Slave Escape, Prices, and the Fugitive Slave Act of 1850

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Abstract

This paper examines the spatial relationship between slave prices, escape, and slave-owner property rights using the Fugitive Slave Act of 1850 as a natural experiment. The Act reinforced slave-owner property rights but its effect diminished with distance to the North. Estimates suggest prices in northern slave states increased by up to 35% relative to southern states because of the Act. The paper's findings are robust to changes in sample restrictions, spatial composition effects, and placebo tests on the Act's implementation date. The contention that the Act had an effect on escape risk is supported by a reduction in rewards offered and the frequency of advertisements for runaways observed in newspaper advertisements from the time.

1 Introduction

In the antebellum South, slave prices were persistently higher in locations further south. Figure 1 illustrates this price-distance relationship using Fogel and Engerman's Probate Appraisal Data-set (2006). The figure plots average slave prices by county as a function of distance in miles to the Pennsylvania component of the Mason-Dixon Line, the boundary between slave and non-slave states.[1] Authors such as Evans (1962) and Fogel and Engerman (1974) have attributed the north-south price gradient to regional variation in agricultural productivity. They suggest longer growing seasons, increased hours of sunlight, and better soil quality lead to greater productivity in the deeper South.[2] Olmstead and Rhode (2008) reaffirmed these productivity differences using rich plantation-level data.[3] Despite productivity

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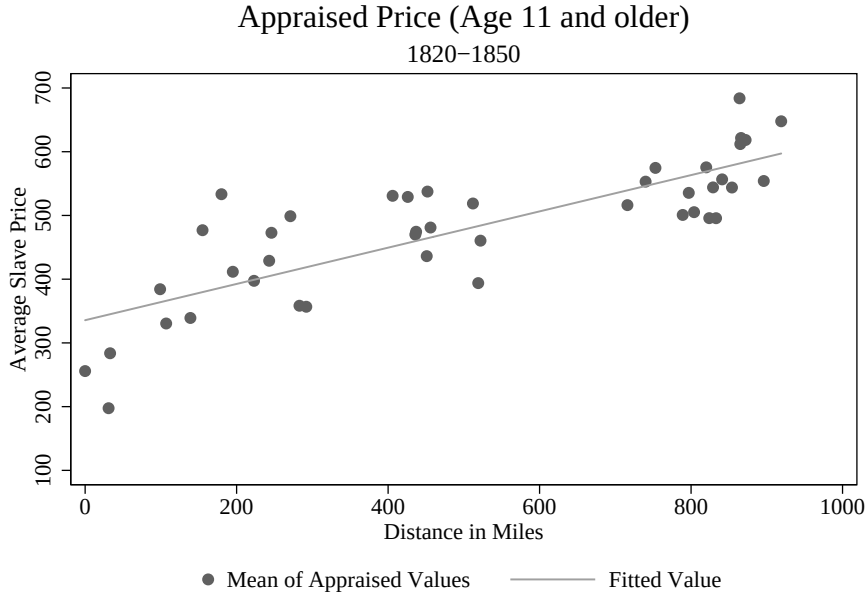
[1] The measure of distance used in the figure is the minimum distance from the most northern point of a county to the closest point on the Pennsylvania portion of the Mason-Dixon Line. As explained in greater detail in Section 2, permanent escape to a non-slave state involved eventually crossing into Pennsylvania due to restrictions on Free blacks in Iowa, Ohio, Illinois, Texas, and Indiana. There are no observations around the 600-mile mark is because the data set contains few records from Alabama or northern Mississippi in that time period.

[2] It also ensured the choice of staple crop (Tobacco or Cotton) was different. The potentially confounding nature of this difference will be discussed later in the paper.

[3] Olmstead and Rhode found slaves in the deep South picked much more cotton per day on average. Their work provided new insights into the long-running debate on the source and extent of slave efficiency ignited by Fogel and Engerman (1977).

differences, arbitrage should have ensured similar slaves would sell for the same price regardless of location. However, Section 2 explains that the costs and risks associated with moving a slave south were significant. These costs preserved the north-south slave price gap over many decades.

Figure 1: Probate Appraisal Values by County Distance from Mason-Dixon Line 1820-1850



The idea that agricultural productivity determined slave prices assumes that willingness to pay depends on a slave's marginal revenue product (net of maintenance and monitoring costs).[4] Prices would then change whenever expected productivity, marginal revenue, or monitoring costs change such as due to changes in technology, the price of substitute factors of production, or the price of agricultural outputs.[5] This paper does not dispute that prices were higher in the Deep South because of differences in productivity. Instead, because ease of escape to the North was arguably a function of distance, the paper asks if escape could be a complementary source of north-south price differences.

Escape affects prices because marginal physical product equals zero if a slave runs away. If escape was easier from northern slave states, then willingness to pay would be diminished there for reasons unrelated to a slave's day-to-day productive abilities. Alternatively, slave-owners in northern slave states could mitigate escape risks by increasing monitoring efforts. However, then willingness to pay would be reduced because of the cost of these efforts. Importantly, prices could then be lower due to the risk of

[4]Marginal revenue product being physical product times marginal revenue.

[5]For example, the cotton gin is often credited with preserving slavery as an institution. Additionally, recent work by Calomiris and Pritchett (2016) suggest slave prices were set in this forward-looking fashion. They find that by the August following President Lincoln's election slave prices in New Orleans had fallen by one-third relative to an 1860 peak. They also find that slave prices responded to the Civil War's major turning points.

escape without observed rates of escape being higher closer to the North (although evidence suggests they typically were).[6] Any legislative reinforcement of slave-owner property rights could therefore affect prices in two ways: one, escape becomes less likely increasing expected slave productivity, and two, slave-owners could reduce monitoring efforts.[7]

Both escape risk and productivity are potentially correlated with distance to the North. As a result, establishing a causal relationship between prices and escape requires an exogenous change in the likelihood of escape that leaves productivity unchanged. The 1850 Fugitive Slave Act provides this kind of change. The Act strengthened slave-owner property rights by closing legal loopholes, mandating Federal and State officials to assist recapture efforts, allowing bounty hunters to cross into the North to recover slaves, and imposing fines of up to $1000 (in 1850 dollars) and six months imprisonment for civilians who assisted fugitives or officials who refused to assist in recapture.[8] The 1850 Act replaced the original 1793 Fugitive Slave Act which had been nullified by a series of legislative and judicial decisions in Free states making the repatriation of an escaped slave unlikely (see Section 2).

While the 1850 Act represents a *de jure* improvement in slave-owner property rights, its *de facto* effects are an empirical question. If escape was not an issue, then there will be no associated effect on prices. Indeed, many have argued escape was so uncommon that the Act was little more than political grandstanding. However, via a review of the literature surrounding slave escape and political events before and after the Act this paper shows that actual and threatened slave escape was an issue in states closer to the Free northern states. The paper also supports this contention using hand-collected data from antebellum newspapers. They show a significant fall in both rewards offered and in the number of advertisements for runaway slaves in northern slave states following the Act's implementation.

Estimation relies on a difference-in-difference approach, comparing slave prices in different regions before and after 1850 using Fogel and Engerman's probate slave appraisal data-set (2006). The estimates suggest the 1850 Fugitive Slave Act boosted slave-owner property rights. The data shows a relative increase in prices in states closer to the North of between 15% and 30% compared to the deeper South. The estimates are robust to alternate specifications, different time periods, sample restrictions, and a series of placebo tests. They also cannot be explained by output prices for the products produced in each region. The contention that the Act caused these changes is further supported by an analysis of pre-trends before the Act. Additionally, despite initial support for the 1850 Act, Free northern states later implemented new Personal Liberty laws protecting fugitives. Estimates suggest that these renewed protections, which weakened slave-owner property rights and increased the chance of successful escape, reversed much of the Fugitive Slave Act's effects.

Finding that property rights matter for economic outcomes will surprise few. However, scholars have argued that the Fugitive Slave Act was neither necessary nor relevant. For example, Geyl (1951) and McPherson (1988) argued slave-owner property rights were already strong. Their argument rested

[6] See the discussion of Hummel and Weingast (2006) in Section 2 for more on this point.

[7] This type of argument is firmly rooted in the role of transaction costs in the enforcement of property rights. See Demsetz (1967), Alchian and Demsetz (1973), and North (1991) for more details.

[8] For the original text of the Act see http://avalon.law.yale.edu/19th_century/fugitive.asp.

on the fact that relatively few slaves escaped before or after 1850. However, such a view restricts slave agency by implying they could not use the threat of escape to their benefit. If the Fugitive Slave Act had a large impact on prices, it suggests property rights were weaker than previously thought and that the Act was not simply a perfunctory nod to Southern interests. Indeed, the dismissal of the Act in the existing slavery literature is puzzling: If property rights were strong, slaves didn't escape, and slave-owners did not worry about losing valuable assets, why would two Acts of Congress dealing with slave escape be required?

Section 2 provides the context of the 1850 Fugitive Slave Act and visits the limited literature on slave escape. It also details the challenges faced by domestic slave traders, which preserved regional price differences. Section 3 describes Fogel and Engerman's probate appraisal data set. Section 4 presents estimates of the Act's impact on prices using a variety of controls and measures of distance. It also considers the role of output prices as a potentially confounding factor. Section 5 explores the robustness of these estimates and the effect of renewed Personal Liberty laws in Free states. Section 5 also presents data on runaways collected by hand from newspaper notices in southern cities around 1850. Section 6 concludes.

2 The Importance of Slave Escape

Relative to the slave population, the 1850 and 1860 censuses suggested runaways were rare.[9] This prompted authors such as Geyl (1951) and McPherson (1988) to claim that the Fugitive Slave Act was mere political grandstanding.[10] In contrast, Freehling (1990) and Hummel and Weingast (2006) argue that runaways would be a concern for slave-owners in states bordering the North. Hummel and Weingast use the census data to show that runaways in Delaware, Maryland, Virginia, Kentucky, and Missouri combined to account for more than half of all runaways listed.[11] At the time, these states contained less than a fourth of the total slave population.[12] However, the census data cannot fully capture the effect of the *threat* of escape. Slave-owners in the Upper South may have treated slaves less harshly and devoted significant resources to monitoring and security.[13] If so, escape could play a significant role in the determination of market prices without many escapees being observed in any location.

[9] Specifically, 1,011 fugitives were reported in 1850 and 803 in 1860. Source: U.S. Census Office, 1860 Census, p. XV, available at https://www.census.gov/prod/www/decennial.html#y1860.

[10] Geyl suggests that"[s]outherners clung to the law because they desired to have from the North an acknowledgment of their right rather than because of the material advantage."

[11] Organized monitoring efforts in the Deep South might ensure runaways remained fugitives for shorter periods than in northern slave states, censoring the data. Differences in runaway frequency across the south might only reflect differences in the time-to-recapture in the two regions.

[12] Hummel and Weingast consider Kentucky and Missouri as being next to "Free" states but do not appear to be aware of the Black laws enacted in states such as Iowa, Ohio, and Indiana excluding free blacks from entry to those states. See Hur (2012).

[13] Note that the census data recorded only a snapshot of current fugitives. Franklin and Schweninger (1999) suggest that closer to 50,000 slaves *attempted* escape each year.

Campbell (1989) and Deyle (2005) anecdotally highlight the effect the threat of escape had on the market for slaves.[14] From correspondence between a slave-owner in Illinois and his brother in Mississippi, Deyle highlights how the threat of escape increased the supply of slaves and reduced demand: "The sole object in disposing of [the slave] is the danger of loosing [sic] him here. We are on the edge of the state of Illinois, and [slaves] can make their escape across that state to Canada. And do do it every day."[15] The literature has not examined the relationship between slave-owner and slave through this lens and has therefore missed how the potential for escape affected prices in the various regions of the South.

The 1793 Fugitive Slave Act should have protected slave-owner property rights but Free states undermined the Act via "Personal Liberty" laws (Rosenberg, 1971). These laws ensured that a slave who made it across the Mason-Dixon Line would rarely be sent back to the South.[16] In response, an enhanced Fugitive Slave Act made its way through Congress as part of the Compromise of 1850.[17] The Compromise admitted California to the Union and created a Free state majority. The 1850 Fugitive Slave Act was a concession to Southern interests to compensate for the new imbalance and to ease tensions Northern legislatures initially supported the Act.[18] However, enforcement of the Act lead to conflict after President Franklin Pierce took office in 1853.[19] In response, Connecticut reinstated protections for fugitive slaves via a new Personal Liberty law in 1854. Rhode Island followed later that year while Massachusetts, Maine, and Michigan followed in 1855. Wisconsin, Ohio, and New Hampshire passed similar laws in 1857.[20] Vermont was the last state to pass a renewed Personal Liberty law in 1858.[21]

In this paper, the likelihood of escape is considered to be, in part, a function of distance to Pennsylvania's southern border. This is because states in the Atlantic north-east *protected* escaped slaves while others actively excluded them. Non-slave states such as Ohio, Indiana, and Illinois each had laws requiring free blacks to produce documents proving that they were not enslaved and to post a good

[14] Deyle also provides evidence to show that slaves used escape as a bargaining chip. He highlights that the threat of escape was one of the ways slave families managed to remain together. Given any hint that they may be separated by sale, Deyle reports that slave families responded by escaping or with threats of violence. Deyle reports that slave traders would place advertisements in newspapers highlighting their discretion.

[15] Thomas P. Copes to Joseph Copes, Oct. 31, 1846, Copes Papers, Tulane University Library: Special Collections. More information available at http://specialcollections.tulane.edu.

[16] Within this institutional reality, the Underground Railroad helped thousands of slaves escape to the North. For further details see Snodgrass (2008), Still (1968), or Blockson (1987).

[17] See http://www.ushistory.org/us/30d.asp.

[18] Strother (1962) reports how in February of 1851 Democrats in Hartford, Connecticut announced their support for the Act by claiming "[t]hat we hold in undiminished veneration the Constitution of the United States - that we will abide in good faith by all its Compromises - and that we have no sympathy with those who, to evade its provisions, appeal to a "higher law" that teaches discord and disunion, and sectional hatred, and the violation of that Constitution under which this country has arrived at its present greatness and power."

[19] A well documented example of Pierce's approach is that of Anthony J. Burns. The events surrounding Burns' recapture (as explained by von Frank, 1998) advanced the abolitionist political agenda and lead to enhanced Personal Liberty laws in Northern states.

[20] The renewed Personal Liberty laws restricted detention of slaves in state jails, required the identity of the fugitive to be established beyond doubt, guaranteed jury trials, imposed a fine and imprisonment for representing any free person as a slave, and provided legal counsel and the protections of *habeas corpus* for alleged fugitives (Johnston, 1884).

[21] Hur (2012) provides an in-depth historical treatment of these laws and the context surrounding their passage.

behavior bond (Farnam, 1938). Ohio's "Black Laws," enacted in 1804 and 1807, required a bond of $500, a prohibitively large sum for the time.[22] In the other direction, escape to Mexico was hampered by Texan legislation and institutions.[23]

Despite the potential for slave escape to affect prices, price differences between areas have been ascribed to productivity differences. Of course, any price gap between regions would be expected to close due to trade. However, the risks associated with moving slaves in the 19th century were not trivial. The journey south took several weeks and success and safety were threatened daily not only by abolitionists, theft, and the elements, but also by the risk of slaves engineering their own escape.[24] In addition, expenses would be significant. Slaves who were to be transported had to be housed in pens until departure and the trader had to finance food and lodging for each slave plus wages for the employees during the long journey south. Due to the challenges of moving slaves southwards, it is not surprising that the price of slaves in the Upper South remained persistently lower than prices in the Deep South. The movement of slaves was laborious, financially risky, and physically dangerous to both the trader and to the slave.

Lastly, scholars have hesitated to exploit the regulatory changes brought about by the Fugitive Slave Act and associated Personal Liberty laws. This is odd because so many authors have attempted to "rationalize" slavery and the Fugitive Slave Act of 1850 provides an ideal test for rational behavior by all parties (including slaves themselves) to the institution.[25] The fact that slave-owners clamored for a Fugitive Slave Act which reinforced the institution suggests slaves were exploiting any advantages that they could: They had agency. They were not inhuman creatures, unable and unwilling to act in their own interest, but instead were resourceful and tenacious in the face of extreme adversity.

3 Data

The Inter-university Consortium for Political and Social Research (ICPSR) hosts a data-set of probate-related slave sales and appraisals that took place from 1775 to 1865 in eight states: Virginia, Maryland, North Carolina, South Carolina, Louisiana, Tennessee, Georgia, and Mississippi.[26] In total, records

[22] Similar laws came into effect in Illinois in 1819, 1829, and again in 1853. In Indiana, such laws were enacted in 1831 and again in 1852. Michigan, Iowa, and Oregon also had laws effectively prohibiting persons of color from entering the state.

[23] In 1846, the Texas legislature created a patrol system granting slaveholders power to search places suspected of harboring escapees. Rewards were divided among patrol members and these "paterollers" became feared by slaves. For slaves who were not indentured in Texas, the long journey through Texas from other states would have been close to impossible because "free persons of color" were prohibited from entering the state in 1840. Under the law, a slave who wanted to escape to Mexico via Texas could be re-enslaved immediately in Texas.

[24] Transportation came to be managed by specialized slave traders. These traders purchased slaves and made their way back to the deep South with the slaves connected by chains in a "coffle." Daily progress was painstakingly slow: coffles frequently featured 100 or more slaves chained together and it took "7 to 8 weeks to travel from the Chesapeake to Mississippi in good weather" (Deyle, p. 99).

[25] While early work suggested a unprofitable (Phillips, 1918), inefficient (Flanders, 1930), and barbarous (Bancroft, 1931) institution, later empirical work by Conrad and Meyer (1958), Evans (1962), Fogel and Engerman (1974), and Kotlikoff (1979) reveal a profitable and rational enterprise.

[26] See http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/07421/version/3. The data are a digitized version of physical records on deposit at the Genealogical Society Library of the Church of Jesus Christ of Latter-Day Saints in Salt Lake City,

for 43,670 males and 32,726 females from 1775-1865 appear in the data digitized and first used by Fogel and Engerman. The data-set documents slaves' locations (county and state), sale or probate appraisal values, as well as age, sex, skills, and sometimes their health. As this analysis is focused on the effect of the 1850 Fugitive Slave Act in a difference-in-difference framework, the focus is on the period immediately before and after the Act (8 years from 1846 to 1853 inclusive). This restriction identifies over 14,000 probate records. While the majority of slaves were appraised for probate purposes, many have no appraisal record. For some of these, there is a listed sale price which can potentially be used as a substitute for appraisal value. For the 179 records that have neither a sale nor appraisal value, the record was dropped from the analysis.[27] Additionally, only those who were 11 or older at the time of appraisal are considered because the appraisal of children is not likely to represent meaningful information.[28] This restriction eliminates several thousand observations.[29]

Table 1 presents summary statistics for the remaining observations by state and region for males and females. The table is split into slave states in the "Upper" and "Deep" South for ease of comparison. Note that North Carolina is considered as Upper South despite appearing similar to South Carolina and Tennessee rather than Maryland. In the table there are relatively few slaves in the Upper South who meet the sample selection criteria. The ratio of male to females in the two areas is consistent but Upper South slaves appear to be younger, in general, than those in the Deep South. Census records indicate that in 1850 there were a total of 834,921 slaves living in Maryland, Virginia, and North Carolina. In the states of South Carolina, Louisiana, Tennessee, Georgia, and Mississippi, there were 1,106,163 slaves. A greater than 6:1 ratio of observations is well in excess of the expected ratio based on population.[30] As long as the way the data is selected is not changing before and after 1850 there should be little cause for concern.

The reliance on appraisal values rather than market-determined prices may be problematic. Helpfully, an actual *sale* price is reported for close to 10% of the observations. A simple regression of prices (from the years 1846 to 1855) on observable characteristics with an indicator for "sale" suggests that sale

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Utah.

[27] One extreme outlier, with a reported value of $525,000, was also eliminated as all others had an appraised value of less than $2,000. A small number of observations were eliminated due to a listed "defect." A variety of defects are reported in the data ranging from being a "girl", a "fellow", an "orphan" or being "small" to having cancer or being deaf. To avoid making a judgment on which of these defects should be considered valid or how they affect prices these are all eliminated.

[28] Numerous states had laws prohibiting the separate sale of slaves aged 10 or younger (see Deyle, p. 52). In addition, escape was probably not a realistic consideration for a small child and the appraised value of the child was likely to be hard to separate from that of the child's parent. As Deyle notes, it was the case that "young children were more of a liability than an asset."

[29] The proportion of small children in the sample is consistent with the demographics of the slave population on the eve of the civil war. Few slaves lived into old age and females birthed many children, many of whom did not make it to adulthood. In 1860, almost half of the black population (of which the majority were slaves) were under 16 years of age based on the 1% 1860 census extract, available at IPUMS (see Ruggles et al., 2010).

[30] The largest plantations were in the Deep South so relatively more slaves would be appraised in probate records from that area after a random slave-owner's death. Also, given lower productivity and the higher risk of escape in the northern slave states the Deep South may (at the margin) have lured slave-owners who had a larger numbers of slaves. If these were also relatively older slave-owners then slave-owner deaths and associated probate records will be stacked towards the Deep South. In addition, slave-owners who are older when moving south would simultaneously cause more probate records to appear in the Deep South *and* fewer in the areas that they moved from.

Table 1: Summary Statistics 1846-1853

	Obs.	Rel. Freq	% Male	Age Female	Age Male	Price Female	(Std. Dev.) Female	Price Male	(Std. Dev.) Male
Maryland	753	57.35%	57.1%	28.61	28.81	$311.51	$(189.23)	$445.87	$(234.07)
Virgina	292	22.24%	61.2%	24.2	29.22	$454.56	$(192.36)	$532.05	$(225.86)
North Carolina	268	20.41%	61.7%	23.85	25.29	$503.92	$(204.04)	$686.76	$(236.91)
Upper South	1313	100.0%	58.9%	26.80	28.18	$377.09	$(209.34)	$515.58	$(250.79)
Tennessee	27	0.34%	70.4%	22.38	26.79	$570.38	$(182.85)	$622.47	$(247.84)
South Carolina	449	5.68%	60.8%	28.72	27.26	$440.54	$(177.01)	$614.49	$(232.86)
Georgia	820	10.37%	54.5%	29.27	29.03	$475.38	$(190.80)	$648.42	$(241.51)
Mississippi	1310	16.57%	53.1%	29.93	30.58	$559.48	$(212.61)	$692.67	$(269.23)
Louisiana	5298	67.02%	59.9%	28.6	31.0	$508.02	$(212.06)	$681.55	$(286.72)
Deep South	7904	100.0%	58.3%	28.91	30.51	$510.46	$(210.01)	$675.80	$(277.48)

prices and appraisal prices in the Upper South were not statistically different. That is, the coefficient on the "sale" indicator is not different from zero. Using the same approach, sale prices further south tended to be higher than appraised values for similar slaves during the same period.[31] However, inference cannot be made on a broader appraisal/sale relationship as slaves who are sold may not be representative of all slaves in the sample. Higher average sale prices (compared to appraisal values) in the Deep South are not evidence that appraisal prices are systematically biased. The slaves who were sold may have been different from the slave population in unobserved ways. For the same reason, *observing* no difference between sale and appraisal values in the Upper South does not mean the appraisal values were free of error.

On the other hand, a benefit of using probate records is that they are less likely to be affected by selection effects. Slaves who were sold may have been selected positively or negatively, as considered by Choo and Eid (2008) and Greenwald and Glasspiegel (1983). Greenwald and Glasspiegel consider negative selection, arguing slave-owners would try to conceal deficiencies in north-south trade, leaving more productive slaves in the northern slave states. Choo and Eid examine the opposite selection story. They test for an Alchian-Allen explanation for price differences for slaves sold at auction in New Orleans (Alchian and Allen, 1964). According to Alchian and Allen, slaves with highly valued characteristics would be more likely to be shipped from farther away regions. In the antebellum south, that would mean less productive slaves would not be transported South. Choo and Eid found no support for an Alchian-Allen explanation using data on antebellum slave auctions in New Orleans. That is, Upper South slave prices were not lower simply because high-productivity slaves were transported to the deeper South.

[31] Similar patterns can be observed in a broader sample from 1820-1860. These estimates are omitted for space reasons but are available from the author on request.

4 Estimates

Given the changes brought about by the Fugitive Slave Act, this section examines if price differences between regions *actually* decline post-1850? If not, then the risk of escape was likely not a determinant of north-south price differences. The estimating equation used is of the form;

$$slave\ price = \beta_0 + \Pi X + \beta_1 D_1(1 = after\ 1850) + \beta_2 D_2(1 = Upper\ South) + \delta D_3(1 = after\ 1850 \times Upper\ South) + \epsilon$$

Here, Π is a vector of coefficients $\pi_1, ..., \pi_n$ corresponding to the effect of individual characteristics $x_1, ..., x_n \in X$. The difference-in-difference estimator $\hat{\delta}$ represents the differential effect of the Fugitive Slave Act on slave prices in states considered Upper South, which can change depending on specification.

Identification using a difference-in-difference approach also requires an assumption that there would be parallel trends across the South in the absence of the Fugitive Slave Act. However, violations of such an assumption are possible which would bias estimates upwards or downwards. On one hand, slave prices in states closer to the North may have fallen relative to those in the Deep South in the absence of the 1850 Fugitive Slave Act. For example, changing attitudes towards slavery combined with manumission and abolition movements may have made the slave trade less attractive in the Upper South. This would bias estimates towards zero, working against finding any significant effect of the Act even if it were present.

Alternatively, other factors (such as the value of commodities produced using slave labor) that affected slave prices in a specific place at a particular time could be varying in such a way as to cause slave prices to increase in the Upper South relative to the Deep South. The main concern would be that the relative price of tobacco (typically produced in northern slave states) and cotton (the staple crop in the deeper South) may have changed in such a way as to cause the value of slaves in northern slave states to appreciate relative to those in the South. To address this concern, the production and prices of crops in each region will be considered.[32]

4.1 Main Estimates

Table 2 presents estimates which use the log and dollar price of a slave as the dependent variable in alternate columns. Columns 3 and 4 omit slaves who have a "sale" price rather than just an appraisal price. Their omission has a relatively mild effect on the coefficients of interest. In Table 2, the sample is restricted to four years either side of the Fugitive Slave Act (FSA). The four years before January

[32]Directly accounting for such events potentially leads to endogeneity problems. If the Fugitive Slave Act caused slave prices to rise, then prices of commodities that were produced mainly using slave labor in the same area may also rise. If so, using commodity prices as a control variable in a regression is problematic. Any increase in commodity prices should be swift as supply curves will reflect the opportunity costs of production including holding onto rather than selling a slave whose sale price increases. With data observed at a higher frequency, tests for Granger causality would separate the two effects but with such a short time period and only yearly slave price data that approach is not feasible.

Table 2: OLS Estimates - 1846-1853 - Males and Females Age 11 and Older

	(1) Log of Slave Price	(2) Appraised Price	(3) Log of Slave Price excl. Sale Prices	(4) Appraised Price excl. Sale Prices	(5) Appraised Price
Male	0.299***	154.3***	0.294***	146.2***	140.4***
	(0.01)	(4.06)	(0.01)	(3.89)	(5.39)
Age	0.0643***	18.98***	0.0653***	19.55***	18.96***
	(0.00)	(1.23)	(0.00)	(1.19)	(1.23)
Age Squared	-0.00123***	-0.357***	-0.00124***	-0.361***	-0.356***
	(0.00)	(0.02)	(0.00)	(0.02)	(0.02)
Upper South	-0.544***	-206.2***	-0.549***	-203.2***	-190.1***
	(0.03)	(5.91)	(0.03)	(5.86)	(8.24)
After 1850	0.212***	126.0***	0.196***	113.8***	105.8***
	(0.01)	(4.59)	(0.01)	(4.32)	(5.90)
Upper South × After 1850	0.302***	93.40***	0.326***	103.2***	94.54***
	(0.03)	(10.07)	(0.03)	(10.08)	(14.61)
Upper South × Sex					-28.95**
					(11.45)
After 1850 × Sex					34.33***
					(8.85)
Upper South × After 1850 × Sex					0.595
					(19.95)
Observations	9,204	9,204	8,333	8,333	9,204

*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level. Estimates produced using Fogel and Engerman's 1974 Probate Appraisal Data-Set in a standard OLS difference-in-difference framework (ICPSR, 2006). FSA is used here as abbreviation for Fugitive Slave Act. The Upper South is considered to be Virginia, Maryland, and North Carolina. Robust standard errors are reported both here and in all later tables of OLS estimates.

1, 1850 are considered as pre-FSA and the four years from January 1, 1850 to December 31, 1853 as post-FSA.[33]

The estimates in Table 2 suggest the Fugitive Slave Act had a significant effect on slave prices in the Upper South (here defined as Virginia, Maryland, and North Carolina). The first column of the table reports the difference-in-difference OLS estimates using the log of slave price. The coefficient estimate for "Upper South" of -.544 suggests slave prices were 41.96% lower in the Upper South across the sample period. In the years after 1850, prices were 23.62% higher everywhere. The difference-in-difference term (Upper South × After FSA) suggests an additional 35.26% increase in prices in the Upper South compared to the Deep South after the Act.

Using the log of slave price as the dependent variable is preferred as the distribution of slave prices has a heavier right tail. However, to aid interpretation, the second column of Table 2 uses dollar values as the dependent variable. Those estimates suggest that slave prices in the Upper South were $206.20 lower than in the Deep South. After the Fugitive Slave Act, prices rose in all slave states by an average of $126.00 but by an additional $93.40 in the Upper South. Given the Fugitive Slave Act reduced the chance of successful escape rather than eliminating it, it is possible escape could have driven even more

[33]The Act did not come into effect until September of 1850. Considering the treatment date to be from January 1st 1850 allows for anticipated effects to preempt the law. Moving the "treatment" date to 1851 (as the data is not stratified by month) reduces estimates only slightly, see Section 5.

Table 3: Prices and Relative Frequency by State before and after 1850

	1846-1849				1850-1853			
	Obs.	Relative Freq.	Slave Price	(Std. Dev.)	Obs.	Relative Freq.	Slave Price	(Std. Dev.)
Maryland	412	73.97%	$305.52	(142.01)	341	45.90%	$488.16	(264.86)
Virginia	105	18.85%	$399.57	(142.69)	186	25.03%	$559.76	(229.55)
North Carolina	40	7.18%	$427.84	(109.25)	216	29.07%	$651.76	(243.19)
Upper South	557	100.00%	$332.04	(146.96)	743	100.00%	$553.64	(259.23)
Tennessee	13	0.35%	$473.08	(138.99)	14	0.34%	$731.43	(227.56)
South Carolina	114	3.04%	$440.86	(172.99)	335	8.07%	$582.19	(234.64)
Georgia	321	8.56%	$484.65	(200.09)	499	12.02%	$624.42	(241.39)
Mississippi	653	17.40%	$547.64	(194.95)	657	15.82%	$712.34	(276.68)
Louisiana	2651	70.66%	$550.13	(221.41)	2647	63.75%	$673.87	(303.92)
Deep South	3752	100.00%	$540.51	(215.12)	4152	100.00%	$666.81	(289.35)

This table splits the 1846-1853 period into two four-year windows and details the number of observations and the average price of a slave in each state in each period. It also provides weighted average prices for the regions based on the relative frequency of observations from a state in a given region. Standard deviations are not reported here but are similar to those seen in Table 1

of the regional price differences than observed here.

The fifth column of Table 2 interacts an indicator for gender with the difference-in-difference terms from the first four columns. This produces a triple-difference interaction term which can be interpreted as how the FSA affected males and females differentially in the Upper South. The triple-difference term's co-efficient suggests an effect that did not differ meaningfully by sex. As males escaped more often, this might surprise some readers. However, it is consistent with the data on rewards from advertisements presented in Section 5 which shows similar proportional reductions in both male and female runaways in the Upper South after the Act.[34] Additionally, the estimates in the fifth column provide some assurance that the effects attributed to the Fugitive Slave Act are not caused by changes in productivity or commodity prices. As males tended to be more productive, increases in output prices or technological productivity improvements would have been associated with relatively higher prices for males.

The estimates presented in Table 2 may be biased due to the aggregation of states into two regions - the Upper and Deep South. Table 1 shows that states had different pre-1850 prices and a composition bias could be driving the results because the data may contain *more* observations from higher-priced states in the Upper South after 1850. To see this, Table 3 splits the 1846-1853 period into two four-year periods and provides summary statistics for each state in each period. It also provides weighted average prices for each region based on the relative frequency of observations. The data does suffer from a composition bias in the Upper South: There are more observations from North Carolina and Virginia

[34] Specifically, the number of advertisements for runaway males in Baltimore and Richmond totaled 222 in 1849-1850 and fell to 181 in 1851-1852. In the same time period, the number of advertisements for escaped females fell from 51 to 34. As both female and male runaways seem to have become less common, it is not surprising the Act affected prices for both similarly.

Table 4: OLS Estimates with Sample and Specification Restrictions

	(1) Log Slave Price	(2) Log Slave Price	(3) Log Slave Price
Male	0.299***	0.299***	0.300***
	(0.01)	(0.01)	(0.01)
Age	0.0650***	0.0654***	0.0643***
	(0.00)	(0.00)	(0.00)
Age Squared	-0.00124***	-0.00124***	-0.00123***
	(0.00)	(0.00)	(0.00)
Upper South	-0.573***	-0.641***	-0.616***
	(0.03)	(0.03)	(0.03)
After 1850	0.212***	0.212***	0.228***
	(0.01)	(0.01)	(0.01)
Upper South × After 1850	0.268***	0.273***	0.198***
	(0.04)	(0.05)	(0.03)
Observations	8,948	8,657	9,204
	Excludes NC	Excludes NC and VA	Adds State Fixed Effects (includes NC and VA)

The dependent variable is each specification is log of slave price. Using dollar slave prices as the dependent values does not change the observed effects. Column 1 reports the co-efficient estimates from a difference-in-difference specification where North Carolina was dropped. Column 2 reports the co-efficient estimates from a difference-in-difference specification where North Carolina and Virginia were both dropped. Column 3 report co-efficient estimates from a difference-in-difference specification which includes state fixed effects which allow for differences in the mean price of a slave by state across the period. As this soaks up some of the *change* in the states closer to the Mason-Dixon line, it reduces the size of the effect on prices. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

post-1850 relative to pre-1850. Because these states already had higher prices than Maryland before 1850, the fact that there are more of them in the sample after 1850 ensures that the average price in the constructed "Upper South" is mechanically higher post-1850. As a result, the estimates provided in Table 2 are biased upwards: They represent the joint effects of the Fugitive Slave Act and a changing sample composition.

While there are changes in the composition of the sample, the effect of the Fugitive Slave Act can still be observed in Table 3. For example, in Maryland the increase in the average price between the two periods is over $180 (close to a 60% increase compared to the 1846-1849 average price) suggesting that a changing sample composition is not the only source of Upper South price increases. Additionally, as mentioned earlier, North Carolina may be misclassified if considered as part of the Upper South. Indeed, some parts of North Carolina (particularly the important trading port of Wilmington) are further from the Mason-Dixon line than parts of Tennessee and South Carolina and North Carolina prices are similar to South Carolina and Tennessee before 1850, then higher than South Carolina after 1850. Given North Carolina slaves may face escape probabilities similar to those in South Carolina and Tennessee and there are five times as many observations post-1850 compared to pre-1850 for that state an alternate

Table 5: Census of Agriculture Production by State (Year Ending June 1850)

	Tobacco	Cotton	Wool	Potatoes (Bushels)	Wheat (Bushels)	Corn	Population	Slave %
Maryland	21,407	-	477	974	4,495	10,750	583,034	15%
Virginia	56,803	1,579	2,861	3,131	11,213	35,254	1,119,348	40%
North Carolina	11,985	29,538	971	5,716	2,130	27,941	869,039	33%
South Carolina	74	120,360	487	4,474	1,066	16,271	668,507	58%
Georgia	424	199,636	990	7,214	1,089	30,080	906,185	42%
Tennessee	20,149	77,813	1,364	3,846	1,619	52,276	1,002,717	24%
Mississippi	50	193,717	560	5,003	138	22,447	606,526	51%
Louisiana	27	71,495	110	1,524	0	10,266	517,762	47%

Note: Agricultural output values are in thousands of pounds (except as noted). Source: US Census of Agriculture 1850 - available in original publication form at http://agcensus.mannlib.cornell.edu/AgCensus/censusParts.do?year=1850

specification removing North Carolina from the analysis is examined in Table 4.[35]

The first column of Table 4 shows that the effects of the Fugitive Slave Act (the co-efficient on the difference-in-difference term) are little altered by the removal of North Carolina observations from the sample. The estimate of the Act's impact is now 30.73% (corresponding to the .268 difference-in-difference co-efficient estimate).[36] The estimates are little changed despite the composition bias because the inclusion of North Carolina as an Upper South state reduced the overall price difference between the two areas across the sample period. That is, the effect of excluding North Carolina reduces the before-1850 slave price in the Upper South as well as the post-1850 average slave price. The second column of Table 4 illustrates the effect of removing Virginia so that Maryland is the only state considered as "Upper South." The final column of Table 4 examines how the inclusion of state-level fixed effects alters the estimated co-efficients (restoring NC and VA to the data). This specification allows the price intercept to vary for each state across the sample period. The difference-in-difference estimate decreases to 21.9% but remains statistically significant and reaffirms that the Fugitive Slave Act caused higher prices for slaves in states closest to the Mason-Dixon Line. As this specification soaks up some of the post-1850 price *changes* in states closer to the Mason-Dixon line, the fall in the Act's effect on prices is not surprising. Most importantly, the estimates from each of these specifications ease concerns that composition effects drive the estimates seen in Table 2.

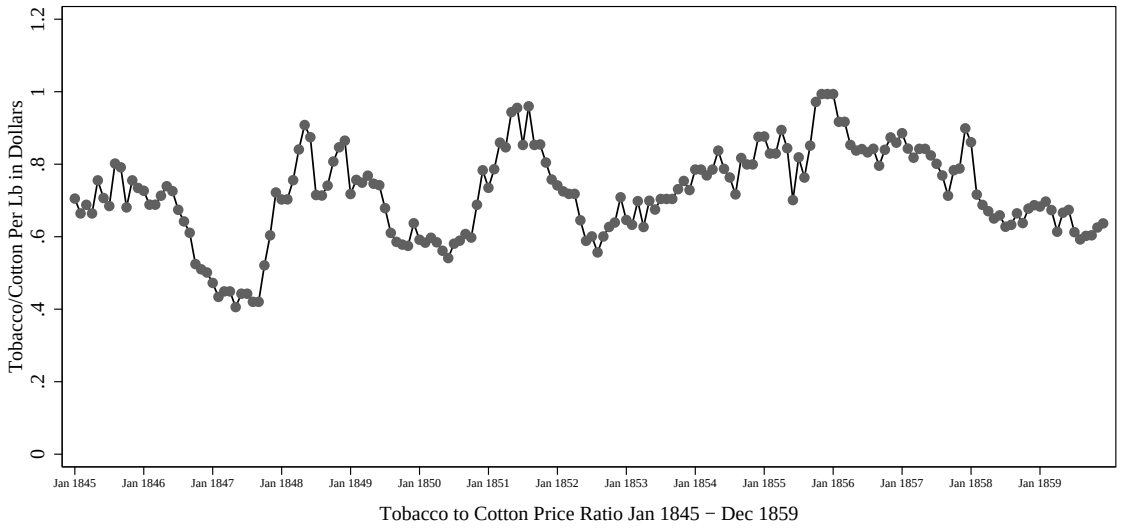
September 1, 1850 was the official implementation date of the Act. In the estimates presented, the Act was considered as affecting all observations after *and* including 1850. Treating the date the law comes into effect as 1850 potentially overestimates any effect while treating it as 1851 would underestimate it.[37] In regression estimates not reported here, considering observations occurring in 1850

[35]Considering North Carolina as part of the Deep South would address the escape probability issue but would not address the composition bias issue.

[36]The effect is just over $70 in a specification using the appraised value of a slave in dollars as the dependent variable.

[37]Either choice results in an unknown number of slaves appraised in 1850 being classified as pre-treatment when they were actually appraised after the new laws or as post-treatment when they were actually appraised before the law was enacted.

Figure 2: Ratio of Tobacco and Cotton Prices 1845 to 1859



as *before* the Act rather than after reduces the magnitude of the effect on prices to 23.98% where the dependent variable is log prices or $68.29 in a specification using the dollar value as the dependent variable. A reduction in the magnitude of the effect also occurs with the addition of state fixed effects as seen in Table 4.[38] Lastly, excluding observations from 1850 leaves estimates largely unchanged.[39]

4.2 A True Spatial Effect?

Table 5 shows the population, proportion of slaves relative to the total population, and annual production of major agricultural commodities for each of the states in Fogel and Engerman's appraisal data. Tobacco was prevalent in northern slave states and cotton was produced in large quantities only further south. This pattern poses a potential identification issue: If tobacco prices increased relative to cotton at the same time as the Fugitive Slave Act, then willingness to pay for slaves in the North may also have increased.

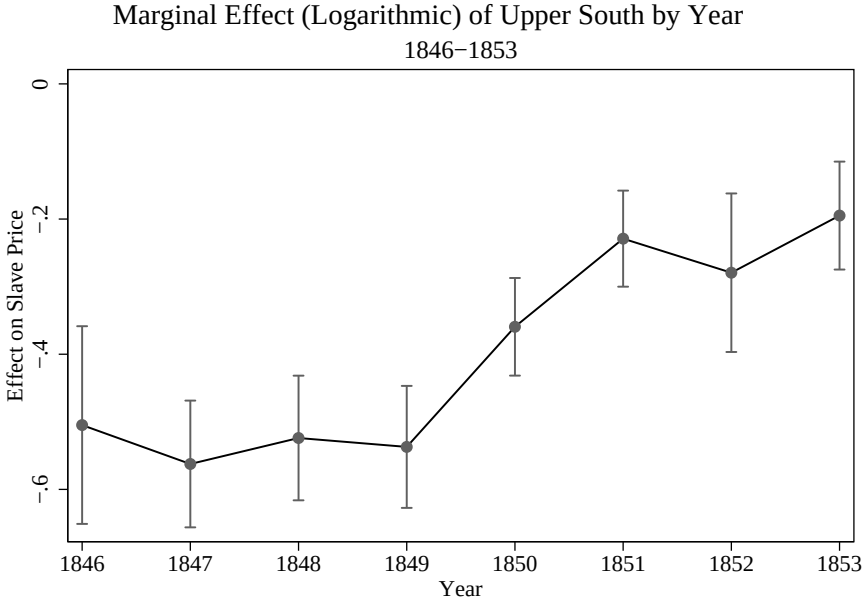
Figure 2 plots the ratio of tobacco and cotton prices using monthly data from five cities from 1845 to 1859: Philadelphia, New Orleans, Charleston (cotton only), Cincinnati, and New York.[40] While

[38]These estimates are available from the author upon request.

[39]Allowing for a wider, 10-year window (1845-1854) does not change the magnitude of the effect of the Act but tightens confidence intervals due to additional data points. A narrow four-year window (1849-1852) reduces the sample size and the estimated effect becomes smaller and less precise relative to the eight-year window used in Table 4.

[40]The figure plots the ratio of tobacco and cotton prices from 1845 to 1859. The ratio of prices for each month is created using the average of commodity prices observed monthly from five locations: Philadelphia, New Orleans, Charleston (Cotton only), Cincinnati, and New York. This data was gathered and published by Cole (1938). Mario J. Crucini, Chris I. Telmer and Robert A. Margo digitized this data and it is freely available at the Center for International Prices, see http://centerforinternationalprices.org/micro-price-data/cole-historical-data.

Figure 3: Upper versus Deep South Trends



the relative price of tobacco increases in early 1851, the ratio is nearly at a series minimum again by April 1852 while it was near a maximum in October 1848. If tobacco prices were the cause of slave price increases in early 1851 then slave prices should have decreased by 1852. They also should have increased in the Upper South from 1847 to 1848.

Figure 3 is a plot of the post-estimation predicted effect on prices in the Upper South by year across the period from 1846 to 1853. The estimation considers appraisal prices as a function of age, sex, year fixed effects, region-specific effects, plus an interaction between year and region fixed effects. As can be seen the effect of being in the Upper South was stable in the years leading up to 1850. Then, something happened in 1850 to cause a jump in prices in the Upper South region.[41] The pre-1850 stability and the marked change after 1850 suggest a causal relationship between the Act and slave prices in the Upper South. Given these patterns changes in output prices were likely not the source of price changes being attributed to the 1850 Fugitive Slave Act.[42]

Moreover, if higher slave prices in the Upper South were related to higher tobacco prices, Table 5 suggests the effects in Virgina should be at least as strong as in Maryland due to tobacco's relative prevalence. Instead, Table 6 shows that the post-1850 increase in prices was greater in Maryland than

[41] The pattern is even more pronounced post-1850 if North Carolina is removed from the analysis.

[42] A variety of specifications similar to those seen in Tables 2 and 4 including cotton and tobacco prices by state and year yields similar findings. Tobacco and Cotton prices actually have a mildly negative effect on slave prices as output prices varied while slave prices increased over the sample period. The effect on the difference-in-difference term of interest (Upper South after 1850) in these remains at between 18% and 28% and statistically significant in all specifications. These estimates are not presented as including commodity prices that vary only by year and state is equivalent to controlling for year by state fixed effects causing serial correlation bias in a difference-in-difference framework (see Bertrand et al., 2004).

Table 6: OLS Estimates of State-specific Changes in Slave Prices Post-1850

	(1) Log of Slave Price	
	Relative to Maryland	After Fugitive Slave Act
		0.491***
		(0.05)
Virginia	0.346***	-0.170***
	(0.04)	(0.06)
North Carolina	0.504***	-0.224***
	(0.05)	(0.07)
South Carolina	0.321***	-0.173**
	(0.07)	(0.07)
Georgia	0.559***	-0.228***
	(0.04)	(0.08)
Mississippi	0.696***	-0.255***
	(0.03)	(0.05)
Louisiana	0.641***	-0.267***
	(0.03)	(0.05)
Observations	9,177	

The regression includes controls for age and sex that are not reported. In the estimating equation, each state is given its own state-specific intercept before and after the Fugitive Slave Act. The omitted state is Maryland. The effect on slave prices is larger in the Upper South and diminishes as distance to the Mason-Dixon line increases. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

in Virginia. In the estimation results presented in Table 6, each state is given a state-specific intercept before and after the Fugitive Slave Act. Maryland is the omitted state.[43] The first entry in the "After Fugitive Slave Act" column represents the effect of the Act on prices for slaves in Maryland. Each subsequent co-efficient reflects differences between each state and the effect observed in Maryland. Other than South Carolina, the post-1850 effect on slave prices dissipates with distance to the North. Moreover, the effects of the Act are essentially the opposite of the pattern of price differences before the Act: States that had lower prices to begin with see the largest increases after 1850, exactly as would be predicted if escape risk and weak property rights were affecting slave prices. Given agricultural output prices cannot explain these changes, it would be an unlikely coincidence if price increases which seem neatly correlated with distance from the Mason-Dixon line (and also reverse the existing patterns) were caused by anything other than the Fugitive Slave Act.

4.3 County-Level Analysis

In addition to providing state and year of appraisal, the probate records almost always contain the county the record originates from. There are 28 different counties with usable appraisals for slaves

[43]Tennessee was dropped from this regression as there are only a dozen or so slave appraisals in before and after 1850 and the resulting state-specific effect cannot be measured precisely.

Table 7: Summary Statistics for County Data

	1846-1849	1850-1853
Average Slave Appraisal	$513.55	$649.63
(Standard Deviation)	(219.02)	(287.84)
Male %	55.8%	60.7%
Average Distance in Miles	698.51	664.75
(Standard Deviation)	(275.76)	(281.89)
Number of Appraised Slaves	4,309	4,895

The table presents the proportion of males along with the mean and standard deviation of price and distance calculated using observations by county. There are 28 counties represented. The minimum county distance to the Mason-Dixon line was 31 miles (Queen Annes, MD) and the maximum distance was 896 miles (De Soto, LA).

aged 10+ in the years before and after 1850. The counties are assigned a distance in miles to the Mason-Dixon Line constructed as the distance from the most northerly point in a given county to the southern Pennsylvania border. Summary statistics for the county-level data are provided in Table 7. Using county-level measures of distance rather than just an indicator for state provides an alternative way to test if the Fugitive Slave Act's effects were a function of distance to the Mason-Dixon Line.

Table 8 provides the estimates from a difference-in-difference estimation of the Fugitive Slave Act's effect on prices using the county-level measures of distance. Column 1 in Table 8 suggests prices increase by 6.6% for every 100 miles from the Mason-Dixon Line. After 1850, there is an increase in slave prices of 59.4% everywhere but the effect of distance on prices diminishes by 2.88% for every 100 miles in the period after 1850.[44] In other words, the positive relationship between distance from the Mason-Dixon Line and slave prices weakens after 1850. This finding is consistent with the idea that the Act reduced the north-south price gap by reducing the likelihood of escape in the Upper South. The estimation includes controls for the same demographic variables as in earlier estimations although those co-efficients are not reported. Using this continuous measure of distance also controls for pre-existing differences in prices across the period of interest minimizing composition bias concerns.

In the final three columns of Table 8 the estimations progressively drop Louisiana and Mississippi, then Georgia and Tennessee, and finally North and South Carolina leaving just Maryland and Virginia. The increasingly negative co-efficient on the difference-in-difference term in each specification reflects how the Act had a larger impact on slave prices closer to the North. This highlights that the Fugitive Slave Act had its biggest impact on the price-distance gradient *within* the states closest to the Free northern states.[45]

[44] Using the dollar value of a slave as the dependent variable produces a difference-in-difference estimate of $6.01 for each 100 miles. The effect is significant at the 1%-level.

[45] Table 8 also hints that the spatial effect of the Act on prices is preserved even if the route of escape differed for slaves

Table 8: Estimation of the Fugitive Slave Act's Impact as a Function of Miles from the Mason-Dixon Line

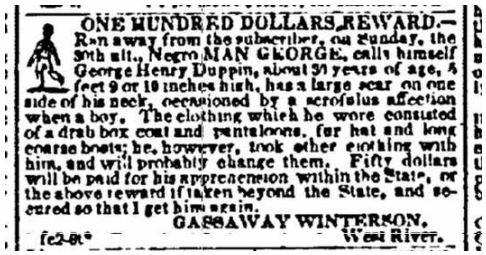
	(1) Log Slave Price	(2) Log Slave Price	(3) Log Slave Price	(4) Log Slave Price
Distance in Miles	0.000662***	0.00110***	0.00198***	0.00420***
	(0.00)	(0.00)	(0.00)	(0.00)
After 1850	0.466***	0.547***	0.562***	0.627***
	(0.03)	(0.04)	(0.05)	(0.06)
Post 1850 × Distance	-0.000288***	-0.000661***	-0.00112***	-0.00282***
	(0.00)	(0.00)	(0.00)	(0.00)
Observations	9,204	2,596	1,749	1,044
Maryland	Y	Y	Y	Y
Virginia	Y	Y	Y	Y
North Carolina	Y	Y	Y	
South Carolina	Y	Y	Y	
Tennessee	Y	Y		
Georgia	Y	Y		
Mississippi	Y			
Louisiana	Y			

The table reports the results of a difference-in-difference estimation of the Fugitive Slave Act's effect on prices using distance from a county to the Mason-Dixon Line in miles. The co-efficients on sex and age are not reported here. Column 1 reflect estimates for the entire sample. Column 2 excludes Louisiana and Mississippi from the estimation. Column 3 drops Georgia and South Carolina. Column 4 then drops North Carolina and Tennessee. The increasing absolute size of co-efficient on the difference-in-difference term across each column reflects how the Act had a larger impact on prices within states closest to the Free northern states. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

In sum, the passage of the Fugitive Slave Act appears to be associated with slave prices increasing in the Upper South relative to the Deep South. These effects are not caused by a composition bias within the data nor can they be explained by agricultural output prices. Most importantly, the size of the observed increase is related to distance using either indicators for state or county-level measures of distance to the Mason-Dixon Line. Adding further evidence to suggest that the Upper South price increases are causally related to the Act, Table 8 shows that the change in the price-distance gradient was largest *within* the Upper South. For these empirical observations to be unrelated to the Fugitive Slave Act there would have to be some event that occurs around 1850 that has the same spatial impact as the Fugitive Slave Act not only across the various slave states but also within northern slave states.

in different locations. Although not reported here, similar estimates are obtained if the sample is restricted to observations from counties closest to the Atlantic coast in each of Maryland, Virginia, North Carolina, South Carolina and Georgia. The same remains true whether the restriction includes only the *n*-nearest counties to the coast in each state (where n is some small integer), observations from counties where Pennsylvania is actually the closest non-slave state, or only observations within a specified number of miles to the Atlantic coast.

Figure 4: Typical Runaway Advertisement



ONE HUNDRED DOLLARS REWARD.—Ran away from the subscriber, on Sunday, the 30th ult., Negro MAN GEORGE, calls himself George Henry Duppin, about 30 years of age, 5 feet 9 or 10 inches high, has a large scar on one side of his neck, occasioned by a scrofulus affection when a boy. The clothing which he wore consisted of a drab box coat and pantaloons, fur hat and long coarse boots; he, however, took other clothing with him, and will probably change them. Fifty dollars will be paid for his apprehension within the State, or the above reward if taken beyond the State, and secured so that I get him again.

GASSAWAY WINTERSON,

fe2-6t* West River.

5 Robustness

5.1 Reverse Experiment and Sample Restrictions

Renewed "Personal Liberty" laws in northern states (see Section 2) eventually undermined the 1850 Fugitive Slave Act. These laws created new safe harbors for runaway slaves making successful escape *more* likely and should undo some of the increases in slave prices observed in the Upper South in response to the 1850 Fugitive Slave Act. Focusing on the period from 1852 to 1856, and using the renewed Personal Liberty laws of 1854 as the "treatment" date in a difference-in-difference specification including state fixed effects, the renewed Personal Liberty laws were associated with a fall in slave prices in the Upper South. The effects in the preferred log specification showed prices fell post-1854 relative to the Deep South but the effect was small (4.1%) and not quite statistically significant in a log specification. The estimate was significant and large ($51 fall in prices) in a specification using the dollar value of a slave as the dependent variable with state fixed effects.[46] The smaller effect is unsurprising as the Personal Liberty laws varied in their timing and content across the Free states from 1854 onwards.[47] Using county-level distances to the Mason-Dixon line tells a similar story. The effect of the enhanced Personal Liberty laws is a statistically significant $9.77 *decrease* in slave prices for each 100 miles closer to the Mason-Dixon Line after 1854.

The estimates presented in Section 4 did not differ meaningfully by sex. However, the effects of the Act could be expected to differ by age. If running away for very young or older slaves was less likely, then the effect of the Act on prices in the Upper South should change with age. To examine this issue, the sample was split into adolescent (10-17 years old) and adult (18+) slaves. The effect of Age on prices after 1850 is essentially zero for the adolescent group. However, within the 18+ group prices for younger slaves increased more than for older slaves suggesting that the effect on prices was highest for slaves who were the most likely to escape.

[46] However, slave prices had increased to an average of over $700 by the mid-1850s.

[47] Again, see Hur (2012).

Table 9: Frequency of Advertisements Before and After the Fugitive Slave Act by Region

	January 1849 to August 1850 (Monthly Average - 20 Months)	September 1850 to December 1852 (Monthly Average - 28 Months)
Deep South	267	236
	(13.35)	(8.42)
Upper South	274	215
	(13.7)	(7.68)

5.2 Additional Evidence from Newspaper Advertisements

Newsbank's American Newspaper Archives provides digitized editions of historical daily newspapers from across the U.S, search-able by keyword.[48] This is helpful because notices regarding runaway slaves were placed in newspapers. These notices provided a combination of a description of the slave, perhaps the county from which they fled, and a dollar value and terms of a reward for recapture. Typical advertisements looked like the one presented in Figure 4. The frequency of these advertisements along with information on rewards can provide further evidence to understand the Fugitive Slave Act's effects on escape.

To gather data, a keyword search was completed of Newsbank's archives for advertisements containing words associated with escape in the four year period from January 1849 to December 1852.[49] The search returned tens of thousands of results from newspapers during the antebellum period.[50] To economize on data collection, only advertisements from Louisiana, Georgia, Maryland, and Virginia are examined (as these account for most of the observations in the Fogel and Engerman data). Despite these restrictions, there remained over 6,000 notices for runaway slaves to be manually coded. Within those, there are many repeated advertisements for the same escapee while some were missing crucial information such as the slave's age, sex, or details of a monetary reward. In the usable sample, there are just under 1,000 *unique* observations.

The frequency of advertisements before and after September 1850 are shown in Table 9 by location.[51] Fewer runaways are observed in both locations after 1850. However, before the Fugitive Slave Act, there were more advertisements in the Upper South compared to the Deep South. After the Act, there are fewer and the number of unique advertisements per month falls from almost 14 to fewer than 8 per month in the Upper South.

Table 10 presents complete summary statistics from the advertisements data. Advertisements for runaways were most often for male slaves and on average runaways were in their mid to late twenties.[52]

[48] Available with subscription via readex.com.

[49] Search terms used were abscond, runaway, run away, ran away, fugitive, escape(d), and apprehend.

[50] Many of these were advertising lost dogs.

[51] The data presented was gathered by the author from advertisements provided by Newsbank's American Historical Newspapers collection. This is available with subscription to readex.com

[52] The limited number of observations in the sample causes a lot of variation in the summary statistics. Exacerbating the problem, there were no valid observations for Georgia in 1852. There were advertisements in that year but they were were missing gender, age, or specific details of a reward.

Table 10: Summary Statistics: Advertisements Data

Year	% Male	$ Reward (std. dev.)	Age (std. dev.)	# Repeats (std. dev.)	N	Year	% Male	$ Reward (std. dev.)	Age (std. dev.)	# Repeats (std. dev.)	N
		Georgia						Maryland			
1849	92%	65.56	29.58	5.08	12	1849	82%	70.99	23.73	2.76	101
		(76.79)	(8.22)	(5)				(68.58)	(8.21)	(2.32)	
1850	80%	16.43	23.5	1.7	10	1850	80%	85.99	22.24	2.82	115
		(8.02)	(4.88)	(0.82)				(78.29)	(5.84)	(2.42)	
1851	71%	17.14	25.43	3	7	1851	83%	83.84	23.58	3.24	71
		(6.99)	(7.81)	(4.43)				(78.13)	(7.4)	(2.39)	
1852						1852	81%	53.07	20.25	3.66	103
								(46.99)	(6.61)	(5.17)	
		Louisiana						Virginia			
1849	78%	31.6	24.78	4.95	167	1849	88%	27.88	27.88	2.62	26
		(32.2)	(6.31)	(8.84)				(22.22)	(6.85)	(2.3)	
1850	68%	33.45	26.52	5.42	78	1850	77%	39.33	25.71	2.47	32
		(26.26)	(8.39)	(5.36)				(35.15)	(7.31)	(1.27)	
1851	70%	60.59	28.41	11.22	99	1851	95%	36.9	35.14	3.86	21
		(95.73)	(7.55)	(16.89)				(31.48)	(11.06)	(2.9)	
1852	68%	35.9	27.03	11.08	130	1852	95%	44.25	26.3	2.15	20
		(36.4)	(6.85)	(13.9)				(41.68)	(6.32)	(2.43)	

Data collected by the author from advertisements for runaways found by searching through Newsbank's digitized repository of American Newspapers (available with subscription at readex.com). The table presents summary statistics for each state and year for percent male, mean age, mean reward offered and number of times the advertisement was repeated. The data is restricted to valid observations which were those listing a monetary reward, the gender of the slave, and were for a slave who was at least 12 years old. Note that 1852 contained no usable observations for Georgia.

However, the number of advertisements observed in each area provides less value than might first be expected. This is because the Act could have varying effects on the actual number of runaways and associated advertisements.[53]

On the other hand, the information on rewards for recapture provides an alternative test of this paper's main thesis. If rewards fall post-1850 it is evidence that stronger slave-owner property rights are driving the observed results. This is because Fogel and Engerman's data show slave prices in the Upper South increased after 1850. This should increase rewards offered, all else equal. On the other hand, rewards offered should fall if it became easier to recapture an escaped slave.[54]

Table 11 provides estimates of the Fugitive Slave Act's effects on rewards offered. The estimation uses the same difference-in-difference framework laid out in Section 4 combined with the newspaper data on rewards and repeated advertisements. In the first three columns, rewards offered, the log of rewards, and then the number of times an advertisement was repeated are the dependent variables. The final three columns add state fixed effects to control for potential composition bias. After the Act's implementation, it appears that rewards in the Upper South fall by a statistically significant $18.76

[53]If slave-owners react to stronger property rights by imposing harsher conditions on their slaves it might make sense if *more* slaves attempted to run away. However, if slaves were fully aware of the Act's repatriation provisions, they may be *less* motivated to try to escape.

[54]The value of this empirical exercise is asymmetrical: Even if property rights were improved by the Act's changes, the increasing price of slaves could have overwhelmed any associated reduction in rewards in the Upper South.

Table 11: OLS Difference-in-Difference Estimates on Rewards using Advertisements Data

				with State Fixed Effects		
	(1) Reward	(2) Log Reward	(3) # Repeats	(4) Reward	(5) Log Reward	(6) # Repeats
Upper South	37.53***	0.555***	-2.154***			
	(4.719)	(0.0848)	(0.499)			
After Fugitive Slave Act	12.95**	0.190**	5.779***	12.29**	0.176**	5.597***
	(5.240)	(0.0753)	(1.087)	(5.204)	(0.0756)	(1.082)
Upper South × After FSA	-18.76**	-0.205	-5.100***	-18.92**	-0.204	-4.934***
	(7.939)	(0.130)	(1.143)	(7.740)	(0.127)	(1.138)
Observations	932	932	992	932	932	992
Controls for Age (polynomial)	Y	Y	Y	Y	Y	Y
Controls for Sex (plus interaction with Age)	Y	Y	Y	Y	Y	Y
State Fixed Effects				Y	Y	Y

The table shows the effects of the same estimating equation as in Section 4 applied to the advertisements data. In the first three columns, rewards offered in dollars, the log of rewards, and then the number of repeated advertisements are the dependent variable. The final three columns repeat those estimations with state fixed effects to control for any data composition bias. The number of observations in the third regression in each set are higher as it was possible to include advertisements where a reward amount was not specified. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

relative to rewards offered further south. In the second column, the dependent variable is log rewards. While the sign of the estimate is consistent with improved property rights for slave-owners it is not statistically significant. However, in contrast to slave prices, the distribution of rewards is not skewed heavily rightwards. As a result, the specification with the level of rewards offered in dollars is preferable. The third column suggests the repetition of advertisements also decreases significantly post-1850 relative to the Deep South. The final three columns show that the estimates are not driven by composition bias as they are unchanged after controlling for state fixed effects.[55]

The advertisement data shows fewer runaways, smaller rewards, and fewer repeated advertisements in the Upper South all while prices were rising post-1850 in the Upper South. Rising rewards would be consistent with some other event causing slave prices to rise in the Upper South. However, the patterns in the data suggest that improved property rights caused prices to rise.

6 Conclusion

Regional differences in antebellum slave prices have previously been attributed to regional variation in agricultural productivity. However, due to their geographical proximity to Free states, this paper

[55] Aside from data composition issues, the Act could have changed the incentive to advertise runaways in either direction. The Act made recapture easier but increased slave prices pushing the value of a slave up. Because age and sex were highly correlated with prices, the demographic characteristics of slaves appearing in the advertisements should change if left or right censoring by slave-owner's decisions to advertise were driving these findings. However, in the advertisement data there are no statistically significant demographic changes in the Upper South while there are contradictory changes in the Deep South (relatively more females and generally older slaves). Overall, the type of slave advertised does not change in a clear direction towards less or more valuable slaves minimizing any censoring concerns.

considers if slave prices in northern slave states were affected by the risk of escape. Only scattered contributions have suggested slave escape was an issue and those provide limited empirical evidence to back their claims.

To examine the effect of escape, the paper uses the Fugitive Slave Act of 1850 as a natural experiment. The Act boosted slave-owner property rights and made successful escape less likely. After the 1850 Act, the gap in regional slave prices diminishes significantly suggesting slave-owner property rights were not as strong as previously thought and showing that slave prices may have varied by region for reasons other than agricultural output. The observed effect is robust to alternate sample restrictions, controls for composition bias concerns, and displays a pattern both across states and within northern slave states that suggest the Act had a causal effect on slave prices. Additionally, when Free states later enacted new legislation to undermine the Fugitive Slave Act, the Act's effects were partially reversed. The pattern of the Act's effects also cannot be explained by variation in agricultural output or their associated output prices.

The paper's main findings are supported by hand-collected data on fugitive slaves from newspaper notices around 1850 in slave states. The newspaper data shows a reduction in the number of runaways supporting the contention that the Fugitive Slave Act reduced escape risk. In addition, a fall in rewards offered and fewer repeat advertisements in northern slave states support the idea that property rights were enhanced by the 1850 Act. If rewards had increased, it would suggest slave prices were increasing in the Upper South for reasons unrelated to the Act or slave-owner property rights.

The paper's findings are important as even those who viewed slavery as a complex institutional arrangement dismiss escape's role. These authors ignored how a credible threat of escape and costly monitoring efforts can impact slave prices even without escape becoming common. Indeed, the estimates presented in this paper may understate the importance of slave-owner property rights because the Act reduced rather than eliminated the chance of escape.[56]

Ultimately, the available evidence suggests slave prices varied across regions not only due to productivity differences but also due to the perils associated with owning human beings who can act and choose for themselves in ways livestock and inanimate objects cannot. The findings complement productivity-based explanations of the regional price gap and show that slave agency played an important role within the Peculiar Institution.

[56]In addition, abolition and manumission efforts in the North, if influential, may have reduced demand for slaves in border states.

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