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Profitability and factory-based cotton gin production in the antebellum south ☆

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Abstract

Before 1820 Northern mechanics started factory-based cotton gin manufacturing to compete with traditional Southern "ginwrights." Later, cotton gin production in factories was transferred to the South. This paper estimates the profitability of cotton gin makers in the antebellum industrial census. The Southern sector was more profitable than that of the North, explaining the regional migration of machine production resources. Besides transport cost protection, Southern firms had a cost advantage in sales and service networks. Specific factor investments in gin making limited further resource flows from North to South after 1840. It also reduced the industry's impact on Southern economic development.

Keywords: Cotton gins; Southern economy; Factory production; Machinery; New England; Profitability; Manufacturing census; Antebellum economy

1. Introduction

A prominent feature of the antebellum Southern economy was the "deplorable scarcity" of its manufacturing before the Civil War (Bateman and Weiss, 1981). In particular,

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machinery production typified this deficiency, as it relied on highly skilled labor that was not widely available in the South. Southern cotton gin manufacturing was the premier regional industry that defied this generalization. By 1860, it had expanded along with "King Cotton" from South Carolina to Texas (Census Bureau, 1865, vol. 3).

At first glance, it might seem that the regional specialization of cotton gin production was solely due to the high transport costs of moving these large machines to Southern plantations. In the 1790s, Eli Whitney attempted to produce his new gin in New Haven, Connecticut. But without strong legal protection from the patent system, his innovation was copied by many Southern "ginwrights" who supplied nearby planters. Subsequent attempts to license to the local producers were too late to reverse his fortunes.[2]

The transport cost hypothesis is nevertheless incomplete, since it cannot explain why New England machinists subsequently dominated cotton gin manufacturing during the 1820s and 1830s. Then after 1840, major Southern gin makers began to challenge, but not eradicate the Northern industry, even as transport costs declined. As evidenced by the 1850 and 1860 census, both Northern and Southern firms manufactured cotton gins for Southern planters, even though these firms faced very different obstacles to deliver their product.

This paper examines the profitability of American cotton gin manufacturing in the period immediately before the Civil War. The Southern industry (at least for its larger firms) is found to be significantly more profitable than the North in 1850 and 1860. This conclusion is robust both to the addition of non-enumerated entrepreneurial labor and non-enumerated slave labor costs (or investments). Therefore, this Southern machinery sector was expanding before the War, while other machinery industries in the region were dominated by Northern output. For cotton gin production, only the destruction caused by the War returned the competitive advantage to Northern gin makers.

The next section of the paper gives a brief history of antebellum cotton gin manufacturing. Section 3 then describes the data and estimation procedures. Section 4 presents profit estimates for the cotton gin industry, and how they are impacted by adjustments for missing owner labor and slave labor costs. Section 5 discusses how transport costs, technology diffusion, and the expenses of sales and service networks explain the antebellum ascent of Southern gin factories. A conclusion reviews the results and how they might relate to the larger issues of Southern economic development.

2. Antebellum history of cotton gin manufacturing

In 1806, Massachusetts native Eleazer Carver moved to Natchez and started to make cotton gins. Carver acquired a reputation for quality workmanship among area buyers and expanded his Southern shop. In 1816, Carver returned to southeastern Massachusetts to construct a cotton gin factory (Britton, 1992, p. 35). Carver gins became the most widely recognized cotton gin brand during the Mississippi-Alabama cotton boom after 1818, and his success encouraged competition from other Massachusetts-based firms.[3]

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[2] See Lakwete (2003, pp. 69,76). Furthermore, as pointed out by Lebergott (1984, p. 173), Whitney made other mistakes: trying to rent, rather than sell his machine, and charging a ginning fee that made his technology more expensive than older methods.

[3] These rivals included the Braintree Manufactory, and later Bates, Hyde & Co. (Eagle Gin Co.). See Lakwete (2003, pp. 89–91) and Gates (1910).