

# Paper Proposal

## The Rise of Slavery in America: an Agent-Based Model

Tom Wallace

February 4, 2018

What caused chattel slavery to emerge in the American South? This question has generated an enormous amount of academic inquiry. Most agree that American slavery had both ideological and economic underpinnings, but the relative importance of these two factors is contested. The ideology camp sees slavery as driven by white supremacy: a “peculiar institution” (to use John Calhoun’s phrase) that was carried out for mostly non-economic reasons. In this view, white Southerners believed in the inferiority of blacks and so erected an economic system actualizing those beliefs; whether it was profitable or not was a secondary concern. The “new history of capitalism” (NHC) emphasizes the profit-motivated nature of slavery and in particular its connection to the emergence of industrial capitalism and global trade in the 19th century. In this view, white supremacist ideology was constructed as *post hoc* intellectual justification for a money-making scheme predicated on cheap black labor and high cotton prices. To simplify the debate, did racist ideology dictate the economic system, or did the economic system dictate racist ideology?

Sven Beckert’s *Empire of Cotton*, an influential entry in the NHC literature, offers a compelling hypothesis centered on market information, labor mobility, and land use. The Industrial Revolution caused great demand for foreign cotton to supply British textile mills. However, extant cotton production in the Global South was governed more by local culture and traditions than capitalist logic. To paraphrase, peasants in then-British India grew some cotton on the side because that was what they had always done, but they were unwilling to radically ramp up production (which would have required abandonment of food crops and organization into large plantations rather than family plots) to meet the demands of Lancashire and Birmingham factories. There was a need for a industrial-scale cotton production system more attuned to global price signals.

Beckert’s hypothesis is that American slavery resulted from land-use and labor mobility issues associated with the creation of such a system. Cotton is nutrient-hungry (it rapidly exhausts the soil) and labor-intensive (land-clearing and cultivation is hard work). From the perspective of British “cotton capitalists” who would eventually finance virtually all U.S. plantations, an ideal cotton production set-up would be highly sensitive to price signals; surplus land to which production could move after local soil exhaustion; no competition with food crops or land rights; and a highly mobile workforce that would follow the rapid movement of cotton farms from exhausted to fresh soil. The early 19th century American South had almost all these characteristics. The climate was favorable; the culture was mercantile; advances in communications technology (e.g. the telegraph) allowed the ever-more-rapid transmission of market information; the Louisiana Purchase and depopulation of Native Americans left a vast frontier of virgin soil.

The only barriers were land use and labor. Free white men had property rights and refused to totally structure their land use around cotton (whose price was volatile, making agricultural diversification a better strategy for small farmers without a large financial cushion). They also were unwilling to pack up and move every few years to follow the path of cotton cultivation. Slavery is argued to have evolved as a response to these land use and labor mobility issues. By importing Africans and stripping them of all rights, one could create a labor force that did not have a choice about how to use the land or where to move, and so could be coerced into profit-maximizing patterns (for example, the modern geographic distribution of African-Americans still matches the path of cotton expansion in the 1800s, as seen in Figures 1 and 2). In essence, the NHC hypothesis is that when market information was local, there was little incentive for slavery (and indeed, slavery had a surprisingly small footprint in America in the 16-18th centuries, at least compared to its later heights); when markets became global, white agents independently converged on slavery as a mechanism for matching cotton supply in Mississippi to cotton demand in Lancashire.

Many aspects of the NHC hypothesis are amenable to spatial agent-based modeling. The NHC hypothesis

Figure 1: Historical distribution of cotton production

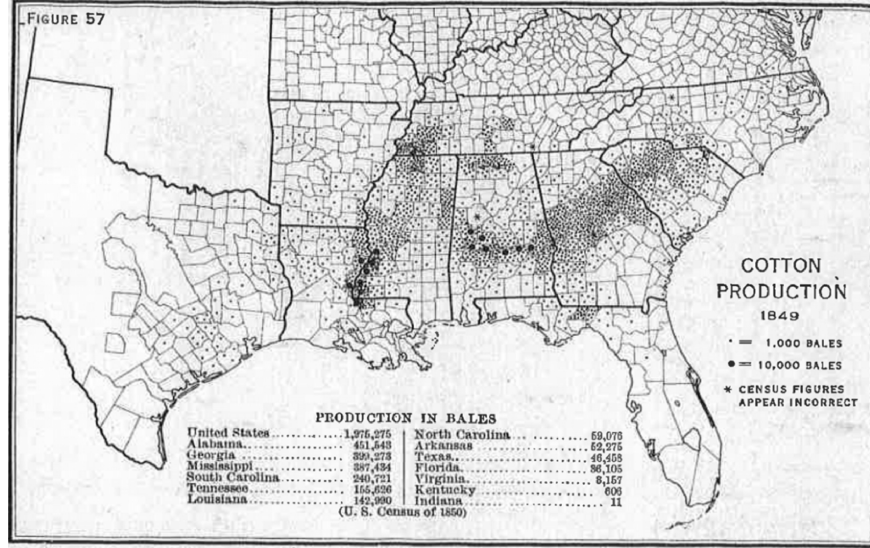
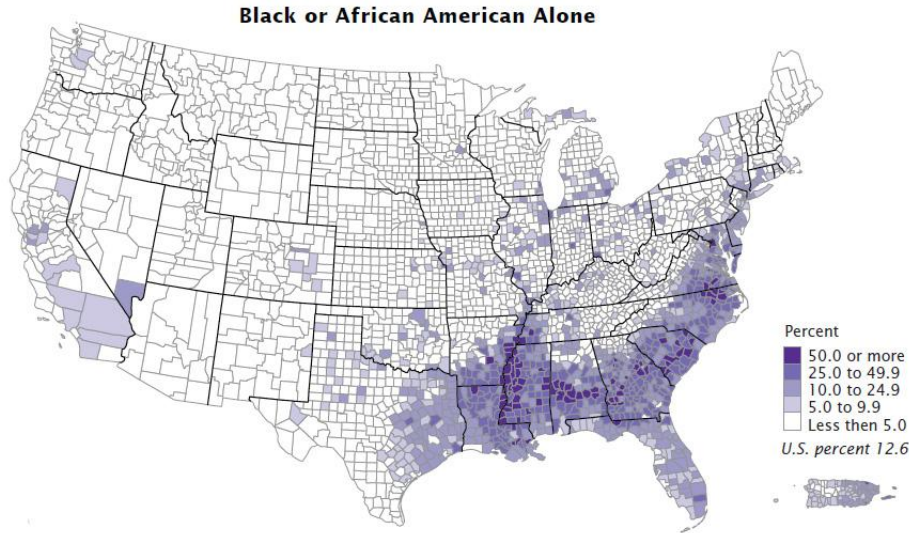


Figure 2: Current distribution of African-American population



relies on autonomous agents reacting to information with boundedly rational behavior. It emphasizes the interaction of agents with the spatial environment in terms of labor mobility (where in the environment agents chose to go) and land-use (how they shape the environment once there). It consists of different levels of analysis, including both the individual and system. It emphasizes the effect of information availability (local vs. global). These features are well-suited for agent-based modeling.

I propose a spatial agent-based model. The environment consists of grid-square cells. Human agents occupy these cells. Agents must decide between two land use strategies: cotton-only or mixed cultivation. The former depletes the soil of the grid-square while the latter can continue indefinitely. Once the soil is depleted, the agent must move to a new grid-square. Agent cognition is governed by preferences regarding land-use and labor mobility, and by profit motivation based on the price of cotton and of mixed agriculture. Information regarding prices is geographically bounded (I have not yet determined an exact mechanism for this). The hypothesis is that increased information regarding prices causes greater marginal value to labor mobility and land use. Clearly I have not thought through all aspects of the model, but this is the general

vision. I likely would code this model in Python. The model would proceed in discrete time-steps. In terms of data, I am considering obtaining GIS files of the American South (though I do not think they are strictly necessary to explore the hypothesis). The key dynamics that I want to model are:

- Land use
- Labor mobility
- Information availability
- Global prices

## References

- Baptist, Edward (2016). *The half has never been told: Slavery and the making of American capitalism*. Hachette.
- Beckert, Sven (2004). “Emancipation and empire: Reconstructing the worldwide web of cotton production in the age of the American Civil War”. In: *The American Historical Review* 109.5, pp. 1405–1438.
- (2014). *Empire of cotton: a global history*. Vintage.
- Beckert, Sven and Seth Rockman (2016). *Slavery’s capitalism: a new history of American economic development*. University of Pennsylvania Press.
- Elkins, Stanley (2013). *Slavery: A problem in American institutional and intellectual life*. University of Chicago Press.
- Genovese, Eugene (2014). *The political economy of slavery: Studies in the economy and society of the slave South*. Wesleyan University Press.
- Johnson, Walter (2013). *River of dark dreams*. Harvard University Press.
- Olmstead, Alan and Paul Rhode (2017). “Cotton, slavery, and the new history of capitalism”. In: *Explorations in Economic History*.
- Williams, Eric (2014). *Capitalism and slavery*. UNC Press Books.