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

*Conor Lennon**

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Abstract

Antebellum slave prices were persistently lower in states closer to the North. This empirical regularity has been attributed to differences in agricultural productivity between regions. This paper examines slave escape as a complementary explanation. Using data from probate records in a difference-in-difference framework, estimates suggest the 1850 Fugitive Slave Act increased prices in border states by between 15% and 30% more than states further south. Estimates are robust to changes in sample restrictions, spatial composition effects, and placebo tests on the Act's implementation date. The findings are further supported by a reduction in rewards offered and frequency of advertisements for runaways from newspaper advertisements at the time.

1 Introduction

In the antebellum South, slaves in states closer to the North persistently sold for less than slaves located further south. The price difference between regions is typically attributed to differences in agricultural productivity (Fogel and Engerman, 1974; Evans, 1962) with authors highlighting a longer growing season, increased hours of sunlight, and soil quality in the deeper South. In particular, Olmstead and Rhode (2008), using plantation-level data, find that deeper South slaves picked much more cotton per day compared to a slave closer to the North.[1] As a result, this paper does not dispute the role of productivity but asks if slave escape could have been a complementary cause of the observed price differences.

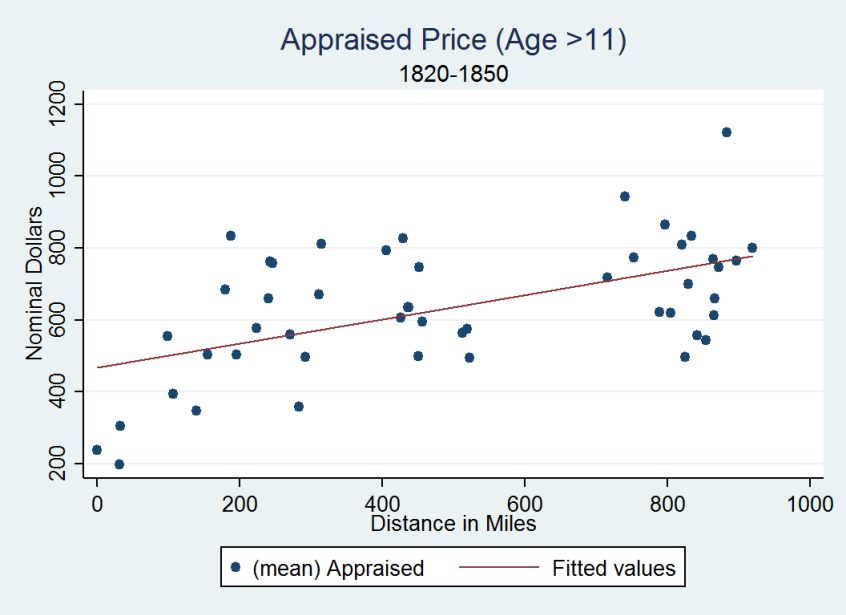
Slave escape could play a role because slaves closer to Free states had a shorter route to freedom than a slave who was located further south. Concerns about escape would limit willingness to own slaves and depress slave prices in states such as Maryland and Virginia, all else equal. Figure 1

*University of Pittsburgh; Email:cjl55@pitt.edu

[1] Olmstead and Rhode's work additionally provides new insights into a long-running debate on the source and extent of slave efficiency ignited by Fogel and Engerman (1977).

illustrates the price-distance relationship of interest. The figure uses slave values from Fogel and Engerman's Probate Appraisal records (1974) and plots them as a function of distance from the county of observation to the Pennsylvania component of the Mason-Dixon Line.[2]

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



Source: Fogel and Engerman's Probate Appraisal Data-Set (1974). The figure highlights how average prices varied by county. The measure of distance used in the figure is the minimum distance between the most northern point of a county and closest point along the Pennsylvania portion of the Mason-Dixon Line. The lack of observations around 600-miles reflects a lack of observations for Alabama and north and eastern Mississippi.

Clouding identification, both productivity and the supposed differences in likelihood of escape are correlated with distance from the North. As a result, the only way to causally relate escape to regional price differences would be to observe an exogenous change in the likelihood of successful escape that affected one region more than the other, but left productivity unchanged. The 1850 Fugitive Slave Act, at least on paper, provides this kind of change creating a natural experiment that can be used to test how prices were impacted by variation in the risk of escape.

An earlier Fugitive Slave Act, from 1793, had been nullified by a series of legislative and judicial decisions in Free states. As a result, fugitive repatriation was costly and difficult for slave-owners. The 1850 Act closed legal loopholes, mandated Federal and State officials to assist recapture efforts, allowed bounty hunters to cross into the North to recover slaves, and imposed a fine of $500 (in 1850 dollars) on anyone who assisted fugitive slaves. If the improved property rights afforded by the Act do not close the gap in prices between the regions then it suggests slave escape was not important

[2]As explained in Section 2, successful escape required crossing into Pennsylvania due to legal restrictions in Texas, Ohio, Illinois, and Indiana.

and strengthens the argument that agricultural productivity explains regional slave price differences. On the other hand, if prices do respond to the Act, it suggests slave escape may have been an issue with subsequent consequences for our understanding of the Peculiar Institution.

Estimates of the effect of the Fugitive Slave Act are generated using Fogel and Engerman's probate slave appraisal data-set using a difference-in-difference estimation approach. The data-set contains appraisal values and basic demographic information for thousands of slaves in eight southern states for many years. Estimates suggest the 1850 Fugitive Slave Act was a significant boon to slaveowners' property rights. The data shows an increase in prices in states closer to the North of between 15% and 30% depending on specification. The estimates are robust to alternate specifications, time periods, sample restrictions, and a series of placebo tests.

The use of the Act as a natural experiment relies on a *contention* that the Act had a greater effect closer to the Mason-Dixon line. That is, while the Act represents a *de jure* improvement in property rights for slave-owners, its *de facto* effects are questionable. Indeed, many have argued escape was so uncommon that the Act was mere political grandstanding. This paper, via a review of the literature surrounding slave escape and political events before and after the Act, shows that actual and threatened slave escape was a major issue in states closer to the Free northern states. In addition, using hand-collected data from antebellum newspapers, the paper highlights a significant drop in the number of advertisements for fugitive slaves in the years following the Act. Supporting the main findings, the greatest reductions in runaway advertisements are observed in areas closest to the North.

As a result, the relationship between the Act and slave prices should be viewed as causal. However, it is always possible that the observed effects are due to some other contemporaneous change that also happened to have a stronger effect on the price of slaves located closer to the Mason-Dixon line. Such a claim cannot be falsified with the given data. Nor can it be dealt with by appealing to variables that may explain slave prices such as crop prices (tobacco or cotton), land prices, or labor rental rates. Standard endogeneity issues preclude such an approach. Instead, the contention is further supported by an analysis of pre-trends before the Act was announced and the advertisements data mentioned earlier. In addition, the paper appeals to a second instance of regulatory change affecting the likelihood of escape: Despite initial support for the Act, Free states implemented new Personal Liberty laws protecting fugitives. These reverse a significant portion the Fugitive Slave Act's effects on prices.

On face value, finding that property rights matter will surprise few. However, slavery scholars have argued that the Fugitive Slave Act was neither necessary or relevant. They argued slaveown-

ers' property rights were already strong as relatively few slaves escaped before or after the law. This implies slaves could not use the threat of escape to their benefit. Such a view restricts slaves' agency, suggesting they were unable to act to improve their own situation. Instead, if the Fugitive Slave Act had a large impact, it shows the Act was not just a perfunctory nod to Southern interests and that property rights were weaker than previously thought. Such a finding is consistent with slaves having complete agency. Moreover, the dismissal of the Act in the existing slavery literature is puzzling. If slave-owners' property rights were strong, slaves didn't escape, and slave-owners' did not worry about losing valuable assets, why would two Acts of Congress designed to reduce escape be required?

Section 2 explains the content and development of the 1850 Fugitive Slave Act and presents slavery as an economically rational institution. To do so, the paper visits the relevant literature on slave profitability, escape, and inter-regional trading: Applying economic analysis to the market for slaves only makes sense if economic forces were at play.[3] Section 3 describes Fogel and Engerman's probate appraisal data set while Section 4 presents estimates of the Act's impact on prices. Section 4 also explores the effect of stronger Personal Liberty laws which were enacted from 1854 in Free states in an attempt to undermine the 1850 Federal law.[4] Section 5 considers the robustness of these estimates. It also presents additional data on runaway frequency and rewards offered gathered manually from newspaper announcements in southern cities before and after the Act. Section 6 concludes.

2 Did Slave Escape Matter?

Arguing that slave escape mattered contradicts most of the existing literature on escape. For example, Geyl (1951) and McPherson (1988) argue that the Fugitive Slave Act was little more than political grandstanding. Geyl claimed "[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." However, the evidence offered to support such a claim is questionable. Firstly, the frequency of runaways was typcially estimated using census data. The 1850 and 1860 censuses asked slaveowners how many of their slaves were currently fugitives (see Hummel and Weingast, 2006 for more details). The census data is unreliable because it is a self-reported point-in-time estimate rather than

[3] If slave-owners were irrational and barbarous, slavery was unprofitable, and slaves were not agents in the true sense of the word then slave prices may not actually respond to market forces as we would expect. It is necessary to establish that slavery was profitable, prices reflected economic conditions, and slaves used the few bargaining chips they had at their disposal to ensure economic analysis is appropriate.

[4] Curiously, many Northern states supported the Act, issuing declarations of affirmation and promises of enforcement. These appear to have been politically motivated in order to dampen talk of secession. See Section 2 for more details.

an objective cumulative estimate of how many slaves have ever run away. More importantly, the data is uninformative as it does not consider the effects of the *threat* of escape. If the threat of escape forced slave-owners in the Upper South to treat slaves more "kindly" or required additional private resources to be used for monitoring and security, slave escape could play a major role in the demand for slaves without any escapees being observed.

Hummel and Weingast and Freehling (1990), stand out as rare examples of discord. Freehling argues that runaways would be a greater threat for slaveholders in states bordering the North.[5] Hummel and Weingast agree with Freehling and demonstrate that runaways were much more common *in border states*. To do so, they consider the proportion of runaways as a function of the slave population in each state. Their approach illustrates runaways were a much bigger issue in states bordering the Free states.[6] Hummel and Weingast highlight that Delaware, Maryland, Virginia, Kentucky, and Missouri combined to account for more than half of all runaways listed in the 1850 and 1860 censuses. These five states contained less than a fourth of the total slave population in 1860. However, even if productivity were equal *and* census data showed runaways were equally prevalent in the Deep and Upper South, it does not mean the threat of escape did not cause the observed price differences. This is because, in the spirit of Fogel and Engerman , a slave-owner who lived a few miles from the Pennsylvania border might have to treat a slave quite differently compared to a slave-owner in Louisiana, all else equal.

The literature has not adequately 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. A border state slave-owner concerned about runaways had to take steps to ensure staying was the relatively more attractive option (via the stick of increased monitoring or the carrot of concessions). The Fugitive Slave Act significantly altered the terms of this implicit negotiation by providing increased public monitoring and reducing the chance of successful escape for a slave.

The Fugitive Slave Act of 1793 should have protected slaveowners' property rights. However, the Act failed to determine whether state or federal officials were responsible for the return of escaped slaves (Rosenberg, 1971). Free states pounced upon this ambiguity and undermined the Act with

[5]Freehling also contended that the vulnerability of border state slave-owners contributed to a retreat of slavery toward the Deep South and also created a powerful special interest group who demanded Northern states comply with the Fugitive Slave Acts of 1793 and 1850.

[6]There are a number of caveats to Hummel and Weingast's approach. If slaves were more valuable in the Deep South (due to productivity differences) then we might expect more resources to be devoted to recapture in the Deep South. Greater monitoring, both public and private, in the Deep South would ensure runaways remained fugitives longer in border states than in more southern states. As the census is a point-in-time snapshot, the data used by Hummel and Weingast to suggest more slaves ran away in border states may simply reflect differences in the time-to-recapture in the two regions rather than differences in the frequency of runaways.

what were known as "Personal Liberty" laws ensuring that a slave who made it across the Mason-Dixon line would rarely be sent back to the South.[7] In response, an enhanced Fugitive Slave Act made its way through Congress as part of the Compromise of 1850. The Compromise admitted California to the Union, creating a Free state majority. The Fugitive Slave Act of 1850 was a concession to Southern interests to compensate for the new imbalance.[8] The 1850 Act allowed slave-owners to hire bounty-hunters to recover runaway slaves, mandated state *and* federal officials to assist slave-owners, and levied harsh punishments for interfering in slave re-capture. The Act also closed all of the loopholes which had undermined the first Fugitive Slave Act.

Despite the Act being a response to the behavior of Free states, their legislatures initially supported the Act. Strother (1962) reports how in February of 1851 Democrats in Hartford, Connecticut announced "[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." Despite this initial support, enforcement of the Act proved troublesome, particularly after President Franklin Pierce took office in March of 1853. Pierce took a heavy-handed approach to fugitive slaves such as Anthony J. Burns (von Frank, 1998). Von Frank explains how the events surrounding Burns' recapture (along with other similar cases) advanced the abolitionist political agenda and lead to the passage of enhanced Personal Liberty laws in Northern states.

In 1854, Connecticut, despite its initial support for the Act, reinstated protections for fugitive slaves via new Personal Liberty laws. The laws nullified many of the provisions of the 1850 Fugitive Slave Act.[9] Connecticut was joined by Rhode Island also in 1854. Massachusetts, Maine, and Michigan followed in 1855 while Wisconsin, Ohio, and New Hampshire passed similar laws in 1857. Vermont was the last to pass a Personal Liberty law in 1858 (see Hur, 2012 for an in-depth treatment of these laws). Aiding identification, Connecticut's Personal Liberty law of 1854, because it created a new safe haven for fugitives, can be exploited as a *reverse* experiment.

[7]Within this institutional reality, the Underground Railroad helped thousands of slaves escape to the North many years prior to President Lincoln's emancipation proclamation. The Underground Railroad gained its name by using the language of the railroad rather than a specific method of transportation. Fugitive slaves would find safe harbor at "stations" which were run by "stationmasters." Financial supporters were "stockholders," and a "conductor" moved fugitives from one station to the next. For further details on the Underground Railroad, see Snodgrass (2008), Still (1968), or Blockson (1987).

[8]For example, there would be no federal restrictions on slavery in the territories of Utah and New Mexico. See http://www.ushistory.org/us/30d.asp for more details.

[9]Johnston (1884) notes that the new Personal Liberty laws generally "prohibited the use of the state's jails for detaining fugitives; provided state officers ... to act as counsel for persons alleged to be fugitives; secured to all such persons the benefits of *habeas corpu*s and trial by jury; required the identity of the fugitive to be proved by two witnesses; forbade state judges and officers to issue writs or give any assistance to the claimant; and imposed a heavy fine and imprisonment for the crime of forcibly seizing or representing as a slave any free person with intent to reduce him to slavery."

The Fugitive Slave Acts of 1850 and 1793 along with Northern states' retaliatory legislative responses to each could be taken alone as sufficient evidence that escape was a significant issue. Providing further evidence, authors such as Deyle (2005) explored the concerns individual slaveholders had about escape. A particularly enlightening passage taken from correspondence between Thomas Copes of Illinois and his brother Joseph, who lived in Mississippi, reads;

> "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"[10]

In addition to the direct loss associated with escape, Deyle provides evidence to show that slaves regularly used escape as a bargaining chip to their advantage across all slave states. He highlights that the threat of escape was one of the main ways slave families managed to remain together. Given any hint that they may be separated by sale, such as the appearance of anyone who may be a slave trader, Deyle reports that slave families responded by escaping or with threats of violence.[11] It would be unreasonable to suggest slaves were unable to translate this threat into bargaining power in other areas of conflict.

Campbell (1989), focusing on slavery in Texas, highlights the dilemma of a slave-owner close to Mexico. Slave-owners, such as a certain "N.B. Hawkins," were afraid to "chastize" slaves as they were "right on the line where they could cross into Mexico and be free" (pp. 179-180). The route of escape for slaves in states such as Louisiana, Alabama, and Georgia was almost always to proceed north, rather than south to Mexico. Texan law and institutions were particularly unfavorable to slaves attempting to runaway to Mexico. In 1846, the Texas legislature created an incentivized patrol system granting slaveholders power to search places suspected of harboring escaped slaves. The rewards for capturing escaped slaves were divided among patrol members and "paterollers" became feared by slaves. For slaves who were not indentured in Texas, the journey through Texas from other states would have been quite difficult as "free persons of color" were prohibited from entering the state in 1840. Under the law, a slave who wanted to escape to Mexico would be re-enslaved immediately in Texas, if caught, regardless of their actual status.

In addition, states such as Ohio, Indiana, and Illinois, while technically Free, were not slave-friendly. Each had laws ensuring a free slave could not enter the state (see Farnam, 1938) by requiring

[10] Thomas P. Copes to Joseph Copes, Oct. 31, 1846, Copes Papers, Tulane University Library: Special Collections. More information available at http://specialcollections.tulane.edu/archon/?p=collections/findingaid&id=736&q=&rootcontentid=125323#id125

[11] In fact, slave traders would place advertisements in newspapers highlighting their discretion and how their unique appearance would not raise suspicion that they were a slave trader.

free blacks to produce documents proving that they were not enslaved and posting a good behavior bond. Ohio's "Black Laws" enacted in 1804 and 1807, required a bond of $500, a prohibitively large sum for the time. Similar anti-immigration 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. Effectively, the only place a slave could go was to the Atlantic north-east crossing the Mason-Dixon line along the southern border of Pennsylvania.

Given that Deyle finds evidence that sales occurred in order to minimize the chance of loss from runaway slaves and that both Campbell and Deyle report instances where slaves used both the explicit and implicit threat of escape to improve their situation it is easy to imagine that the threat of escape might explain a portion of the difference between prices in the Upper and Deep South. Despite this, regional price differences have been ascribed to regional 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. Transportation was so arduous that it had to be managed by specialized slave traders. These traders traveled to the Upper South, purchased slaves to form a "lot," 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). On a daily basis, success and safety were threatened not only by abolitionists, theft, and the elements, but also by the risk of slaves engineering their own escape or becoming violent. In addition, before and during their departure to the south slave traders expenses would be significant. Slaves who were to be transported had to be housed in pens and the slave trader had to finance food and lodging for the slaves and wages paid to employees (drivers) during the journey south.[12]

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. The gains to those who successfully managed to transport slaves south were significant, but the costs were not trivial.[13] The Fugitive Slave Act of 1850 would have had an ambiguous effect on the quantity of

[12]Many larger slave trading operations eventually formed and used rail and sea to transport slaves quicker albeit at increased cost. Again. see Deyle, p. 106-111.

[13]Many slaves who were moved to the Deep South simply traveled south with their owner. However, when the importation of slaves was outlawed in 1808, the domestic market for slaves began to grow and many slaves were sold from their existing owners in the Upper South to new owners in the Deep South.

Authors who have studied the internal slave trade suggest that somewhere between half a million to a million slaves were

slaves transported between regions. On one hand, the price increases may make transporting slaves less attractive and profitable. On the other, improved property rights may have reduced financial risks borne by the trader and improved the behavior of slaves in coffles. The reduction in risk and non-monetary costs of transport may have been enough to offset some or all of the increase in price. Unfortunately, detailed data on trader activity around the time of the Act is not available.

This paper relies on a sophisticated response to the Fugitive Slave Act by participants in the slave trade, including enslaved individuals. If slavery was irrational and unprofitable it may be fair to question if the participants can be relied upon to change their behavior in response to economic incentives. Many earlier slavery scholars maintained that the institution was indeed unprofitable, inefficient, and barbaric.[14] Phillips (1918) provided early empirical evidence on profitability. He gathered data from plantation documents, probate records, and bills of sales, and provided quantitative evidence in support of his propositions. Based upon this work, Phillips claimed (p. 391-392) that;

> "by the close of the [eighteen] 'fifties it is fairly certain that no slaveholders but those few whose plantations lay in the most advantageous parts of the cotton and sugar districts and whose managerial ability was exceptionally great were earning anything beyond what would cover their maintenance and carrying charges."

Flanders (1930) claimed that "[i]t cannot be denied that slave labor was expensive and inefficient." Bancroft (1931) was less certain the enterprise was unprofitable but was convinced that the institution was barbaric.[15] However, modern econometric methods have shown the slave trade, prices, management, and ownership to be quite rational and profitable even if it was perhaps not "optimal."[16] Controversially, some authors have claimed that slavery was not as barbaric as Bancroft

transported south between 1820 and 1860. However, Historians and Economic Historians have debated these estimates for the last century. The main issue of debate was whether or not most slaves were simply sold or whether they moved with their owner. The distinction is debated only because a slave sale would mean splitting up a family and would be evidence of the barbaric nature of slavery. Fogel and Engerman estimated the total number of slaves who moved to the South was about 686,000 in *Time on the Cross*. Crucially, they argued that over 80% of these were migrants who moved with their owners and, importantly, their family. Fogel and Engerman claimed relatively few slaves were *sold*. Their findings corresponded quite well with the 724,000 slaves estimated to have been transported by Collins (1904). More recently, Tadman (1989) attempted to resolve this bone of contention. Taking issue with Fogel and Engerman's data and methods, suggesting many more slaves were sold than Fogel and Engerman claimed.

[14]The idea of slavery being unprofitable stretches back to the principles of liberty espoused by Adam Smith in 1776. Smith's argument was that the work of free men "comes cheaper in the end than the work performed by slaves."

[15]Via correspondence with those who were actively involved in the slave trade he attempted to expose the underbelly of the slave trade. Bancroft detailed the "breeding" and "rearing" of slaves for future sale. Bancroft also discredited the notion that traders were social outcasts. Instead, he found that major traders were part of the highest classes of Southern society.

[16]Evans (1962) explains that the long-running argument over the profitability of slavery in the antebellum South was clouded by the difficulty in establishing what counted as profit, what expenses a slave-owner incurred over the life of the

and others maintained. The first of these claims appears to have been made by Conrad and Meyer (1958) who compile evidence on the costs of maintenance and purchase prices, and compare slavery to alternative investments such as bonds and stocks. They conclude that;

1. Slavery was profitable for the whole South, rather than pockets as claimed by Phillips;
2. The institution was stable, and not self-destructive as claimed by Bancroft;
3. Slave territories would have expanded in the absence of the Civil War, rather than collapsing;
4. If the profitability or suitability of cotton fell, surplus slaves would have been turned towards other forms of economic development.

In *Time on the Cross*, Fogel and Engerman furthered these claims. Combining census data, transcripts of oral interviews, and plantation records they discover slaves' material lives were quite similar to free laborers.[17] Morally repugnant practices such as slave "breeding" were found to be uncommon with slaves regularly being allocated plots, encouraged to maintain families, and given significant plantation responsibilities beyond manual labor. The approach and findings of Fogel and Engerman and others such as Kotlikoff (1979) who examine slavery in an economically rational light seems to have struck a cord.[18] Whaples (1995), in a survey of areas of agreement (and disagreement) among Economic Historians, found near *unanimity* among members of the profession that;

1. Slavery was not a system irrationally kept in existence by plantation owners and that
2. The slave system was not economically moribund on the eve of the Civil War.[19]

Lastly, the literature has hesitated to exploit the regulatory changes brought about by the Fugitive Slave Act (and the subsequent Personal Liberty laws). This is odd only because so many authors

slave, how slave labor compared to freely provided labor, and how the market for cotton determined the demand for and thus the price of slaves. By clearly defining the costs and benefits to slave ownership, and examining data on slave markets and the returns to alternative investments, Evans argued that the rate of return on expenditure on slaves was more than adequate and that slavery was booming right up until the Union army prevailed in the American Civil war.

[17]They calculated that between "the value of housing, clothing, food and other benefits received by the slaves", the "slave field hand received approximately ninety percent of the income produced." Fogel and Engerman's mathematically rigorous approach and their associated findings were highly controversial and Gutman (1975) was one of many to critique Fogel and Engerman's methods, data collection, and conclusions.

[18]Kotlikoff, using data on slave auctions in New Orleans, focused only on how slave prices were determined rather than directly on the profitability of the institution and concluded that "[t]he pricing of slaves in New Orleans suggests a highly competitive and economically 'rational' market differing in few respects from a market in live stock."

[19]Moreover, the behavior of individuals undermines the argument against the profitability of slavery. First, slaves were traded for considerable amounts in what appears to be a very active and well-organized market for many decades (if not centuries). Second, planters expended significant resources and managed to have Federal laws enacted to help them re-capture escaped slaves. Thirdly, Southern planters were willing to secede from the Union and fight a civil war to maintain the institution. It would be surprising if even one, never mind all, of these events occurred in the absence of an unprofitable institution.

have attempted to "rationalize" slavery and the Fugitive Slave Act of 1850 provides a test for rational behavior. The fact that slave-owners clamored for a Fugitive Slave Act which reinforced the institution suggests slaves were previously 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, rational, and above-all tenacious in the face of extreme adversity.

3 Probate Appraisal 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.[20] For the purposes of the paper Virginia, Maryland, and North Carolina are considered the Upper South due to their proximity to the Free states. The remaining states are considered as the Deep South. This consequences of this subjective division are examined later in the paper. In total, 76,785 records from 1775-1865 appear in the data. 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, Utah. The data-set documents the sale locations (county and state) and values of slaves, as well as the slaves' age, sex, skills, and sometimes condition of health. There are records for 43,670 males and 32,726 females. 389 records where the sex of the slave was not recorded or was unknown were dropped completely from the analysis.

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. Specifically, the data is initially restricted to the 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, 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 leaving just over 13,000 records. One outlier, with a reported value of $525,000, was also eliminated as all others had an appraised value of <$2,000.

In addition, a relatively small number of slaves were eliminated as they are listed as having a defect. At least 30 different defects were reported in the data. The defects listed range from being a "girl", a "fellow", an "orphan" or being "small" to a slave having cancer or being deaf. To avoid making a judgment on which of these defects should be considered valid they are all eliminated.

[20] http://www.icpsr.umich.edu/icpsrweb/ICPSR/studies/07421/version/3

Lastly, only those who were 10 or older at the time of appraisal are considered. This is because the appraisal of children is not likely to represent meaningful information.[21] The significant 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, women 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.[22] Table 1 presents summary statistics for the remaining probate records by state and region for males and females. Notice that North Carolina appears as an Upper South state in the table despite appearing more similar to its neighbors South Carolina and Tennessee.[23]

Table 1: Summary Statistics by State 1846-1853

State	Observations	Rel. Freq	% Male	Age (Female)	Age (Male)	Price (Female)	Price (Male)
North Carolina	275	20.0%	61.8%	22.9	24.2	$ 500.66	$ 673.73
Maryland	790	57.4%	57.3%	27.8	27.9	$ 308.80	$ 437.04
Virgina	312	22.7%	60.3%	22.9	28.2	$ 443.06	$ 522.50
Upper South Weighted Total	1377	100.0%	58.9%	25.7	27.2	$ 377.54	$ 503.67
South Carolina	465	5.7%	60.9%	28.1	26.7	$ 436.87	$ 606.29
Louisiana	5479	66.8%	59.8%	27.9	30.4	$ 503.06	$ 672.84
Tennessee	30	0.4%	66.7%	19.9	26.0	$ 526.30	$ 611.35
Georgia	860	10.5%	54.0%	28.2	28.3	$ 469.70	$ 640.99
Mississippi	1368	16.7%	53.1%	29.1	29.7	$ 554.04	$ 682.05
Deep South Weighted Total	8202	100.0%	58.2%	28.1	29.8	$ 504.40	$ 667.04

Source: Fogel and Engerman's Probate Appraisal Data-Set (ICPSR, 1974).

Note in Table 1 that there are fewer slaves in the Upper South that meet the sample criteria. Slaves who were in the Upper South in the time period of interest have a similar ratio of male to females but 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. Given the variation in population the probate records would be expected to contain more records for the Deep South. However, the almost 7:1 ratio of valid observations is well in excess of the population ratio and raises concerns about the selection of the data.[24] The first concern is whether or not the

[21] Numerous states had laws prohibiting the separate sale of slaves under 10 years of age (see Deyle, p. 52). Moreover, at such a young age, successful escape was likely not a consideration for a child. The appraised value of the child was also likely to be hard to separate from that of the child's parent and it is possible that children were appraised under the assumption that they would be kept with their parents. As Deyle notes, it was the case that "such young children were more of a liability than an asset." As a result, children under 10 were dropped from the analysis.

[22] Based on the 1% 1860 census extract, available at IPUMS (see Ruggles et al., 2010).

[23] The unavoidably subjective classification of North Carolina as Upper South suggests a natural robustness check would be to examine the effect of excluding North Carolina from the analysis completely.

[24] There are many plausible explanations for the observed ratio. First, Fogel and Engerman (among others) note that the largest plantation operations were in the Deep South. The number of slaves subject to probate appraisal upon the death of

data observed is the product of biased sampling. There is no *a priori* reason to suspect a bias towards specific types of slaves in any particular region. Even if there is a bias, it could work for or against any empirical analysis. However, it is best to consider the data used in this paper as neither a random nor representative sample. This only presents a major empirical concern if the way the data is selected changes in ways that are correlated with the passing of the Fugitive Slave Act in one region and not another.

A second concern, even if the data was not chosen in a systematic way, could be that slaves in the Upper South are negatively selected over time. This question is answered by the careful analysis of Choo and Eid (2008) and Greenwald and Glasspiegel (1983). Choo and Eid examine how slaves from different regions sold at auction in New Orleans compared to one another. They test an Alchien-Allen style explanation for price differences based upon origin. The Alchien-Allen theorem states that if substitutable goods of differing quality have a fixed transportation cost, the higher quality item will be relatively cheaper after transport than before. According to this theory, slaves with highly valued characteristics would be more likely to be shipped from farther away regions (which would cause temporal selection effects in the Upper South). The authors found no support for this theory in their data suggesting that slave prices in Maryland or Virginia are not lower simply due to selection effects.

An additional concern with the data is the reliance on appraisal rather than market-determined prices. The data-set does report a *sale* price for close to 10% of observations. Using a ten-year window around 1850 (five years each side), a regression of appraisal/sale prices on observable characteristics and an indicator for a "sale" shows that sale prices and appraisal prices in the Upper South are not different. That is, the coefficient on the "sale" indicator is not statistically different from zero. However, sales in the Deep South show tend to be for prices higher than than appraised slaves (all else equal) during the ten year period.[25] However, the informativeness of such an exercise is questionable. Is a slave who is sold likely to be representative of slaves who are observationally similar in

an average slave-holder is dependent upon the size of their plantation. As the largest plantations were in the Deep South, more slaves would be appraised in probate records from that area. Second, while arguing about the exact number who were moved, the existing slave trade literature indicated many slaves migrated south *with* their owners. It is not hard to imagine, given that the scale of operations was shown to matter for the profitability of a plantation, that the Deep South would first lure slave-owners who had a large number of slaves. Thirdly, the relationship between the number of slaves owned and the age of the slaveholder can be expected to be at least weakly positive. If the lure of the south was strongest for relatively larger (in terms of slave-holdings), older slave-owners then slave-owner deaths and associated probate records will be stacked towards the Deep South. Slave-owners who have more slaves and are older than those who *do not* move will cause many more probate records to appear in the Deep South than in the areas that they moved from.

The potential relationship between the age of slaveholders and migration, the scale advantages of larger plantations, and the already larger slave population in the Deep South combine to suggest that more slaves should be observed in the deep south. However, this still does not mean the data can be considered a representative sample. The proportions from each state simply do not reflect the relative slave population.

[25]Similar patterns can be observed in the broader sample from 1820-1860. The results are available from the author upon request.

the sample? What theoretical relationship, if any, would there be between being sold and changes in market prices or political events? Would the relationship be expected to be orthogonal or the same in all locations at all times?

Ultimately, even though the data suggests there is no difference in sale and appraisal prices in the Upper South (but some evidence of a difference in the Deep South) it is not clear that inference can be made on a broader relationship. The fact that sale prices in the Deep South were higher than the typical appraisal value is not itself evidence that the appraisal prices are lower than the market price unsold slaves would command. Similarly, *observing* no difference in the Upper South does not mean the appraisal prices there are error-free.

4 Identification and Estimation

Using the data described in Section 3, a difference-in-difference approach is used to determine how the risk of slave escape contributed to regional slave price differences. The identification strategy relies on the Fugitive Slave Act of 1850 having a states closer to the pro-abolition North differently to those in the Deep South. The question central to this paper is, given the distribution of slaves between the Upper and Deep South in 1850, and the change in public monitoring brought about by the Fugitive Slave Act, does the price gap between the regions *actually* fall? If not, then varying risks of escape were likely not a determinant of the gap in prices between the regions. The main estimating equation is of the form;

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

In this specification, 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 close to the Mason-Dixon line where it coincides with Pennsylvania's southern border. Identification using a difference-in-difference approach 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 in either direction. On one hand, slave prices in states closer to the North may have diminished relative to those in the Deep South in the absence of the 1850 Fugitive Slave Act. Changing attitudes towards slavery combined

with manumission and abolition movements may have made the slave trade less attractive the Upper South. This would bias estimates towards zero, working against finding any significant effect of the Act. Alternatively, the assumption of parallel trends could be violated in ways that bias the empirical estimates *away* from zero. In particular, 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 render the effects attributed to the Act as spurious. Robustness checks will attempt to address these concerns as carefully as possible but directly accounting for such events poses severe endogeneity problems. If the Fugitive Slave Act caused slave prices to rise, then prices of commodities that were produced using slave labor would rise, all else equal.[26]

4.1 Main Estimates

Table 2 presents OLS estimates which use the log and dollar price of a slave as the dependent variable in alternate columns using the estimation strategy laid out earlier in this Section. Columns 3 and 4 omit slaves who have a "sale" price as described earlier. As can be seen, their omission or inclusion has an effect but (as discussed earlier) there is no way to determine if sale prices actually provide information on the accuracy of appraisal values. In the estimation presented, data is limited to 4 years either side of Fugitive Slave Act. The four years before January 1, 1850 are considered as before treatment and the four years from January 1, 1850 to December 31, 1853 as after treatment.[27]

[26] 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 observations it is not feasible.

[27] The new law 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) will be a robustness check on the data.

Table 2: OLS Diff-in-Diff Estimates for Full 1846-1853 Sample (Males and Females 10 and older)

	(1) Log of Slave Price	(2) Appraised Slave Price	(3) Log of Slave Price *excl. Sale Prices*	(4) Appraised Slave Price *excl. Sale Prices*
Male	0.290***	148.7***	0.285***	140.8***
	(0.01)	(3.97)	(0.01)	(3.81)
Age	0.0692***	22.21***	0.0696***	22.41***
	(0.00)	(1.20)	(0.00)	(1.16)
Age Squared	-0.00129***	-0.395***	-0.00129***	-0.394***
	(0.00)	(0.02)	(0.00)	(0.02)
Upper South	-0.501***	-188.6***	-0.535***	-196.0***
	(0.02)	(5.62)	(0.03)	(5.74)
After Fugitive Slave Act (FSA)	0.223***	131.9***	0.208***	119.1***
	(0.01)	(4.67)	(0.01)	(4.33)
Upper South x After FSA	0.254***	69.31***	0.312***	93.61***
	(0.03)	(8.93)	(0.03)	(9.07)
Observations	9,579	9,579	8,681	8,681

*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

The estimates in Table 2 indicate that the effect of the Fugitive Slave Act (labeled FSA in the table) on slave prices in the Upper South was statistically and economically significant. The first column of the table reports the difference-in-difference OLS estimates using the log of slave price. The column suggests prices were 50.1% lower in the Upper South across the period with a 22.3% rise everywhere after the law was enacted. The difference-in-difference coefficient of interest (Upper South $\times$ After Fugitive Slave Act) corresponds to a 25.4% *additional* price increase in the Upper South compared to the Deep South after the Act.[28] The second column of Table 4 uses the level of the dependent variable (in dollars) and suggests that prices in the Upper South were $188.60 lower than in the Deep South. After the Fugitive Slave Act, prices rose across the South by an average of $131.90 but by an *additional* $69.31 in the Upper South - eliminating a significant proportion of the $188.60 price gap between the regions.[29] Indeed, declining support for slavery in Northern states should have depressed prices in the Upper South and the fact that the Fugitive Slave Act reduced the chance of successful escape rather than eliminating it, it is possible risk of escape could even have driven much more of the gap in regional prices than observed.

A major concern with the estimations in Table 3 is a bias that may be introduced by the aggrega-

[28]Coefficients in a log-linear model indicate that for a unit change in the independent variable there is a $100 * \beta\%$ change in the dependent variable.

[29]Estimating the effect separately for males and females shows the Act's effects were not limited to either gender but perhaps slightly higher for females. These estimations are available from the author upon request.

tion of states in the two regions. In particular, the Upper South is defined as consisting of three states - Maryland, Virginia, and North Carolina - while the Deep South consists of five states - Georgia, Louisiana, Mississippi, Tennessee, and South Carolina. Table 1 shows that different states had different prices and a composition bias could be driving the results if the data contains *more* observations from higher-priced states in the Upper South (or relatively more from lower-priced states in the Deep South) after 1850.

Table 3 splits the eight-year 1846-1853 period into two four-year windows (1846-1849 and 1850-1853) 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. In the table it is easy to see that the data suffers from a composition bias in the Upper South. In particular, while the total number of observations in each time period for each region is stable there are more observations from North Carolina and Virginia post-1850 relative to pre-1850. Because these states already have higher prices before 1850, the fact that there are more of them in the sample after 1850 means that the average price in the Upper South would be *mechanically* higher post-1850. Ultimately, this means that the estimates provided in Table 2 are biased upwards as it represents the joint effects of the Fugitive Slave Act and changing sample composition. For example, recalculating the average post-1850 price in the Upper South using the pre-1850 frequency weights would give an average price of just $505.79 rather than $545.57 as observed.

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

State	1846-1849	Observations	Rel. Freq	1850-1853	Observations	Rel. Freq
North Carolina	$ 419.19	45	8%	$ 644.51	230	29%
Maryland	$ 301.78	434	73%	$ 480.53	356	45%
Virgina	$ 391.19	113	19%	$ 547.56	199	25%
Upper South Total	$ 327.77	592	100%	$ 545.57	785	100%
South Carolina	$ 436.50	118	3%	$ 575.17	347	8%
Louisiana	$ 542.98	2747	71%	$ 666.43	2732	63%
Tennessee	$ 453.12	16	0%	$ 731.43	14	0%
Georgia	$ 478.29	334	9%	$ 615.35	526	12%
Mississippi	$ 540.07	679	17%	$ 702.69	689	16%
Deep South Total	$ 533.33	3894	100%	$ 658.85	4308	100%

Note: Regional price is the weighted average price.

This table splits the eight-year 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.

While there are changes in the composition of the sample, the effect of the Fugitive Slave Act is still large. For example, in Maryland the increase in the average price between the two periods is over $180 (a 60% increase compared to the 1846-1849 price). Also, as mentioned earlier, many would not consider North Carolina 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. In addition, North Carolina prices are similar to South Carolina and Tennessee before 1850 and are *higher* than South Carolina after 1850. Moreover, North Carolina has just 45 observations before 1850. When combined with a concern that North Carolina slaves may face escape probabilities more similar to South Carolina and Tennessee this suggests an alternate specification removing North Carolina from the analysis would be worth examining.[30]

The first column of Table 4 shows that the effects of the Act (the co-efficient on the difference-in-difference term) are enhanced by the removal of North Carolina observations from the sample. The estimates of the Act's impact on Upper South prices increase to 28.2% and over $82. The reason for this is that the inclusion of North Carolina as an Upper South state reduced the *overall* price difference between the areas across the sample period. As a result, dropping North Carolina ensures the effects of the Act become *relatively* more pronounced. Table 4 also illustrates the effects of removing Virginia so that Maryland is the *only* state considered as "Upper South." These specifications reduce the likelihood that composition effects are driving the findings.

Additionally, Table 5 examines how the inclusion of state-level fixed effects alters the estimated co-efficients (while restoring NC and VA to the data). This removes the binary indicator for "Upper South" in the analysis. Instead a binary indicator allows the intercept to vary for each *state* allowing for price differences by state across the period. The estimates in Table 5, while smaller in economic size, are consistent with the thesis that the effect of the Fugitive Slave Act was to increase prices for slaves in the states closest to the Mason-Dixon Line.

[30]Moving North Carolina to the Deep South would deal with the escape probability issue but would leave the composition bias issues so that extra observations in North Carolina after 1850 would lead to an underestimation of the Act's effects.

Table 4: OLS Diff-in-Diff Estimates with Sample and Specification Restrictions

	Excluding NC		Excluding NC and VA	
	(1)	(2)	(3)	(4)
	Log of Slave Price	Appraised Slave Price	Log of Slave Price	Appraised Slave Price
Male	0.291***	149.3***	0.291***	150.6***
	(0.01)	(4.09)	(0.01)	(4.18)
Age	0.0687***	22.10***	0.0689***	22.19***
	(0.00)	(1.23)	(0.00)	(1.25)
Age Squared	-0.00128***	-0.393***	-0.00128***	-0.393***
	(0.00)	(0.02)	(0.00)	(0.02)
Upper South	-0.540***	-202.5***	-0.594***	-213.4***
	(0.03)	(5.80)	(0.03)	(6.28)
After Fugitive Slave Act (FSA)	0.223***	131.8***	0.223***	131.7***
	(0.01)	(4.67)	(0.01)	(4.67)
Upper South x After FSA	0.282***	82.64***	0.324***	95.20***
	(0.03)	(9.95)	(0.04)	(11.30)
Observations	9,114	9,114	8,802	8,802

Columns 1 and 2 report the co-efficient estimates from a difference-in-difference specification where North Carolina was dropped for the log of slave prices and prices in dollars. North Carolina was dropped as it introduces significant composition effects due to the change in the number of observations from the state before and after 1850. Columns 3 and 4 report the co-efficient estimates from a difference-in-difference specification where North Carolina and Virginia were both dropped to illustrate how the effects of the Act were strongest in Maryland, the state where the median town is closest to the Mason-Dixon line. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

Table 5: OLS Diff-in-Diff Estimates with State-level Fixed Effects

	(1)	(2)
	Log of Slave Price	Appraised Slave Price
Male	0.290***	148.6***
	(0.01)	(3.93)
Age	0.0689***	22.08***
	(0.00)	(1.19)
Age Squared	-0.00129***	-0.393***
	(0.00)	(0.02)
After Fugitive Slave Act (FSA)	0.226***	134.0***
	(0.01)	(4.69)
Upper South x After FSA	0.164***	38.57***
	(0.03)	(9.24)
Observations	9,579	9,579

Columns 1 and 2 above report the co-efficient estimates from a difference-in-difference specification which allows 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, the reduction in the size of the effect on prices is to be expected. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

4.2 A True *Spatial* Effect?

Neither Table 4 nor Table 5 directly address the spatial impact of the Fugitive Slave Act. Table 4 shows that the Act's effects were strongest when focusing only on states bordering the Mason-Dixon Line and Table 5 showed that composition bias is not the sole driver of the observed effects. Such exercises ease concerns about bias introduced by the data but do not preclude other events, such as rising demand for slave-produced commodities and crops, causing the observed effect. Ideally, including controls for crop prices by year and state (if available) would deal with these concerns. Endogeneity problems prevent such an approach: Using a variable which is affected by changes in slave prices as a control is redundant. However, even if the endogeneity issues of using commodity prices by year and state were minimal, commodity prices by year and state would simply be a linear combination of year by state fixed effects. However, including year by state fixed effects in a difference-in-difference estimation where the treated entity is a group of states and the before and after treatment periods are a group of years means that an indicator for "post-1850 $\times$ Upper South" will not provide an unbiased estimate of the Act's effect.[31]

What is feasible are a number of empirical exercises designed to seriously examine the contention that the Act had a spatial impact that increased with distance from the Pennsylvania portion of the Mason-Dixon Line after 1850. First is an examination of a difference-in-difference specification with controls for prices by state before and after the Fugitive Slave Act of 1850. If the post-1850 effect grows smoothly with distance to the Mason-Dixon line it is supportive evidence that the Act *caused* the observed empirical findings. That is, while other events could cause an increase in prices in the Upper South after 1850, it would be an unlikely coincidence if the effect increased with distance from the Mason-Dixon line. The estimates from this exercise are presented in Table 6. In the estimation, each state is given a state-specific intercept both before and after the Fugitive Slave Act. Maryland is the omitted state. As a result, the "After 1850" estimated co-efficient represents the effect of the Act in Maryland and each of the interaction co-efficients reflects differences between that state and Maryland. The estimates show the effect of the Act on prices diminishes for slaves located further from the Mason-Dixon Line.

Secondly, Figure 2 provides an examination of pre-trends leading up to 1850. If the pre-trend between the regions is similar, then time and location specific events are less likely to have caused the observed findings. Figure 2 provides the post-estimation predictions of the effect of being in the Upper South across the period from 1846 to 1853. The estimation this is based upon examines

[31] Additionally, a fully-flexible difference-in-difference estimation using year by state fixed effects would introduce serial correlation concerns (see Bertrand et al., 2004).

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

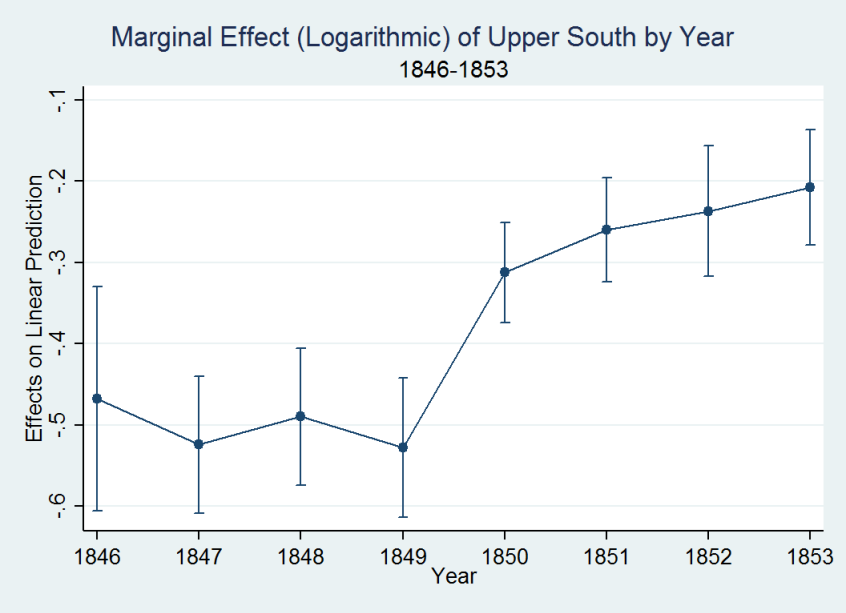
	(1) Log of Slave Price	(2) Appraised Slave Price
After 1850	0.491***	197.4***
	(0.05)	(11.59)
Virginia	0.346***	76.10***
	(0.04)	(11.72)
North Carolina	0.504***	131.3***
	(0.05)	(18.32)
South Carolina	0.321***	90.85***
	(0.07)	(14.16)
Georgia	0.559***	190.1***
	(0.04)	(9.22)
Mississippi	0.696***	231.7***
	(0.03)	(7.76)
Louisiana	0.641***	224.8***
	(0.03)	(6.35)
Virginia * After 1850	-0.170***	-29.93
	(0.06)	(19.85)
North Carolina * After 1850	-0.224***	-11.33
	(0.07)	(24.67)
South Carolina * After 1850	-0.173**	-53.59***
	(0.08)	(20.08)
Georgia * After 1850	-0.228***	-70.12***
	(0.06)	(15.62)
Mississippi * After 1850	-0.255***	-31.54**
	(0.05)	(15.21)
Louisiana * After 1850	-0.267***	-62.78***
	(0.05)	(12.84)
Observations	9,177	9,177

The regression also flexibly controls for age and sex. In the regression, each state is given its own state-specific intercept before and after the Fugitive Slave Act. The omitted state is Maryland. As a result, the "After 1850" term represents the effect of the Act on slave prices in Maryland while the co-efficients on each State $\times$ After 1850 interaction reflects differences between that state and the effect in Maryland. As can be seen, the positive effect of the Fugitive Slave Act is smallest in the deeper south. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

appraisal prices as a function of demographic controls, year fixed effects, region-specific effects, plus an interaction between year and region fixed effects. The value of the marginal effect of being in the Upper South is then plotted by year to see if the effect is stable before the Fugitive Slave Act. As can be seen the effect was quite stable (maybe even declining slightly) in the years leading up to the 1850 Act. Figure 2 also demonstrates that something happened in 1850 to cause a jump in prices in the Upper South region.

Together, Table 6 and Figure 2 show that post-1850 price increases were largest in states closer to the Mason-Dixon Line and the pre-trend between the two regions of the South was stable. If this was not the case it would lead to concerns that location and time specific events were causing variation in slave prices between regions. Instead, the evidence presented suggests that for the effects observed

Figure 2: Examination of Trends by Region of the South



The figure provides the post-estimation predictions of the effect of being in the Upper South across the period from 1846 to 1853. The figure is produced by regressing appraisal prices on demographic controls, year fixed effects, plus an interaction between year and Upper South. The value of the marginal effect of being in the Upper South is then plotted (and 95% confidence intervals) by year to see if the effect is stable or changing before the Fugitive Slave Act was announced. Although stable from 1846 to 1849, it is clear something happened in 1850.

in Tables 2, 4, and 5 to be unrelated to the Fugitive Slave Act there would have to be some event that occurs *only* after 1850 *and* has the same spatial impact as the Fugitive Slave Act. Separately identifying the effect of such an event, if it were present, from the Fugitive Slave Act is not econometrically feasible.

4.3 County-Level Analysis

Some states, such as Virginia and South Carolina, have quite a distance between their northern and southern extremities. Fortunately, in addition to providing state and year of appraisal, Fogel and Engerman's Probate records contain the county the record originates from. The county of origin provides a much more granulated check on the thesis that the Fugitive Slave Act had a spatial impact on prices that varied with distance to the Mason-Dixon Line. Summary statistics are presented in Table 7 for counties from seven states in the data in the four years before and after 1850.[32] The measure of distance is constructed as miles to the Pennsylvania border as measured from the most northerly point in a given county. As can be seen, the data is quite noisy with many counties having large differences between the number of slaves observed in each period.

[32]There are no Tennessee observations post 1850 that met the sample restrictions.

Table 7: Summary Statistics by County

	State	Distance From Mason-Dixon Line	N	Appraisal Price in Dolalrs	%Male	N	Appraisal Price in Dolalrs	%Male
			1846-1849			1850-1853		
Queen Annes	MD	31	197	264.44	53%	25	301.60	64%
Anne Arundel	MD	33	215	343.17	53%	316	502.92	61%
Albemarle	VA	99	64	424.30	70%	79	627.85	62%
Essex	VA	107	23	347.83	65%	69	529.93	57%
Henrico	VA	139	17	397.06	47%	20	421.50	45%
Halifax	NC	223	17	426.47	47%	26	529.69	54%
Nash	NC	243	1	500.00	100%	34	777.21	65%
Edgecombe	NC	246	3	433.33	33%	123	654.12	67%
Johnstone	NC	271	16	428.98	50%	33	609.86	55%
Richmond	GA	436	169	489.94	50%	184	601.01	53%
Charleston	SC	451	114	440.85	50%	335	582.19	64%
Jefferson	GA	456	192	563.27	51%	13	676.92	46%
Troup	GA	512	85	482.11	52%	122	650.11	64%
Rankin	MS	716	20	516.25	65%	65	797.32	52%
Hinds	MS	740	37	547.70	57%	133	579.47	53%
East Carroll	LA	753	194	552.71	52%	359	653.76	50%
Tensas	LA	789	376	517.65	50%	126	616.28	52%
Union	LA	797	26	534.62	81%	73	685.62	55%
Ouchita	LA	804	156	494.81	57%	142	615.56	57%
Adams	MS	820	505	561.01	49%	214	727.83	59%
St. Mary	LA	829	371	624.66	71%	738	777.69	75%
St. Helena	LA	829	101	543.66	66%	237	605.00	64%
Wilkinson	MS	833	91	480.33	51%	245	748.39	56%
Orleans	LA	841	251	518.35	57%	304	526.86	55%
Avoyelles	LA	864	42	682.33	74%	21	943.00	57%
Plaquemines	LA	866	96	545.83	63%	102	638.73	51%
Natchitoches	LA	872	140	482.16	64%	300	704.27	62%
De Soto	LA	896	145	475.88	51%	245	653.83	60%

The table shows summary statistics for the counties that appear in the data in the four years both before and after 1850. The data is noisy and there are large changes in sample composition in almost every county.

Table 8 provides the results of a difference-in-difference estimation of the Fugitive Slave Act's effect on prices using the county-specific measure of distance. Column 1, where the dependent variable (slave price) is logged, suggests prices increase by 6.6% for every 100 miles from the Mason-Dixon Line. Using a continuous measure of distance controls for pre-existing differences in prices by area across the period of interest and mitigates sample composition concerns. After the Act, there is an increase of 46% everywhere but the effect of distance on prices diminishes by 2.84% for every 100 miles in the period after 1850. In other words, the relationship between distance from the Mason-Dixon Line and prices is smaller after 1850. This finding is consistent with the contention that the Act reduced the spatial gap between prices by reducing the likelihood of escape in the Upper South. This is also reflected in the raw data in Table 7 where states in the Upper South had the largest increases

Table 8: OLS Difference-in-difference Estimation of the Fugitive Slave Act's Impact on Prices as Measured by Distance from the Mason-Dixon Line

	(1) Log of Slave Price	(2) Slave Price in Dollars
Distance in Miles	0.000666***	0.251***
	(0.00)	(0.01)
After 1850	0.463***	186.6***
	(0.03)	(8.68)
After 1850 * Distance	-0.000284***	-0.0567***
	(0.00)	(0.01)
Observations	9,177	9,177

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. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

as a proportion of pre-existing prices. Column 2 in Table 8 uses the dollar value of a slave as the dependent variable. The estimation includes controls for the same demographic variables in earlier estimations although those co-efficients are not reported.

As a final robustness check on the validity of the spatial effect contention, Table 9 reports the estimates from a repetition of the estimation in Table 8. Relative to Table 8, the first column of Table 9 drops Louisiana and Mississippi from the estimation. Column 2 then further eliminates Georgia and South Carolina. Column 3 removes North Carolina and Tennessee leaving just Maryland and Virginia. The negative co-efficient on the difference-in-difference term in each specification reflects how the Act had a smaller positive impact on slaves located further from the North. However, the effect of distance from the Mason-Dixon Line becomes *larger* as states further from Pennsylvania are removed from the analysis. This suggests that the Fugitive Slave Act had its strongest impact on the price-distance gradient in states *closer* to the Free northern states. Such a finding is strong supporting evidence that the Fugitive Slave Act caused higher slave prices in the Upper South.

Table 9: Estimation of the Act's Impact on Prices as Measured by Distance from the Mason-Dixon Line using Sub-Samples of Data

	(1) Log of Slave Price	(2) Log of Slave Price	(3) Log of Slave Price
Distance in Miles	0.00110***	0.00254***	0.00420***
	(0.00)	(0.00)	(0.00)
After 1850	0.541***	0.578***	0.627***
	(0.04)	(0.05)	(0.06)
Distance in Miles * After 1850	-0.000644***	-0.00160***	-0.00282***
	(0.00)	(0.00)	(0.00)
Observations	2,569	1,300	1,044
Maryland	Y	Y	Y
Virginia	Y	Y	Y
North Carolina	Y	Y	
South Carolina	Y	Y	
Tennessee	Y		
Georgia	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. Relative to Table 8, Column 1 drops Louisiana and Mississippi from the estimation. Column 2 drops Georgia and South Carolina. Column 3 then drops North Carolina and Tennessee. The negative co-efficient on the difference-in-difference term reflects how the Act had a smaller positive impact on slaves located further from the North. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

4.4 Reverse Experiment

The Fugitive Slave Act eventually led to enhanced "Personal Liberty" laws in northern states. As described in Section 2, these laws were first implemented in Connecticut and Rhode Island in 1854. These laws allow for a second examination of the impact of a regulatory change which alters the likelihood of successful escape. The difference with these laws is that, by providing a safe harbor for fugitives, they made successful slave escape *more* likely. As a result, if the chance of escape truly affects prices, the 1854 Personal Liberty laws should undo some or all of the price increases observed in the Upper South in response to the 1850 Fugitive Slave Act. Focusing on the period from 1852 to 1856, and using 1854 as the treatment date, the effect of these enhanced Personal Liberty laws are presented in Table 10.

The negative coefficient on the interaction term between the Upper South and post-1854 suggests the Personal Liberty laws had the expected effect albeit somewhat smaller in absolute magnitude and measured with less precision than the effect of the Fugitive Slave Act. This lack of precision manifests itself as highly significant effects when the dependent variable is in dollars but a lack of significance in the log specification. The imprecision is perhaps not surprising as the new Personal Liberty laws varied in their timing across the Free states. The difference between the estimates using the log and

Table 10: OLS Diff-in-Diff Estimates of the Effect of 1854 Personal Liberty Laws (1852-1856)

			With State Fixed Effects	
	(1)	(2)	(3)	(4)
	Log of Slave Price	Appraised Slave Price	Log of Slave Price	Appraised Slave Price
Male	-0.0341	95.08***	0.273***	185.1***
	(0.03)	(13.10)	(0.01)	(5.29)
Age	0.0620***	25.31***	0.0672***	26.77***
	(0.00)	(1.27)	(0.00)	(1.29)
Age Squared	-0.00128***	-0.500***	-0.00127***	-0.497***
	(0.00)	(0.02)	(0.00)	(0.02)
Upper South	-0.198***	-101.4***		
	(0.02)	(8.53)		
After 1854	0.160***	135.6***	0.141***	124.7***
	(0.01)	(6.44)	(0.01)	(6.47)
Upper South * After 1854	-0.0226	-62.24***	-0.0542**	-66.75***
	(0.03)	(11.78)	(0.03)	(12.33)
Observations	8,189	8,189	8,189	8,189

*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

absolute (dollar) value highlights that there are also data issues with changes in the composition of the sample before and after the law. Accounting for these using state-level fixed effects (to again net out the effect of a changing composition of states with different average prices in the sample) gives the estimates in columns 3 and 4. This restores statistical significance in the log specification but the overall effect of the re-instituted Personal Liberty laws is still relatively small. While $67.75 is not a trivial sum in 1850, the average price of a slave by the mid-1850s was above $740 in the sample. Note that the increase in the size of the effect suggests that composition effects were biasing the effect downwards.

In addition, using the county-level data tells a similar story with positive co-efficients in both specifications but statistical significance only when focused on the dollar value specification. The estimates are not presented here but the effect of the enhanced Personal Liberty laws after 1854 is an $8.45 decrease in prices for each 100 miles closer to the Mason-Dixon Line. This is a significant reversal of the effects of the Fugitive Slave Act. Taken together, the effects of the Fugitive Slave Act and their reversal due to new Personal Liberty laws suggest regulatory changes which made slave escape harder and then easier had predictable effects on prices, effects that have been largely ignored in the literature to date.

5 Additional Robustness Checks

5.1 Narrower and Wider Event Windows

The estimates presented in Section 4 were unaffected when the sample was restricted to just males or just females (not reported). In addition, 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 very narrow four-year window (1849-1852) reduces the size of the estimated effect relative to the eight-year window in Section 4. Table 11 reports the estimates from these the narrower and tighter windows, repeating the same difference-in-difference estimation as laid out in Section 4. The effect of the Act on slave prices in the Upper South using the narrower time period is presented in *Panel A*. Focusing on log prices, the estimated effect of the law falls to close to a 22% increase attributable to the law. Taking a wider time period, *Panel B* estimates a similar increase. Columns 3 and 4 of each panel include state fixed-effects to ease concerns about the changing composition of the sample across time. These indicators for each state reduce the size and significance of estimated co-efficients, particularly in the narrow window where so few valid observations occur in the Upper South (of the 4,905 observations, fewer than 1-in-7 are observed in the Upper South in the narrow four-year window).

Table 11: Robustness to Event "Window" Changes

Panel A - Narrow Window (1849-1852)

	(1) Log of Slave Price	(2) Appraised Slave Price	(3) Log of Slave Price	(4) Appraised Slave Price
Male	0.286***	147.2***	0.287***	147.5***
	(0.01)	(3.62)	(0.01)	(3.57)
Age	0.0681***	21.80***	0.0679***	21.69***
	(0.00)	(1.06)	(0.00)	(1.05)
Age Squared	-0.00129***	-0.393***	-0.00128***	-0.391***
	(0.00)	(0.02)	(0.00)	(0.02)
Upper South	-0.455***	-177.8***	*State FEs*	*State FEs*
	(0.02)	(4.68)		
After FSA	0.294***	167.0***	0.294***	167.8***
	(0.01)	(4.33)	(0.01)	(4.34)
Upper South x After FSA	0.220***	59.72***	0.130***	24.31***
	(0.02)	(8.02)	(0.03)	(8.42)
Observations	11,986	11,986	11,986	11,986

Panel B - Wide Window (1845-1854)

	(1) Log of Slave Price	(2) Appraised Slave Price	(3) Log of Slave Price	(4) Appraised Slave Price
Male	0.284***	137.8***	0.285***	138.0***
	(0.01)	(5.13)	(0.01)	(5.06)
Age	0.0659***	20.24***	0.0653***	19.98***
	(0.00)	(1.53)	(0.00)	(1.51)
Age Squared	-0.00125***	-0.362***	-0.00124***	-0.358***
	(0.00)	(0.02)	(0.00)	(0.02)
Upper South	-0.504***	-192.5***	*State FEs*	*State FEs*
	(0.03)	(7.61)		
After FSA	0.144***	86.64***	0.145***	86.97***
	(0.02)	(6.21)	(0.02)	(6.20)
Upper South x After FSA	0.216***	47.23***	0.0853**	1.713
	(0.04)	(11.17)	(0.04)	(11.22)
Observations	4,905	4,905	4,905	4,905

*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

5.2 Sensitivity to Treatment Date

September 1, 1850 was the official implementation date of the Act. However, in Section 4 the Act was considered as affecting all observations after *and* including 1850. Unfortunately, the data cannot be stratified into any finer time periods than "year of appraisal." As a result, treating the date

the law comes into effect as 1850 potentially overestimates any effect while treating it as 1851 would underestimate it. 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. Table 12 reports the estimates from the same 1846-1853 time period but considers observations occurring in 1850 as before the Act rather than after, essentially moving the treatment date. The table shows the change reduces the magnitude of the empirical effect of the Fugitive Slave Act to 21.5% in the log specification. Overall, Table 12 highlights that the exact implementation date of the law was less important than the difference it caused between the periods 1846-49 and 1851-53. As in Table 4, the third and fourth columns report estimates using state-level fixed-effects to net out the effects of a changing sample composition. In addition, dropping 1850 from the analysis leaves estimates essentially unchanged.

Table 12: OLS Diff-in-Diff Estimates using 1851 as "Treatment" Date

	(1) Log of Slave Price	(2) Appraised Slave Price	(3) Log of Slave Price	(4) Appraised Slave Price
Male	0.293***	150.2***	0.293***	150.0***
	(0.01)	(3.97)	(0.01)	(3.93)
Age	0.0695***	22.32***	0.0691***	22.16***
	(0.00)	(1.21)	(0.00)	(1.20)
Age Squared	-0.00129***	-0.396***	-0.00129***	-0.393***
	(0.00)	(0.02)	(0.00)	(0.02)
Upper South	-0.438***	-173.4***	*State FEs*	*State FEs*
	(0.02)	(5.40)		
After FSA	0.225***	131.0***	0.227***	132.9***
	(0.01)	(5.11)	(0.01)	(5.12)
Upper South x After FSA	0.215***	68.29***	0.129***	42.54***
	(0.03)	(9.73)	(0.03)	(9.92)
Observations	9,579	9,579	9,579	9,579

*** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level.

5.3 Additional Evidence from Newspaper Advertisements

Runaway slaves were often advertised in local newspapers and the frequency of unique (and repeated) advertisements along with information on rewards can provide another source of evidence on the Fugitive Slave Act's effects. Newsbank's American Newspaper Archives provides digitized editions of historical daily newspapers from across the U.S, search-able by keyword.[33] The advertisements typically provide a description of the slave, perhaps record the county from which the slave

[33] Available with subscription via readex.com.

fled, detail the name of the slave owner, and give a dollar value and the terms of the reward offered for the capture of the runaway. Examples are provided in Figure 3.

Figure 3: 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 21 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,
West River.
fe2-3t*

04-3t Clerk to the City Commissioner.

$100 REWARD.—Ran away from the subscriber, living at Merry Point, Va., a NEGRO GIRL, about 16 years of age, somewhat likely. She was owned by Richard Hartsal, of Northumberland county, at the time I bought her, and was in my possession but a short time when she ran away; and is supposed to have come to Baltimore with some free negroes who left in December, 1850. She went by the name of Minna, and is about 5 feet high. The above reward will be given for her arrest and delivery to SOLOMON KING, Baltimore; or to LEWIS H. DIX, Merry Point, Lancaster county, Va. 04-3t*

GUANO—GUANO—Peruvian GUANO, best qual-

Source: America's Historical Newspapers. Available with subscription from readex.com.

The advertisements provide data that can be used to examine the central thesis of this paper: was slave escape an important economic aspect of the institution of slavery? While the advertisements do not report slave values, the reward offered in the advertisements can help test if the findings presented in Section 4 and 5 are actually driven by fewer runaways and stronger property rights for slave-owners in the Upper South. To collect the advertisements data, a search is completed of Newsbank's America's Historical Newspapers for all advertisements containing the words "abscond*", "runaway*", "ran away*", "run away*", or "apprehen*" for the period 1849-1852, where * represents a wild card. The search returns tens of thousands of results from newspapers during the antebellum period. Due to both the number of records to be codified and the less-than-perfect quality of the digital images, gathering this data is an arduous process. To economize on data collection efforts, only advertisements from four states (Louisiana, Georgia, Maryland, and Virginia) are examined. This reduces the number of search results to about 12,000. As not all of these turn out to be actual

advertisements for runaways the sample eventually contains just over 6,000 observations.[34] In addition, many turn out to be repeated advertisements for the same escapee. The number of repeated notices is recorded and can be used to crudely examine how "quickly" slaves were recaptured. Of the remaining unique observations some were illegible or were missing crucial information such as the slave's age, sex, or details of a monetary reward. In the valid sample, there are just under 1,000 *unique* observations.

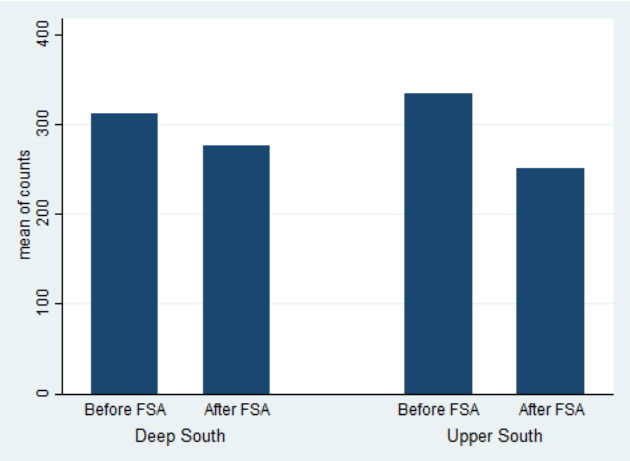
The frequency of advertisements before and after September 1850 is presented in Figure 4 for the Upper and Deep South. Fewer runaways are observed in both locations but the decline is more significant in the Upper South. However, the actual number of advertisements observed in each area before and after the Act provides less information than at first glance. This is because the effect the Act would have on the actual number of attempted runaways and advertisements is not predictable. For buyers and sellers of slaves the strengthening of property rights would cause prices in the Upper South to increase. However, if slave-owners then treat their slaves worse because they were assured that the slave can no longer escape so easily, it might make sense if *more* slaves tried to run away. On the other hand, if slaves were aware of the Act's provisions, they may be *less* motivated to try to escape as they are less likely to succeed. Additionally, even if there is no change in the number of runaways the incentives to advertise may be changed after the Act.

On the other hand, if the paper's main findings are explained by stronger property rights afforded by the Fugitive Slave Act then rewards offered for similar slaves in the Upper South should fall (relative to the Deep South) after the Act comes into effect. Such an effect should be expected regardless of the actual *number* of advertisements observed. This is because, conditional on a slave-owner advertising a runaway, slaves with similar observable characteristics should command larger rewards after prices increased in the Upper South, all else equal. No assumption about the Fugitive Slave Act's role is necessary. However, it would mean that observing falling rewards would be strong evidence of the Fugitive Slave Act's impact.

If rewards fall even though slave prices are rising it is evidence that the Fugitive Slave Act represented a significant strengthening of slave-owners property rights. If rewards offered do not fall, it does not mean the Act had no impact. It could simply mean that the increasing price of slaves overwhelmed the increased likelihood of recapture. It would also be possible that slave prices the Upper South were increasing for reasons unrelated to slave-owner property rights and would support the contention that the Fugitive Slave Act was unnecessary and irrelevant.

[34] In fact, given the search terms, the reader may have guessed that quite a few of the false positive search results are notices regarding lost dogs.

Figure 4: Frequency of Advertisements for Two Years Before and After the Fugitive Slave Act (FSA) by Region



Source: Data gathered by the author from advertisements provided by Newsbank's American Historical Newspapers collection. Data available with subscription to readex.com.

Estimates generated from the advertisements data, using the same difference-in-differences approach as earlier, suggest rewards offered in the Upper South actually do drop dramatically after the Act. Table 14 provides these estimates which are based upon the data presented in Table 13. The table provides summary statistics from the advertisements data by state and year. It can be seen that advertisements for runaways were most often for male slaves and were generally in their mid to late twenties. The small number of observations (1852 had no valid observations) from Georgia ensures noisy summary statistics.[35] However, even states with more observed advertisements are quite noisy.

[35]There were no valid observations for Georgia in 1852. There were a number of advertisements in that year but they were for a slave under 12 or were missing gender, age, or specific details of a reward.

Table 13: Summary Statistics: Advertisements Data

	Male	Age	$ Reward Offered	# of Repeats	# of Observations
Georgia					
1849	92%	29.6	65.56	5.1	12
1850	80%	23.5	16.43	1.7	10
1851	71%	25.4	17.14	3.0	7
1852					
Louisiana					
1849	78%	24.8	31.6	5.0	165
1850	68%	26.5	33.45	5.5	77
1851	70%	28.4	60.59	11.2	99
1852	68%	27.0	35.9	11.1	130
Maryland					
1849	82%	23.7	70.99	2.8	101
1850	80%	22.2	85.99	2.8	115
1851	83%	23.6	83.84	3.2	71
1852	81%	20.3	53.07	3.7	103
Virginia					
1849	88%	27.9	27.88	2.6	26
1850	77%	25.7	39.33	2.5	31
1851	95%	35.1	36.9	3.9	21
1852	95%	26.3	44.25	2.2	20

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 observations for Georgia.

The coefficient on the difference-in-difference term in the second column of Table 14 shows that after the Act, rewards in the Upper South fell by $19.08 relative to advertised rewards in the Deep South. In the first column, the dependent variable has been logged to allow the coefficient to be interpreted as a percentage change. It suggests rewards fell by 21.3% in the Upper South relative to the Deep South after the Fugitive Slave Act came into place. The sign of the estimate is very consistent with improved property rights for slave-owners. Addtionally, the third column suggest the repetition of advertisements also decreases post-1850.

What makes the estimates in Table 14 so compelling is that the rewards offered and advertisement repetition *fall* relative to the Deep South while market prices for slaves in the area were rising more

than in the Deep South. Rising rewards would be consistent with some other event causing slave prices to rise in the Upper South but falling rewards is additional evidence to suggest that the Act explains the patterns in the data and that escape was a significant factor in the spatial variation in prices observed in the antebellum South.

Table 14: OLS Diff-in-Diff Estimates of Changes in Rewards Offered using Advertisements Data

	(1) Log Reward	(2) Reward	(3) # of Repeated Advertisements
Upper South	0.569	37.94*	-2.185***
	(0.248)	(15.05)	(0.325)
After FSA	0.200**	13.21**	5.751***
	(0.0389)	(2.464)	(0.154)
Upper South x After FSA	-0.213**	-19.08**	-5.090***
	(0.0566)	(3.727)	(0.187)
Observations	929	929	988
Controls for Age	Y	Y	Y
Controls for Sex	Y	Y	Y

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

One concern with this approach and the estimates presented are issues of selection and composition bias. Easing concerns about composition bias, the sample includes all available advertisements in the states of Lousiana, Georgia, Maryland, and Virginia from 1849-1852. At the same time, there are fewer observations for Maryland in 1851 relative to earlier years and as rewards are lower there anyways (see Table 13), this could be driving the effects observed. However, the change in composition is small enough and the difference in rewards between between states within each region that spatial composition effects do not seem to be driving the findings. In particular, re-running the estimation in Table 14 with the addition of state fixed-effects leaves the estimates virtually unchanged in the dollar specification. At the same time, the log specification remains close to a 20% fall in rewards offered but, partly due to the small sample size, fails to reach standard measures of statistical significance. See Table 15 below for more details.

Table 15: OLS Diff-in-Diff Estimates of Changes in Rewards Offered using Advertisements Data:Adding State Fixed-Effects

	(1)	(2)	(3)
	Log Reward	Reward	# of Repeated Advertisements
After FSA	0.187**	12.57**	5.567***
	(0.0755)	(5.212)	(1.083)
Upper South * After FSA	-0.209	-19.03**	-4.919***
	(0.128)	(7.752)	(1.139)
Observations	929	929	988
Controls for Age	Y	Y	Y
Controls for Sex	Y	Y	Y

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Aside from composition bias, the data collected could still be censored by the decisions of slave-owners: The passing of the Act may have changed the incentive to advertise runaways or eliminated the need to advertise at all. However, such censoring could be expected to work against finding any empirically significant results. This is because the decision to incur the cost to advertise should be positively related to the value of the slave. For the estimates in Table 14 to represent the consequences of censoring or selection, the opposite would have to be happening: Slave-owners in the Upper South would have to react to the law by deciding to only advertise in the event of escape of a "lower value" slave. Alternatively, perhaps the data *before* the Act was left-censored and slave-owners did not advertise if lower value slaves escaped but began to do so after the Act.

As age and sex were strong predictors of price, Table 16 might help shed some light on both types of censoring issues. In Table 16, the *Age* columns report the mean age of runaways for the Upper and Deep South before and after the Act. It appears that advertisements tended to be for older slaves in both regions after the Act. This would actually be expected to increase rewards offered all else equal (slave prices increased with age up to a point). However, only the difference in age in the Deep South is statistically different from zero. The proportion of males in the sample increases in the Upper South after the Act but not significantly. At the same time, there is a decrease in the proportion of males in the sample in the Deep South after the law passed. Together, this means that, after the Act, there are no statistically significant changes in the age or sex of advertised slaves in the Upper South. In the Deep South, advertisements tended to feature older slaves but more females. The differences are statistically significant but would have contradictory impacts on the rewards offered.

Observing advertisements for older slaves suggests selection may be biased towards higher value slaves but observing more advertisements for females suggests the opposite.[36] Because of the lack of significance in the Upper South and contradictory changes in the Deep South Table 16 should help reduce concerns about how censoring and selection could bias estimates.[37]

Table 16: Mean *Age* and Percent *Male* Runaways from Advertisements Data

	Age (years)		***Percent Male***	
	Before FSA	After FSA	Before FSA	After FSA
Upper South	23.76	25.23	82.35%	86.84%
t-stat under $H_0 : before = after$	-1.32 (n=238)		$-.9455$ (n=233)	
Deep South	25.05	27.89	74.88%	62.02%
t-stat under $H_0 : before = after$	-3.41 (n=331)		2.49 (n=328)	

Note that the number of observations for each test in each region differs slightly due to differences in missing values. The t-stat reported represents a simple comparison of means test under the null of no difference. The t-statistic and number of observations used for the test is reported. In all four tests, the alternative hypothesis is that the means are indeed different.

6 Conclusion

Regional differences in antebellum slave prices have generally been attributed to differences in slave productivity across regions. Only contributions by Freehling and Hummel and Weingast have suggested slave escape as a potential issue providing weak empirical evidence to back their claims. This paper uses data on slave prices from probate appraisals plus hand-collected data from newspaper advertisements to examine the issue of escape in greater detail. The paper first illustrates that the likelihood of successful escape varied by region. This allows the Fugitive Slave Act of 1850 to be exploited as a natural experiment. The paper proceeds to examine how slave prices were affected by the Act using a difference-in-difference approach to estimation. After the Act, the gap in regional slave prices diminishes. The findings are robust to alternate treatment dates and to the inclusion and exclusion of more years either side of the treatment date.

The main empirical findings are also supported by repeating the same estimations using county-

[36] Before the Act, the data suggest a 25 year old and 28 year old slave would have mean rewards of \$37.89 and \$40.32. After the Act, these values change only slightly to \$37.80 and \$40.24. Similarly, a male slave would have a reward approximately \$2 higher on average than a female slave. These values are produced using the estimated co-efficients from the regression in Table 10.

[37] Despite the usefulness of Table 16 in helping us understand the changes in the demographics of advertised runaways and how it relates to rewards, the table cannot ease concerns about how selection would affect an analysis of the *number* of advertisements in each region and time period. This is because the decision to advertise is a function of two factors - the likelihood of recapture and the market value of the slave. As the Fugitive Slave Act affected these in the same direction it is not clear what we should expect slave-owners to do in the event of an escaped slave. It is much easier to examine rewards offered. Conditional on advertising, the increase in likelihood of recapture pushes rewards down while the increased value pushes rewards up.

level measures of distance from the Mason-Dixon Line, estimates from a reverse experiment, and data from newspaper advertisements for runaways. Using county-level data provides stronger controls for distance and shows the Act had the strongest effects on the price-distance gradient in the states closest to Pennsylvania.[38] The reverse experiment shows that when Free states enacted laws to undermine the Fugitive Slave Act, price increases seen in the Upper South due to stronger property rights were reversed. Data from newspaper advertisements for runaways provide corroborating evidence that the Fugitive Slave Act had an impact on the frequency of runaways. This data is a valuable check against alternate explanations of the pattern seen using the probate data-set. The fact that rewards offered and re-runs of the same advertisement decline suggest property rights were enhanced by the law, reducing the chance of successful escape. If rewards had increased, it would suggest slave prices were increasing in the Upper South for reasons unrelated to the Act or slave-owners' property rights.

Together, the empirical work presented here suggests a much more important role for slave escape than previously assumed by authors in the Fogel and Engerman tradition. Paradoxically, if slave escape was more important than previously thought, it strengthens Fogel and Engerman's overall thesis: Slave-owners and slaves had a much more complex master-slave relationship than had been considered by earlier slavery scholars.

It is worth noting that the estimates presented are potentially an underestimate of the importance of escape and slave-owner property rights. This is because difference-in-difference estimates can be biased upwards or downwards in the absence of a common trend in treatment and control groups. In this paper, the common trend assumption could be violated in such a way as to reduce the likelihood of finding any empirical effect. The downward bias is possible due to both the Act *reducing* rather than totally *eliminating* the chance of escape and because of abolition and manumission efforts in the North.[39]

In sum, the evidence presented suggests that 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. This finding is complementary rather than contradictory to prior explanations of the regional price gap and shows that slave agency played an important role within the Peculiar Institution.

[38] Again, due to laws in Texas, Ohio, Illinois, and Indiana, the route of escape was to cross the Mason-Dixon Line into Pennsylvania.

[39] If influential in the area, these would have reduced demand for slaves in border states, all else equal.

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