau of the Census n.d.). Looking forward, Charleston will need to address the lack of economic mobility for its poorest residents, particularly those in the African American community. As in many other cities in the South, Charleston's children who grow up in poverty face dim prospects for economic success. Similar to what we witnessed in Charlotte, children born into poverty in census tracts that are overwhelmingly African American can expect to live in households (as adults) that will earn between $19,000 and $23,000 annually. In contrast, a child born into a poor household located in one of the more affluent white census tracts can expect to live in a household earning approximately twice as much (Badger and Bui 2018).

CONCLUSION

When we started our research for this paper, the economies of North Carolina and South Carolina were thriving, with the unemployment rate in South Carolina below 4 percent and the rate in North Carolina below 5 percent. The coronavirus pandemic in 2020 has completely changed the economic outlook for each of these states and, of course, for the nation and the world. With US real GDP contracting at an annualized rate of 4.8 percent in the first quarter of 2020, it is difficult to predict what the short- and long-term consequences of the pandemic will be. Some economists are predicting that the US economy will contract at an annualized rate of 20 percent or more in the second quarter of 2020. The urban areas of the Carolinas will surely suffer as the economy contracts, but it seems equally certain that the pandemic will affect the Carolinas' cities differentially.

We anticipate that cities such as Asheville and Charleston will be especially hard hit by the recession induced by the pandemic. Asheville and Charleston's economies rely heavily on tourism, and since travel restrictions and stay-at-home orders dramatically reduce the demand for restaurant meals and hotel services, these cities and their workers are likely to suffer serious hardship. The effect of the pandemic on cities such as Charlotte, Columbia, and Raleigh seems less obvious. While the retail and restaurant and hospitality workers in these cities will suffer, the finance-industry employees in Charlotte and the state government and higher education employees may be insulated from the economic consequences of the recession in the short run. Yet if the pandemic causes a prolonged economic slump, we may see extensive layoffs throughout the public sector and the banking-and-finance industry in the private sector.

When the economy eventually recovers and returns to "normal"—whatever that may look like—it seems likely that the Carolinas' cities will continue to play an important role in driving economic growth. Indeed, the lower-density urban areas of the Carolinas may look like increasingly attractive options for firms that have been adversely affected by the pandemic in high-density cities in the North. What should be of particular concern for city leaders in the Carolinas is the ongoing struggle to offer opportunities for upward economic mobility.

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NARROWING THE INCOME GAP BETWEEN THE CAROLINAS AND THE NATION BY GETTING THE BRAINS IN THE RIGHT PLACES

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ABSTRACT

In the last fifty years, the two Carolinas have experienced significant gains in population and economic well-being that have partly closed the gap between their income and that of the nation. In 1960 South Carolina's population stood at 2,392,000, ranking it twenty-sixth among the fifty states. North Carolina's population then was 4,573,000, placing it as the twelfth most populous state. In 2018 South Carolina's population was 5,084,000, or twenty-third in size. North Carolina's population was 10,383,000, making it the nation's ninth most populous state. Meanwhile, from 1958 to 2018, per capita personal income expressed as a percentage of the US average rose in both states until 1995 and then plateaued and fell slightly. Because the cost of living in the two Carolinas is lower than that for the nation, the gap between each of the Carolinas and the nation is systematically smaller than the percentage indicates. Close examination of the development strategies followed by policy makers in the two states reveals meaningful differences. North Carolina focused on strengthening higher education and the Research Triangle and on building a knowledge-based economy. South Carolina, in contrast, emphasized expanded technical education, greater utilization of its Charleston port, and specialization in advanced manufacturing. In both cases, state leaders focused on human capital, or brains, and on how to attract and keep a more highly educated workforce. As it turns out, North Carolina has seen a positive flow of educated people, whereas South Carolina is still a net exporter.

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I. INTRODUCTION

In the last fifty years, North Carolina and South Carolina have emerged from their heavily, textile-based, manufacturing economies of the past to become more sophisticated, knowledge-based advanced-manufacturing and services-based economies. Favored by climate, low-cost energy, location in the Sunbelt region, and the availability of low-cost air conditioning, the two states have become popular destinations for individuals and families seeking to improve their well-being. As a result of favorable migration and strong home-grown efforts to improve access to education, human capital has been enhanced. There are more brains in the Carolinas now, and they are deployed in more productive ways. F. A. Hayek's knowledge problem—the problem that knowledge is dispersed and must be matched somehow to problems and opportunities—has at least been partly solved just as Hayek (1945) recommended: by market forces.

Additions of human capital, the ultimate resource, have improved productivity in the Carolinas. As a result, the long-standing gap between per capita personal income for each state and the nation has narrowed, but it certainly has not closed (see Simon 1981). While there are similarities in the stories describing each state's evolution, a review of them tells us that each state traveled a different path while the income gap was closing. This paper tells the story about the two Carolinas and their economic progress. Heavy on data, the paper identifies just how, when, and, in some cases, why things changed. Overall, the paper explains how and why North Carolina emerged as a leading knowledge economy and South Carolina moved to join the top ranks of the nation's advanced-manufacturing regions. It is all fundamentally a story about educated people and their deployment.

The paper's next section focuses on population and income and how they changed. This is followed by a section that focuses on manufacturing and the deep transformation that occurred there. How and why the two states came to be different in their specialization comes next, and this is followed by a longer section on knowledge workers and brain migration. Here I summarize empirical work that I have done jointly with other scholars. The section ends with an examination of brain drain and consideration of the extent to which each of the Carolinas may have been a net importer or exporter of brains in the last few decades. The paper concludes with some final thoughts.

II. THE CHANGING ECONOMIES: TAKING A CLOSER LOOK

In 1960 South Carolina's population stood at 2,392,000, ranking it twenty-sixth among the fifty states. North Carolina's population then was 4,573,000, placing it as the twelfth-most-populous state. In 2018, South Carolina's population was 5,084,000, or twenty-third in size. North Carolina's population was 10,383,000, making it the nation's ninth-most-populous state. Population growth for the two states moved almost in lockstep until about 1995, when North Carolina's growth accelerated. Growth for the two states began outpacing the nation around 1975.

Now consider how the income gap narrowed. From 1958 to 2018, per capita personal income expressed as a percentage of the US average, as shown in figure 1 constructed with data from the Department of Commerce, rose in both states until 1995 and then plateaued and fell slightly. It should be noted that the cost of living in the two Carolinas is less than that for the nation. Thus, the gap between each of the Carolinas and nation is systematically smaller. For example, in 2017, North Carolina's cost of living was 93.6 percent of the nation's and South Carolina's was 90.0 percent.[1]

Importantly, the share of the population living below the poverty line has fallen dramatically in both states.[2] In 1960 North Carolina's poverty share stood at 40.6 percent and South Carolina's at 45.4 (Grovum 2014). The rate for the nation that year was 22 percent (Morrill 2011). By 2017 South Carolina's poverty rate had fallen to 15.3 percent.[3] North Carolina's rate had dropped to 14 percent, and the rate for the nation was 11.8 percent.[4] The ratio of each state's poverty rate to the nation's rate in 1960 was 1.8 for North Carolina and 2.1 for South Carolina. In 2017, the ratios were 1.2 for North Carolina and 1.3 for South Carolina. Though the process was slow, the poverty gap has closed for both states.

Taking a closer look at six decades of growth, figure 2 shows that per capita personal income growth overall, for the nation and the two states, became much weaker, especially for North Carolina, after the 2001 recession and the Great Recession, which began in December 2007. From the start of the Great Recession forward, US labor productivity fell sharply, partly because of the retirement of the seasoned Baby Boomer workers and their replacement with inexperienced workers but perhaps more because of the cumulative burden of federal regulations that focused heavily on safety, health, and the environment not just in the United States, but across the developed world. However, unlike many European countries, the United States chose to use more costly command-and-control, technology-based

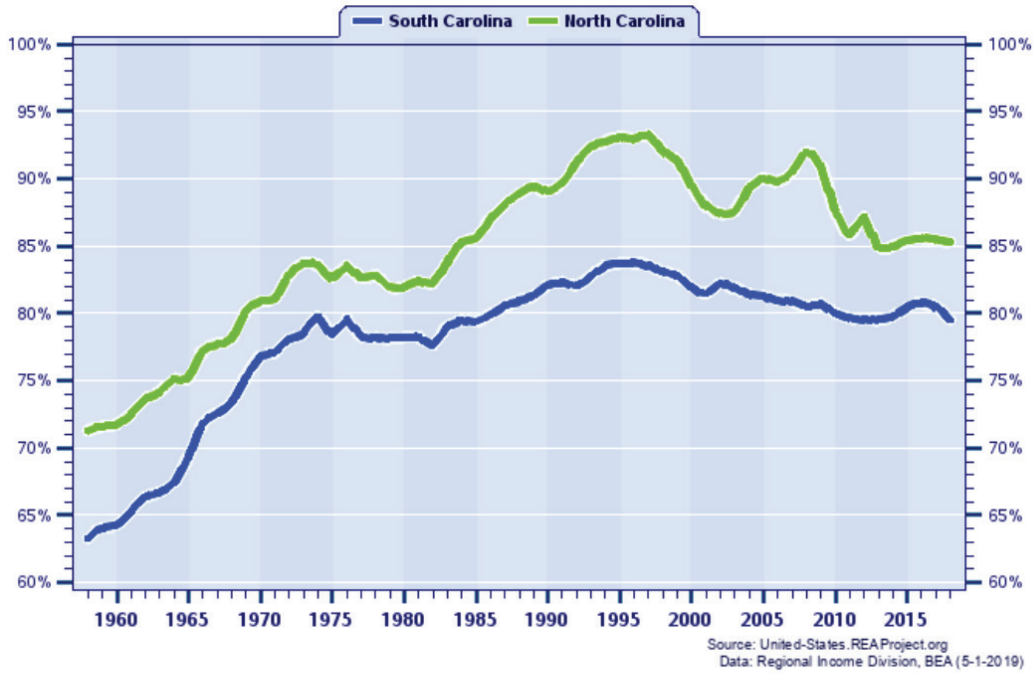
1. On this, see "Real Personal Income for States and Metropolitan Areas, 2017," Bureau of Economic Analysis, news release, May 16, 2019, https://www.bea.gov/news/2019/real-personal-income-states-and-metropolitan-areas-2017. I express appreciation to an anonymous referee for calling this to my attention.

2. I note the controversy regarding the validity and time consistency of the poverty rate. On this, see Edwards (2019).

3. See US Census Bureau, "QuickFacts South Carolina," https://www.census.gov/quickfacts/fact/table/SC/PST045218.

4. See US Census Bureau, "QuickFacts North Carolina," https://www.census.gov/quickfacts/fact/table/NC,US/PST045218.

Figure 1. Per Capita Personal Income as a Percentage of the US Average



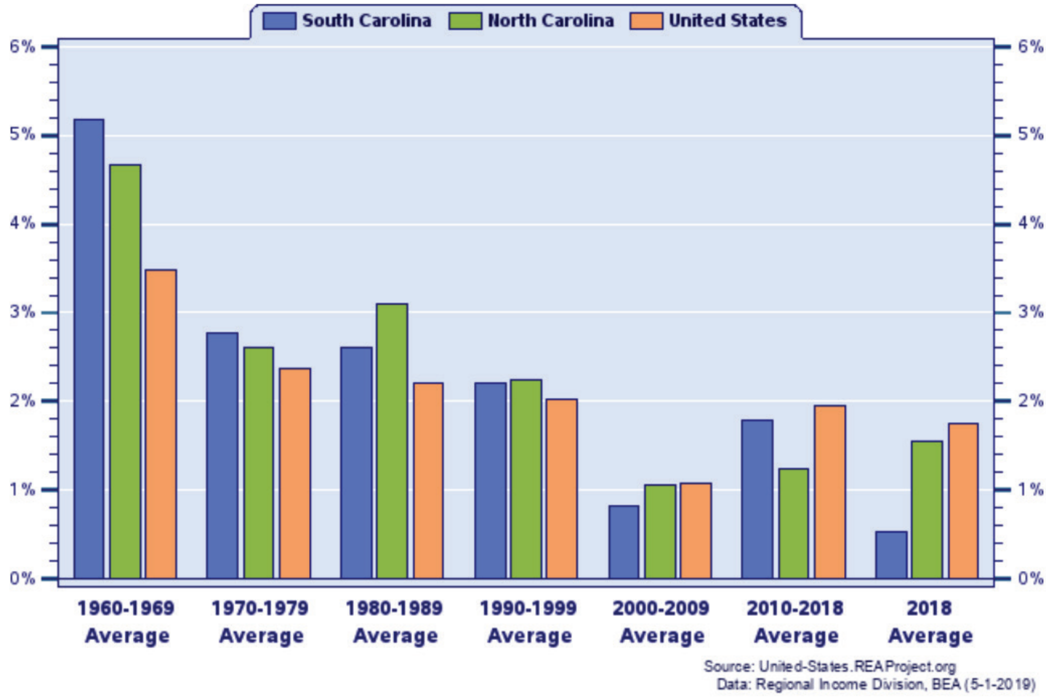
regulation instead of less burdensome performance standards and use of economic incentives when regulating (see Morriss et al. 2005, Yandle 2016). Recent estimates by the Council of Economic Advisors (CEA) of the burden of US regulations indicate that GDP growth since 1980 has been reduced by 0.8 percent annually.[5] The CEA gives extensive treatment of how these costs have spread across the economy and finds that the burden falls heaviest on lower-income consumers. However, research that addresses the tendency for personal income gaps to close across regional economies or for per capita personal incomes to converge toward the mean indicates that local incomes are fundamentally determined by national macroeconomic forces (see Migué and Bélanger 2013).

III. MANUFACTURING'S TRANSFORMATION

In 1960, 31.7 percent of North Carolina's workforce was employed in manufacturing, with 13.8 percent working in textiles. In South Carolina that year, 32.0 percent was working in manufacturing; 16.4 percent was employed in textiles. The two states were the country's leading textile producers and also among the most intense manufacturing states as measured by the share of the workforce so

5. White House, Council of Economic Advisors, "The Growth Potential of Deregulation," October 2, 2017, https://www.whitehouse.gov/sites/whitehouse.gov/files/documents/The%20Growth%20Potential%20of%20Deregulation_1.pdf.

Figure 2. Real Per Capita Personal Income Growth: Average Annual Percent Change by Decade



employed. A bit more than half a century later, in 2018, less than 11 percent of North Carolina's workforce was employed in manufacturing; 9.2 percent of South Carolina's workforce was so employed. The share for the nation was 7.8 percent.[6] In both cases, the states' specialization had changed.[7] Much of this decline in the share of labor in manufacturing is due to labor-saving technology that has boosted labor productivity.

Another important part of the transition away from the Carolinas' historical specialization in labor-intensive manufacturing was driven by the opening up of the American market to imports from China, Mexico, and Canada via China's rapid industrialization, its 2001 entry into the World Trade Organization, and Mexico's and Canada's participation with the United States in the 1994 North American Free Trade Agreement (see Autor et al. 2016). Although expanded trade with the world at large generated gains for all Americans taken together, the two Carolinas experienced difficult transitions. Declining employment and plant closings in towns and regions that specialized in textiles and furniture manufacturing left large numbers of individual workers and communities struggling to find employment and

6. See US Bureau of Labor Statistics, "Employment by Major Industry Sector," https://www.bls.gov/emp/tables/employment-by-major-industry-sector.htm.
7. See US Bureau of Labor Statistics, "Economy at a Glance: North Carolina," https://www.bls.gov/eag/eag.nc.htm; US Bureau of Labor Statistics, "South Carolina Economy at a Glance," https://www.bls.gov/regions/southeast/south_carolina.htm#eag.

funds to replace lost tax revenues.

The changes that occurred in manufacturing involved far more than just overall employment shrinkage. The makeup of manufacturing changed dramatically. Part of the change was accommodated by the availability of air conditioning, which made life itself more pleasant and also enabled the manufacturing of certain foods, chemicals, and electronic products (Badger and Blinder 2017). Both states were now heavily involved in high-value-adding advanced manufacturing. North Carolina was a leading producer of aircraft, bioscience products, and pharmaceuticals; South Carolina was heavily into automobiles and tires.[8]

Part of the two states' move into advanced manufacturing traces back to their heavy textile specialization. Those long decades—almost a century—of heavily focused textile production fostered a highly industrialized workforce and sophisticated textile-machinery and synthetic-fiber production to support the textile specialization.[9] Along with this came a heavy presence of German, Italian, Japanese, and Swiss producers of machinery and fibers, especially in Upstate South Carolina. The region took on a highly international complexion, and the I-85 corridor from Durham, North Carolina, through Greensboro, Charlotte, Spartanburg, and Greenville, South Carolina, and on to Atlanta, Georgia, became an industrial Mecca. Sometimes referred to as Charlanta, the resulting regional economy was one of the nation's most vibrant.[10]

As shown in figure 3's satellite image, the region forms an impressive belt of human activity.

As things evolved, South Carolina emerged as a major international player with a high share of production exported to the rest of the world, much more so than did North Carolina. As shown by figure 4, almost 32 percent of South Carolina's GDP involved the rest of world, ranking the state in the top five for the nation. South Carolina's strong international sector, as explained by Mark Perry (2018), is based on the growing presence of the world's largest aerospace company—Boeing—and the state's position as a major motor vehicle center, with more than

8. The North Carolina aerospace trade association reports that there are more than two hundred aerospace firms in the Triad area alone, with a growth rate that exceeds that of the industry nationally. In 2015 North Carolina had six hundred biotech firms, and the industry's growth ranked second, after California, across the fifty states (BioSpace 2015). Research on North Carolina's successful bioscience growth indicates that firms have collocated R&D with production, which together use a more diverse workforce in terms of educational attainment (Lowe and Wolf-Powers 2017). South Carolina's move into auto production was initiated in 1994 when BMW, now employing more than ten thousand workers, built its plant near Spartanburg. The state now has Mercedes and Volvo assembly plants in the Charleston area and Honda assembly in Florence, South Carolina. The state has become the nation's number one tire producer (Wilkinson 2014).

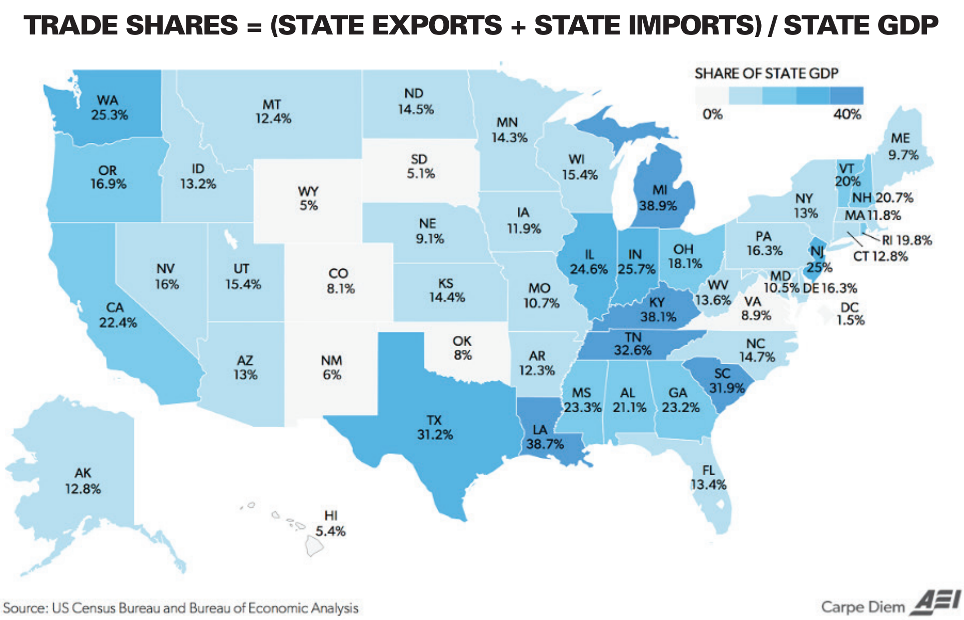
9. Woodward (2012) covers the South Carolina development story from textiles to ground-transportation clusters and explains how international forces played an important role. He also reports on increases in the state poverty rate during part of the reindustrialization period and shows how things have improved in recent years.

10. See Wikipedia, "Charlanta," https://en.wikipedia.org/wiki/Charlanta.

Figure 3. NASA Satellite Image of the United States

four hundred automobile-manufacturing plants, parts suppliers, and other auto-related companies including assembly plants for Mercedes-Benz, BMW, and Volvo. The internationalization accompanied changing specialization in the two states and added another important ingredient: people from around the world who found the Carolinas to be welcoming and good locations to live and rear children.

Figure 4. International Trade as a Share of State GDP (2017)



IV. HOW AND WHY THE CAROLINAS SPECIALIZED

Manufacturing's place as the number one employer in the two states in 1960 was shoved to one side by two important sectors that demanded more brains in the form of highly educated workers. The first was professional and business services (P&BS), which includes all the business- and technical-consulting firms and all of the nonmedical professions. In 2018, P&BS accounted for 12.7 percent of North Carolina's workforce and 8.1 percent of South Carolina's, while the sector's national share was 13.5 percent. Education and health services was the second critical with high education qualifications. In 2018 that sector employed 12.2 percent of North Carolina's workforce and 10.8 percent of South Carolina's. The national share was 14.7 percent. It can be seen that relative to South Carolina, North Carolina has become a knowledge economy. At the same time, South Carolina has been moving apace as an advanced manufacturing economy.

Knowledge economies increasingly rely on ideas, information, technological innovation, and platforms that connect economic agents across space and time. These are economies that recognize that knowledge is the source of competitiveness and that see the critical importance of applied scientific research that leads to new knowledge creation. As the Organisation for Economic Cooperation and Development puts it, these economies have lots of high-tech manufacturing (computer, electronics, aerospace), service-sector industries (such as education, health care, and software design), and business services (such as insurance, information, and communications) (Pettinger 2017). World Bank research supports the notion that investment in knowledge, not physical capital, is now the appropriate activity for accelerating economic development (Dahlman, Kouame, and Vishwanath 1998).

North Carolina's ascent as a knowledge economy and South Carolina's rise as an advanced-manufacturing economy can be partly explained by past policy decisions and in some cases just serendipitous actions that together laid the groundwork for what emerged later. North Carolina has historically been a higher education leader, with three major research universities—Duke University, the University of North Carolina, and North Carolina State University—being in close proximity to one another. For decades, North Carolina's higher education had prospered relative to many other southeastern states partly because of successful politicking and strong university leadership but also because of generous private sector support. The 1924 gift of James Duke to Trinity College, which formed Duke University, and the Reynolds family contributions in the 1940s and '50s to Wake Forest University, bringing it to Winston-Salem and forming Bowman Gray School of Medicine, come to mind.[11] Then, in 1958, North Carolina leadership—with meaningful participation from both the private and public sectors—formed Research Triangle Institute, which would become a massive research community located in a geographic triangle connected by the state's three research universities. Proximity of specialized research centers yielded agglomeration economies not available in South Carolina. A short note on the history of this effort, which highlights the important role played by North Carolina business leaders, is noteworthy:

> During the mid-1950s, business and government leaders worried about North Carolina's economic future. The per capita income . . . was one of the lowest in the Southeast and in the nation, and the state seemed dependent on manufacturing jobs in the agriculture, forestry, and furniture, and textile industries. Leaders, including Robert Hanes, the president of Wachovia Bank and Trust Company, and Romeo Guest, a Greensboro contractor, planned how to attract modern industries to the Tar Heel State. Research Triangle Park (RTP) was their brainchild, and it later became one of the top five research centers in the United States. According to historian Numan V. Bartley, RTP was the "South's most successful high-technology venture."[12]

South Carolina, meanwhile, nudged by the textile industry officials and other leaders, emphasized technical education and the forming of working relationships between targeted technical education tailored to meet the needs of expanding industry. In some ways, the fingerprints of highly successful industrial-construction entrepreneur Charles Daniel and textile industrialist Roger Milliken form a backdrop for the story. Roger Milliken teamed with Daniel International Construction Company to build new plants in record time across South Carolina. Demand for technically trained workers expanded with the new construction.[13] Put in place in 1961, the statewide technical-education system was one of the first, nationwide, to place affordable technical education within twenty-five miles' commuting distance of every citizen in the state.[14] Consider the following description of the effort, and compare it with the North Carolina Research Triangle story:

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11. See "Duke University: A Brief Narrative History," Duke University Libraries, https://library.duke.edu/rubenstein/uarchives/history/articles/narrative-history. Also see "About Wake Forest," Wake Forest University, https://about.wfu.edu/history/.

12. North Carolina History Project, "Research Triangle Park," John Locke Foundation, 2016, https://northcarolinahistory.org/encyclopedia/research-triangle-park/.

13. "Charles E. Daniel," KnowItAll.org, 1999, https://www.knowitall.org/video/charles-e-daniel-legacy-leadership-profile.

14. Gemma K. Frock, "History: South Carolina's Technical Education System," March 11, 2016, http://www.statehousereport.com/2016/03/11/history-south-carolinas-technical-education-system/.

15. Frock, "History."

> The South Carolina technical education system was founded at a time when the economic outlook of South Carolina was depressed. Farm employment opportunities were rapidly diminishing, and the state was faced with an under-skilled labor force and no adequate means of training them for the rapidly changing job market. The idea for a technical education system began with Governor Ernest F. Hollings. Hollings appointed a joint legislative study committee of three senators and three representatives under the chairmanship of state senator John C. West. Known as the West Committee, the committee's purpose was to develop a training system that would attract new and diversified industry to the state. After careful study, the West Committee recommended a "crash" program to provide immediate training for established industries and a technical training program to train high school graduates for initial employment as technicians in industry. The first step the South Carolina General Assembly took to initiate a technical education system was to establish the Advisory Committee for Technical Training in May 1961.[15]

North Carolina's leaders were focused on developing research-based economic activity—a knowledge economy. South Carolina was dedicated to becoming an advanced-manufacturing state. Then there was a feature of nature that further strengthened South Carolina's future as a manufacturing economy. The Port of Charleston provided deep-harbor access to world markets. Finally, South Carolina was in the electricity-production business. The story goes back to the Great Depression and public works endeavors that were geared to give the state a boost. The Santee Cooper system of canals, lakes, and power production provided state-subsidized electricity to large users. As a result, the state became a major producer of aluminum and steel in the Santee Cooper region. Both industries are energy intensive.

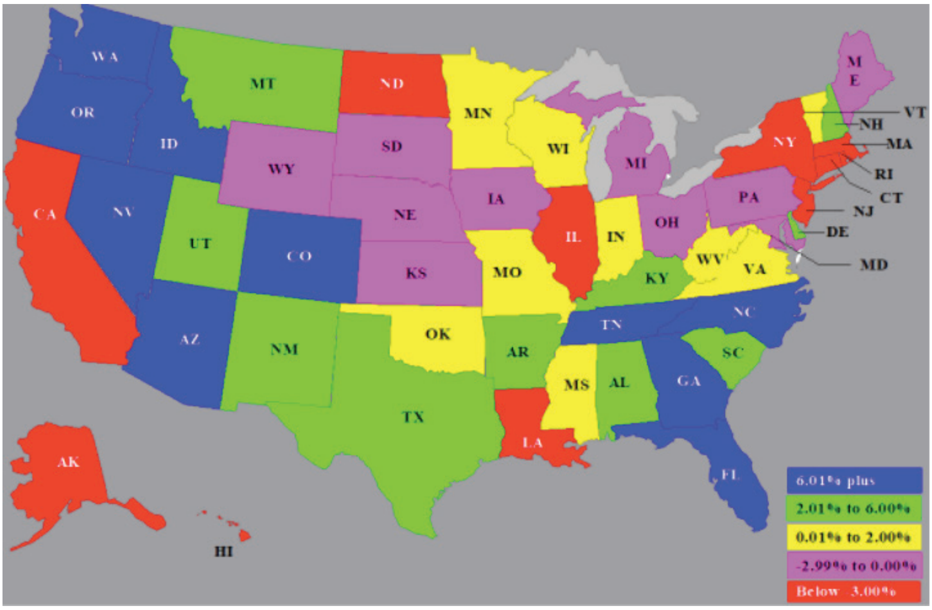
V. THE KNOWLEDGE-WORKER AND BRAIN MIGRATION

Between 1970 and 2000, there was a massive movement of educated people across the United States that was reflected in the economic development of the two Carolinas. In 1970, for example, the distribution of adults with college degrees was fairly uniform across US metropolitan areas, where the average count was eleven adults with college degrees per hundred adults, and in the two Carolinas (Florida 2006). The level found in southern counties was consistently lower than the US average. By 2000 the educational-attainment data had changed dramatically and the

14. Gemma K. Frock, "History: South Carolina's Technical Education System," March 11, 2016, http://www.statehousereport.com/2016/03/11/history-south-carolinas-technical-education-system/.
15. Frock, "History."

average count across all US counties was twenty-four per hundred adults. Generally speaking, there was heavy migration from rural areas nationwide. More educated people were concentrated in urban areas, foretelling what was then being described as an emerging knowledge economy. Figure 5 captures just a small part of what was happening. Here we see state data showing net domestic migration (international movement is not included) across the period 1990–2000.

Figure 5. Net 1990-2000 Internal Migration as Percental of 2000 Population



Note that North Carolina is in the top quintile; South Carolina is in the second.

In an effort to explain what was going on, Christine Koutout and I focused on the 114 metropolitan statistical areas (MSAs) in the southern states, which included the southeastern corner of the United States and reached westward to include Texas (Koutout 2008). We modeled variation in MSAs' 2007 per capita income using independent variables for the same year, or as close as we could get, that focused on proxies for a knowledge economy. These included the level of workforce education, the count of fast-growth firms, the level of university R&D, and median age. Our OLS regression explained 62 percent of the variation and showed education, fast-growth firms, and median age to be highly significant variables with positive effects. We then built an index based on the regression results and ranked the MSAs accordingly. I report the top twenty-five MSAs ordered on the basis of the index in figure 6, where cities with major research universities are shaded lavender.

Figure 6. Southern MSA Knowledge Economic Index

MSA	STATE	RANK
Austin	Texas	1
Charlottesville	Virginia	2
Lexington	Kentucky	3
Raliegh-Durham-Chapel Hill	North Carolina	4
Atlanta	Georgia	5
Huntsville	Alabama	6
Gainesville	Florida	7
Tallahassee	Florida	8
Charlotte-Gastonia-Rock Hill	North & South Carolina	9
Richmond-Petersburg	Virginia	10
Fort Walton Beach	Florida	11
Columbia	South Carolina	12
Naples	Florida	13
Dallas-Fort Worth-Arlington	Texas	14
Jackson	Mississippi	15
Norfolk-Virginia Beach-Newport News	Virginia	16
Orlando	Florida	17
Melbourne-Titusville-Palm Bay	Florida	18
Asheville	North Carolina	19
Sarasota-Bradenton	Florida	20
Auburn-Opelika	Alabama	21
Charleston-N. Charleston	South Carolina	22
Houston-Galveston-Brazoria	Texas	23
Wilmington	North Carolina	24
Cincinnati-Hamilton	Ohio	25

Austin, Texas, is the top-ranked city, with Charlottesville, Virginia, coming in a close second. Both contain major research universities. Looking at the two Carolinas, we see Raleigh-Durham-Chapel Hill in fourth place, Charlotte-Gastonia-Rock Hill in ninth place, Columbia in twelfth, Asheville in nineteenth place, Charleston-N. Charleston in twenty-second place, and Wilmington in twenty-fourth place. Of the twenty-five top-ranked MSAs, seventeen contain major research universities. The rankings strongly suggest that North Carolina's early commitment to higher education and the state's sizeable metro areas contributed to the state's relative strength in building a high-income knowledge-based economy.[16] Research by Joe Lee and Minoli Ratnatonga of the Milken Institute strongly supports this linkage.[17]

In later work, Tate Watkins and I used a Knowledge Economy Index, which Watkins had built, and included it in statistical models to explain domestic migration from 2004 to 2008 for individuals twenty-five to thirty-nine years of age across the fifty states and for explaining international migration in which individuals come from outside the United States and locate in one of the states.[18] The Knowledge Economy Index measures the performances of state knowledge economies by including three components: knowledge, innovation, and entrepreneurship. It includes one indicator for each component. The first indicator is the weighted educational attainment of the workforce. Advanced degrees are weighted heavier than bachelor's degrees, which are weighted heavier than attainment levels below college degrees. The second is private sector spending on research and development, weighted by total worker earnings. The third is the relative number of fast-growth firms, which was identified using the Inc. 500 and Deloitte Technology Fast 500 reports. North Carolina ranked twenty-fifth, while South Carolina ranked fortieth.

Watkins and I ran a number of estimating equations for both categories of migrants. Our regression models included measures of overall freedom, per capita income, a cost-of-living index, and an updated creative-society index based on Richard Florida's work.[19] We found that international migrants were significantly attracted by higher Knowledge Economy Index scores and overall freedom, whereas domestic migrants were drawn primarily by higher creativity indexes and larger populations. Once again, urbanization seemed to be the driving force for attracting prime-age individuals. And once again, North Carolina emerged as a stronger attractor because it had larger population centers and higher innovation scores.

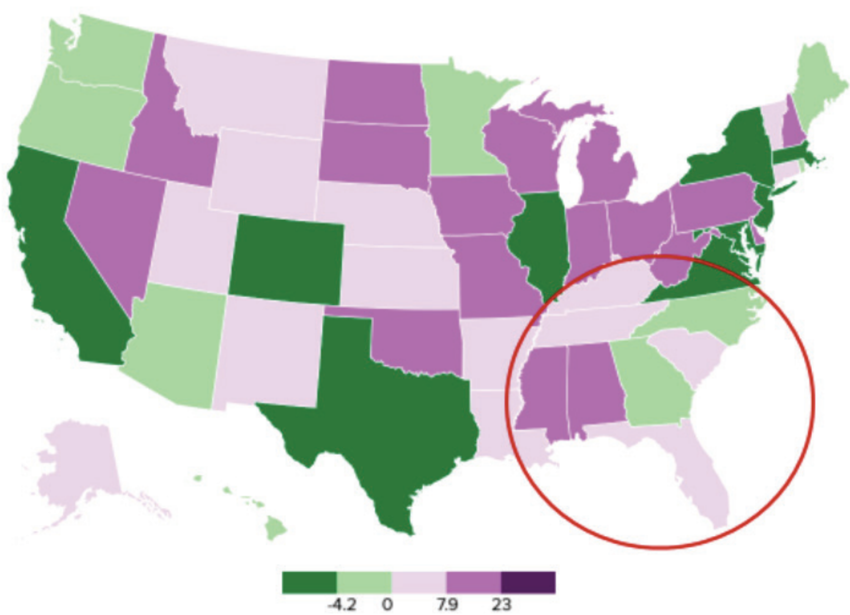
The shuffling of human capital that has occurred over the last few decades—both

16. Empirical research supports this assertion (Bania, Eberts, and Fogarty 1993).
17. See Lee and Ratnatuna (2018).
18. Watkins (2008). See also Watkins and Yandle (2010a, 2010b).
19. See especially Florida (2002).

domestic and international—raises a question about the relative position of the two Carolinas. Were the states net exporters of educated people to other states and regions? Or did the states gain an enlarged stock of human capital—the ultimate resource—as a result of the migration that occurred? Recent work by the Joint Economic Committee (JEC) using census data enables us to answer these questions (US Congress Joint Economic Committee 2019). JEC researchers, by looking at movement of people thirty-one to forty years old who were born in a state, have developed estimates of gross and net brain drain. Gross brain drain examines the share of the cohorts with education levels placing them in the top one-third of the population who no longer live in the state of their birth. Net brain drain examines the same groups' movement but subtracts from that share the share of people in the same age group with the same educational characteristics who moved into a state. Since what matters is net movement, I focus on the net measurement.

Figure 7, which uses data from the JEC report, shows the result for 2017. Notice that North Carolina received slightly more highly educated people than it shipped out. Its net-drain score is −0.6. South Carolina exported more highly educated people than it received. Its net-drain score is +6.3. It turns out that North Carolina is the number one destination for highly educated people leaving South Carolina. Georgia is number two.

Figure 7. Net Brain Drain, 2017: Share of Highly Educated People Who Moved Out Minus Share Who Moved In



The JEC study also compares net drain for 1970 and earlier years with 2017 and identifies the changing positions of states with respect to their net-drain ratings. In 1970 both North and South Carolina were net gainers. Indeed, this was the case from 1940 through 1990. In 2000 South Carolina became a net exporter. Through 2017, North Carolina continued to be a gaining state but South Carolina was a net exporter.

Consideration of the importance of human capital to the future competitiveness of the Carolinas leads naturally to the matter of how to attract and keep more highly educated and highly experienced people. Reflection on the Watkins-Yandle research and common sense provide some insights. First, our statistical research tells us that locations that carry low taxes and a high Richard Florida creative-society index score are stronger in attracting college-educated, footloose young adults. I like to think of the creativity index as measuring a "cool" factor. Put another way, then, those less burdensome locations that are cool, which means having more opportunities to experience music, theater, the arts, and urban life generally, will flourish more than the less cool counterparts. Along with coolness comes access to higher education communities where other upward-bound young adults can interact more readily. In light of these empirically based points, common sense tells us that in some cases, communities may obtain a higher return on investing in activities that stimulate the arts, improved streetscapes, parking, and access to urban life than by expanding an industrial park and building speculative industrial structures with the hope of attracting another manufacturing or service industry.

VI. FINAL THOUGHTS

Since 1960 the two Carolinas have experienced significant change. Overall well-being has improved, as indicated by rising per capita personal income and falling poverty rates. Indeed, these improvements have been so large that the gaps between those measurements for the nation and each state have narrowed. People in the Carolinas are better off, both absolutely and relatively. The narrowing of the gaps has been generated by brains. Human capital has improved in both states, and migration from outside has delivered more brainpower. But there is more that has happened since 1960. New economies have evolved in both states. Whereas in 1960 textile production employed the largest share of workers in both states and manufacturing dominated the economies, by 2018 highly labor-intensive manufacturing had practically disappeared. With an emphasis on higher education, North Carolina has emerged as a strong knowledge economy. In South Carolina, an emphasis on technical education and superior shipping has generated a strong advanced-manufacturing economy. While both states have become major global players, South Carolina's international role has made it one of the nation's top world players.

In all of this, movement and improvement of human capital—brains—is the key element of the story. I began this piece with references to F. A. Hayek's knowledge problem and Julian Simon's idea of human beings as the ultimate resource. In both cases, market forces become the driving force that matches brains to opportunity. Where that can happen, productivity improves, incomes rise, and human communities prosper. Such has been the case in the two Carolinas.

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STICKY EXPENDITURES IN LOCAL GOVERNMENTS: EVIDENCE FROM NORTH CAROLINA COUNTIES

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ABSTRACT

We investigate whether North Carolina county governments exhibit sticky-expense and sticky-expenditure behavior similar to corporations' sticky-cost behavior. We use regressions to investigate the trade-offs governments made among the main areas of public policy. We collect data from the Comprehensive Annual Financial Reports from the forty largest counties by population in North Carolina for the period 2005–14. We find sticky-expense behavior for the business-type activities of North Carolina county governments. We find mixed results for general government services. Education expenditures exhibit stickiness; however, allocational and redistributive expenditures do not. We do not find a link between developmental expenditures and level of revenue or change in revenue. The question of the extent to which these results can be generalized to other local governments and states that experience more or less volatility remains open. Understanding the role of stickiness could help government officials and accountants evaluate expenditure changes in light of changing revenues and help elected officials to more effectively align resources with governments' managerial and political priorities.

JEL CODES:

H71, H72, H75 and H76

KEYWORDS:

governmental spending, sticky costs, sticky expenses, sticky expenditures, business-type activities, governmental activities, Great Recession

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I. INTRODUCTION

The purpose of this study is to gain insight into the spending behavior of North Carolina county governments. The study uses data from the years before, during, and after the Great Recession of 2008–9. The impact of external stimuli on resource-allocation decisions is a central question in the managerial-accounting literature (Balakrishnan et al. 2014).

According to Keynesian economics (Keynes 1936), national governments have a stabilization role and should increase government expenditures and lower taxes to stimulate demand to pull an economy out of a recession. The Economic Stimulus Act of 2008 embodies the stabilization approach taken by the federal government in response to the banking crisis and the Great Recession. This act helped many states to maintain service levels in activities such as education, health, and transportation (Shi 2016). Such countercyclical spending by national governments has been a widely accepted practice (Wang and Hou 2012). Some advocate countercyclical spending at the subnational level as well (Gramlich 1987; Hou and Moynihan 2008). However, at the state and local government levels, countercyclical spending, which includes lowering taxes and increasing governmental expenditures, is much more difficult because of balanced-budget requirements and borrowing limits. Forty-nine of the fifty states have adopted balanced-budget requirements (Joyce 2001). And, over the last fifteen years, county governments have chosen to shift toward reducing expenditures and spending reserves rather than increasing tax rates (Afonso 2013b).

The options available to local governments to address budget shortfalls generally include increasing revenue, reducing expenditures, borrowing money, and using contingency funds (Joyce 2001). Afonso (2014) surveys county commissioners in Georgia and California to identify the mechanisms their counties used to navigate the challenges resulting from the recession. Responses indicated that 88 percent reduced capital programs, 78 percent instituted hiring freezes, 39 percent laid off employees, 18 percent increased current taxes, and 7 percent introduced new taxes.

The sticky-cost concept posits that managers are more likely to increase expenditures in response to an increase in revenue than they are to decrease expenditures when revenues decrease (Anderson et al. 2003). While prior research has addressed the issue of sticky costs in corporations (Anderson et al. 2003; Balakrishnan et al. 2014), no similar research focuses on local governments. In this paper, we look at business-type governmental activities and other governmental activities. The Comprehensive Annual Financial Reports (CAFRs) issued by local governments use the terminology of expenses and expenditures. Hence, we refer to "sticky expenses" and "sticky expenditures" when investigating stickiness in business-type and governmental activities, respectively.

Local governments are sufficiently different from corporations (for example, different management incentives, no profit motive, voter influence, different accounting standards, different role of budgets) that it remains an open question whether and to what extent the sticky-costs concept translates to sticky expenses for business-type activities and sticky expenditures for governmental activities in (local) governments.

The decisions by governments to change their resource allocations in response to budgetary shortfalls resulting from the Great Recession provide a unique setting in which to test the stickiness concept in a (local) governmental setting. This leads to the following two research questions. First, are local governments increasing expenditure levels more rapidly in times of economic distress, and if so, given the balanced-budget requirements, how? Second, when the economy is improving, are local governments reducing expenditures or are their expenditures sticky similarly to the sticky-cost phenomenon found in corporations? This research has the potential to inform both government officials and citizens about factors that drive government spending and resource-allocation decisions. Local governments play an important role in communities by providing critical services (including public safety, transportation, and water and sewerage) and building and maintaining infrastructure. Governments owe their citizenry both fiscal and operational accountability. Understanding expenditure behavior in local government is crucial in promoting transparency and providing insight into factors that might influence changes in resource-allocation priorities, especially in times of economic crises. And, as Mullainathan and Shafir (2013, p. 34) argue, when scarcity enters the mind, it changes choices and behaviors. These behaviors do not always reflect original priorities.

We use North Carolina county expenditure data from the government-wide statements and the fund statements reported in the CAFRs to examine the concept of stickiness in local governments. Our sample period spans from 2005 to 2014. This period provides a powerful setting in which to test our hypotheses because the combination of balanced-budget requirements and changing economic conditions (including the Great Recession of 2008) required governments to reassess their resource-allocation decisions.

Our findings suggest that stickiness is present in certain governmental activities. For business-type activities performed by local governments, such as public utilities and transportation systems, we find that for a given change in activity, the increase in expenses was larger when the activity level increased than the decrease in expenses was when the activity level decreased. Hence, the results indicate that expenses for business-type activities were sticky, which is consistent with results reported in the sticky-cost literature (Anderson 2003; Balakrishnan et al. 2014). In addition, we find that both revenues and expenditures—as reported in the statement of revenues, expenditures, and changes in fund balance—decreased during the Great Recession for almost three-quarters of the largest North Carolina counties we analyze. Hence, it appears that most counties responded to the budget shortfall by reducing service levels.

Peterson (1981) posits that in government, there are three types of public policy activities: *redistributive* (income transferring), *allocational* (housekeeping), and *developmental* (economic expansion). Because educational activities are difficult to classify, our model considers educational activities separately, consistent with Peterson (1981). We find mixed results for the stickiness of governmental-activity expenditures. Educational expenditures demonstrated stickiness. In contrast, allocational activities (proxied by public safety) and redistributive activities (proxied by human services) appear to have been symmetric. Expenditures for these activities changed proportionally to the change in revenue; thus we find no evidence of stickiness. Finally, developmental activities do not appear to have been revenue driven.

The remainder of this paper provides an overview of the budgeting and sticky-cost literature and its adaptation to a government setting, followed by a discussion of the model specifications, data, and methodology. We then present a discussion of the results before concluding and suggesting areas for future research.

II. LITERATURE REVIEW

I. STICKINESS

In a corporate setting, costs are considered sticky when a change in cost relative to a decrease in activity is smaller than a change in cost relative to an increase in activity (Anderson et al. 2003). In analyzing the US air-transportation industry, Cannon (2014) posits that sticky costs can arise in three situations: (1) managers retain idle capacity, (2) managers asymmetrically adjust selling price, and (3) managers adjust capacity. Managers retain idle capacity when they anticipate a decrease in demand to be temporary (Anderson et al. 2003; Banker and Byzalov 2014). Rather than leaving capacity idle, managers can reduce prices to stimulate sales volume. When demand increases, managers then add capacity (Cannon 2014). When capacity-adjustment costs are asymmetric, sticky costs arise. This might be the case when the cost of increasing capacity is higher (lower) when demand increases (decreases) than when demand decreases (increases) (Cannon 2014).

II. GOVERNMENTAL-ACCOUNTING MODEL

Governmental Accounting Standards Board (GASB) Statement No. 34 (GASB 1999) significantly changed the state- and local-government reporting model. State and local governments are now required to present a set of government-wide financial statements and a set of fund financial statements (GASB Codification, Sec. 2200.103) (GASB 2015). Governments report government-wide financial statements on an accrual basis of accounting, while they report government-fund financial statements on a modified accrual basis of accounting (Reck and Lowensohn 2014).

The government-wide financial statements present two broad reporting units: governmental activities and business-type activities (Freeman et al. 2013). Governmental activities include administrative support and core government services such as public safety, public works, culture, and recreation. Business-type activities charge users and usually are (mostly) self-supporting. Examples of business-type activities include public utilities, transportation systems, and golf courses (Reck and Lowensohn 2014).

Business-type activities are similar to corporations in that the charges for the services provided usually exceed the expenses incurred. Hence, we anticipate that government officials in their role as managers of business-type activities will respond similarly to managers in corporations when changes in revenues occur. Since the prior literature has reported sticky-cost behavior in corporations, we hypothesize that the stickiness hypothesis holds for business-type activities in local governments as well.

> *H1: Managers of business-type activities of local governments are more likely to increase expenses in response to an increase in revenue than they are to decrease expenses when revenues decrease.*

The primary goal of general-government activities is to provide goods and services, usually without regard for the recipients' ability to pay for the services (Freeman et al. 2013). This means that for governmental activities, unlike corporations and governmental business-type activities, there is a weak link (for example, culture and recreation) or no direct link (for example, public safety) between revenues and expenditure.

As noted, there are three types of public policy activities in government: redistributive, developmental, and allocational (Peterson 1981). Redistributive activities involve income transfers from better-off to less well-off citizens. Developmental activities are geared toward expansion and economic development. Allocational activities are neither redistributive nor developmental; an example is public safety (Peterson 1981). Peterson (1981) notes that educational expenditures are difficult to classify. They are more redistributive than public safety but less redistributive than public health and welfare.

Consistent with countercyclical-spending theory, Marlowe (2009) suggests three strategies for local governments to use during recessions: (1) use financial reserves to maintain or increase expenditures, (2) increase the amount or accelerate the schedule of capital projects, and (3) change tax policy to encourage taxpayer spending. If governments follow Marlowe's approach, stickiness should exist in governmental functions. This could result in a decrease in expenditures that is smaller than the decrease in revenue. Alternatively, expenditures may even increase when revenues are decreasing.

Prior research in a hospital setting found that the costs of core activities are more sticky than costs in auxiliary activities (Balakrishnan and Gruca 2008). Hospital activities are relatively homogeneous, whereas local governments' public services differ significantly. Some cities provide a full array of public services including education, public health, and public safety, while other cities share these responsibilities with overlapping governments such as counties and independent school boards (Chernick et al. 2011). By extension, sticky-cost theory anticipates different levels of stickiness among the various government functions. For instance, Jordan (2003) reports that public safety receives more stable funding. The second hypothesis concerns whether stickiness holds for general-government functions. In addition, it concerns whether the core general-government functions are more sticky than other general-government functions.

> *H2: Managers of general-government functions are more likely to increase expenditures in response to an increase in revenue than they are to decrease expenditures when revenues decrease. This stickiness varies across public policy functions.*

Governmental funds use modified accrual accounting to prepare financial statements, and proprietary funds (governmental business-type activities) use accrual accounting to prepare financial statements. Shust and Weiss (2014) find that the reporting choices required by generally accepted accounting principles (GAAP) affect cost-stickiness estimates in a corporate setting. In particular, they find that operating expenses (accrual basis) are more sticky than operating costs (cash basis). Hence, modified accrual accounting might bias against finding stickiness because the modified accrual basis is closer to the cash basis than is the accrual basis.

III. MODEL SPECIFICATIONS, DATA, AND METHODOLOGY

We base our empirical model on the model proposed in Anderson et al. (2003).[1] Anderson et al. (2003) propose a log-linear model that regresses the log of the year-over-year ratio of selling, general and administrative expenses on the log of the year-over-year ratio of revenue and an indicator variable that specifies a decrease in year-over-year revenue. Revenue is used as a proxy for activity level.

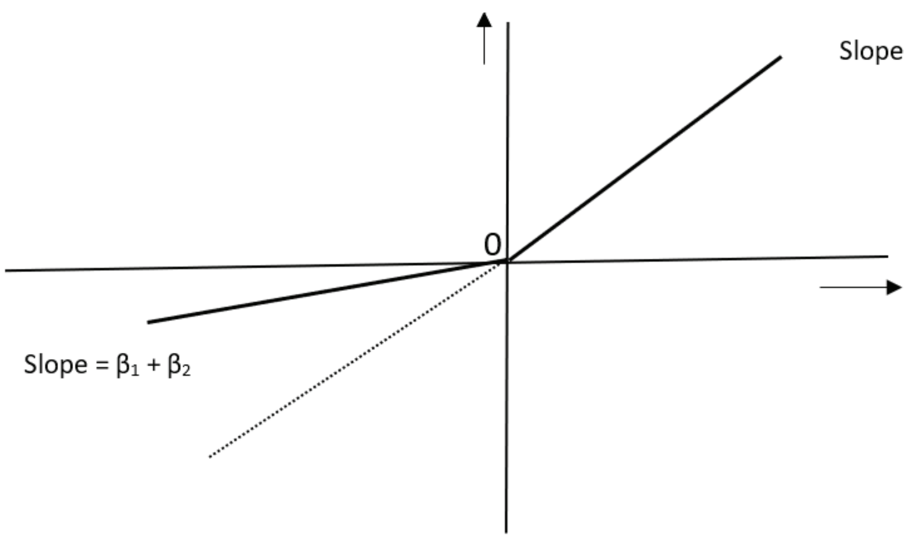
A. MODEL SPECIFICATIONS FOR BUSINESS-TYPE ACTIVITIES

We use the following model to estimate cost stickiness for local-government business-type activities:

$$log\left[\frac{Exp_{i,t}}{Exp_{i,t-1}}\right] = \beta_0 + \beta_1 * \ log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] + \beta_2 * Dec_{i,t} * log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] + \varepsilon_{i,t} \ (1)$$

Exp is the business-type program expenses, *Rev* is the business-type program revenues, and *Dec* is an indicator variable equal to one if year-over-year program revenue decreases in county *i* in period *t* and zero otherwise. This allows us to

Figure 1. Graphical Representation of Stickiness



1. Balakrishnan et al. (2014) argue that the log model used in Anderson et al. (2003) induced a bias in the fixed-cost-structure estimation, and they propose a linear specification. However, Banker and Byzalov (2014) show that this claim is unfounded. Because of the intuitive interpretation of the results from the log model and the model's widespread usage in the literature, we use the log model.

distinguish between years with a revenue increase and those with a revenue decrease. In particular, ß1 is used as the slope for years with a revenue increase and the sum of ß1 and ß2 for years with a revenue decrease (see figure 1 for a graphical representation). We collected program revenues and expenses from the government-wide statement of activities for business-type activities.

B. MODEL SPECIFICATIONS FOR GOVERNMENTAL ACTIVITIES

In response to a decrease in revenues, local officials can respond by changing the resource allocations to developmental, allocational, redistributive programs, and educational programs. Because the beneficiaries of redistributive policy are different people from the taxpayers, Peterson (1981, pp. 48, 53) hypothesizes that for redistributive policies, there is a strong relationship between expenditures and fiscal capacity (a hypothesis for which he finds support). In contrast, because the marginal benefit/tax ratio is high, fiscal capacity is likely to not have a big effect on developmental expenditure levels. The relationship between expenditures and fiscal capacity for allocational services is expected to fall between those two extremes. In places with low local fiscal capacity, taxes cannot just be raised to provide allocational services. However, the expenditures will in large part also be driven by perceived need and demand. We consider educational programs separately because they are only moderately redistributive and are a large expenditure that is likely sensitive to a community's fiscal capacity (Peterson 1981). Because of balanced-budget requirements, these decisions are necessarily interdependent. Local officials respond to changing circumstances by making a simultaneous choice of how to allocate resources among the programs. We therefore investigate the relationship between

$$log\left[\frac{DevExp_{i,t}}{DevExp_{i,t-1}}\right] = \beta_0 + \beta_1 * log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] + \beta_2 * Dec_{i,t} * log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] + \varepsilon_{i,t} \quad (2)$$

$$log\left[\frac{AllocExp_{i,t}}{AllocExp_{i,t-1}}\right] = \beta_0 + \beta_1 * log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] + \beta_2 * Dec_{i,t} * log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] + \eta_{i,t} \quad (3)$$

$$log\left[\frac{RedistExp_{i,t}}{RedistExp_{i,t-1}}\right] = \beta_0 + \beta_1 * log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] + \beta_2 * Dec_{i,t} * log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] + \nu_{i,t} \quad (4)$$

$$log\left[\frac{EduExp_{i,t}}{EduExp_{i,t-1}}\right] = \beta_0 + \beta_1 * log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] + \beta_2 * Dec_{i,t} * log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] + \mu_{i,t} \quad (5)$$

revenue constraints and expenditure stickiness using the four simultaneously estimated equations stated below:

In the above models, *DevExp* represents developmental expenditures, *AllocExp* represents allocational expenditures, *RedistExp* represent redistributional expenditures, and *EduExp* represents educational expenditures. All revenue and expenditure values used in the model were collected from the statement of revenues, expenditures, and changes in fund balance. *Rev* represents total general-government revenue. *Dec* is an indicator variable equal to one if the change in year-to-year revenue decreased and zero otherwise. As with the business-type model, this allows us to distinguish between years with a revenue increase and years with a revenue decrease. As before, ß1 is used as the slope for years with a revenue increase and the sum of ß1 and ß2 is used for years with a revenue decrease. The subscripts i and t represent the local government and fiscal year, respectively. Because the total spending decisions depended on the allocations among the four categories, it is likely that the error terms were contemporaneously correlated. Because the CAFR data allow for simultaneously modeling the choice among resource allocations, we use seemingly unrelated regressions to test our hypotheses.

C. CONTROL VARIABLES

1. Macroeconomic Environment

Anderson et al. (2003) find in their sample of corporations that costs are more sticky during periods of economic growth. Their argument is that managers are less willing to reduce committed resources when the economy is growing. However, given the balancing role of government, our research anticipates that the result for local governments differs. Our sample includes the years leading up to the Great Recession, the Great Recession, and the postrecession recovery period. To control for the influence of the recession, we use an indicator variable that is equal to one for a recession year and zero otherwise.

The first year of the Great Recession was 2008. This coincided with the passing of the 2008 Economic Stimulus Act. Hence, the recession first significantly affected governments' financial statements with a June 30, 2009, fiscal year end. In September 2010, the National Bureau of Economic Research (2010) announced that the eighteen-month recession had ended in June 2009 and the recovery had started. The bureau also noted that GDP in the second quarter of 2010 was still 1.3 percent below GDP at the start of the recession (December 2007). In this study, we use fiscal year end June 30, 2010, as the end of the recession.[2]

2. Intergovernmental Revenues and Tax Rates

2. Any of the fiscal years from 2010 to 2012 was a potential option, based on the unemployment rate and reduction in local government revenues (see table 1). Sensitivity analysis tested the alternative fiscal periods and yielded similar results.

States often reduce intergovernmental transfers to local governments during an economic downturn (Joyce 2001). When a state reduces intergovernmental revenues, local governments tend to increase taxes to preserve programs (Bartle 1996). However, most states also limit the fiscal behavior of local governments (Mullins and Wallin 2004). Property taxes and sales taxes are the two most important sources of general revenue for local governments in North Carolina (Wang and Hou 2012). As a result of revenue fluctuations during economic downturns, local governments seek alternative financing options such as local-option sales taxes to pay for public services (Afonso 2013a). Property tax revenue is often used by local governments to make the budget balance; thus property tax rates often change annually (Anderson and Pape 2008; Bogart and Bradford 1990). Income and sales tax rates, on the other hand, are much more stable (Anderson 2006). However, Stewart (2009) argues that total property tax revenue is more stable than other revenue sources because a change in personal income does not immediately affect property values or property tax revenue.

Because both taxes and intergovernmental revenue are components of general revenues for local governments such as North Carolina counties, we add control variables in the model to capture the potential impact of a decrease in intergovernmental revenues and changes in property tax revenue. For the sensitivity analysis, we include changes in tax rate to capture a government's intent to adjust property tax revenues.

3. Unreserved Fund Balance

Reserves held by governments can help maintain the level of government spending during economic downturns (Hou 2004; Sobel and Holcombe 1996). In particular, the unreserved general fund balance has been shown to have a countercyclical stabilizing effect during down years (Marlowe 2005). Before GASB Statement 54, governments classified fund balances as either reserved or unreserved. GASB 54 (GASB 2009) requires classification of fund balances into five categories of availability: nonspendable, restricted, committed, assigned, and unassigned for governmental-fund financial statements beginning with fiscal years ending after June 15, 2011. GASB 54 was implemented in the North Carolina counties in this study in the fiscal year ending on June 30, 2011. Our analysis uses the amount of unassigned (post–GASB 54) and unreserved (pre–GASB 54) balances to proxy for recessionary cushion. A sensitivity analysis tests total fund balance and finds similar results.

4. Government Size

Anderson et al. (2003) find that larger corporations, measured by the number of employees and total assets, experience more cost stickiness. Our analysis uses county population as a proxy for county size. The number of county employees is used as an alternative proxy in our sensitivity analysis.

$$\beta_2 = \gamma_0 + \gamma_1 * MacroEnv + \gamma_2 * Log\left[\frac{IntGovRev_{i,t}}{IntGovRev_{i,t-1}}\right]$$
$$+\gamma_3 * Log\left[\frac{UnrFundBal_{i,t}}{UnrFundBal_{i,t-1}}\right] + \gamma_4 * Log\left[\frac{PropTaxColl_{i,t}}{PropTaxColl_{i,t-1}}\right]$$
$$+\gamma_5 * Log\left[\frac{CountyPop_{i,t}}{CountyPop_{i,t-1}}\right]$$

Consistent with Anderson et al. (2003), we add control variables through ß2:

MacroEnv is a control variable for the Great Recession years (fiscal years 2009 and 2010), *IntGovRev* is the amount of intergovernmental revenue, *UnrFundBal* is the unreserved fund balance (pre–GASB 54) or the unassigned fund balance (post–GASB 54), *PropTaxColl* is the amount of property tax collected, and *CountyPop* is the county population. As before, the subscripts *i* and *t* represent local government and

$$Log\left[\frac{Exp_{i,t}}{Rev_{i,t-1}}\right]$$
$$= \beta_0 + \beta_1 * Log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] + \beta_2 * Dec_{i,t} * Log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right]$$
$$+\beta_3 * Dec_{i,t} * Log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] * MacroEnv$$
$$+\beta_4 * Dec_{i,t} * Log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] * Log\left[\frac{IntGovRev_{i,t}}{IntGovRev_{i,t-1}}\right]$$
$$+\beta_5 * Dec_{i,t} * Log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] * Log\left[\frac{UnrFundBal_{i,t}}{UnrFundBal_{i,t}}\right]$$
$$+\beta_6 * Dec_{i,t} * Log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] * Log\left[\frac{PropTaxColl_{i,t}}{PropTaxColl_{i,t-1}}\right]$$
$$+\beta_7 * Dec_{i,t} * Log\left[\frac{Rev_{i,t}}{Rev_{i,t-1}}\right] * Log\left[\frac{CountyPop_{i,t}}{CountyPop_{i,t-1}}\right] + \varepsilon_{i,t}$$

fiscal year, respectively.

This results in the second (restated) model:

D. DATA

We collect data from the CAFR for the forty largest counties by population in North Carolina for the period 2005 through 2014. (All counties have a June 30 fiscal year end.) This period includes the years leading up to the Great Recession, the Great Recession years, and the postrecession recovery. Hence, the analysis should reveal any change in government spending in response to the budget shortfalls that resulted from the Great Recession. We choose North Carolina counties for several reasons. First, our primary interest is to investigate the spending behavior of North Carolina county governments under different macroeconomic conditions. Second, while various local governments provided a large range of public services, all the counties in North Carolina (with the exception of Mecklenburg) provided funding for developmental, allocational, redistributive, and educational activities. Third, in North Carolina, all local governments are required to use a Statewide Master Account List, which facilitates cross-governmental comparisons. Fourth, North Carolina has medium volatility of revenue and expenditures, using a volatility index based on volatility in the economic environment, state reliance on federal aid, state reliance on gambling revenues, and the amount of Medicaid expenditures (Joyce 2001). Finally, the Center for Social Inclusion (2009) ranks the impact of the recession on North Carolina as high. These factors allow us to use a sample of counties that encountered significant economic volatility throughout the period while controlling for the variation across counties as much as possible.

IV. RESULTS

Table 1 provides descriptive statistics for the data collected. The initial sample consisted of the forty largest counties by population in North Carolina. The forty largest counties were chosen because a sample of smaller counties indicated that many of the smaller counties do not report business-type activities. We removed three counties because they had incomplete data, and we completed our analysis using thirty-seven counties. Only thirty-five of the counties reported business-type activities. As a result, the analysis of business-type activities has fewer data points than the governmental-activities analysis. The sample includes nine years of data for each county because some of the variables required lagged data. The top and bottom 2.5 percent of the data[3] was winsorized to mitigate the undue influence of outliers. Panel

3. Truncating rather than winsorizing the data provided similar results (not provided).

A of table 1 provides the economic and demographic statistics of the sample.

Average revenues remained fairly stable from 2008 to 2010 (see table 1, panel B), even though twenty-seven of the thirty-seven counties (73 percent) reported a decrease in their revenue. Revenues were down by 3.32 percent. Expenditures, meanwhile, declined by 2.48 percent. Based on the summary of financial data provided in panel B of table 1, the evidence indicates that the counties in North Carolina did not use countercyclical spending to stimulate demand as advocated by some researchers (Gramlich 1987; Hou and Moynihan 2008).

While revenues decreased by 2.9 percent in 2010, education expenditures decreased by 11.1 percent compared to a 7.5 percent overall decrease in expenditures and a 5.2 percent increase in public-safety expenditures. Up to that time, educational expenditures had been increasing annually. However, by 2014 educational expenditures had not yet returned to 2008 levels. In fact, for our sample, average expenditures were 8.2 percent lower in 2014 than in 2008. By comparison, average public-safety expenditures did not decline for any of the years and were 20 percent higher in 2014 than in 2010.

Table 1. Summary Statistics for North Carolina Counties in Sample from 2005 to 2014

Panel A: Demographics and economic characteristics

YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Avg Population	157,873	161,748	162,248	169,156	172,350	174,649	177,239	179,538	181,565	183,325
Avg Unemploy. Rate	5.76	5.16	5.07	5.90	10.62	10.73	10.60	10.14	9.28	6.85
Avg Income per Capita	29,484	31,141	32,033	33,263	32,775	33,158	33,416	35,126	35,190	36,544

The results for the estimation model (1) for the business-type activities are reported in table 2. When revenues are increasing, the coefficient ß1 indicates the change in expenditures. However, as a result of the use of the indictor variable *Dec*, for years in which revenues are decreasing, the sum of the coefficients ß1 and ß2 indicates the change in expenditures. Hence, the sticky-expenses hypothesis is supported when ß1 > 0 and ß2 < 0. ß1 is positive and ß2 is negative as hypothesized, and both results are statistically significant in the sample. This supports our first hypothesis that expenses are sticky for governmental business-type activities. This implies that when it comes to business-type activities, government officials

Table 1. Summary Statistics for North Carolina Counties in Sample from 2005 to 2014

Panel B: Financial data ($ thousands)

YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GOVERNMENTAL ACTIVITIES (AVERAGE OF 37 COUNTIES)										
Avg Total Revenue	162,110	174,293	184,587	196,690	195,852	190,167	193,069	198,704	198,779	205,280
% Counties w/decreases in YOY revenue	n/a	5.4%	8.1%	2.7%	64.9%	73.0%	27.0%	27.0%	24.3%	8.1%
Avg Total Expenditures	174,613	192,404	206,438	222,566	234,667	217,057	220,083	214,328	211,737	214,281
% Counties w/decreases in YOY Expenditures	n/a	0.0%	21.6%	13.5%	35.1%	73.0%	54.1%	51.4%	56.8%	35.1%
Avg Total Fund Balance	46,920	51,271	55,938	58,232	57,171	56,585	60,166	66,356	69,446	72,783
Avg unreserved (or unassigned) Fund Balance**	25,338	29,015	32,490	34,096	35,080	28,599	32,178	34,783	45,687	37,012
BUSINESS-TYPE ACTIVITIES (AVERAGE OF 35 COUNTIES)										
Avg Program Revenue	9,483	10,991	12,413	12,324	11,523	12,058	13,864	11,897	12,366	12,088
% Counties w/decreases in YOY revenue	n/a	26.5%	26.5%	44.1%	61.8%	41.2%	44.1%	38.2%	58.8%	44.1%
Avg Program Expenses	7,962	7,969	9,180	10,554	10,437	10,521	10,759	10,730	10,921	10,980
% Counties w/decreases in YOY Expenditures	n/a	29.4%	17.6%	8.8%	35.3%	52.9%	32.4%	47.1%	47.1%	32.4%

* YOY = year-over-year

** Unreserved before GASB 54 (2009), unassigned after GASB 54

Table 1. Summary Statistics for North Carolina Counties in Sample from 2005 to 2014
Panel C: Financial data governmental-function expenditures analyzed in the project ($ thousands)

YEAR	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Avg Total Expenditures	174,613	192,404	206,438	222,566	234,667	217,057	220,083	214,328	211,737	214,81
Avg Human-Services Expenditures	49,945	51,680	52,002	53,422	51,302	46,963	46,657	46,534	44,527	43,589
Avg Education Expenditures	42,949	48,665	54,091	62,131	66,102	58,782	58,493	57,876	55,357	57,019
Avg Public-Safety Expenditures	25,215	27,327	29,058	32,720	34,872	36,669	37,963	38,564	38,809	39,477
Avg Economic-Development Expenditures	4,984	5,549	5,988	6,310	6,196	5,733	6,140	6,386	6,667	6,774

* We analyzed expenditures on only four functions. Therefore, the sum of the average expenditures for the individual functions analyzed does not equal the average total expenditures for the governments.

Table 2. Results for Regression Models for Business-Type Activites

	COEFFICIENT	*P*-VALUE	COEFFICIENT	*P*-VALUE
$ß_0$	-0.0209	0.58	-0.0106	0.85
$ß_1$ (revenue)	1.0904	**0.00**	1.0835	**0.00**
$ß_2$ (decrease in revenue)	-1.0948	**0.02**	-1.0935	**0.02**
$ß_3$ (net position)			-0.0024	0.80
Adjusted R^2	11.1%		10.8%	
Number of Observations	318		318	

exhibit similar behavior to managers of corporations.

We now shift our analysis to governmental activities. Table 3, panel A reports the results of the Pearson correlations used to analyze mutual relationships among the four public policy activities (that is, allocational, developmental, redistributive, and educational) and total revenues and changes in revenue. Consistent with the results reported in the extant literature, we found a strong, statistically significant (0.001) correlation between redistributive expenditures and 1) revenue (0.565) and 2) change in revenue (0.454). Hence, there is evidence to suggest there is a strong relationship between revenue and redistributive expenditures. Peterson (1981) finds a strong relationship between redistributive expenditures and fiscal capacity. While revenue is not a perfect measure of fiscal capacity, in our sample 55 percent of the counties' revenues were generated by property taxes. Hence, it does serve as an imperfect proxy for fiscal capacity. The correlations between allocational expenditures and revenue (0.291) and allocational expenditures and change in revenue (0.191) and the correlations between educational expenditure and revenue (0.245) and educational expenditure and change in revenue (0.127) are weaker. The allocational-expenditure correlations and the educational-expenditure correlations were statistically significant at the 0.001 level. These results are also consistent with the Peterson (1981) results. The relationship between revenue and allocational expenditures is weaker because, as Peterson (1981) argues, governments can often only reduce service levels as the services provided are based on need and demand while the fiscal capacity does not allow for tax increases to fund allocational expenditures. The correlation between developmental expenditures and 1) revenue and 2) change in revenue were not statistically significant ($p > 0.10$).

To test the second hypothesis, we used seemingly unrelated regressions to estimate the coefficients for the four models simultaneously. The results are reported in table 3, panel B. Consistent with the Pearson-correlation results, we found that allocational-, redistributive-, and educational-program expenditures were correlated with overall county general-government revenues. The results for educational expenditures provided evidence of sticky-expenditure behavior (that is, ß1 > 0 and ß2 < 0). More specifically, when county revenues decreased, educational expenditures did not decrease; rather, they increased. The funding for the increase in expenditures could have been linked to the usage of fund balance as the partial correlation was marginally significant (= 0.07). However, we need to put this result in context. As shown in table 1, panel C, average education expenditures were reduced dramatically from 2009 to 2010. Because the year-to-year percentage increases and decreases are not additive but multiplicative, education expenditures

Table 3. Results for Regression Models for Business-Type Activites

Panel A: Pearson correlations for governmental activities (two-tailed *p*-values)

	DEVELOPMENTAL	ALLOCATIONAL	REDISTRIBUTIVE	EDUCATIONAL
Revenue	0.041 (0.451)	0.291 (0.000)	0.565 (0.000)	0.245 (0.000)
Decrease in Revenue	0.078 (0.155)	0.191 (0.000)	0.454 (0.000)	0.127 (0.000)

Panel B: Regression results for governmental activities

	DEVELOP.	P-VALUE	ALLOCAT.	P-VALUE	REDIST.	P-VALUE	EDU.	P-VALUE	VIF
β_0	0.0118	.37	0.0146	**.00**	**-0.0085**	**.00**	-0.0013	.83	
β_1 (revenue)	0.0992	.85	0.5299	**.00**	**0.5404**	**.00**	**1.0891**	**.00**	1.53
β_2 (decrease in revenue)	0.7707	.63	0.0192	.95	-0.1361	.55	**-1.5319**	**.04**	1.44
β_3 (Great Recession)	-0.3545	.83	-0.3391	.27	**0.6265**	**.00**	0.9505	.21	1.13
β_4 (intergov. revenue)	0.0222	.68	-0.0132	.20	-0.0121	.11	-0.0176	.48	1.03
β_5 (fund balance)	-0.1300	.43	-0.0366	.24	0.0200	.39	-0.1405	.07	1.13
β_6 (property tax collected)	.0291	.75	0.0110	53	0.0116	.38	0.0055	.90	1.03
β_7 (county population)	0.1293	.13	-0.0063	.70	0.0059	.63	0.0188	.64	1.00
Adjusted R^2	0.000		0.108		0.340		0.057		
Number of	334		334		334		334		

Panel C: Elasticity of expenditures with respect to county revenues

	BUSINESS-TYPE	ALLOCATIONAL	REDISTRIBUTIVE	EDUCATIONAL
Keeping everything else constant, for every 1% increase in county revenue, expenditures increased by...	1.09%	0.53%	0.54%	1.09%
Keeping everything else constant, for every 1% decrease in county revenue, expenditures decreased by...	0.00%	0.53%	0.54%	-0.44%[1]

[1] On average, educational expenditures were increasing when county revenue was decreasing.

(and human-services expenditures) had not been restored to the 2008 level by 2014.

Allocational and redistributive expenditures did not demonstrate stickiness. This is consistent with Jordan (2003), who reports that allocational expenditures are more stable. This can also be seen in table 1, panel C, which shows that average public-safety expenses have steadily been increasing from 2008 to 2014. Hence, the impact of an increase in revenue on those expenditures is the same as the impact of a decrease in revenue. Finally, the developmental expenditures were not associated with revenue nor with changes in revenue. Thus, we found partial support for the second hypothesis. The percentage changes for the various expenditures resulting in a change in revenue are summarized in table 3, panel C. Note that the coefficients for developmental activities are not significant. However, those results have also been reported in table 3, panel C.

As the Great Recession resulted in reduced governmental revenues, we also investigated its impact on governmental spending priorities. As expected, the redistributive-program expenditures were significantly correlated to the recession dummy variable. Surprisingly, we did not find an overall increase in average human-services expenditures during the period. This might be the result of other government tiers' engaging in that spending, or, as Peterson (1981) hypothesized, it might reflect the strong link between fiscal capacity and redistributive expenditures. As county revenues decreased, property values decreased, and unemployment increased, counties might not have had the resources to expand these expenditures. Sensitivity analysis indicated that this variable was not significant for other periods. Sensitivity analysis (not reported) found that redistributive-program expenditures were also statistically significantly correlated with changes in county direct tax rates but not with property taxes collected. This suggests that the counties intended to increase funding for these programs by property tax increases, which is consistent with Peterson's (1981) hypothesis. The other public policy expenditures—that is, allocational, developmental, and educational—were not statistically significantly correlated with the Great Recession indicator variable. This could be in part because of the lag in governmental funding. For instance, for our sample roughly 55 percent of the counties' revenue was generated through property taxes. While house prices fell throughout the period, assessed values did not change instantaneously. Additionally, fund-balance surpluses may have been used to soften the impact and (partially) offset the financial consequences of the Great Recession. Finally, government officials may have responded to the Great Recession as they would to any revenue shortfall and hence it would not have impacted those expenditures differently.

V. CONCLUSION

Counties provide both business-type activities such as public utilities and governmental activities such as public safety and road maintenance. Business-type activities are activities that are also, or could also be, performed by corporations. The user fees for these business-type activities are often set at such a level that the business-type activities are largely self-sustainable. Research has found that costs for corporations are sticky: an increase in revenue is accompanied by an increase in expenses; however, a decrease in revenue results in a comparative smaller decrease in expenses. We found stickiness in business-type activities undertaken by North Carolina county governments. Hence, the behavior of governmental officials funding business-type activities was consistent with the behavior of managers of corporations. These findings have important implications for governmental accountants and officials. Some governments use flexible budgets for business-type activities (Granof et al. 2015). Flexible budgets provide budget estimates for varying input volumes. It is important to consider the stickiness of expenditures to appropriately capture cost behavior.

We next looked at governmental activities. In a governmental setting, budgeting links "financial accountability and managerial control over scarce resources to meet community and entity goals" (Reck and Lowensohn 2014, p. 493). Because a (local) government's managerial and political decisions related to governmental activities are reflected in the annual budget (Granof et al. 2015), budgeting plays an important role in financial planning, control, and evaluation of the governmental activities. Based on our sample, we found partial support for the stickiness hypothesis in local governments. Specifically, we found that redistributive expenditures and allocational expenditures changed linearly (that is, they did not exhibit stickiness) while educational expenditures did not change linearly (they exhibited stickiness). Understanding the role of cost stickiness can help government officials to better evaluate expenditure changes in light of changing revenues and could help guide government officials to more effectively align resources with managerial and political priorities. The results suggest that government officials' priorities shift in times of revenue growth and revenue decline as they do not respond to the growth and decline the same way for the various programs. For instance, the average spending for human services and education in 2010 was lower than in 2008 while spending on public safety was up over the same time span. By 2014, average spending on public safety had increased again. However, even though expenditures on education and human services were increasing, these expenditures had not yet returned to the

2008 level.

These findings are important when contextualized in the extant literature. While governments report business-type activities using accrual accounting, governmental activities are reported using modified accrual. The analysis found evidence of sticky expenses in the modified accrual basis of accounting, which adds to the sticky-cost literature. In addition, the analysis found evidence of stickiness during periods of economic decline and in periods of economic growth. This provides support for results previously reported in the literature (Anderson et al. 2003).

Like all research projects, our study has limitations. First, the final sample consisted of thirty-seven of the largest counties by population in North Carolina. Local governments in North Carolina have exerted great financial discipline (Wang and Hou 2012) as the state has the largest number of local governments with the highest bond rating (Coe 2007). North Carolina had medium volatility of revenue and expenditures, and the impact of the Great Recession was high. The generalizability of these results to other local governments (for example, municipalities and school districts), other governments in other states, and different periods is uncertain. Second, the data cover the period leading up to the Great Recession, the Great Recession, and the beginning of the recovery. We specifically chose this period to capture the changing economic environment, but it is possible that the results were driven, in part, by this unique period.

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BOOK REVIEW

WHY LIBERALISM WORKS: HOW TRUE LIBERAL VALUES PRODUCE A FREER, MORE EQUAL, PROSPEROUS WORLD FOR ALL

By Deirdre Nansen McCloskey. New Haven, CT: Yale University Press, 2019. Pp. xiii + 400. $28.00, hardcover

Reviewed by George Leef, James G. Martin Center for Academic Renewal, Raleigh, NC

What does it mean to be a liberal? As the term developed in eighteenth- and nineteenth-century Europe, it meant opposition to the coercive institutions of church and state that kept people from enjoying liberty. Liberals were those who wanted to free people from constraints that interfered with their economic and social activities.

Unfortunately, during the twentieth century Americans came to think that liberalism meant advocating more and more government control over people, especially when it came to private property and free enterprise. Contemporary liberals were the exact opposite of the true liberals of old. One scholar who is very unhappy about that and wants to return “liberal” to its original meaning is Professor Deirdre McCloskey.

In her latest book, *Why Liberalism Works*, she explains that what most Americans call liberalism is an ugly morass of authoritarian beliefs and policies that threaten to slow or even reverse the great advances we have enjoyed because of liberalism in the last three centuries. Lamentably few people connect their prosperity and freedom with liberal philosophy and economic policies.

She writes, “I began to realize around 2005 or so that a liberal ‘rhetoric’ explains many of the good features of the modern world compared with earlier and illiberal regimes—the economic success of the modern world, its splendid arts and sciences, its kindness, its toleration, its inclusiveness, its cosmopolitanism, and especially its massive liberation of more and more people from violent hierarchies ancient and modern.”

But there are ominous storm clouds. McCloskey continues, “From the Philippines to the Russian Federation, from Hungary to the United States, liberalism has been assaulted recently by brutal, scare-mongering populists. A worry. Yet for a century and a half, the relevance of liberalism to the good society has been denied in a longer, steadier challenge by gentle or not-so-gentle progressives and conservatives. Time to speak up."

The book is a collection of fifty fairly short pieces written over the last decade (some interviews, some magazine articles, some book reviews, some short essays) that all advance her argument that people should stop giving power to the enemies of liberalism. Naturally, there is considerable overlap, but that isn't a bad thing; many readers will take her point more fully for having heard it from different angles.

What makes the book especially effective is McCloskey's bright and open writing style. She can go from quoting Adam Smith to making references to *Dilbert* cartoons in a breath. The chapters never sound like a professor's lectures, but instead like conversations with a very learned, very earnest individual who asks for your attention.

Moreover, McCloskey approaches the project of advancing the case for liberalism from a unique perspective. She grew up on the illiberal side, receiving the standard academic schooling for aspiring economists, which means obsessing over the many alleged failures of the free market while turning a blind eye to the harm that government officials often do. In a delightful chapter entitled "Deirdre Became a Modern Liberal Slowly, Slowly," she writes that as a student she favored "a pity-driven coercion in the style of Keynes, Samuelson, and Stiglitz." One of her college roommates, an engineering student, read Ludwig von Mises as a break from his engineering work and "learned more of the economics of a free society" than she did in hundreds of class hours revolving around "Keynes and slow socialism."

Thus, she is able to say to progressives, "I was long in your camp, but now I see that I was mistaken. Please consider my reasons for having changed my mind" (my wording).

McCloskey's chapters extol true liberalism and attack statism across a wide front. One issue is the freedom to move and work. Conservatives will be discomfited by her sarcastic blast at policies that take away the liberty of people to immigrate and seek to better themselves: "Under High Liberalism, as under feudal hierarchy, I am to have a liberty to regulate, through the government's monopoly of coercion, your behavior in ways beneficial to me or my assigns. I am to have for example a liberty to prevent your entry into my trade, forcibly backed by the police. My customers would be benefited by such an entry, but I can stop it, thank God. For example, I am to have a liberty to stop Juan Valdez from coming to my country to trade peaceably with me, by a law forcibly backed by ICE."

Progressives who favor immigration and hate ICE (Immigration and Customs Enforcement) might smile at seeing their right-wing enemies smitten, but McCloskey is just as devastating when she takes on their pet ideas.

What about inequality of wealth? Isn't it obvious that the government needs to do something to even out the wealth distribution? No, she replies. Wealth acquired through commercially tested betterment (a more accurate way of explaining things than the term "capitalism," she contends) is not only fairly earned, but also benefits the consuming masses much more than the business owners.

Instead of griping about wealth earned in business, McCloskey suggests that progressives ought to look at the consequences of statist policies: "You should indeed worry about inequality when it is achieved by using the government to get protection for favored groups. It is what a large government, well worth capturing in order to get the protection, is routinely used for, to the detriment of the bulk of its citizens."

Remember the great furor over Thomas Piketty's book *Capital in the Twenty-First Century* several years ago? Egalitarians proclaimed it a masterful work that crushed opponents of redistributionist policies. McCloskey is unfazed by his assault on liberalism. She observes, "The only countries in which Piketty finds *actual,* substantial rise in inequality are the United Kingdom, the United States, and Canada. The three cases can be explained by government policies foolishly favoring the rich, such as making it crazy-difficult to build new housing in London, which drives up the price of existing housing, owned by the rich. 'Capitalism' didn't cause the disaster of London housing. A half-socialism did." That's just one of the numerous instances in which she informs progressives that conditions they complain about are the results of economic interventions they are responsible for.

Other progressive beliefs that fall before McCloskey's scythe include: the West became rich because of imperialism (colonies were actually an economic drain), minimum wage laws help poor people (they were clearly designed to harm their chances for advancement), we face a cataclysm unless we adopt draconian environmental policies immediately (the green manifestoes would cause needless harm, mostly to the poor), and fairness for queers requires much more government (liberalism is best for queers and all other groups).

Perhaps the biggest of all illiberal misconceptions is that we can rely on good, competent government to solve all manner of social ills. McCloskey warns readers that honest, competent governments are very rare. Government power attracts those who see it as a means to get what they want by taking from others. She wants progressives and conservatives (especially economists) to remember that fact when they claim that the way to solve some problem is to enact a law or create a new government program.

Back in the eighteenth century, Samuel Johnson advised a friend, “Clear your mind of cant”—that is, of sanctimonious and hypocritical notions. As much as any recent book I can think of, McCloskey’s book will help readers to clear their minds of cant. This book would be an ideal gift for any progressive or conservative who is willing to listen to challenging counterarguments.

BOOK REVIEW

AMERICA'S REVOLUTIONARY MIND:
A MORAL HISTORY OF THE AMERICAN REVOLUTION AND THE DECLARATION THAT DEFINED IT.

By C. Bradley Thompson. New York: Encounter Books, 2019. Pp. 584. $32.99, hardcover.

Reviewed by Mitch Kokai, John Locke Foundation, Raleigh, NC

The United States faces its sestercentennial in a half dozen years. Whether the nation marks its 250th birthday with joyous celebration or joyless commiseration depends in large part on how people view the American Revolution. Significant portions of the populace, led by the *New York Times* and its supporters in the media and academia, refuse to view July 4, 1776, as the proper date of the American founding. They argue that the United States already has observed its 400th birthday: a somber occasion tied to the arrival in 1619 of the first African slaves in colonial America. While these critics of traditional American history are likely to downplay the significance of July 4, 2026, others look forward to that date and its commemoration of a milestone anniversary. C. Bradley Thompson's recent book, *America's Revolutionary Mind*, offers prospective celebrants plenty of evidence to support their cause.

More than just a retelling of the circumstances that led thirteen American colonies to declare independence from the British Crown and band together in a new political union, Thompson's text could reorient us in our consideration of those circumstances. As the book's subtitle indicates, Thompson tells a *moral* history of the American Revolution, as defined in the Declaration that we remember and honor each Independence Day.

There is no shortage of books and articles on the American Revolution. But

Thompson, a professor of political philosophy at Clemson University, claims to be presenting something new. He argues that no author has offered a "major reinterpretation" of its "intellectual causes and consequences" in fifty years. With *America's Revolutionary Mind*, he aims to do just that.

From the outset, Thompson distinguishes his argument from that of the *New York Times*' slavery-obsessed 1619 Project. The contrast becomes apparent in Thompson's opening line: "The American Revolution is the most important event in American history." Why? "It announced the birth of a new nation, defined the noblest ideas and aspirations of the American people, created written constitutions and republican governments, and reformed laws and remodeled institutions."

As we approach the 250th anniversary of the Declaration of Independence, the revolution's "noblest symbol," it's worth focusing on a "transformative event" that created a first-of-its-kind society. Thompson explains why. "Our present-day beliefs in equality, freedom, rights, justice, the rule of law, and constitutionalism were born during the Revolutionary era." Given the era's lasting importance, Thompson notes a curious academic omission: "Previous generations of scholars have neglected almost entirely what many leading eighteenth-century Americans considered the generative mainspring of the Revolution, namely, its moral causes." Thompson intends to fill that gap.

Note that Thompson's definition of the American Revolution extends beyond the military conflict that started in 1775 with the Battles of Lexington and Concord. For Thompson, the revolution started in people's minds long before the famous shot heard 'round the world. Much of the volume focuses on the way in which revolutionary principles suffused American society as early as the 1760s. Once armed conflict commenced, revolutionary ideas already had taken hold in significant ways throughout the thirteen colonies. The Declaration of Independence reflected what Americans already were thinking about government's proper role.

"There has probably never been another time in our history when the life of the American mind was so alive, so penetrating, and so innovative as it was during the Revolutionary period," Thompson argues. The Declaration offers an "ideological road map" helping readers chart the revolutionaries' course from loyal subjects of Great Britain to citizens of free and independent states. Exposition of the road map constitutes the bulk of Thompson's work. Chapter titles include "Declaring the Laws of Nature," "Self-Evident Truths," "Equality," and the Declaration's famous Jeffersonian phrase "Life, Liberty, and the Pursuit of Happiness."

Fans of American history will recognize many of the book's key historical players. Madison is there, along with Hamilton, Washington, Adams, and Jefferson. But one of Thompson's points of emphasis is the pervasiveness of American revolutionary principles. That's why readers also find the words of lesser-known figures. The Reverend Dan Foster of Windsor, Connecticut, earns Thompson's praise as author of "one of the most penetrating and remarkable pamphlets written during the Revolutionary period." In a 1774 essay, "Foster cut to the core in identifying the nature and purpose of rights, particularly the fundamental right—the right to life—and its implied corollary—the right to property."

Thompson introduces us to a little-known Maryland lawyer, Daniel Dulaney, one of the most forceful speakers on the principle of the consent of the governed. More than a decade before Jefferson's famous Declaration, Dulaney opined in 1765 against the idea that Parliament, across the ocean in London, could tax American colonists: "As a matter of general principle, he countered, it is a 'flagrant injustice' to 'give property not belonging to the giver, and without the consent of the owner.'"

And while seventeenth-century English philosopher John Locke might be best known today for his influence on well-known American founders, Thompson detects Locke's presence "in the writings of many New England ministers and in the petitions of hard-scrabble and largely uneducated farmers living on the western frontier."

For those intent on downplaying the Revolution and emphasizing instead America's history of slavery, a full chapter of *America's Revolutionary Mind* explores the relationship between the Declaration's principles and slave ownership. "The great story of the American Revolution is not that the founding generation failed to end slavery, but rather that it set in motion forces that would lead to the eventual abolition of America's 'peculiar institution,'" Thompson writes. "The proper historical question to ask is, what effect did the logic of America's revolutionary ideals have on the institution of slavery?"

One of the Declaration's key elements constituted "the most important step" in abolishing American slavery, in Thompson's estimation: "The Americans' public declaration that all men are created equal and that each and every man is entitled by right to freedom represented the moment of America's great moral awakening—the moment when the institution of slavery was put on notice and its abolition became a moral and political necessity." Slavery had existed worldwide for millennia, and in America for a century and a half, but now "the Declaration's moral principles established for the first time in American history a benchmark by which to judge and condemn a long-practiced social evil." That means even those who see slavery as the defining issue in American history ought to view the Revolution, and especially its defining document, as a new beginning worthy of celebration. The Declaration's principles deserve continued praise and devotion.

"We can accept the Declaration's freedom principles as true, or we can adopt very different moral principles," Thompson concludes. "I hope that this book will inspire its readers to think anew about this fundamental choice." That choice will help determine how we approach Independence Day 250 years after the fermentation of ideas that helped push Americans toward declaring political independence and sharing their principles of freedom with the world.

BOOK REVIEW

IS CAPITALISM SUSTAINABLE?

By Michael Munger. Great Barrington, MA: American Institute for Economic Research, 2019. Pp 422. $18.00, hardcover.

Reviewed by Peter Boettke, George Mason University, Fairfax, VA

Here is a basic truth in the affairs of men: there are pivotal people at pivotal times. The great F. A. Hayek played that role when he wrote *The Road to Serfdom*, and of course Adam Smith played that role when he authored *The Wealth of Nations*, as did John Maynard Keynes with *The General Theory* and John Kenneth Galbraith with *The Affluent Society*. In the late 1970s on TV and in the best-selling book *Free to Choose*, Milton Friedman emerged as the strongest voice for economic liberalism in his generation. Friedman had great charm on camera and felicity with the pen. He was also in possession of razor-sharp mind and quick wit. If there ever was a pivotal person at a pivotal time for economic liberalism, Friedman was that person in the economics profession and in the general intellectual culture from 1980 until his death in 2006.

Since that time, a common question has been: who will be the next Milton Friedman? There are several contenders, but Michael Munger of Duke University would be on any list one could imagine. For the past thirty years, Munger has consistently explored the topics in this volume in academic and popular writing and in podcasts and video presentations. These topics include analyses of the market process,the political process, and the interaction between the political and market sectors. As someone deeply influenced by James Buchanan, Munger believes there is hope in institutional reform.

This set of essays begins provocatively enough by asking whether capitalism is sustainable. This topic is not new to him: it actually goes back to at least Joseph Schumpeter, if not Adam Smith himself. As Munger puts it, capitalism is fragile because of the adverse impact of government actions on business and because entrepreneurs find it almost irresistible to seek government privileges to protect themselves from the vagaries of the process of creative destruction. Yes, Munger argues that the creative destruction of the market delivers amazing wealth creation. But the use of state-created privileges to secure profits—that is, rent-seeking—is too tempting for these businesses to turn down. Rent-seeking isn't capitalism, but if capitalism inevitably succumbs to the temptation of rent-seeking, then capitalism is unsustainable. The system logically devolves to cronyism. Munger reasons that in the current political situation, the logic of the market process leads even the most successful entrepreneur to reach a point where the marginal dollar invested in seeking honest profits will have a lower rate of return than the dollars invested in rent-seeking.

I will come back to this argument of Munger's shortly. *Is Capitalism Sustainable?* contains not only variations on this argument about a tension deep in the system of limited government, private property, and markets, but several insightful essays explaining the great benefits of markets (if we can have them), the dysfunctions of politics, and how transaction-cost-reducing technologies and rule changes can change the logic of the situation. There are reasons for hope. Regulations, Munger argues, should not block innovations, and government officials must also not play favorites.

Price has primacy of place in economic analysis, and Munger explains as well as anyone how the price system works to guide individuals in their exchange and production activities, how profits lure them, and how losses discipline them. On the other hand, interests have primacy of place in the analysis of politics, as interests must align to form minimum winning coalitions to get things done in the political arena. And, in the playing out of politics as exchange, the logic of the median-voter theorem more often than not produces outcomes in which "good" political decisions are in fundamental conflict with economic policies that are "good" from the point of view of wealth creation and widely shared prosperity. But rules, and specifically rule changes, can bring new hope and opportunity. We can work toward permissionless innovation.

Even in the best of environments, though, Munger explains, there will be deep tensions between our innate moral intuitions and the demands that the extended market order places on our moral sensibilities. The liberal order and open society are not "natural": they require work to sustain and maintain. We may not need to know details about their operation to experience the great benefits of productive specialization and peaceful social cooperation, but we may need to have an explicit intellectual appreciation of spontaneous order in order to maintain the system. Politics is too often a blunt-force instrument while economic reasoning is a subtle and refined tool for exacting analysis, and this means the two clash. Practical politics and moral intuitions cut against the arguments for capitalism, but the great wealth and progress and the lifting of the least advantaged up from misery and oppression—

evident to anyone who is willing to look at the evidence—will give pause to the critics.

Munger's great strength as a writer and thinker is that he is willing to give his intellectual opponents their full hearing and to even concede critical points. But this also enables him to respond in gentle and harsh ways about the errors critics are committing and the logic and evidence overwhelmingly supportive of capitalism as a foundation for the Good Society.

Munger answers his question "Is capitalism sustainable?" with a hopeful case for the affirmative. The argument about the forces undermining capitalism was not about inevitability, but probabilities. There is a certain logic pushing in that direction, but other forces can be marshalled in the opposite direction. As we look at the menu of socially desirable political and economic systems, it is always valuable to ask about their feasibility. There must be some intellectual sorting mechanism to move from philosophical ideas we deem as desirable, to those that are in fact feasible, and further to those that are viable. This is one way to reinterpret Munger's discussion of the difference between a destinationist and directionist perspective in the political economy of reform: the directionist is focused on this sorting from desirable to feasible to viable, whereas the destinationist is stuck expounding the desirable.

Is Capitalism Sustainable? is a collection of essays from a serious scholar of political economy who has engaged in a sustained effort of over thirty years to understand the human condition and the role that alternative institutional arrangements play in the ability of human beings to realize the great benefits of capitalism. It is a highly recommended set of readings for all students of philosophy, politics, and economics. The arguments are not just of historical interest: the issues Munger raises are timeless and exceedingly relevant to our contemporary discussions on the benefits of and tensions in the liberal project of capitalist economics and constitutionally limited government.

NOTES AND COMMENTARY

ECONOMIC AND PERSONAL FREEDOM IN THE CAROLINAS

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ABSTRACT

This note examines the state of economic and personal freedom in North and South Carolina and assesses the reasons for change over time and the consequences of those changes for economic growth and migration. Freedom is conceptualized as the absence of coercive interference, and the index measures the extent to which state and local public policies allow freedom in this sense. Previous research has found that Americans tend to move to states with higher levels of economic and personal freedom. The note concludes with policy implications for the Carolinas and the United States.

I. INTRODUCTION

What is the state of freedom in the Carolinas, and what have been the causes and consequences of changes in freedom over time? This note addresses these two questions with evidence from the Cato Institute's *Freedom in the 50 States* study (Ruger and Sorens 2018).

Indices of economic and personal freedom have been widely used in social science research and in fact are more common than they might at first seem. The economic-freedom indices produced by the Cato and Fraser Institutes (Gwartney et al. 2019) and the Heritage Foundation (Miller, Kim, and Roberts 2020) have found wide use in cross-national economic research, but indices of press freedom (Reporters without Borders 2019), civil liberties (Freedom House 2020), human rights (Cingranelli, Filippov, and Mark 2018), and human freedom (Vásquez and Porcnik 2019) have become important to quantitative research in political science, communication, and sociology as well.

At the US-state level, differences in economic and social policies are less significant than they are across countries. Nevertheless, state policy differences still drive important differences in economic and social outcomes. This conclusion is supported by the way in which Ruger and Sorens (2018) construct their index and by the research findings on the sequelae of freedom at the state level.

II. MEASURING FREEDOM AT THE STATE LEVEL

The Ruger and Sorens (2018) index of state-level freedom is based on an a priori conceptualization of freedom rather than an exploratory statistical analysis of which types of public policies tend to co-occur. (The latter would be an index of state policy ideology, not necessarily freedom [Caughey and Warshaw 2016; Sorens, Muedini, and Ruger 2008].) The index defines freedom as the ability of individuals to order "their lives, liberties, and property as they see fit, so long as they do not infringe on the rights of others" (4). Like other indices, this one does not measure private infringements on liberty, but merely the extent to which government intervenes in economic and personal affairs.

The index measures the "victim cost" of governmental infringements on freedom in dollar terms in order to construct a weighted average of more than 230 state policies. Some variables receive special bonuses if they touch on an explicitly protected right in state or federal constitutions. The policies are organized into three dimensions—personal, fiscal, and regulatory—with the last two constituting economic freedom. The data are available annually from 2000 to 2016 (year-end).

The authors find that freedom has tended to increase over time, especially since 2010, when policies that have been taken over by the federal government are excluded. But when policies that have been taken over by the federal government, most notably health-insurance regulation, are included, freedom has fallen significantly because of growing regulation.

The report also investigates the causes and consequences of freedom. States scoring high in economic freedom are not necessarily also strong on personal freedoms. In fact, conservative states tend to do better on economic freedom than liberal states, but liberal states tend to do slightly better on personal freedom than conservative states. To investigate causality, the authors look at how four-year changes in Republican voting in presidential elections correlate with subsequent changes in freedom. It turns out that growing Republican partisanship, as seen in states such as West Virginia, does correlate with subsequent growth in freedom, but the effect is small in the short run.

The authors also construct an index of freedom from cronyism that incorporates entry and price regulations. It turns out that this component of the freedom index correlates not with partisanship but positively with number of legislators per lobbyist and negatively with corruption perceptions. Of course, causality cannot necessarily be inferred from these correlations: it could be that more lobbying stimulates cronyism or that cronyism provokes lobbying.

Freedom also appears to have desirable consequences for growth and migration.

Americans tend to vote with their feet for freedom by moving from less free to freer states, even after controlling for other factors such as climate and amenities as a vacation destination. The results are particularly strong when states are compared with their neighbors. Being freer than neighboring states confers an especially large benefit in net in-migration. The results hold up within both the pre–Great Recession period and the post–Great Recession period, although there is some evidence that people have been looking less for personal freedom and more for economic freedom since the Great Recession than they were during the 2000s.

As for growth, personal freedom has no effect (as expected) but economic freedom has a positive effect both before and after the Great Recession. But while regulatory policy was more important (compared to fiscal policy) for growth before the recession, fiscal policy has become more important since.

III. SIZING UP THE CAROLINAS

The standard version of the index excludes abortion policy altogether. On that version of the index, South Carolina is twenty-ninth in freedom nationally in 2016, but with an above-average score of 0.032, and North Carolina is eighteenth with a score of 0.138. On economic freedom, the two states are quite close, with scores of 0.027 (twenty-third) for North Carolina and 0.018 (twenty-fifth) for South Carolina, although South Carolina is well ahead on regulatory policy (0.014/ninth versus −0.034/twenty-first) and North Carolina is better on fiscal policy (0.060/twenty-fifth versus 0.004/thirty-sixth). It is on personal freedom that North Carolina surges ahead, scoring 0.111 and ranking seventeenth nationally against 0.014 and forty-first nationally for South Carolina.

Still, the difference in personal freedom is hardly enormous. The study's statistical models of migration predict that this difference is associated with an increase in the net domestic-migration rate of between 0.4 and 1.5 percentage points of initial state population over the next seven to nine years. In other words, our best guess is that if South Carolina had North Carolina's level of personal freedom, it would increase migration from other states over the next few years by about a percentage point of its current population.

The study also provides alternative indices that include abortion policies: a prolife index that counts state restrictions on abortion as pro freedom, a moderate-prochoice index that counts state subsidies for abortion and regulations on early-term (but not late-term) abortions as anti freedom, and a strong-prochoice index that counts all regulations on abortion as anti freedom. Because the weights of abortion policies are so large under a prolife interpretation of abortion policy, the standard overall-freedom index changes noticeably when converted to a prolife overall-freedom index. On that interpretation, North Carolina is eighteenth nationally on freedom (score of 0.23) and South Carolina is twenty-fifth (0.13). In the moderate-prochoice freedom index, North Carolina is seventeenth and South Carolina is twenty-ninth. In the strong-prochoice freedom index, North Carolina is eighteenth and South Carolina is twenty-ninth.

Turning our attention to the freedom-from-cronyism index, North Carolina is the thirty-seventh-least cronyist and South Carolina is thirty-eighth. Thus, these two states tend to have more price and entry regulations than most other states.

A couple questions suggest themselves for citizens and officials in the Carolinas. Why does South Carolina do so poorly on fiscal policy and personal freedom but so well on regulatory policy? Why do both states do poorly on freedom from cronyism?

On fiscal policy, North Carolina's advantages have largely to do with government consumption, employment, and debt. While North Carolina has slightly higher state plus local taxes than South Carolina, government consumption and investment is just 11.3 percent of personal income in North Carolina, compared to 12.8 percent in South Carolina, public employment is 13.3 percent of private employment in the northern neighbor compared to 14.1 percent in the southern, and, most strikingly, public debt as a share of personal income is nearly twice as high in South Carolina: 24.3 percent versus 12.9 percent.

On regulatory policy, South Carolina tends to be slightly better than North Carolina on many policies, but its core advantages lie in land-use and energy freedom and court systems. South Carolina has banned private-to-private eminent domain transfers in its constitution, but North Carolina has undertaken only token eminent domain reform. North Carolina has a renewable portfolio standard (mandatory renewable-energy purchases for power companies, a policy that drives up rates), while South Carolina does not. South Carolina also tends to have less restrictive local zoning than North Carolina, although both states score well on this measure by national standards.

On court systems, North Carolina tends to get slightly better marks in business surveys, but South Carolina has done more in a policy sense, having an appointment process for the state supreme court instead of partisan elections and having abolished joint and several liability.

However, both states do not do so well on regulatory policies that feed into the freedom-from-cronyism index. South Carolina has a general sales-below-cost law that is intended to keep retail prices high. North Carolina has such a law for gasoline purchases. Both states regulate property- and casualty-insurance rates strictly (North more than South Carolina). Both require certificates of need for new medical facilities. Both try to ban "price gouging," and both are subpar on occupational freedom: neither allows nurse practitioners to run an independent practice, and both have relatively high numbers of licensed occupations.

On personal freedom, both states are relatively free on guns, about average on alcohol, below average on cannabis, and well below average on gambling. Both states are more liberal than average on tobacco policies: smoking bans aren't comprehensive, and cigarette taxes are not as high as in most other states. But where North Carolina outclasses South Carolina is on incarceration and arrests and on educational freedom. Crime-adjusted incarceration rates are only average in North Carolina, but they are above average in South Carolina. Drug arrests as a percentage of monthly self-reported drug users are well below average in North Carolina but well above average in South Carolina. For a conservative state, South Carolina has done surprisingly little to advance school choice. North Carolina has a broad voucher program, while South Carolina has only a narrow tax credit program. South Carolina's home school regulations are also substantially stricter than North Carolina's.

IV. CONCLUSIONS AND IMPLICATIONS

If citizens and officials are interested in creating a more favorable environment for freedom in the Carolinas, the route forward is clear. Both states could do a substantial amount to lift price and entry restrictions. South Carolina could do quite a bit more to restrain government debt, reform criminal justice, and promote school choice. North Carolina could move to a nominate-and-confirm model for the state supreme court, trim state-level taxes, and reform eminent domain.

North and South Carolina have grown significantly over the last two decades, a fact that reflects not only their mild winter climates but a policy climate that is relatively favorable to job growth, including high levels of labor-market and land-use freedom and average tax burdens. Still, both states could do much better. North Carolina's annualized real personal-income growth between 2008 and 2015 was just 1.2 percent, below the national average. South Carolina's was 2.3 percent, among the best in the country, but it is also starting from a lower base than North Carolina. Florida, the number one state on freedom in the study, provides a possible model for the Carolinas across a range of policies, though it has its own problem areas. Florida had the fourth-highest income-growth rate in the South over the entire

2000–2015 period (only the energy-rich states of Texas and Oklahoma and the home of Walmart, Arkansas, were higher).

The study also has implications for how we think about the division of powers between the federal government and the states. Over the 2000–2016 period, various policies have been federalized: the autonomy of states has declined. Some of these policies were federalized by court decision, such as same-sex marriage, sodomy laws, and gun bans. In every case in which a policy previously residing with state governments was federalized by judicial decision, the net effect was pro freedom.

However, all these profreedom court rulings were swamped by a single, major federalization of state economic policy: the Patient Protection and Affordable Care Act (PPACA). The PPACA replaced the diversity of state-level health-insurance regulations with a single, federal standard that essentially adopted the least-free health-insurance regime then extant in any state, that of Massachusetts. As a result, measured freedom declined substantially.

The twenty-first-century record therefore encourages us to infer that reducing state autonomy through act of Congress tends to reduce freedom, while reducing state autonomy through judicial review tends to increase freedom. Partisans of freedom therefore benefit from an engaged judicial branch that sharply monitors congressional encroachments on the constitutional sovereignty of states while also vindicating constitutionally protected rights against governments at all levels.

In general, status quo US federalism privileges progressive policies and disadvantages conservatives. Constitutional constraints on the economic policy powers of the federal government have been shredded, and federal grants and regulations on the federal government's own contractors often limit the effective autonomy of state governments. Meanwhile, the federal courts strike down the moralistic legislation of conservative states. The upshot of all this is a mixed bag for freedom, but probably more negative than positive. Still, centralization has not proceeded so far that states cannot reap the rewards of policies that respect individual liberty.

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NOTES AND COMMENTARY

ECONOMIC CALCULATION IN THE SOCIALIST COMMONWEALTH: APPLYING HUNDRED-YEAR-OLD WISDOM

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> *Where there is no free market, there is no pricing mechanism; without a pricing mechanism, there is no economic calculation.*
> —Mises (1920, p. 28)

> *As soon as one gives up the conception of a freely established monetary price for goods of a higher order, rational production becomes completely impossible.*
> —Mises (1920, p. 20)

With these sentences, in an essay written one hundred years ago, Ludwig von Mises challenged central planners and started the economic calculation debate while providing wisdom with relevance today. In his 1920 essay, Mises argued that central planning was unworkable and could not achieve the utopian ends sought by governmental leaders. The lesson for today is that the less we use market-determined prices, the less efficient we will be in allocating scarce resources.

I. MISES'S CHALLENGE

When Marx died in 1883, the second and third volumes of his *Capital* were left incomplete. These volumes were supposed to explain how a communist system would actually operate. Marxists were left with only a broad outline. Mises's claim was that when one tries to solve, in detail, the problem of how a centrally planned economic system would operate, not only is it impossible to succeed, it is impossible to even set up a framework that leads to a solution.[1]

When Mises begins his analysis, the very first sentence draws attention to the definitional difference between a market economy and a centrally planned society: "Under socialism all of the means of production are the property of the community"

1. While it is true that an economist cannot perfectly model how a free market actually operates, the economist can explain the mechanics of the system of knowledge that flows through prices, which in turn facilitates, the coordination of helps coordinate activities of profit-seeking entrepreneurs with consumers' activities.

(Mises 1920, p. 3). The collective nature of the means of production is what stymies the ability of decision makers to rationally allocate scarce productive resources. The core question is how a socialist system could be implemented at the day-to-day level, with the structure of the central authority being of secondary importance. The results of Mises's analysis do not depend on whether the decisions are made by a single dictator, a small committee, or a large bureaucracy. Among socialist thinkers, there was a split in which one side argued that private ownership of consumer goods was to be allowed and the other side said all private property was to be prohibited. Mises showed that focusing on final goods and services sidesteps the fundamental problem of production; his analysis accounts for all of these scenarios. The crux of the problem concerns production, not consumption.[2]

II. THE LYNCHPIN: CALCULATION

All value is subjective. With every exchange, each trading party compares two valuations. If the benefits outweigh the costs, the trade will occur. If they don't, then one side simply walks away. A double coincidence of wants must exist for a trade to occur.

In a world of barter, only a direct exchange can occur. Economic calculation is the direct comparison of the two goods to be traded. However, barter has extremely high transaction costs. With such high costs, a barter system's supply chain cannot become very complex.

Fortunately, the market system has evolved to reduce transaction costs by using a system of indirect exchange—one that uses money. Money is a medium of exchange connecting one person's production with everyone else's production. Transaction costs are reduced to finding people who will trade money for goods. When an economy switches from a barter economy to a money economy, the problem of economic calculation also shifts. No longer does a person directly compare the value of one good with another; instead the person compares the value of the item with the value of money. With this shift, we switch from economic calculation to monetary calculation. Every time a manager looks at profits and losses, he is performing monetary calculation.

Mises argues that "monetary calculation only has meaning within the sphere of economic organization. It is a system whereby the rules of economics may be applied

2. Lange's (1938, p. 87) reply to Mises argued that an equilibrium could be achieved through a system of trial and error and that it could extend to producer's-goods "markets." However, Lange was assuming that output is a predetermined objective. This trial-and-error method simply states that accounting prices can be adjusted to surpluses and shortages in these producer's-goods markets. As we shall see below, it is not simply a question of making more or less of a good, such as steel. The questions to be addressed are of a different type, such as "What kind of steel should be made?" and "What should be most economically efficient use of a particular resource?"

in the disposition of economic goods" (Mises 1920, pp. 15–16). Monetary calculation has limits in that it cannot be applied to noneconomic activity. In fact, Mises extends the limitation of monetary calculation even further: "Any extension of the sphere of monetary calculation causes misunderstanding. It cannot be regarded as constituting a kind of yardstick for the valuation of goods, and cannot be so treated in historical investigations into the development of social relationships; it cannot be used as a criterion of national wealth and income, nor as a means of gauging the value of goods which stand outside the sphere of exchange" (Mises 1920, p. 16).

The limitation of monetary calculation stems from the fact that each person values money differently. There is no objective value—even for the same dollar. It is the difference in valuation that prevents us from concluding that markets allocate resources to their highest-valued use (Cordato 2000). The implication is that monetary calculation is an imperfect substitute for economic calculation. Despite this difference, Mises argues that "monetary calculation fulfills all of the requirements of economic calculation" (Mises 1920, p. 16). Thus, while not a perfect substitute for economic calculation, monetary calculation is an adequate proxy.

Monetary calculation allows us to extend judgments of value to higher-order goods, allowing us to compare projects that extend across time. The feedback-and-adjustment process is not confined to the single stage of consumer goods. Profit and loss permeate the entire system, which allows entrepreneurs to compare net present values across a series of dissimilar business proposals.

All economic actors engage in monetary calculation when choosing to produce or consume. The basic tool of monetary calculation is the price. Entrepreneurs' comparison of prices allows them to calculate whether the reward of a project justifies the risk. The use of prices then allows revenue to be recorded and compared to expenses. The feedback mechanism of profit and loss guides entrepreneurs toward equilibria. While there is error in the system, the error will be confined within narrow limits (Mises 1920, p. 27). If an entrepreneur fails to adjust to the changing economic conditions, the business fails and its capital shifts to more capable hands.

Prices communicate knowledge. For prices to convey accurate information to market participants, they must be freely established. If prices were simply assigned by a single person, then these assigned prices would be completely arbitrary and have no meaningful economic content. Without the free interplay of supply and demand, there is no economic information worth using. When we recognize that tastes and preferences are continuously changing and the availability of resources is in constant flux, it is clear that any coordination system must be dynamic. In a dynamic price system, we are continually able to test whether one's actions integrate and coordinate with everyone else's.

III. CENTRAL PLANNERS CANNOT CALCULATE

In a centrally planned system, all the means of production are "owned" by the community. The decision makers do not own the resources that they direct. Without direct, private ownership, opportunity costs are not included in the decision-making process. The manager of the apple orchard does not consider the opportunity cost of the resources employed. Since the workers do not own their labor, the opportunity costs of their labor are never factored into anyone's calculation. In simple economic terms, there are no meaningful supply curves in centrally planned economies. Without supply curves, there are no prices. Without prices, there can be no monetary calculation. Consequently, the system depends upon direct economic calculation. However, as shown above, direct economic calculation is only possible in the very narrow range of instances of barter in which only two goods are directly traded. So a complex economic order is impossible in a centrally planned society, as there is no guiding mechanism to help make decisions and no feedback mechanism to determine whether the decisions were any good.

To be economically successful, every society must solve the problem of calculation, however no objective technical solutions or objective valuations exist. Determining what is the most economically efficient is not the same as determining what is most technically efficient. Economic efficiencies focus on comparing relative scarcities. Determining the scarcity of something depends upon the two factors of availability and desirability—supply and demand. Without the free interplay of supply and demand, there is no method by which the relative scarcity of goods and services can be established.

Even if we were to assume the government could determine the optimal output of final goods, this would not yield a solution as to how to produce those goods. Suppose that a bridge is to be built. Bridges can be made of out wood, stone, concrete, steel, titanium, or any combination of these resources. Which resources are better used in other projects? Which combination of resources is optimal for building this particular bridge? In the market system, the solution is clear: use the lowest-cost combination of resources that can do the job. The use of any more resources is wasteful, and using any fewer will lead to a collapsed bridge. Furthermore, the market is able to take a further step and answer the question of whether the bridge should be built at all. Central planners simply do not have the tool of monetary calculation at their disposal.

IV. APPLICATION TO NORTH CAROLINA TODAY

In North Carolina, the governor decreed through Executive Order 121[3] that all nonessential businesses must close. Section 2C listed which industries were essential. Any not on that list were deemed nonessential. The problem is that there are no economic tools that can the government can use to determine what is essential.

The North Carolina legislature has adopted resolutions to combat the COVID-19 crisis. House Bill 1043 contained a laundry list of spending items. It appropriates $50 million to purchase medical equipment, $125 million to go to the Golden Leaf Foundation for loans to small companies, $300 million to go to the North Carolina Department of Transportation, $150 million to go to local governments, $20 million to go to other state agencies, and so on (Marchello and Travis 2020). Each choice is noneconomic. Why is $50 million going toward medical equipment and not $49 or $51 million? Why is Golden Leaf to loan money to businesses with fewer than 100 employees? Why not fewer than 99 or 101 employees? The point is that in each instance the choice was capricious. Politicians in Raleigh, North Carolina, or Washington, DC, are not different from any central planner deciding how many tractors to produce in a quarter or how many workers to allocate to collective farms.

There is little doubt that more resources to fight COVID-19 are needed. However, political decisions avoid the specific question of how much we should produce. On March 27, 2020, President Trump responded to a call for more ventilators. He used his executive authority under the Defense Production Act to order General Motors to start producing ventilators (Wayland 2020). In addition to massive waste and mismanagement, there now seem to be more than enough ventilators (McKay 2020). In North Carolina, hospitals currently (as of May 1, 2020) have 3,309 ventilators, of which 693 are in use (NCDHHS 2020). Similar utilization ratios exist for inpatient hospital beds and ICU beds. Bureaucratic planning systems have no initial targeting mechanism nor any feedback mechanism to determine how to allocate resources. If we make too few ventilators, then people unnecessarily die. If we produce too many ventilators, then we are wasting resources and not producing other vital supplies. Decisions are made without knowledge of relative scarcities. Each politician simply says he needs more. No economic or monetary calculation is performed.

Let us be gracious and suppose that we know the correct amount of ventilators to make. The next question that needs to be addressed is: what is the most efficient method of production? Should General Motors be making ventilators? Is it more economically efficient to have several producers make ventilators? Mises's article tells

3. See NC Exec. Order No. 121 (March 27, 2020), https://files.nc.gov/governor/documents/files/EO121-Stay-at-Home-Order-3.pdf.

economists to be humble and admit that we simply do not know and that, without a market price system, no one can know.

Of course, once we know how many ventilators should be made and who should make them, the next question is: how should it be made? What is the most efficient mix of labor and capital? What sort of materials should we use? Which types of plastics and metal should we use? Which process for creating parts is best? And so forth.

Finally, there is the greatest unaddressed problem: should we even make ventilators in the first place? This world is one of amazing substitutes. A substitute is not based upon the physical characteristics of a good; it is based upon the function that a good performs. In our economy, a closed-circuit camera is a potential substitute for a helicopter. How? If I want to know what traffic conditions in a city are like, I can fly a helicopter around and look. Or I can set up a system of closed-circuit cameras and link them to an app. If what I seek is knowledge of where traffic congestion is, helicopters and closed-circuit cameras are substitutes. In this world of substitutes, are there other ways that we could help people besides using ventilators? Are there other treatments that achieve the same effect but do so in radically different ways? Such questions need to be answered to have an efficient economic system. However, not only are these questions unanswered, they are never even brought up for discussion. While describing how a spontaneous order could solve a specific crisis, such as COVID-19, is impossible, it is not hard to demonstrate that the Centers for Disease Control and Prevention and the Food and Drug Administration hindered testing and worsened the crisis (Bailey et al. 2020).

V. CONCLUSION

The Soviet Union persisted for seventy-four years because it was an island of socialism in a sea of markets. It was able to cheat by using Western prices to plan its economy. It had limited success.[4] Mises pointed out that the problem in a centrally planned economy is its inability to use monetary calculation. When monetary calculation is not available, direct economic calculation is necessary. However, Mises's essay demonstrates that it is impossible for a complex economic system to use direct economic calculation. Thus, Mises was able to demonstrate that a centrally planned economic system is impossible, even on paper.

The lesson for economists today is that economic calculation is no less important today than it was one hundred years ago. Without private property in the means of

4. Maltsev (2009) argues that the Soviet economy was only 4 percent of the size of the US economy.

production, there are no supply curves. Without supply curves, there are no means by which prices can be generated. Without prices, there is no accounting mechanism to check monetary calculation. Without monetary calculation, there is no way to gauge the relative scarcity of resources. Without knowing the relative scarcity of resources, we cannot rationally allocate scarce resources among competing future ends. The conclusion is that when we turn to government to solve crises, we will inevitably misallocate and waste resources.

The single most important tool at our disposal is the price system. When we allow prices to do their jobs and accurately reflect relative scarcities, entrepreneurs have the greatest chance at solving our economic crises.

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