

**Creative Capacity in a Slave Economy:  
Invention and Innovation in Southern Cities before the Civil War**

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In his 1854, book aptly entitled *Industry and Art*, journalist Horace Greeley reviewed New York City's Exhibition of All Nation, a world's fair that followed in the footsteps of London's Great Exhibition. In his review of the opening ceremony, Greeley expressed dismay that only politicians, diplomats, and military officers had speaking roles. "No Artist was there. No Mechanic. No Laborer," he complained. Whereas the country celebrated "cassocks and soldier-cloths" and "the political fraud that prates of this or that speech in Congress," the real heroes of the Republic were the "Inventor, Painter, Composer, or Poet." Greeley invoked the word "genius" to describe heroic inventors and artists merged science, engineering and art for a new industrial age. Greeley, in fact, defined progress as the use of mechanization to create mass markets for artistic output. Through both "our discoveries in science" and the "the enormous increase of mechanical power consequent upon mechanical invention," Greeley declared that "we have democratized the means and appliance of a higher life; that we have spread, far and wide, the civilizing influence of Art."<sup>1</sup> Important critics took issue with union of art and industry, but it was commonplace for observers, in the spirit of Greeley, to celebrate the spread of art through relatively inexpensive manufactured goods. In 1848, *Godey's Lady's Book*, a periodical especially popular with middle-class consumers, noted that art not only consisted of "the composition of a fine picture" or "a noble piece of sculpture," but could also be found in everyday items "such as a beautiful piece of cabinet work, a delicate and tasteful production of the loom, in a set of porcelain, or in a common stove."<sup>2</sup>

Greeley's celebration of artistic, scientific, and mechanical "genius" hinted at the modern concept of creativity. Historians and economists have generally eschewed using creativity as an analytical framework, but it a useful concept for understanding how innovations in art, science, and engineering become linked in capitalist economies. Creativity can be defined as the ability to imagine a different kind of future, whether it is a painter working with different brush techniques, an entrepreneur developing a profitable new business, a scientist making an important discovery, or an inventor solving a difficult technical problem. To be considered creative, acts of imagination must be novel and either useful or aesthetically pleasing. The focus on usefulness and aesthetics gives creativity a critical social and cultural dimension. A new musical composition, however

novel, is not necessarily creative if it offends the ears of its listeners; an invention, however original, is not creative if it fails to solve a problem or make some improvement. A key issue, of course, is who decides what is original, what is useful, and what is pleasing. In capitalist economies, markets typically determine what is useful and what is pleasing among new and novel products and services. Capitalism as a system depends on entrepreneurs and businesses convert creativity into commodities they hope to sell, rent, or license. As a shorthand, I label the commodification of creativity as “economic creativity” to distinguish it from the art, music, and other forms of creativity inherent in all societies and cultures. Economic creativity is a crucial capitalism foster an economic environment of constant innovation embodied in Schumpeter’s famous phrase “creative destruction.”<sup>3</sup> Even in capitalist economies, however, levels of creativity greatly vary across regions, which brings us back to creativity in the nineteenth-century United States. Scholars now believe that U.S. slavery was capitalistic and modern, but was it also consistent with widespread economic creativity that Greeley celebrated? Could differing levels of economic creativity contribute to regional political and cultural divides?

To answer these questions, I compare economic creativity in the 1850s in slave cities and free-labor cities. Scholars have long identified cities as robust generators of economic creativity. Cities act as magnets for particularly talented and creative individuals can collaborate with like-minded innovators, readily reach large and diverse markets, find specialized suppliers and skilled workers, and secure funding from banks and other financial institutions.<sup>4</sup> Slave states, of course, had a substantially smaller urban population than free-labor states. A significant number of slave-state residents, however, lived in urban counties (which I define as a county with a city of at least 12,000 residents). Slave states, in fact, had more urban resident (1.2 million) than the Midwest (938,000). Of the twelve largest cities in 1860, four were slave cities: Baltimore (ranked 4<sup>th</sup>), New Orleans (6<sup>th</sup>), St. Louis (7<sup>th</sup>), and Louisville (12<sup>th</sup>).<sup>5</sup> To compare creativity in these slave cities with free-labor cities, I examine patenting rates, exhibits at the New York City Exhibition of All Nations, and the location of particularly creative industries that integrated mechanization and advanced technology with a significant element of fashion, art, and design. Each individual measure has potential flaws, but taken together they give a good sense of general levels of economic creativity.

The evidence, I argue, is unambiguous: slavery impeded widespread creativity in urban environments. Slave cities had far lower patenting rates than free-labor cities, even after taking account of city size and level of manufacturing output. Patents did not account for all inventions and innovations, but at the Exhibition of All Nations slave cities still had fewer exhibits per capita than midwestern cities. Slave cities also trailed significantly in particularly creative industries which depended upon both engineering and artistic creativity, which included fast-growing industries such as publishing and musical instruments. Slavery, it should be emphasized, impeded creativity even in slave cities in the border states of Maryland, Delaware, and Missouri, where slavery was relatively weak. That slavery impeded creativity in the slave cities of the border states suggests a crucial link between education and creativity. The border states differed greatly from other slave states in terms of climate, crops, manufacturing, and urbanization, but all slave states had low rates of schooling and high rates of illiteracy.

The historiographical implications of the creativity gap are potentially important. Scholars have invested considerable energy into understanding why the slave states generated less urbanization and less manufacturing than free-labor cities. The creativity gap suggests even if slave states had more cities and more industry, they would have been unable to generate the same levels of economic creativity as the North. The pre-civil war decades help explain why economic creativity in the former slave states still lagged well behind the rest of the nation well into the twentieth century, even though these states experienced a dramatic increase in urbanization and industrialization. The persistence of the creativity gap helps account for the South's long-term reliance on agriculture and low-wage industries. Although some historians have argued that northern critics of slavery failed to understand the modern, capitalist nature of the institution, it turns out that the critics were largely correct. They had good reason for believing that the expansion of slavery endangered the creative economy of the free states. In more speculative fashion, I suggest that the creativity gap also helps historians understand cultural and political differences between free-labor and slave-labor states over issues such as free speech. Northerners, for example, increasingly resented southern efforts to regulate free speech because they identified the unimpeded flow of information as a key part of economic creativity.

## **Invention and Innovation in Slave Cities**

There are fewer better examples of the commodification of creativity than a patent. At root, a patent is a property right to a new technology. In exchange for disseminating information about an invention, the government grants patentees a monopoly for its use for a specified period. Patents thus turn creativity into a commodity that could be bought, sold, licensed, or used as its holder saw fit. In the nineteenth century, the U.S. patent system was open, but not so open that applicants could easily submit frivolous applications for pre-existing inventions. The federal government charged relatively modest filing fee of \$30 so that many middling artisans and mechanics could patent new inventions, but after 1836 also required that applicants submitted a description, engraving and model to prove the originality of their invention. A network of lawyers and patent agencies stood ready to broker agreements to sell or license patents, which allowed inventors to more easily sell or license their work to others.<sup>6</sup> Patenting also facilitated the dissemination of technical information because inventors had to disclose precisely how their inventions worked. The Patent Office regularly published detailed reports on new patents, while patent agencies (eager to encourage new applications) published periodicals such as *Scientific American*, *American Artisan*, and *American Inventor* that were filled with information about new patents.<sup>7</sup> In this respect, a patent was a speech act as well as a commodity, thus facilitating the flow of technical information to encourage more invention and innovation. Patents themselves represented the commodification of engineering and scientific imagination, but the inclusion of detailed engravings and models gave them an artistic element as well. The U.S. Patent Office, in fact, showcased thousands of models in the National Gallery in a way not dissimilar to the display of paintings, sculptures, and other pieces of art.<sup>8</sup>

Patents were clearly an important element of nineteenth-century U.S. industrialization. Inventors patented across a range of industries, including textiles, iron, sewing machines, agricultural implements, railroads, machine tools, printing, and musical instruments. Entrepreneurs increasingly paid to purchase or license patents, suggesting that they had significant economic value. Before the Civil War, Americans patented nearly 41,000 inventions, making the United States a world leader. Patenting rates accelerated significantly in the 1850s. In 1847, the patent office granted just under 500 patents; in 1860, it granted more than 4,300

patents.<sup>9</sup> The five-year period from 1856 to 1860, in fact, accounted for 42 percent of all patents issued before the Civil War. The dramatic acceleration occurred despite the Panic of 1857 and the political instability of 1860 election, events which otherwise might have led to a drop in patenting rates. The patenting boom of the late 1850s, occurring conveniently close to 1860 census, gives an excellent snapshot of invention before the Civil War. I used Harvard University's HistPat database, which uses digitized records to reconstruct the location of every patent issued between 1790 and 1875, to calculate patenting rates for every county that contained a city with at least 12,000 residents.<sup>10</sup> The choice to focus on cities with 12,000 or more residents is seemingly arbitrary, but it provides a diverse set of 65 urban counties from all regions of the country, while avoiding a large number of small cities (primarily located in the northeast) in which a relatively small number of patents could dramatically alter patenting rates. The 65 urban counties accounted for approximately 10,000 patents, or 59 percent of the patents between 1856 and 1860 and a quarter of all patents issued before the Civil War.

Slave cities, as Table One shows, lagged well behind their northeastern and midwestern peers during the patent surge of the late 1850s. Table One shows that patenting rates were especially high in large metropolitan areas (defined as urban counties with a city of at least 100,000). Cities such as New York City, Boston, and Philadelphia, which served as major manufacturing and distribution centers, also offered plentiful opportunities for creative collaboration and partnership. Slave cities could not compete with these inventive dynamos. Patenting rates in the three largest slave cities—Baltimore, St. Louis, New Orleans—not only fell well below the largest northeastern metropolitan areas, but were also significantly behind the midwestern metropolitan areas of Cincinnati and Chicago. Smaller southern cities fared somewhat better when compared to smaller midwestern cities. Southern industrial centers such as Richmond, Virginia, and Augusta, Georgia generated networks of manufacturers and engineers that generated notable levels of creative activity. These smaller slave cities, though, tended to be far more established than the newer cities of the Midwest, and typically had much better access to regional, national, and international markets. Boosters who considered Richmond “the Lowell of the South” could take cold comfort in a patenting rate that was more comparable to Dubuque, Iowa or Indianapolis, Indiana than the highly inventive cities of New England.<sup>11</sup> Some of the slave cities included in

Table One were in close proximity to free-labor states. Baltimore was one hundred miles from Philadelphia; Chicago and St. Louis waged a fierce rivalry for midwestern commerce; Louisville had important connections to neighboring New Albany, Indiana and nearby Indianapolis; Wilmington, Delaware a short trip from Philadelphia and only 75 miles from Lancaster, Pennsylvania. In every single case, the free labor cities had higher patenting rates than the nearby slave cities. Overall, patenting rates in northeastern cities were more than two times higher than slave cities, while patenting rates in the midwestern cities were 63 percent higher than slave cities.

Could some factor other than slavery account for the differential patenting rates? The presence of more manufacturing in midwestern and northern cities, in particular, might account for the regional variations in patenting rates. Since patents mostly represented the application of engineering and scientific creativity applied to the practical problems of manufacturing, one could argue that North's higher patenting rates simply represented high levels of industrialization. Regression analysis, which allows us to control for key economic and geographic variables, confirms that there was indeed a strong association between manufacturing output and patenting rates (Table 2). Causality between patenting and manufacturing output probably ran in both directions: more manufacturing led to more patenting, but a highly inventive city was likely to generate more manufacturing. Even after taking differential levels of manufacturing into account—as well as variables such as city size and how recently a city had been founded—slavery nevertheless remains large and statistically significant factor. The presence of slavery, the regressions indicate, lowered inventive activity as much 120 patents per million, which was larger than the entire gap in per capita patenting between slave cities and midwestern cities. The regressions also confirm that the degree of slavery did not matter. Whereas the coefficient of a dummy variable indicating the presence of slavery was large and positive, when the percentage of enslaved in a city is used instead, it turns out to be statistically insignificant.

Some inventors, of course, decided not to file patents for innovations and improvements. Inventors might believe that even a useful innovation did not justify the time and cost of a patent application, or that the public disclosure of new discovery might reveal too much proprietary information. The chemical industry, for

example, took out few patents in the nineteenth century, with most firms deciding that secrecy was the best business strategy. The world's fairs held throughout the nineteenth century highlighted how economic creativity extended well beyond patented inventions. At London's Great Exhibition in 1851, for example, only 84 out of 550 U.S. exhibits (15.3 percent) were patented.<sup>12</sup> On the other hand, patenting rates typically served as good proxies for other types of invention and innovation. Many of the same places that had high patenting rates—particularly New England and the large northeastern cities—tended to have more unpatented exhibits at industrial fairs such as the London's Great Exhibition.<sup>13</sup> Patenting rates, in other words, incompletely measure inventive activity, but were still highly correlated with other types of inventions and innovation.

The possibility nevertheless remains that slave cities specialized in inventions and innovations that would not show up in patent data. Data from exhibit catalogue of the New York Exhibition of All Nations shows that was not the case. More than 2,000 exhibitors from across the United States displayed samples, models, art, and technology in 31 different categories.<sup>14</sup> Firms and entrepreneurs had a number of motivations to present an exhibit, which could be a time-consuming and costly undertaking. More than a million people attended the exhibition, making it an excellent advertising opportunity, while an entrepreneur could meet agents, merchants, and manufacturers interested in a particular product, design, or technology. Most exhibitors came from New York City and nearby northeastern states, which made sense given their close proximity and large manufacturing sectors. Some firms of the largest slave cities and midwestern cities, however, also exhibited their wares. Residents of Chicago and Cincinnati, the two midwestern metropolitan areas, collectively had 188 exhibits per million persons, while residents of the slave cities of Baltimore, New Orleans, and St. Louis had a total 131 exhibits per million persons. New Orleans, whose residents sent only six exhibits, was especially low given the city's size and close business and financial ties to New York City via the cotton trade. Baltimore's number of per capita exhibitions (189 per million) was far better than New Orleans, yet it significantly trailed nearby Philadelphia, which had 318 exhibits per million.<sup>15</sup> Many of the Philadelphia exhibits revolved around highly creative industries such as publishing, musical instruments, medical equipment, and decorative arts. As a whole, the New York exhibit, in fact, exemplified the integration of art and industry.



In addition to hundreds of exhibits of advanced technologies—ranging from steam engines to printing presses to agricultural implements-- visitors could view an impressive collection of sculptures and paintings, as well as finely crafted porcelain, silverware, and glassware. Mechanization, technology and art freely mixed, tied together through a common thread of creativity.

### **Locating the “Parlor Industrial Complex”**

Patents frequently represented the application of engineering and scientific creativity to specific economic and technological problems. In many cases, nineteenth-century industrialization depended on different type of creativity, one expressed through fashion, art, and design. Some industries, of course, required little artistic creativity. Increasing the productivity of processing industries—more efficiently turning wheat into grain or trees into lumber—was an engineering challenge rather than an artistic one. For many capital goods—such as steam engines and machine tools, railroad locomotives—aesthetics were clearly a secondary consideration. On the other hand, a range of other goods incorporated fashion, art, and design as a crucial element of production. The rise of middle-class parlor culture highlighted conjunction of industrialization, consumer culture, and artistic creativity. As the anointed keepers of domestic life, middle-class women typically choose how to furnish and decorate the parlor, which served as a critical conduit between the outside world and domestic life. Through the choice of carpet, drapes, wallpaper, furniture, art, images, musical instruments, and decorative objects, middle-class women could use the parlor to signal refinement and respectability, while simultaneously projecting their own identity and values aesthetic choices in regards to design, color, and layout.<sup>16</sup>

The piano embodied interdisciplinary creativity of what might be called the “parlor industrial complex.” A combination of lumber yard, iron works, and craft workshop, piano factories embodied nineteenth-century industrialization. Piano factories sometimes took up an entire city block in buildings with multiple stories; observers believed that the Chickering piano factory in Boston, for example, was the second largest building in the United States.<sup>17</sup> Such factories used highly advanced machinery, including large steam engines that heated

lumber sheds to season the wood, precision drills that bore hundreds of holes into each piano's iron frame, and sophisticated saws and planners that could carefully and efficiently cut wood veneers. In the midst of this profusion of industrial machinery, skilled craft workers made highly polished steel wire, which they carefully connected to the ivory keys and the piano's hammers. To ensure a high-quality sound, the heads of the hammers themselves had to be carefully constructed from carefully prepared basswood and covered with specialty felt or buckskin. Putting together the 6,000 different parts in each piano, in the words of one journalist, required "great skill, long experience, and thorough workmanship."<sup>18</sup> Artistry was at a premium, as pianos had to have both a precise sound and an attractive design. Despite the demanding artistic requirements for piano production, manufacturers succeeded in mass-producing pianos at increasingly lower prices, exemplifying how capitalism turned creativity into mass-marketed commodities. In 1859, popular northern periodicals advertised pianos for \$150, well within reach for many middle-class families.<sup>19</sup>

Perhaps the industry that relied most on the combination of engineering and artistic creativity—and the one that had the greatest cultural salience—was publishing and printing. Writing and editing are intellectual and artistic activities, but printed matter is a surprisingly complex physical commodity that northerners learned to produce on a mass scale. New machines for producing type meant that foundries in the 1840s could produce 6,000 pieces of type in an hour, whereas traditional hand casting might produce 4,000 pieces per day. The development of stereotype and electrotype plates gave printers more choices in the use of fonts and symbols, and allowed them to more easily store the plates of books, pamphlets, and other printed material for future print runs. By the late 1850s, new typesetting machines made it easier to compose type and printing plates. Inventors developed rotary systems and applied steam power to dramatically increase the speed of the printing press. Papermakers similarly embraced mechanization, which resulted in a rapid drop in price and a significant increase in quality and uniformity. The engineering creativity evident in the publishing industry helped fuel the growth of an expansive print culture. The number of newspapers and periodicals increased dramatically, while book prices plummeted so that inexpensive paperbacks sold for as little as 12 cents.<sup>20</sup> Books were still be

expensive for working class readers, but numerous circulating libraries located in northern cities rented books for a few cents per week.<sup>21</sup>

As print matter become less expensive and more available, it simultaneously contained far more illustrations of consistently higher quality. First used in the United States 1819, lithography rapidly grew in popularity.<sup>22</sup> At the same time, engraving became increasingly viewed as an art form of its own, with publishers hiring particularly skilled engravers to convert portraits, paintings, and photographs into plates. Even serious artists experimented with engraving and photography as means of reaching large audiences. Lithography—the application of oils and water to permeable limestone that served as a printing plate—allowed publishers to provide striking color illustrations as well. By the 1840s, richly illustrated periodicals such as *Godey's Lady's Book* and *Graham's Lady's and Gentleman's Magazine* (both published in Philadelphia) achieved circulations of more than 100,000 subscriber. Competitors in New York and Boston soon offered illustrated periodicals for as little as \$1 per year, while firms such as Currier and Ives became highly successful selling single-print reproductions.<sup>23</sup> Stand-alone art reprints sold for less than 10 cents per copy. During the Civil War, Charles Kellogg worked as a traveling salesman for his family's lithography firm located in Hartford, Connecticut. Visiting homesteads in the pine barrens of rural New Jersey, he sold hundreds of color lithographs, suggesting that even isolated households had access to inexpensive art and images.<sup>24</sup> In similar fashion, photographic technology rapidly expanded. Daguerreotypes had become so common that in 1861 Frederick Douglass noted that “The smallest town now has its Daguerreian gallery, and even at the crossroads where stands but a solitary blacksmith's shop . . . you will inevitably find the daguerreian gallery.”<sup>25</sup> Images, in short, became an increasingly widespread in everyday life.

The combination of industry, art, and design was an important part of nineteenth-century industrialization. Using the 1860 census, I have identified 47 industries that involved high degrees of interdisciplinary creativity. These industries—including publishing, musical instruments, furniture, ladies clothing, silk goods, calico printing, and various decorative arts—required sophisticated expertise in fashion, art, and design combined with some degree of mechanization for mass production. Many of the individual

industries were quite modest, but taken together they were a significant element of nineteenth-century industrialization. These industries accounted for a total value-added of \$90 million, which far exceeded the combined size of the iron and coal industry. Segments of other industries might have been included if the 1860 manufacturing census had provided more detailed information. Many cotton textile firms, for example, played close attention to fashion trends, but I excluded the industry because many other firms focused on the production of inexpensive and unadorned yarn and cloth. In industries such as men's clothing and boots and shoes, some firms adapted new technologies such as the sewing machine over the 1850s, but much production still took place in households or small shops. The creative industries in Table 3 tended to cluster in large metropolitan areas (defined as cities with more than 100,000 residents), which had deep pools of skilled workers and specialized suppliers as well as superior access to transportation and distribution networks. The nation's major metro areas accounted for 9 percent of the U.S. population in 1860, but 52 percent of the value-added of these creative industries.

These highly creative industries were overwhelmingly located in free-labor cities. As Table 3 shows, per-capita output in highly creative industries in midwestern metropolitan areas was approximately four times higher than the metropolitan slave cities of Baltimore, St. Louis, and New Orleans, while per-capita output in the northeastern metros (Boston, New York/Brooklyn, and Philadelphia) was seven times greater than the slave cities. The free-labor metro areas generally had larger manufacturing sectors than slave cities, but their advantage in particularly creative industries was many times greater. The divide between slave cities and free-labor cities was especially striking in the publishing industry. The five northern metropolitan areas, which accounted for two-thirds of the national publishing industry's output, produced nine times the value-added than the three large slave cities. The slave cities supported just two engraving firms and one lithography firm, employing a total of 14 people. The Brooklyn/New York City area alone was home to 117 such firms, collectively employing more than 700 workers. Northern publishing—bringing together engineering, artistic, and literary creativity—became a significant economic sector with a major cultural impact that was almost entirely lacking in slave cities. Publishing, like other highly creative industries, could foster widespread

invention and innovation. Free-labor states, for example, were home to 79 percent of the nation's scientific newspapers and periodicals (as classified by the 1850 census). The scientific journals in the free states produced 12 times the number of issues than the slave states, suggesting that they had a far larger and more frequent circulation.<sup>26</sup> Proximity to cutting-edge research and publications, one can reasonably surmise, was a significant advantage for northern scientists, engineers, and inventors.

### **Explaining the Creativity Gap**

To explain why slave cities significantly trailed in these different measures of economic creativity, we can consider both demand and supply factors. Demand-side explanations center on impediments that suppressed the demand for creative output of the slave cities. In the North, patenting began to increase in the early nineteenth-century along waterways and transportation improvements, as expanded markets for manufacturers created incentives to invent and innovate.<sup>27</sup> Various demand-side factors limited markets for southern manufacturers, may have undermined the demand for patents and other creative output. The inability of the enslaved to purchase consumer goods on the same scale as whites undermined local demand for manufactured goods that stunted southern industrialization. The southern railroad network, which was oriented toward plantation districts, left large portions of the southern upcountry isolated from slave cities. Wealthy enslavers often purchased imported goods from cotton factors in port cities, further undercutting local demand. The poor soils of the South left large swaths of uncultivated land, which stifled the development of hinterlands that could support urban manufacturing.<sup>28</sup> All of these factors undoubtedly made it more difficult for some slave cities—especially those in the cotton South—to foster a diverse economy and widespread creativity. On the other hand, cities such as St. Louis, Baltimore, and Louisville had substantial free-labor hinterlands, soils and climates similar to nearby free-labor cities, yet still had relatively low levels of economic creativity. The lack of economic creativity in the cities of the border states—all of which had access to regional and national markets—suggests other factors were at work.

Supply-side explanations—which focus on factors that inhibited the number of creative individuals—can help explain the relatively low levels of creativity in the border states. Slavery, of course, largely crushed the creative potential of more than four million Black people. While historians have documented that a few the enslaved contributed to improvements in the cotton gin or engaged in other creative work, for the most part the enslaved had neither the incentive nor the opportunity to invent and innovate. The suppression of creativity among the enslaved, however, does not explain lower levels of economic creativity among the free population in slave cities, and it fails to explain the creativity gap in slave cities (such as those in the border states) where enslaved Blacks constituted a small percentage of the population. All slave states (including the border states), on the other hand, had lower rates of schooling and higher rates of illiteracy than free-labor states, which could have significantly reduced the supply of creative talent to slave cities. In 1850, only 38 percent of free children in the rural South attended school while only 39 percent of free children in southern cities attended school, while 90 percent of children in the rural North and 67 percent of children in northern cities attended school. The relatively low schooling rates in the South reflected low levels of public funding, which necessitated that families pay high rates of tuition (rate bills). Southern families, in fact, paid an average of \$2.51 in tuition per child in public schools, whereas northern families paid an average tuition of 26 cents in tuition per student.<sup>29</sup> If the enslaved are also counted, then only about one in every four southern children attended school in 1850.<sup>30</sup>

The low rates of schooling in slave states resulted in high levels of illiteracy. In 1860, more than 16 percent of free adults in slave states could not read and write, a rate nearly three times higher than free-labor states. There was no significant difference among the slave states. In the four border states of Missouri, Kentucky, Delaware, and Maryland, 14.4 percent of free adults could not read and write.<sup>31</sup> The border states had especially high levels of illiteracy among free blacks, which suggests how racism and discrimination served to undermine the supply of creative talent. The low rates of schooling and high rates of illiteracy were an essentially acute problem for slave cities because location of inventors was highly segmented: most inventors in the slave cities were born in slave states, while most inventors in free-labor cities were born in free-labor states. High rates of illiteracy might have also contributed to the low demand for creative output in the slave states. In

absolute terms, the North contained more than three times the number of literate free adults than the slave states; New York State alone had almost as many literate free adults as the states that would form the Confederacy. Given that high rates of illiteracy effected both the potential supply of creative talent and the demand for creative output, it is not surprising that a state's illiteracy rate performs much like the slavery variable when included in the regressions. A Table 4 shows, the higher the rate of illiteracy in a state, the lower a city's patenting rate when holding constant manufacturing, city size, and year of statehood.

### **The Creativity Gap and the Civil War**

The evident lack of creativity in southern cities has important implications for the way scholars understand nineteenth-century U. S. capitalism. Recent scholarship has emphasized the modern, capitalist nature of southern slavery. Enslavers employed new technologies (including railroads, steamboats, and cotton gins), new biological innovations (such as improved cottonseeds), and sophisticated accounting techniques to increase productivity. Creativity, however, did not extend much beyond the plantations and farms in the slave states. Enslaving capitalists, many historians have noted, often supported more industry and more cities as way of maintaining political power, but not necessarily as a way to increase economic creativity. In 1850, South Carolina enslaver James Henry Hammond urged his fellow South Carolinians to invest more in manufacturing. Hammond worried that a single-minded focus on agriculture for the South was politically and economically unwise. "A people wholly agricultural have ever been, above all others, in all ages, the victims of rapacious tyrants," he warned. Hammond viewed South Carolina's poor whites—who, he argued, ate more cheaply, lived in less expense homes, and used less fuel than British and northern workers—as a readily available pool of cheap labor that would allow local manufacturers to undercut their competitors. Creativity was totally absent in Hammond's vision, as was any thought of the fusion of art, mechanization, and manufacturing. Instead of fostering creativity, South Carolinians could simply import the skilled workers and machinery they needed. "[W]e may draw from any and every quarter of Europe and the North," Hammond asserted, "the full amount and precise kind of skill we may desire, with as much certainty as we could bring, by order, a cask of wine, a bale of woolens."<sup>32</sup> Hammond's vision was prescient. Often importing technology from outside the region, the

former slave states would remain dependent on agriculture, extractive industries, and low-wage manufacturing well into the twentieth century. Even though the southern states would undergo rapid industrialization and urbanization after the Civil War, they would still lag badly behind in economic creativity well into the twentieth century. It was no coincidence that southerners continued to invest far less in education relative to the rest of the nation.<sup>33</sup>

Northern critics of slavery, it turned out, had good reason to fear slavery's expansion as a threat to their increasingly creative economy. Given that the creativity gap extended to the border states—where slavery was quantitatively weak—northerners rightly feared that the spread of slavery would fundamentally undermine their creative economy if it became a national institution. The regional differences in economic creativity also accentuated cultural and political differences over issues such as free speech. Economic creativity in the North allowed the development of a “subversive edge” that allowed radical reformers (including abolitionists and anti-slavery activists) to produce an array of newspapers, pamphlets, and images. Southern enslavers, fearing the spread of abolitionist literature and sentiment would undermine slavery, responded with a host of authoritarian measures to repress abolitionist speech, including censorship of antislavery journalism and abolitionist mailings, a gag rule to prevent debate on slavery within Congress, and extralegal violence and intimidation aimed at antislavery activists. Antislavery northerners criticized enslaver censorship, but free speech barely registered as a national political issue in the 1830s and 1840s. Many northerners, in fact, supported mob violence aimed at abolitionist lectures and newspapers. In the 1850s, though, Republicans made free speech a major campaign issue. In his famous 1860 Cooper Union address in New York City, Abraham Lincoln bitterly complained that proslavery southerners would not be satisfied until northerners “cease to call slavery *wrong*, and join them in calling it *right*. And this must be done thoroughly - done in *acts* as well as in *words*. Silence will not be tolerated - we must place ourselves avowedly with them.”<sup>34</sup> The shift occurred, in part, because Republicans increasingly identified a strong link between economic creativity and free speech. In 1860, Wisconsin Republican Carl Schurz argued that “freedom of speech is the great agency of human progress.” In traveling through New York and New England, he was gladdened to see “the cheerful evidences of human ingenuity, of



successful labor, of thoughtful enterprise.” Ordinary people, he observed, readily engaged in conversation, often “absorbed in grave discussion about church and state, and labor and pay, and books and lectures and call political and social problems imaginable.” Schurz connected such conversations— “where man thinks and is fond of thinking, because his mental activity is stimulated by the thoughts of others”—with the economic prosperity of the North. “What son of Massachusetts,” he asked his Boston audience, “will deny that this uninterrupted, boundless, universal traffic of ideas, is the source of her rapid and universal intellectual and material progress?”<sup>35</sup>

For their part, southern enslavers feared how the antislavery movement grew in tandem with the North’s creative economy. Antislavery activists used the tools of economic creativity—including advanced publishing technologies and high-quality engravings and lithographs—to mass produce newspapers, pamphlets, almanacks, books, circulars, and novels to highlight both the horrors of slavery and the humanity of the enslaved. By the 1850s, northerner economic creativity had given antislavery activists the means to gain a surprisingly strong standing in the national public discourse. Frederick Douglass—a highly creative personality who wrote several autobiographies, authored a novel, edited his own newspaper, and lectured extensively—observed in 1855 that he now lived in what would be known “as the age of anti-slavery literature.” Support for the abolitionist movement was everywhere on the creative landscape, as “Scholars, authors, orators, poets, and statesmen give it their aid.”<sup>36</sup> Many enslavers agreed with Douglass’s sentiments. South Carolinian William Gilmore Simms argued in 1855 that even moderate northern publications—some of which had substantial southern audiences—contained objectionable antislavery sentiments. “[H]ow long do we intend to give thousands to Northern publications to defame us and undermine our institutions,” Simms asked, “when it is notorious that periodicals are languishing for the wants of hundreds?”<sup>37</sup> Calls for more southern newspapers and more southern periodicals predictably failed to produce any appreciable results, as the slave states lacked the interdisciplinary creativity to support a robust publishing industry. Fearing the continued erosion of support for slavery in the face of northern economic creativity, southern enslavers worked to fashion their own national state that could better regulate the press, the mails, and the flow of information. A single nation state, it seemed, could not

simultaneously serve enslaver capitalism, which increasingly relied on authoritarian state, and support economic creativity, which relied became intertwined with liberal values such as free speech.

**Table 1**  
**Annual Patents per Million for U.S. Urban Counties, 1856-1860**

Region	Metro Areas (>100,000)	Large Cities (100,000- 35,000)	Small Cities (35,000-12,000)	All Cities
Northeast	459	332	254	356
Midwest/West	288	214	146	219
Slave Cities (Total Population)	164	92	107	134
Slaves Cities (Free Population)	171	131	144	159

Source: Calculated from Petralia, Sergio; Balland, Pierre-Alexandre; Rigby, David, 2016, "HistPat Dataset", <https://doi.org/10.7910/DVN/BPC15W>, Harvard Dataverse, V8, UNF:6:x5Up1hayqaAaNNdymI+Kkw== [fileUNF]

Notes: Data is for counties with a city greater than 12,000 residents. Washington D.C. is excluded because of its high patenting rates partially resulted from the presence of the U.S. Patent Office.

**Table 2**  
**Slavery and Annual Patenting Rates in Urban Counties, 1856-1860**

	(1) Patents Per Million, Free Population	(2) Patents Per Million, Total Population
Per Capita Value-Added Manufacturing (\$)	1.27*** (.49)	1.33*** (.48)
Metropolitan City (Population > 100,000)	113.42*** (44.46)	123.2*** (43.76)
Year of Statehood Minus 1788	-1.92** (-.96)	-1.82* (-.94)
Slave State	-88.34** (-37.61)	-121.2*** (-37.02)
Intercept	182.86*** (39.9)	177.04*** (38.28)

*t* statistics in parentheses  
\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.00$

**Sources and Notes:** HistPat dataset; value-Added in manufacturing was calculated from Steven Manson, Jonathan Schroeder, David Van Riper, Tracy Kugler, and Steven Ruggles. IPUMS National Historical Geographic Information System: Version 16.0 [dataset]. Minneapolis, MN: IPUMS. 2021. <http://doi.org/10.18128/D050.V16.0>

**Table 3**  
**Location of Highly Creative Industries Among Major Metropolitan Areas, 1860**

City/Region	Population	Highly Creative Industries	All Other Manufacturing	Share of Highly Creative Industries of all Manufacturing
Baltimore	266,553	2.97	28.77	9.34%
New Orleans	174,461	1.83	33.01	5.25%
St. Louis	190,524	5.06	54.76	8.45%
<b>Slave Cities</b>	631,538	3.28	37.78	7.99%
Cincinnati	216,410	16.94	80.59	17.37%
Chicago	144,954	6.67	31.48	17.48%
<b>Midwestern Cities</b>	361,364	12.82	60.89	17.39%
Boston	192,700	24.95	65.49	27.59%
New York/Brooklyn	1,092,791	18.94	58.05	24.60%
Philadelphia	565,529	25.22	92.22	21.47%
<b>Northeastern Cities</b>	1,851,020	21.48	69.27	23.67%

Sources: Calculated from 1860 Census of Manufacturers.

Notes: Industries with interdisciplinary creative combined mechanization and new technologies with a significant component of fashion, art, and design. These 47 specific industries included publishing, furniture, silks, lady's fashions, carpets, musical instruments, and various decorative arts.

**Table 4**  
**Literacy Rates and Annual Patenting Rates in Urban Counties, 1856-1860**

	(1) Patents Per Million, Free Population	(2) Patents Per Million, Total Population
Per Capita Value-Added Manufacturing (\$)	1.32*** (.48)	1.41*** (.48)
Metropolitan City (Population > 100,000)	92.9** (44.23)	95.39** (43.87)
Year of Statehood Minus 1788	-1.81* (-.94)	-1.66* (-.94)
State Literacy Rate	-763.46** (-332.14)	1008.5*** (-329.46)
Intercept	225.58*** (53.01)	230.82*** (52.58)

*t* statistics in parentheses

\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.00$

Sources and Notes: HistPat dataset; value-Added in manufacturing was calculated from Steven Manson, Jonathan Schroeder, David Van Riper, Tracy Kugler, and Steven Ruggles. IPUMS National Historical Geographic Information System: Version 16.0 [dataset]. Minneapolis, MN: IPUMS. 2021. <http://doi.org/10.18128/D050.V16.0>

## Notes

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<sup>1</sup> Horace Greeley, *Art and Industry, as Represented in the Exhibition at the Crystal Palace, New York, 1853-54* (New York: Redfield, 1853), 28, 45, 52-53.

<sup>2</sup> Rachel N. Klein, *Art Wars: The Politics of Taste in Nineteenth-Century New York* (Philadelphia: University of Pennsylvania Press, 2020), 95-127, *Godey's* quote on 105

<sup>3</sup> Schumpeter, *Capitalism, Socialism and Democracy*, 83. I have found the following work helpful for defining creativity, particularly in an economic context: Irina Surkova, "Towards a Creativity Framework," *Society and Economy* 34, No. 1 (March 2012), 115-138. See also the many essays in Daniel Araya and Michael A. Peters, *Education in the Creative Economy: Knowledge and Learning in the Age of Innovation* (New York: Peter Lang, 2010).

<sup>4</sup> Edward Glaeser, *The Triumph of the City* (New York: Penguin Press, 2011); Charles Landry, *The Creative City: A Toolkit for Urban Innovators*, 2<sup>nd</sup> Ed. (London: Earthscan, 2008); Richard Florida, *The Rise of the Creative Class*, 2<sup>nd</sup> Ed. (New York: Basic Books, 2012). Jane Jacobs, *Cities and the Wealth of Nations: Principles of Economic Life* (New York: Vintage Books, 1985).

<sup>5</sup> <https://www2.census.gov/library/working-papers/1998/demo/pop-twps0027/tab09.txt>

<sup>6</sup> Steven Lubar, "The Transformation of Antebellum Patent Law," *Technology and Culture* 32 (October 1991), 932-959;

<sup>7</sup> Naomi Lamoreaux and Kenneth L. Sokoloff, "Inventive Activity and the Market for Technology in the United States, 1840-1920," National Bureau of Economic Research Working Paper (May 1999), 6-7.

<sup>8</sup> Kenneth W. Dobyns, *The Patent Office Pony: A History of the Early Patent Industry* (Boston: Docent Press, 1994), 138-39.

<sup>9</sup> Ross Thompson, *Structures of Change in the Mechanical Age: Technological Innovation in the United States, 1790-1865*, (Baltimore: The Johns Hopkins University Press, 2009), 104-05.

<sup>10</sup> For more on the HistPat database, see Sergio Petralia, Pierre-Alexandre Balland, and David L. Rigby, "Unveiling the Geography of Historical Patents in the United States from 1836 to 1975," *Nature* 3 (2016), accessed at <https://www.nature.com/articles/sdata201674>

<sup>11</sup> "Richmond, Virginia: Its Advantages for Manufacturing Purposes," *Plough, the Loom, and the Anvil* 1 (September 1848), 162.

<sup>12</sup> Petra Moser, "Innovation Without Patents: Evidence from World's Fairs," *The Journal of Law & Economics* 55 (February 2012), 54.

<sup>13</sup> Ross Thompson, *Structures of Change in the Mechanical Age: Technological Innovation in the United States, 1790-1865* (Baltimore: The Johns Hopkins University Press, 2009), 203-09.

<sup>14</sup> Thompson, *Structures of Change*, 204.

<sup>15</sup> Calculated from the *Official Catalogue of the New-York Exhibition of the Industry of All Nations, 1853*. (New York: George P. Putnam & Co., 1853).

<sup>16</sup> Katherine C. Grier, *Culture and Comfort: Parlor Making and Middle-Class Identity, 1850-1930* (Washington, D.C: Smithsonian Institution Press, 1988), 13-21.

<sup>17</sup> Crawford, *America's Musical Life*, 235. See also "Chickering & Son's Piano Forte Manufactory," *Ballou's Pictorial Drawing-Room Companion* 17 (July 23, 1859), 56.

<sup>18</sup> "The Piano Forte: Its Origin, History, and Manufacture," *Graham's American Monthly Magazine of Literature, Art, and Fashion* (May 1857), 417-25, quote on p. 423.

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<sup>19</sup> “Godey’s Arm-Chair: A List of Articles We Can Supply. Piano-Fortes for \$150,” *Godey’s Lady’s Book and Magazine* (December 1859), 59.

<sup>20</sup> Ronald J. Zboray, “Antebellum Reading and the Ironies of Technological Innovation,” *American Quarterly* 40 (March 1988), 65-82; Jeffery D. Groves, “Periodicals and Serial Publication,” in Scott E. Casper, Jeffery D. Groves, Stephen W. Nissenbaum, and Michael Winship, *A History of the Book in America* vol. 3 (Chapel Hill: University of North Carolina Press), 226-27; Louise Stevenson, “Homes, Books, and Reading,” in Scott E. Casper, Jeffery D. Groves, Stephen W. Nissenbaum, and Michael Winship, *A History of the Book in America* vol. 3 (Chapel Hill: University of North Carolina Press), 319-21.

<sup>21</sup> Zboray claims that books were still a luxury that many working-class could not afford, but he ignores the hundreds of circulating libraries that served primarily working-class audiences. On circulating libraries, see David Kaser, *A Book for a Sixpence: The Circulating Library in America* (Pittsburgh: Beta Phi Mu Press, 1980).

<sup>22</sup> Erika Piola, “The Rise of Early American Lithography and Antebellum Visual Culture,” *Winterthur Portfolio* 48 (Summer/Autumn 2014), 125-138.

<sup>23</sup> Cynthia Lee Patterson, *Art for the Middle Classes: America’s Illustrated Magazines of the 1840s* (Jackson: University of Mississippi Press, 2010), 128, 160-7.

<sup>24</sup> Nancy Finlay, “Some New Evidence for the Sale and Distribution of Kellogg Prints,” *Winterthur Portfolio* 48 (Summer/Autumn 2014), 240-41.

<sup>25</sup> Frederick Douglass, “Lecture on Pictures,” reprinted in John Stauffer, Zoe Todd, and Celeste-Marier Bernier, *Picturing Frederick Douglass: An Illustrated Biography of the Nineteenth-Century’s Most Photographed American* (New York: Liveright Publishing, 2015), 117. For more on the immense popularity of the Daguerreotype, see Marcy J. Dinius, *The Camera and the Press: American Visual and Print Culture in the Age of the Daguerreotype* (Philadelphia: Pennsylvania University Press, 2012), 12-48

<sup>26</sup> Calculated from the returns of each individual state in *The Seventh Census of the United States: 1850* (Washington, DC: Robert Armstrong, Public Printer, 1853).

<sup>27</sup> Kenneth L. Sokoloff, “Inventive Activity in Early Industrial America: Evidence from Patent Records, 1790-1846,” *Journal of Economic History* 48 (December 1988), 813-50; Zorina B. Khan, *The Democratization of Invention: Patents and Copyrights in American Economic Development, 1790–1920* (New York: Cambridge University Press, 2005), 106-127.

<sup>28</sup> For a summary of these arguments, see Eugene D. Genovese, *The Political Economy of Slavery: Studies in the Economy and Society of the Slave South*, 2<sup>nd</sup> ed. (Middletown, Connecticut: Wesleyan University Press, 1989), 157-179; John Majewski, *A House Dividing: Economic Development in Pennsylvania and Virginia before the Civil War* (New York: Cambridge University Press, 2000), 158-161; John Majewski and Viken Tchakerian. “Shifting Cultivation, Slavery, and Southern Development,” *Agricultural History* 81 (Fall 2007), 522-548.

<sup>29</sup> Sun Go and Peter Lindert, “The Uneven Rise of American Public Schools In 1850,” *The Journal of American History* 70 (March 2010), 4. See also Claudia Goldin and Lawrence F. Katz, *The Race Between Education and Technology* (Cambridge University Press, 2008), 129-162. and Michelle Connolly, “Human Capital and Growth in the Postbellum South: A Separate but Unequal Story,” *Journal of Economic History* 64 (June 2004), 363-399.

<sup>30</sup> On the importance of including enslaved children in education rates, see Carole Shamas, “Did Democracy Give the United States an Edge in Primary Schooling?” *Social Science History* 39 (Fall 2015), 319-320.

<sup>31</sup> Calculated from *Statistics of the United States in 1860 Compiled from the Original Returns and Being the Final Exhibit of the Eighth Census* (Washington, DC: Government Printing Office, 1866), 508

<sup>32</sup> James Henry Hammond, “Governor Hammond’s Address before the South Carolina Institute, 1850,” *The Commercial Review of the South and West* 2 (June 1850), 501, 510.

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<sup>33</sup> Michelle Connolly, "Human Capital and Growth in the Postbellum South: A Separate but Unequal Story," *Journal of Economic History* 64 (June 2004), 363-399; David L. Carlton and Peter A. Coclanis, "The Uninventive South? A Quantitative Look at Region and American Inventiveness," *Technology and Culture* (April 1995), 302-326.

<sup>34</sup> Abraham Lincoln, "Cooper Union Address," (February 27, 1860) at <http://www.abrahamlincolnonline.org/lincoln/speeches/cooper.htm>

<sup>35</sup> Carl Schurz, "Free Speech," (December 1860), . [https://en.wikisource.org/wiki/Speeches\\_of\\_Carl\\_Schurz/08\\_Free\\_Speech](https://en.wikisource.org/wiki/Speeches_of_Carl_Schurz/08_Free_Speech)

<sup>36</sup> Frederick Douglass, "The Anti-Slavery Movement: Extracts from a Lecture before Various Anti-Slavery Bodies," in *My Bondage and My Freedom*, 462.

<sup>37</sup> William Gilmore Sims, "Northern Periodicals Versus the South," *Southern Quarterly Review* 20 (October 1854), 510.