A Perfect Storm: How Economic Factors Precipitated the Rise of the Slave System in the Southern North American Colonies, 1607- 1775 AD

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Introduction

For over a century, historians have fiercely debated how the Southern system of slavery exacerbated the sectional tensions that gave rise to the American Civil War. The bulk of research regarding slavery focuses on the utility and long-term viability of the slave system, and on the social, political, and economic issues of the late Antebellum Period, 1830 to 1860 AD (Berlin). Due to historians' fixation with antebellum cotton, considerably less has been written about slavery during the Colonial Period, between 1601 and 1775 AD.[1] However, examination of North American slavery cannot be performed thoroughly without analyzing the economic forces that precipitated the emergence of the Southern slave system. Contrary to popular belief, slave-operated plantations dominated Southern agriculture long before Eli Whitney's cotton gin revolutionized cotton cultivation in 1793 AD.[2] During the Colonial Period, the South's

[1] Ira Berlin, "From the Editor: Exploring Slavery's Roots in Colonial America." *OAH Magazine of History* 17.3 (2003): 3.

[2] Robert W. Fogel and Stanley L. Engerman, *Time on the Cross: The Economics of American Negro Slavery* (New York: Norton, 1989), 105.

comparative advantages in cultivating lucrative cash crops such as tobacco, rice, and indigo, compounded with the chronic shortage of colonial labor, gave rise to the slave system that characterized Southern agriculture until the Civil War.

This paper explores how and why slavery became an integral economic institution in the Southern colonies during the colonial period (1607- 1775 AD). To build an analytical foundation, the paper first assesses the North American colonies' chronic labor shortage. After examining several sources of colonial labor, the paper establishes slave labor as the optimal labor source for cash crop cultivation. The paper presents demographic data to explore how inter and intraregional slave-holding trends resulted in shifts in 17th and 18th century African populations. By comparing the slavery practiced in colonial North America to that practiced in the Caribbean, the paper determines the factors that drove the Southern slave system's unique evolution and character. After examining the emergence of slavery as a Southern institution, the paper analyzes how the Southern comparative advantages underlying commercial cash crop cultivation and the efficiency of slave labor caused the slave-operated plantation system to dominate agriculture in the Southern colonies, but not in the New England and Middle colonies.

Background

Alternative Labor Sources to Supply the Colonies' Chronic Excess Labor Demand

Free White Workers

Throughout the Colonial Period (1607- 1775), the North American English colonies struggled to maintain a sufficient supply of labor to meet their growing labor demand.[3] Although immigration increased throughout this period, gains in human capital were diffused rapidly over

[3] David W. Galenson, "The Market Evaluation of Human Capital: The Case of Indentured Servitude." *Journal of Political Economy* 89.3 (1981): 446.

large land areas rather than concentrated in a given area.[4] The easy availability of inexpensive or free land exacerbated this issue since it gave immigrants incentives to settle new territory rather than to congregate in existing settlements.[5]

Therefore, free laborers were invariably in short supply. Moreover, the free workers who did colonize North American usually sought to purchase and farm their own land rather than to work for others.[6] These free workers, driven by capitalistic self-interest imposed risk on their employers in the form of potential turnover costs.[7] If the free worker quit, the employer would be obligated to find a replacement employee. Beyond the expense of searching for, interviewing, and training a new employee, the employer would incur the cost of output lost during the lag period between losing and replacing the worker. In addition to increasing the difficulty of replacing a worker, these turnover costs made employers "vulnerable to opportunism."[8] Due to the expense of seeking new workers, employers of free laborers often found it less costly to pay his or her workers more than the sum initially agreed upon rather than to enforce the initial terms of employment.[9]

The Southern economy, characterized by commercial agriculture, faced extremely high turnover costs.[10] To reap economic profits from commercial agriculture, strict tilling, planting, and harvesting regimens had to be followed each season.[11] If free laborers quit during a critical period, the farmer could lose a significant portion of annual production.[12] As one Southern

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4 Galenson, "Market Evaluation of Human Capital," 446.
5 Ibid.
6 Ibid, 448.
7 Christopher Hanes, "Turnover Cost and the Distribution of Slave Labor in Anglo-America." The Journal of Economic History 56.2 (1996): 309.
8 Hanes, "Turnover Cost," 311.
9 Ibid, 312.
10 Ibid, 315.
11 Ibid.
12 Ibid, 316.

planter explained, “Sugar, rice, and tobacco can be produced for commercial purposes, only in a mild climate, and by such labor as can be controlled; to make a crop of either and prepare it for market, requires the entire year’s work. The least relaxation or neglect, in preparing the land, planting, cultivation, or gathering insures defeat.”[13]

Such high turnover costs drove the rise of unfree labor in the South, first in the form of indentured servitude and later in the form of African slaves.[14] While a free worker can quit, an indentured servant or slave cannot.[15] Utilizing these sources of unfree labor, especially that of slaves, enabled the Southern planter to prevent loss of labor at critical periods and to control the terms of employment.

Keenly aware of the advantages of slave labor, most Southerners agreed that cash crops could not be cultivated profitably without operating a slave-based plantation system. During the 1840s, Henry King Burgwyn, a slave-adverse North Carolina plantation owner investigated into the possibility of replacing his two-hundred African slaves with free white workers.[16] At considerable expense, Burgwyn imported one-hundred free Irishmen to North Carolina for $2,000.[17] However, upon arrival, these free workers began negotiating over the pre-agreed terms of employment.[18] Burgwyn quickly found that free workers were not an economically viable substitute for unfree workers, and reverted to using slaves.[19]

Native American Slaves

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[13] Ibid, 319.
[14] Robert D. Mitchell, “American Origins and Regional Institutions: The Seventeenth-Century Chesapeake.” *Annals of the Association of American Geographers* 73.3 (1983): 406.
[15] Hanes, “Turnover Cost,” 316.
[16] Ibid, 317.
[17] Ibid.
[18] Ibid.
[19] Ibid.

In the 17th and early 18th century, Native Americans captured in tribal wars or on deliberate slaving raids labored on Southern plantations.[20] From 1703- 1708, the number of Native American slaves in South Carolina alone increased from 350 to 1,400.[21] This rate of increase far exceeded the growth of the white South Carolinian population, which increased from 3,800 to 4,800. Despite this rapid increase, the Native American slave population failed to match the growth of the African slave population, which increased from 3,000 to 4,100.[22]

Unlike the early Spanish Caribbean, Native American slave labor never became widely used in the North American colonies.[23] Extremely vulnerable to European-derived diseases such as smallpox, and familiar enough with the terrain to escape, Native American slaves were unreliable sources of labor.[24] Difficulty capturing Native Americans and the diplomatic repercussions of agitating Native tribes on the frontier discouraged the use of Native Americans for plantation labor.[25] Since the regional supply of enslaved Native Americans fell far short of the rapidly increasing demand for unfree labor, African slaves were imported and became the preferred source of labor.[26]

European Indentured Servants

Indentured servitude involved leasing white European labor through a simple credit system.[27] A laborer who desired to emigrate to North America but could not afford ocean

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[20] Peter Wood, "The Changing Population of the Colonial South: An Overview by Race and Region, 1685- 1760." In *Powhatan's Mantle: Indians in the Colonial Southeast*, ed. Peter Wood et al. (Lincoln: University of Nebraska Press, 1989), 71.
[21] Wood, "Changing Population," 72.
[22] Ibid.
[23] Lewis Cecil Gray, *History of Agriculture in the Southern United States to 1860.* Vol. 1 (Washington: Carnegie Inst., 1933). 51.
[24] Gray, *History of Agriculture*, 52.
[25] Wood, "Changing Population," 73.
[26] Ibid, 74.
[27] Galenson, "Market Evaluation of Human Capital," 446.

passage would sign an indenture contract with an English merchant, who would then pay for the laborer's transportation.[28] Upon arrival in North America, the merchant's representative sold this contract to a colonist, such as a Southern planter.[29] In return for service, the Southern planter would cover any maintenance costs during the terms of the contract, and would pay certain freedom dues at the end of the contract.[30]

Between the 1650s and 1680s, over 1,000 European indentured servants were imported to the North American colonies each year.[31] During most of the 17th century these contracted white laborers comprised the most significant labor source on Southern plantations.[32] However, England's shifting economic atmosphere and decreasing costs of Trans-Atlantic passage led to a rapid decline in the market for indentured servants.[33] While Trans-Atlantic passage cost £9 to £10 per person in the early 1600s, more than the average Englishman's annual income, passage cost only £5 to £6 by the early 1800s.[34] These lower transportation costs compounded with the increase in wages and employment opportunities in England reduced Europeans' incentives to enter indenture contracts.

The consequent decrease in the supply in European indentured servants prompted Southern planters to substitute slave labor. The Chesapeake area, South Carolina, and Georgia; regions which depended most heavily upon indentured white servants for labor; became the most significant importers of African slaves.[35] Planters quickly realized that slaves, which provided

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28 Ibid.
29 Ibid.
30 Ibid.
31 Mitchell, "American Origins,"406.
32 Galenson, "Market Evaluation of Human Capital." 449.
33 Farley Grubb and Tony Stitt, "The Liverpool Emigrant Servant Trade and the Transition to Slave Labor in the Chesapeake, 1697-1707: Market Adjustments to War." Explorations in Economic History 31.3 (1994): 380.
34 Grubb and Stitt, "Liverpool Emigrant Servant Trade," 380.
35 Hanes, "Turnover Cost," 320.

life-service and required no freedom dues, had many advantages over indentured servants.[36] While indentured servants outnumbered slaves four to one in the Chesapeake during the 1670s, slaves outnumbered indentured servants four to one by 1700.[37] From 1700 through the Antebellum period, African slaves served as the principal source of labor on Southern plantations.[38]

African Slaves

Unlike Native American slaves, African Slaves could be obtained in large quantities without local political repercussions from local tribes.[39] When England's Royal African Company lost its monopoly rights to the African slave trade in 1689, the resultant "independent trade" further increased the supply and decreased the expense of these imported Africans.[40] The rise of the African slave trade and the decline of the indentured servant trade, compounded with the impossibility of satisfying labor demand with either Native Americans or free white workers, led southern planters to rely almost exclusively on African slave labor.[41] However, beyond the relatively greater availability of African slaves, the slave system had distinct advantages over all of the aforementioned labor sources.

Most ostensibly, racially-derived characteristics enabled African slaves to withstand southern climate and diseases better than could their white and Native American counterparts.[42] During the colonial period, Africans exhibited disproportionately high mortality rates in the northern colonies while whites exhibited disproportionately high death rates in the far southern

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[36] Gray, *History of Agriculture*, 73
[37] Mitchell, "American Origins," 407.
[38] Galenson, "Market Evaluation of Human Capital,"450.
[39] Wood, "Changing Population," 60.
[40] Ibid.
[41] Mitchell, "American Origins," 408.
[42] Philip R.P. Coelho and Robert A. McGuire, "American and European Bound Labor in the British New World: The Biological Consequences of Economic Choices." *The Journal of Economic History* 57.1 (1997): 85.

and Caribbean colonies.[43] In the British West Indies, Africans proved far better able to withstand heat and tropical diseases such as yellow fever and malaria than could the European settlers.[44] They also demonstrated greater immunity to European and Eastern diseases such as smallpox than did the Native Americans.[45] These qualities led many white planters to insist that their African slaves were "'the best servants in America" since they could "bear the heat of the sun much better than any white man" and were "more dexterous with the hoe, and at all planting business.'"[46]

More importantly, African slavery provided Southern planters with a stable labor supply. Unless injured or ill, African slaves were always available to work.[47] Due to the high turnover costs incurred by employing free laborers to cultivate cash crops, Southern planters valued this stability highly.[48] Using dependable slave labor eliminated the risk of workers leaving during a critical harvest or striking for improved wages.[49]

Besides their relative stability, African slaves provided greater returns on investment than did indentured servants. When investing in either a slave or in an indentured servant, the planter calculated the discounted value of the worker's net future earnings after deducting the expected costs of the worker. The present value of an indentured servant depended upon his or her output per year of the contract after subtracting the costs of maintenance and freedom dues owed to the servant at the end of the indenture term.[50] The European indentured servant and the African slave demonstrated roughly equal productivity; both could cultivate approximately 2.5 acres of

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[43] Coelho and McGuire, "African and European Bound Labor," 86.
[44] Ibid.
[45] Wood, "Changing Population," 60.
[46] Gray, *History of Agriculture*, 468.
[47] Ibid, 471.
[48] Hanes, "Turnover Cost," 320.
[49] Gray, *History of Agriculture*, 471.
[50] Galenson, "Market Evaluation of Human Capital," 452.

tobacco with an average product of 1,000 pounds per acre during the early 18th century.[51] However, indentured servants were much more difficult to control and drive than were African slaves, and planters faced the risk of the servant either running away or attempting to re-negotiate the terms of his or her contract.[52] Slaves could not enter into these negotiations, and were bred to accept their conditions of servitude.[53] Cognizant of his slaves' subordinate positions, 17th century Virginia planter Colonel Landon Carter insisted that "'those few servants that we have don't do as much as the poorest slaves we have.'"[54]

Furthermore, a slave bound to a plantation for life provided far more productive labor above cost than could a servant indentured for a limited period.[55] As Southern historian Lewis Cecil Gray explains, "In the New World, with its abundance of fertile land, labor, when employed with a reasonable degree of efficiency could produce a volume of physical goods larger than the bare requisites of subsistence from birth to death."[56] Owning a slave for life allowed the planter to benefit from profits which exceeded the minimal costs of caring for the slave, and eliminated the expense of freedom dues. Even if surplus production temporarily disappeared due to crop failure, illness of the worker, or price fluctuation, a surplus usually accrued in the long run.[57]

The initial cost of investing in slaves decreased further relative to the cost of alternative labor sources as the proportion of native born Southern slaves increased.[58] By employing a slave born on his plantation, a planter could "employ" a worker by paying the minimal costs of "bare

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51 Gray, *History of Agriculture*, 71.
52 Ibid.
53 Ibid.
54 Ibid, 468.
55 Ibid, 471.
56 Ibid, 474.
57 Ibid.
58 Fogel and Engerman, *Time on the Cross*, 21.

subsistence" with almost no initial monetary investment.[59] Taking advantage of the low labor costs derived from the slave system enabled the planter to minimize production costs and to maximize his profit.[60] Unable to compete with these low costs, white labor, both free and indentured, disappeared from Southern plantations by the end of the Colonial Period.

Demographic Trends of the Colonial Period

Southern Racial Demographics: 1685 and 1775 AD

In 1685, over seventy-five years following Britain's initial colonization of North America, there were 46,900 European settlers, 199,400 Native Americans, and 3,300 African Americans in the Southern colonies.[61] However, a marked demographic shift characterized the next century. Between 1685 and 1730, the South's Native American population decreased to 67,000 due to warfare, migration, and epidemic disease.[62] By 1775, there were fewer than 55,600 Native Americans in the colonial South.[63] As Native Americans declined, European settlers expanded plantation agriculture. The profitability of cash crop cultivation lured planters to the Southeast region, and the white population increased to 542,500 by 1775.[64] However, this 10.2% increase in the white population was dwarfed by a 122.5% increase in the African population.[65] The rapid growth of the African population parallels the rise of commercial agriculture and the establishment of slave-operated plantation systems.

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59 Gray, *History of Agriculture*, 474.
60 Ibid.
61 Wood, "Changing Population," 57.
62 Ibid, 70.
63 Ibid.
64 Ibid.
65 Ibid.

Inter and Intraregional Variation in Slave Populations

Significant interregional and intraregional differences characterize the racial demographics of the Colonial Period. During the 18th century, approximately 90% of slaves resided in the southern region.[66] While Africans comprised small percentages of the populations of the New England and Middle colonies (2% and 5% respectively), their presence was more pronounced in the South.[67] On average, Africans comprised 32% of Maryland's population, 42% of Virginia's population, 35% of North Carolina's population, and 60% of South Carolina's population.[68]

Colonized predominately by rice and indigo planters from the British and French West Indies, South Carolina exhibited the highest proportion of Africans relative to its European population and became the only colony to house an African majority. However, prior to Southern planters' transition to cotton cultivation during the antebellum period, most African slaves were concentrated in the Chesapeake Bay area. In 1690, over 67% of slaves resided in Maryland and Virginia.[69] While slave holdings spread South during the late Colonial period, Maryland and Virginia held over 56% of the entire slave population as late as 1790.[70]

The Unique Evolution and Character of the Southern Slave System

The near-complete absence of sugar plantations in North America caused the Southern slave system to develop quite differently than those established in the British, French, and Spanish Caribbean possessions. Since sugar cultivation utilized extremely expensive capital, it required high numbers of workers to maintain a profitable level of production.[71] The quantity of

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66 Stella Helen Sutherland, *Population Distribution in Colonial America* (New York: Columbia University Press, 1936), 15.
67 Sutherland, *Population Distribution*, 16
68 Ibid.
69 Mitchell, "American Origins," 416.
70 Ibid.
71 Fogel and Engerman, *Time on the Cross*, 21.

slaves necessary to run a profitable sugar plantation far exceeded the number of slaves employed on typical plantations in the colonial South.[72]

Therefore, although African labor was introduced to colonial Virginia far earlier than to the British Barbados, the growth of the slave labor force occurred less rapidly in North America than in the British Caribbean.[73] After only 30 years of British occupation, over 60,000 slaves inhabited the Barbados.[74] It took over 110 years for the North American colonies to sustain 60,000 slaves, and there were six times as many Negroes in the British Caribbean as in all of North America by 1700.[75] While African slaves constituted the majority of the Caribbean population throughout the Colonial Period, they were a demographic minority in every North American colony except South Carolina.[76]

However, the relatively low levels of African slaves in North America does not undermine the significance of this labor system in the colonial South. Effective utilization of slave labor enabled the American South to specialize in the commercial cultivation of cash crops.[77] This regional specialization both during and after the Colonial Period fueled the economic growth that led the United States to become the leading slave power of the Western world.[78]

Unlike the Caribbean colonies, the United States did not achieve this distinction by importing high numbers of slaves. Rather, exceptionally high rates of natural increase significantly expanded the Southern slave population.[79] The back-breaking conditions of sugar

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[72] Fogel and Engerman, *Time on the Cross*, 21.
[73] Ibid.
[74] Ibid.
[75] Ibid.
[76] Ibid, 22.
[77] Ibid, 29.
[78] Ibid.
[79] Ibid.

cultivation drastically reduced the life-expectancy of slaves, and precluded the development of a self-sustaining slave population in the Caribbean.[80] Low birth rates and an imbalanced sex ratio precipitated by the preferential importation of strong male slaves over female slaves exacerbated this problem, and forced Caribbean planters to continuously import new slaves.[81]

In contrast, only 6% of all slaves imported to the New World came to the North American colonies.[82] Less labor-intensive crop cultivation and better labor conditions caused North American slaves to live longer and bear more children than could their Caribbean counterparts.[83] Native-born African Americans dominated North American slave populations by the 1680s, and the slave birthrate approached its biological maximum by the mid-1700s.[84]

Triumph of the Plantation System

Plantation society did not begin to dominate the South until the late 1600s, primarily because of labor scarcity. Accumulating sufficient free or indentured white servants to run a plantation was difficult, and the inefficient monopoly of the Britain's Royal African company limited the supply of African slaves until 1689.[85] Therefore, until the late 17th century, the Chesapeake region consisted predominately of small freeholders employing indentured servants.[86] In 1644, Captain Cornwallis, one of the richest and most influential planters in Maryland, had only twenty servants on his estate.[87]

However, after 1650, Virginia's wealth became increasingly concentrated.[88] The

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80 Fogel and Engerman, *Time on the Cross*, 25.
81 Ibid.
82 Ibid, 20.
83 Ibid, 25.
84 Ibid, 26.
85 Gray, *History of Agriculture*, 493.
86 Ibid, 444.
87 Ibid, 493.
88 Ibid.

Chesapeake colonies became characterized by tobacco cultivation.[89] While tobacco production did not incur efficiency gains as great as those derived through rice or indigo production, the per unit production cost of tobacco cultivation related to farm size inversely.[90] Southern planters found it increasingly difficult to compete in the highly competitive tobacco market without a large plantation. Without a large enterprise, planters could remain competitive in the tobacco market only by risking specialization in higher quality tobacco.[91] Due to planters' incentive to expand their operations, the average size of tobacco land holdings increased to over 300 acres by 1700.[92] Running these large plantations, required far greater numbers of agricultural laborers. As the market for indentured servants collapsed, African slaves became an increasingly significant source of labor. The slave system's rapid expansion in the 1680s and 1690s facilitated the rise of the plantation, phased out indentured servitude, and gradually excluded small freeholders from land in the Upper South.[93]

Rice and indigo agriculture gave rise to a similar pattern in North and South Carolina. By 1700, planters realized that with sufficient capital investment, rice could be cultivated successfully.[94] However, profitable harvesting required that planters counterbalance the expense of investing in dikes and tidewater flooding systems with high levels of production.[95] Only by employing slave labor, could planters attain sufficient productive capacity.[96] By spreading the high capital costs of production over a large operation, the planters that utilized slave labor benefited from economies of scale. Aware of these advantages, planters increasingly

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89 Mitchell, "American Origins," 418.
90 Gray, *History of Agriculture*, 440.
91 Ibid.
92 Ibid.
93 Ibid, 445.
94 Ibid, 289.
95 Ibid.
96 Ibid.

transitioned to harvesting rice. At the end of the colonial period rice culture extended from below Savanna to the southern regions of North Carolina.[97]

Further agricultural experimentation enabled planters to successfully grow indigo by the mid-1700s. A British subsidy of sixpence per pound served as planters' initial incentive to plant indigo.[98] However, Southerners quickly realized that indigo was ideally suited to supplement rice production since the crop grew on high ground unsuitable for rice and since the dye could be processed during a season when slaves were not laboring in the rice fields.[99] Since these complementary cash crops both required significant capital investment to be cultivated profitably, they were most efficiently cultivated together on a large plantation where economies of scale decreased the per unit costs of production.[100] During the mid-1700s, South Carolina's governor described this lucrative plantation technique in a letter to England: "'indigo proves an excellent commodity joined with rice; for by planting both, the management of the indigo being over in the summer months, the hands employed in it may help the manufacturing of rice in the ensuing part of the year, at which time it becomes most laborious.'"[101]

Analysis:

Dissecting the Southern Advantage in Cash Crop Cultivation

The Growth of Infant Industries: Southern Advantages and British Protection

Within a decade of settling Jamestown, Virginians began exporting tobacco to Europe.[102] Tobacco requires a long growing season and fertile soil, two characteristics that make it ideally

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97 Gray, *History of Agriculture*, 289.
98 Ibid.
99 Ibid.
100 Ibid.
101 Ibid.
102 Ibid, 445.

suited for cultivation in the Southern colonies. The South had a long growing season and rich, loamy soils. Moreover, as successive plantings exhausted the soil's initial fertility, settlers had nearly boundless access to new fertile land during the early colonial period.

Prior to Virginia's tobacco cultivation, the British imported Spanish tobacco to meet English smokers' ever-increasing demand.[103] The advent of the Southern colonies' tobacco industry presented British mercantilists with a favorable alternative to importing Spanish goods. Since Southern planters had to learn how to properly cure, handle, and ship tobacco, the American product remained inferior to Spanish tobacco for many years.[104] However, despite its relative inferiority, England protected its colonies' tobacco in the British market.[105] An absence of Spanish competition allowed the infant Southern tobacco industry to grow and flourish as colonial planters exploited the South's regional advantages.

Lucrative Southern rice and indigo industries developed under similar conditions. Rice and indigo were successfully introduced to the Southern colonies in 1695 and 1734 respectively.[106] Ruled by mercantilist policies, England encouraged the South's infant rice and indigo industries by protecting Southern crops in the British market.[107] Since indigo was increasingly valued by the British textile industry, its planters received even greater advantages in the British market.[108] To expand colonial indigo cultivation, England granted planters a subsidy of sixpence a pound.[109]

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[103] Gray, *History of Agriculture*, 445.
[104] Ibid, 247.
[105] Ibid.
[106] Ibid, 289.
[107] Ibid, 293.
[108] Ibid.
[109] Ibid.

Organizational Advantages: Economies of Scale and the Southern Slave System

Efficient exploitation of African slave labor gave rise to the economies of scale that characterized the Southern plantation system. These large agricultural organizations facilitated the division and specialization of slave labor.[110] Increasing plantation size and employing large numbers of slaves facilitated the adoption of new organizational techniques such as the gang and task systems.[111] Planters quickly determined which organizational system was best suited to cultivate their specific type of cash crop.

First developed on the Caribbean sugar plantations, the gang system became integrally important in tobacco cultivation.[112] Its efficiency arose from facilitating labor specialization and teamwork. Each "gang" consisted of five or six types of hands, who followed one another in a specific order.[113] The strongest and most capable hands led the procession and plowed the unbroken earth.[114] These plowmen were followed by harrowers, drillers, droppers, and rakers in single file.[115] Labor interdependence derived from the gang system pressured each worker to keep up with the pace set by the others. Watchful drivers and overseers further ensured that all gang members performed high quality work at a rapid pace.

Under the task system, slaves were assigned perform certain tasks on specific plots of land to cultivate each day.[116] Unlike the gang system, which compelled workers to continue laboring for long hours at the overseer's discretion, the task system allowed slaves to stop work upon completion of their daily tasks.[117] Granting the slaves free time after they successfully

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110 Gray, *History of Agriculture*, 445.
111 Fogel and Engerman, *Time on the Cross*, 203.
112 Gray, *History of Agriculture*, 289.
113 Fogel and Engerman, *Time on the Cross*, 203.
114 Ibid.
115 Ibid.
116 Ibid.
117 Ibid.

completed their tasks gave workers an incentive to labor intensely in the rice fields.[118] Moreover, reassigning the same plot of land to the same slave in each successive round of harvesting ensured that they maintained high standards of labor.[119] This form of labor organization proved far more effective in rice and indigo cultivation than did the gang system.[120] While the intense gang system could produce greater output in the short run, it taxed workers and reduced their longevity.[121] The high turnover of African slaves on Caribbean sugar plantations arose, in part, from extensive use of the gang system.[122] Reduction of slave longevity was not highly apparent on tobacco plantations since tobacco agriculture was taxing than were rice, indigo, and sugar cultivation.[123] Since Southern planters sought to maintain a self-sustainable slave population, the back-breaking conditions of mosquito-infested rice swamps precluded expansive use of the gang system.[124]

Efficient and selective utilization of these new managerial systems, allowed slaves to be employed with little supervision.[125] Since the supervision costs of owning slaves did not increase in proportion to the number of working slaves, the per unit costs of cash crop cultivation decreased as plantation size increased.[126] Therefore, large plantations using given quantities of inputs could produce greater levels of output than could a group of small farms using the same quantities of inputs.[127] Optimal farm size differed according to the cash crop cultivated since the magnitude of economies of scale differed between cash crop varieties.[128] Rice and indigo

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118 Fogel and Engerman, *Time on the Cross*, 203.
119 Ibid.
120 Gray, *History of Agriculture*, 445.
121 Ibid.
122 Ibid, 289.
123 Ibid.
124 Ibid.
125Ibid, 445.
126 Ibid.
127 Fogel and Engerman, *Time on the Cross*, 203.
128 Ibid.

agriculture derived the greatest economies of scale from employing slave labor, and gave rise to much larger plantations than did tobacco cultivation.[129] While plantations with fewer than ten slaves "intermittently prospered" during the colonial period, larger plantations consistently "earned substantial returns above cost."[130] Although many planters owned fewer than ten slaves during the Colonial period, they faced increasing pressure to expand the scale of their operations by 1775.[131]

Why Slavery Never Gained Prominence in New England or in the Middle Colonies

While slaveholding did occur in New England and in the Middle colonies during the colonial period, it gained little prominence in these regions.[132] The insignificant growth of slavery in these areas arose primarily due to interregional variation in climate and geography. Characterized by poor soils, uneven terrain, and severe winters, New England's climactic and geographic conditions could not yield cash crops such as tobacco, rice, and indigo on a commercial scale. The limited growing season lowered the economic gains from slave labor in the fields and bad weather precluded full utilization of slave labor for days at a time.[133] Therefore, New England farms were subsistence in nature, and farmers grew cereal grains, vegetables, and livestock for family use.

While the Middle colonies had fertile, readily tillable soil, their cooler climate was more amenable to growing wheat, rye, oats, and barley than for cultivating the Southern staples.[134] Farmers in the Middle colonies produced sufficient wheat and flour to export these goods to the

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129 Fogel and Engerman, *Time on the Cross*, 203.
130 Gray, *History of Agriculture*, 445.
131 Ibid.
132 Ibid.
133 Ibid.
134 Ibid.

West Indies by the late 1600s.[135] However, the limited commercial agriculture practiced by the Middle colonies never reached the scale of that practiced in the South.[136] Moreover, wheat and grain agriculture required intense labor only during planting and harvest periods, and did not lend itself to economies of scale.[137] Since, wheat and grain cultivation did not offer a return to scale to finance the cost of employing slave labor, slavery never gained a clear foothold in the Middle colonies.[138] Instead, farms in the Middle colonies were small and family-operated. If additional help was required during an especially heavy harvest, farmers could hire a part time worker with low turnover costs.[139]

Conclusion

By favoring cash crop cultivation, the South's long growing seasons and excellent weather facilitated the rise of African slave labor.[140] Since commercial cash crop cultivation, especially the cultivation of rice and indigo, required enormous amounts of unskilled labor, planters increasingly relied on African slave labor.[141] The rapid decline of the supply of European indentured servants increased Southern planters' dependence upon African slaves.[142] In time, many planters determined that African laborers were better suited to labor in the warm Southern climate than were European laborers.[143] Low turnover costs and the economies of scale derived from employing the task and gang systems generated high returns on planters' investments in slave labor.[144] Moreover, the absence of the bad weather and harsh winters that

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135 Gray, *History of Agriculture*, 446.
136 Ibid.
137 Ibid.
138 Hanes, "Turnover Cost," 320.
139 Ibid.
140 Gray, *History of Agriculture*, 445.
141 Ibid.
142 Grubb and Stitt, "Liverpool Emigrant Servant Trade," 380.
143 Coelho and McGuire, "African and European Bound Labor," 86.
144 Hanes, "Turnover Cost," 318.

plagued New England, allowed slaves to be employed nearly year-round, with few losses on Southern investments.[145] High returns compounded with Britain's favorable mercantilist policies, encouraged planters to expand tobacco, rice and indigo cultivation, and to implement slavery throughout the South.[146]

These advantages enabled slavery and the plantation system to supplant smaller-scale Southern agricultural organizations by 1700. Wherever tobacco, rice, or indigo could be profitably produced on a commercial scale, small farmers faced fierce competition from the plantation as soon as marketing systems became available.[147] In a direct competition for land, plantation owners could easily outbid a small farmer for land by "paying a portion of the annual value of the slave or its capitalized equivalent as a premium."[148] Therefore, pioneer farmers had a strong incentive to become great planters and reap the advantages of a large-scale plantation operation.[149] Those who lacked the capital to do so were often forced to practice subsistence agriculture on land less amenable for cash crop cultivation.[150] By the end of the colonial period, the plantation system dominated the most arable Southern regions while subsistence agriculture was relegated to areas lacking either the fertility or market development necessary to practice commercial agriculture.[151] Following the American Revolution, the advent of Eli Whitney's cotton gin and the coronation of King Cotton further intensified the South's dependence on

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145 Gray, *History of Agriculture*, 456.
146 Fogel and Engerman, *Time on the Cross*, 293.
147 Gray, *History of Agriculture*, 445.
148 Ibid, 475.
149 Ibid, 445.
150 Ibid, 444.
151 Ibid, 445.

slavery.[152] Perpetuation of the controversial slave system intensified sectional rivalries and precipitated the bloodiest conflict in American history, the Civil War.[153]

[152] Ibid, 599.
[153] Berlin, "Exploring Slavery's Roots," 3.

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