

# Lethality and deterrence in affairs of honor: The case of the Antebellum U.S. South<sup>i</sup>

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**March 12, 2023**

## **Abstract**

Duels remained an important and surprisingly common means of settling disputes in the American South until after the Civil War. We examine two historical puzzles. First, why did dueling persist as a preferred tool to resolve conflicts in the South? Second, why did duelers use relatively inaccurate weapons when deadlier weapons were available? We construct a game theoretic model and conduct simulation exercises to find the following results. One, when the public views dueling as an appropriate means of mitigating the effects of libel, then it encourages socially desirable behavior such as reduced libel and more moderate behavior. Two, a sufficiently high mortality rate may deter libel without resulting in many dueling deaths. Third, if mortality rates are too high, dueling is no longer an effective institution. We compile a novel data set of newspaper accounts of duels from digitized archives to present empirical evidence that buttresses our insights from the model.

*JEL Classification:* C72, K40, N41.

*Keywords:* dueling, deterrence, conflict resolution, historical institutions

## 1 Introduction

Years later, reflecting on the Southern “Code” of dueling, [U.S. senator from Maryland] Charles Gibson maintained that as wicked as the code was, the vulgar public behavior following the demise of the practice was worse still. “The code preserved a dignity, justice and decorum that have since been lost,” he argued, “to the great detriment of the professions, the public and the government. The present generation will think me barbarous but I believe that some lives lost in protecting the tone of the bar and the press, on which the Republic itself so largely depends, are well spent.”

—Goodwin, DK (2005) *Team of Rivals: The Political Genius of Abraham Lincoln*. Simon and Schuster, pg. 65

I do further solemnly swear (or affirm) that [...] I, being a citizen of this States, have not fought a duel with deadly weapons within this State nor out of it, nor have I sent or accepted a challenge to

fight a duel with deadly weapons, nor have I acted as second in carrying a challenge, nor aided or assisted any person thus offending, so help me God.

—Kentucky oath of office, as of March 12, 2023<sup>v</sup>

Dueling was a preferred means of conflict resolution among gentlemen in the Antebellum American South. While it is impossible to precisely quantify the number of duels which took place, we have constructed two novel data sets that demonstrate the enthusiastic participation of the social elite. The first data set is of one interesting subset of elite society, U.S. senators. By examining historical records, newspaper accounts, popular press, and academic research, we have to date identified 56 senators who participated in at least one affair of honor. This is approximately 20% of all senators who represented states in which dueling was tolerated.<sup>vi</sup> The true number is surely larger than this estimate. Only three of these fell on the field of honor, likely due to the widespread use of dueling pistols deliberately manufactured to be, even by nineteenth century standards, surprisingly ineffective. The pistols, though exquisitely made, were smooth bore, short barreled, muzzle loaded, flintlock fired guns, instead of more accurate and reliable rifled, long barreled, breech loaded, percussion cap weapons. Indeed, a contemporary estimate puts the probability of dying in a duel at only  $\frac{1}{14}$  (Schwartz, et al., 1984).

The second data set was constructed by extracting every article mentioning duels in two prominent newspapers of their day, the New York Times and the Richmond Dispatch during the period of 1860 to 1865. We find that of 130 duels reported by these newspapers, 71 involve prominent figures, which we define as politicians, military officers with rank of at least colonel (Army) or captain (Navy), and other well-known private citizens. The reported death rate is higher than the estimate from Schwartz et al. (1984), but this is most likely due to selection: deadly duels are more likely to be reported in newspapers.

That dueling was apparently both widespread and relatively safe presents two puzzles. One, what utility did Southern gentlemen derive from the institution, such that it was so common despite the risk of mortal harm? Two, why did participants use inferior weapons when more modern guns were available?

We present potential answers to both puzzles. First, in our view the occasional dueling fatality was tolerated in the South because the institution increased welfare. Specifically, we argue that the threat of a duel had the ability to deter personal attacks in public conflicts, encouraging rivals to instead focus on the merits of their respective causes. Indeed, the benefits of a more civil and reasoned public discourse were almost universally cited by Southern gentlemen as *raisons d'être* for dueling, such as the quote from Charles Gibson above.

Second, we argue that the deterrent effect of dueling depended on the probability of death being neither too high nor too low. The imprecision of dueling pistols implies that approximately the same probability of death applied to the challenger and the challenged, with skill of *de minimis* importance. Were technologically superior weapons – such as revolvers – substituted for dueling pistols, gentlemen would have been more hesitant to issue a challenge, lessening the institution's potential to check uncouth behavior. Conversely, Southern acceptance of dueling seems to have depended in part on a willingness to face a non-zero death probability. Were dueling too safe, the institution's public acceptance—and thus its usefulness—may have diminished.

We present historical evidence that duels often grew out of underlying public conflict, such as lawyers arguing a case or prominent citizens disputing a political point in the editorial pages of a newspaper. From time to time, these conflicts turned personal, as participants – in addition to arguing the merits of their own case – worked to undermine their opponent's integrity. A high percentage of duels whose cause is discernable from our present vantage point stemmed from such personal attacks, and not disagreements

over substance. In our view, the utility of the institution flowed from its potential to redress such personal attacks, and from its ability to prevent them altogether. We present evidence from the historical record, and from a game theoretic model – discussed verbally in Section 3 and more formally in Online Appendix A – that dueling was able to fulfill both functions in the Antebellum South. We argue that a duel could redirect attention back to the merits of each contestant’s cause and away from personal attacks, thus restoring the honor of its participants. Further, we argue that the threat of a duel discouraged excessive personal attacks in the first place.

Of course, redress was also available via more traditional means, such as the legal system. Southerners expressed a seemingly cultural aversion to courts. For example, Andrew Jackson’s mother told her son “the law affords no remedy for such outrage that can satisfy a gentleman. Fight,” a sentiment consistent with Jackson’s personal life, and one which he encouraged as President (Holland, 2003). A recent literature, beginning with Acemoglu et al. (2016), argues that there existed substantial heterogeneity in the availability of the courts and other government institutions across the Antebellum United States. Indeed, Jensen and Ramey (2019) find that the South lagged the North in developing government institutions, and that state capacity – as proxied by post office density – is a strong negative predictor of the number of duels. Moreover, the South’s seemingly cultural taste for dueling faded quickly following the Civil War and Reconstruction, and their concomitant institutional shocks: the end of slavery, the death of one in eight white Confederate males between ages 10 and 44, military and carpetbagger state governments, a federal government newly empowered to protect civil rights throughout the country, and a greatly expanded federal judiciary. Thus, Southern cultural distaste for courts likely tracked their limited efficacy.

While a want of less sanguinary institutions may have been a necessary condition for dueling to thrive, it does not explain the phenomenon. Dueling seems bizarre from a 21<sup>st</sup> century vantage point, as do its post-hoc rationalizations that extended well into the 20th century, such as that from Senator Gibson above (see also Stevens, 1940). No one would seriously advocate a return to the practice in our present time. That said, Antebellum duels occurred in a vacuum of state capacity, just as related instances of dueling in Europe thrived under weak legal institutions had previously allowed dueling to fill this vacuum throughout Europe.<sup>vii</sup> With alternatives such as resorting to state power prohibitively costly, dueling clearly filled an important function in the lives of Southerners. This paper discusses that role. The paper’s main argument – that the value of dueling as a conflict resolution mechanism depended on its limited lethality mirrors arguments made about the value of limits in conflicts resolving interstate disputes (see e.g. Schelling (1957), modelling endogenous limits to war as a form of tacit coordination, or Schram (2021), arguing for an efficiency role of low-level conflicts outside of war).

A related literature studies other nontraditional institutions used in varying contexts to resolve conflicts. Escalante and March (2020) argue that Takanakuy, a custom in the Peruvian highlands of publicly brawling on Christmas Day, was an effective mechanism for conflict resolution, in that its public nature allows the institution to credibly serve as a law enforcement mechanism. Leeson and Coyne (2012) argue that sassywood ordeals, in which specialists administer doses of poison to the accused, are more effective in deterring crime and ascertaining guilt than the formal Liberian justice system due in part to greater public accountability and accessibility of sassywood specialists relative to judges. Leeson (2012) argues that European ordeals in the Middle Ages both deterred undesirable behavior and revealed information about defendants’ conduct by exploiting a belief in divine providence. Kiernan (1988) describes the evolution of the duel in Europe in the sixteenth century from earlier institutions where participation offered divine judgement on the participants’ honor, providing a basis for a seemingly irrational ritual. Our work adds to this earlier literature by focusing on an informal mechanism for dispute resolution

common among wealthy participants in a relatively modern, advanced economy—that of the Antebellum US South.

Four economics papers studying dueling are the most closely related to our paper. Our paper contributes to this literature by proposing a novel mechanism through which participants benefitted from duels, explaining why the use of inaccurate weapons may have contributed to this benefit, by formally modelling the underlying dispute between two agents that sometimes led to duels, and by providing more extensive empirical work supporting our modeling. Further, we use empirical evidence to buttress our theoretical conclusions.

First, Kingston and Wright (2010) posit spurned creditors as the instigators of duels, and delinquent debtors as their targets, with duels deterring future delinquencies. These authors view dueling as a predecessor of modern credit scoring. A direct implication of Kingston and Wright (2010) is that duels generally followed credit defaults. In our data covering the U.S. Antebellum South, we find no evidence that duels were commonly fought over credit defaults. We find much greater evidence of affairs of honor arising from contests for public esteem unrelated to financial matters.

Allen and Reed (2006) assume duels serve as a signal that the combatants have high social capital and are thus suitable for patronage appointments. These authors construct a separating equilibrium in which individuals with low social capital—either from low birth or youthful shirking—decline duels and do not receive patronage appointments. In our data, we do not find instances of duels leading to patronage appointments, and available evidence indicates that participation in dueling was neither necessary nor sufficient for holding public office.

Vahabi and Hassani-Mahmooei (2016) try to explain the decline of European dueling. In their model, the skill of a dueler is assumed to vary over time, depending on the number of past dueling “wins”. Under these assumptions, dueling skill concentrates in fewer individuals, and most individuals eventually optimally choose the court system to adjudicate disputes. In contrast, in the U.S. Antebellum South the cost of using courts appears to have been high, and exogenously increased state capacity, rather than concentration of dueling skill, appears to have been the main driver of a decrease in duels. We provide evidence that the institution was deliberately designed to minimize the importance of skill, and that most duels ended without fatality or injury. Finally, while we are aware of isolated instances of individuals fighting multiple duels across their lifetime, this was quite rare, indicating limited scope for the perceived skill of an opponent to affect the use of dueling as an informal dispute mechanism.

Finally, O’Neill (2003) considers the role of mediators in resolving disputes in which honor is at stake, finding that in such contexts a willingness to compromise may indicate a lack of honor, leading to fewer concessions and hence less efficient outcomes. In the context of dueling, disputes mediated by seconds—appointed representatives of the disputing parties—are less subject to constraints imposed by the need for participants to be seen as honorable, and thus more likely to be settled via compromise. Our paper differs by modeling the role of dueling itself in resolving disputes.

Section 2 examines the historical record on dueling, Section 3 discusses our game theoretic model and results. At the end of Section 3, we provide some empirical support of our results using the two data sets we collected, while Section 4 concludes. An online appendix formally presents our game theoretic model, comparative statics, and numerical simulations (Online Appendix A). A second online appendix presents additional historical evidence on the nature of Southern dueling (Online Appendix B).

## 2 Overview of Dueling

In this section, we seek to establish several historical facts about the institution of dueling, while reserving much of the historical record for Online Appendix B.

### 2.1 Dueling was common among Antebellum Southern Gentlemen

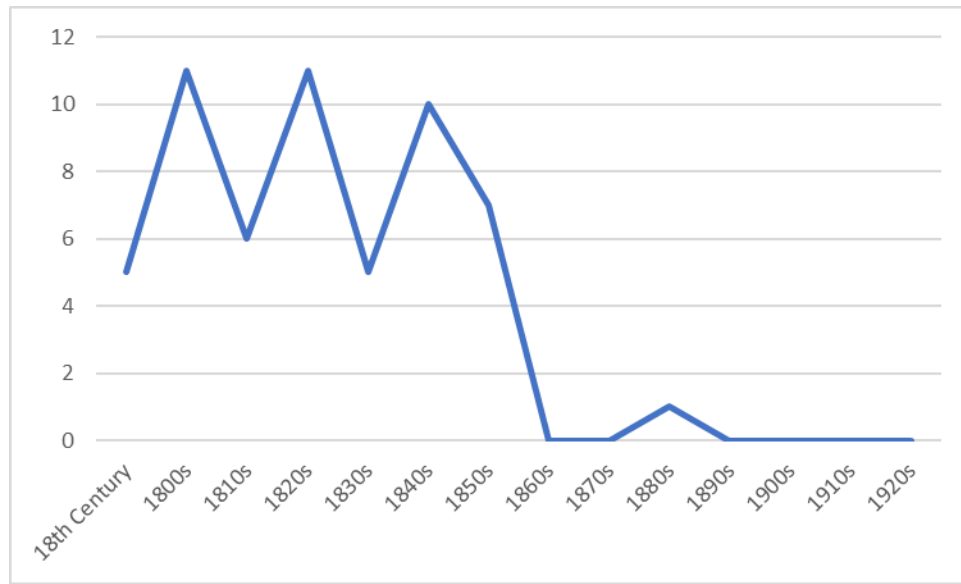
Duels were commonly employed by Antebellum Southern U.S. gentlemen. In addition to the 56 senators mentioned in the introduction, at least 36 governors,<sup>viii</sup> 57 U.S. congressman, and 7 cabinet secretaries participated in duels, with almost all coming from the South or the pre-1804 North. Records of duels involving prominent politicians are particularly likely to persist across the years, so Southern gentlemen who never served in high office are surely underrepresented in any census of duelers. In our data set of two prominent newspapers (New York Times and Richmond Daily Dispatch) during the period of 1861-1865, prominent citizens participate in over half of all accounts of dueling.

Dueling grounds outside of cities such as Washington DC (Bladensburg), New Orleans (The Dueling Oaks), and Vicksburg TN (Dueling Island) acquired national reputations (Stevens, 1940). For example, a nineteenth century newspaper account claims “between 1834 and 1844 scarcely a day passed without duels being fought at the Oaks” (Times-Democrat, March 13, 1892).<sup>ix</sup>

In contrast, almost no duels took place north of New York City (Stevens, 1940), and very few took place in the rest of the North after the Burr-Hamilton duel, which spurred a crusade against dueling throughout most of the Northern states, leading to the practice’s virtual elimination north of Washington DC. A Massachusetts anti-dueling law and a related push by John Adams to ban dueling in the Continental Army are representative of contemporary attitudes towards dueling in New England.

While dueling was imported to the U.S. by European settlers, it persisted in the American South until shortly after the Civil War. Figure 1 depicts the number of senators we have recorded as participating in a duel, by the decade in which the duel took place. All but one such duel took place prior to 1860. Using the metric of senators participating in duels, the decline of the institution appears quite sudden indeed, with at least five duels taking place in each decade between 1800 and 1860, but none in the decade of the Civil War. The best explanation for this decline is institutional change. Dueling acted as an alternate legal system in the South where the formal legal system was unsophisticated and better suited for an agrarian society than an industrialized one. In the aftermath of the Civil War and Reconstruction, however, the South began to industrialize. Ranney (2002) writes that “Southern states had to decide whether to shape their legal systems to follow suit or to preserve their rural, agricultural pre-war character.” Their legal systems did evolve, rendering the duel archaic and ineffective. Posner (1996) describes dueling before the war as preventing “disputes from exploding into feuds by formalizing and channeling the means of enforcement.” After the war, however, the “superior efficiency of police and courts” rendered dueling inefficient as an alternate legal system. This is consistent with the evidence discussed in the introduction on the institutional shocks that Reconstruction brought to the South: the end of slavery, the death of 13.1% of white Confederate males between ages 10 and 44,<sup>x</sup> military and carpetbagger state governments, a federal government newly empowered to protect civil rights throughout the country, and a greatly expanded federal judiciary.

Figure 1: Number of current, past, or future U.S. senators participating in duels, by decade of the duel



## 2.2 Duels arose out of public contests

From 1816-1818, two Transylvania University medical school professors, Dr. Drake and Dr. Dudley, battled for influence over how the department should be run and methods of instruction. As the dispute became more acrimonious, Dr. Dudley charged that Drake “had attempted to destroy the medical school at Transylvania University.” The vitriol increased “with occasional outbreaks in pamphlet,” until August 1818 when a duel erupted (Coleman, 1953).

Henry Clay and Humphrey Marshall, while both serving in the Kentucky General Assembly in 1807, differed as to the propriety of an embargo on British-made products during an undeclared naval war with Great Britain. Arguments for and against the policy soon shifted to personal insults (Clay was a “demagogue” and “liar”), and a duel followed. Clay’s 1826 duel with John Randolph grew out of a dispute regarding a potential U.S. mission to Latin America (Holland, 2003).

Sitting congressmen George Washington Campbell and Barent Gardenier dueled in 1808 following a public dispute over the British embargo. Numerous duels arose from the Yazoo land deal, in which Georgia politicians attempted to sell seized Creek Indian lands at low prices to a company in which many of them held stock. Virginia Senator Armistead Mason’s fatal duel with John McCarty grew out of an amendment Mason introduced to a Senate bill that would allow Quakers and other conscientious objectors to avoid being drafted into military service by providing a substitute.<sup>xi</sup> Holland (2003) describes physicians resorting to New Orleans’ Dueling Oaks to settle “differences in opinions on diagnosis and treatment,” for example Drs. Chopin and Foster dueling to settle a dispute about how to best treat a stabbing victim. Newspaper editors, controlling an outlet for political discussion, were frequently subject to challenge (Holland, 2003). Topics which spurred duels included slavery, whether or not to send aid to the Donner party, and tax policy (Holland, 2003).

According to Stevens (1940), “Men shot each other for gambling debts, for a dispute over billiards, an uncomplimentary word in an editorial, a jest at a table, a refusal to take a glass of whiskey, or, most of all, for disagreements in politics.” We take “disagreements in politics” to include any public conflict where

gentlemen compete for the esteem of a third party. Of the dueling grounds outside of Washington DC, Holland (2003) said that “Most of Bladensburg’s visitors were more political [...] Unlike the impulsive Old World quarrels over card games and jostling, political duels tended to be long-festering [disputes] that would suddenly flare to the fighting point over a nothing.” An 1859 Harper’s Weekly article stated that “There are parts of the United States where a politician must necessarily be prepared to fight duels... in many states of the Union, a politician who will not fight [...] cannot command the popular suffrage.”<sup>xii</sup> In the non-random sample of duels listed in Schwartz et al. (1984), of the 23 duels whose underlying cause is easily inferable, 15 clearly arise from public conflicts such as those described above. In our data set of newspaper articles, just over one third of duels with known reasons arose out of political disputes. The other reasons were military disputes (roughly 15%), personal insults (roughly 11%), and financial matters (roughly 6%).

Of course, some duels were fought over quite trivial matters that had nothing to do with any public conflict. The day following a drunken dispute “as to which understood some of the dead languages the best,” future U.S. Senator John Rowan shot and killed his friend Dr. James Chambers in a duel. Our reading is that the minority of duels arising from purely personal disagreements likely co-opted the institution of dueling to legitimize violence that would otherwise be thought unseemly.

## 2.3 Dueling was relatively safe

American duelers used purpose-built dueling pistols, designed for elegance and not accuracy, to settle disputes. These pistols were flintlock, short-barreled, smooth bore, and unsighted (as opposed to percussion cap, long-barreled, rifled, and sighted). The flintlock weapons misfired often, wasting shots and exhausting the dueler’s turn. Holland (2003) states that wearing glasses while firing was frowned upon.

One 1836 writer estimated that 1 in 6 duelers were injured, and 1 in 14 killed (Schwartz et al. 1984). Data collected by Kelly (1995) imply a 5.6% fatality rate in eighteenth century Irish duels when dueling pistols were used.<sup>xiii</sup> Another estimate puts the conditional probability of a naval officer dying on the field of honor at 20% (Stevens, 1940, pg. 71), while Byron (2008) compiles a selected sample of duels written up in 31 newspapers, finding a 23.9% fatality rate. McAleer (1990) finds that German dueling using pistols, had the highest mortality rate in Europe, around 20%. In our database of dueling senators, 41 received fire in a duel, 3 of whom died. As it is more likely that we failed to find politicians who dueled and lived than those who died, the mortality rate among senators was probably below  $\frac{3}{41}$ . In our newspaper data set, duels are deadlier. Just over one-quarter of duels were reported to have ended in the death of at least one participant. It is likely that this discrepancy arises due to our selected sample: newspapers are much more likely to report on duels with violent outcomes.

Deadlier weapons were available. In particular, swords were commonly used in European duels prior to the nineteenth century. The data in Kelly (1995) imply a fatality rate from eighteenth century Irish duels with swords of 39.4%.<sup>xiv</sup> Holland (2003) states that “perhaps ten thousand” French gentlemen perished in sword duels between 1591 and 1610. However, Kiernan (1988) notes that even before the advent of dueling pistols, weapon choices kept mortality artificially low. Indeed, a 1777 Irish dueling code specified that were swords used, the duel should continue until “one is well bloodied, disabled, or disarmed” or until one party was both bleeding and willing to apologize (Holland, 2003, at 44). In contrast, pistol duels had an obvious and frequently non-lethal stopping point: after each side had fired one shot.

Percussion cap pistols were developed around 1830, while rifling was invented hundreds of years earlier. Holland (2003) describes “alarming results” when rifles, shotguns, or Bowie knives were employed in lieu of dueling pistols. In the preface to an 1878 edition of a treatise on Southern dueling first published in 1848, Barnwell Rhett “deplores the fearful number of street fights, which, he says, are attended with fifty times the mortality and without the moral effect and social amelioration of the code of honor” (Schwartz, 1940 at 135). Chernow (2017) describes an 1875 federal investigation which found 2,141 murders of black Louisianans in the preceding ten years. Domestic terrorists in other Southern states produced similarly grim results, often employing firearms designed for accuracy and not elegance.

The unpredictable behavior of dueling pistols rendered skill relatively unimportant and subjected both participants to similar risks regardless of experience. In contrast, skill was an important determinant of outcomes in sword duels. Holland (2003) says of such duels “the owner’s skill mattered more than the blade’s tempering, and fencing lessons were an essential part of a gentlemen’s education.... Fencing lessons could save your life.”

Finally, Leeson (2012) finds a higher mortality from a different nontraditional institution designed to resolve disputes. Ordeals in Nagyvarad, Hungary conducted between 1208 and 1235 condemned the defendant in 37.5%, or 78/208 cases, while English ordeals between 1194 and 1219 condemned only 11%, or 2/19 defendants.

## 2.4 Dueling was afforded widespread legitimacy in the South. Successful duels publicly ended conflicts.

Written records exist for hundreds, if not thousands, of Southern duels; see Byron (2008) which catalogs accounts of 734 duels scraped from contemporary newspaper records. Such newspaper accounts were often especially concerned with the particulars of the affair (i.e., at how many paces was it fought, how many shots were fired), the nature of the underlying public conflict which led to the duel, and whether or not the affair was conducted honorably with a mutually satisfactory arrangement reached. In our newspaper data set, among duels that are known to have been conducted in the United States, about three-quarters are fought in the South. The following excerpt from the Greenville Mountaineer (1/24/1845), found on the front page below a story about a local expedition to search for sunken treasure off the coast of Margarita, is typical:

Affair of Honor. — A hostile meeting was had between Mr. Thomas Butler Kind and Mr. Charles Spalding, on Monday, the 6th inst. at Amelia Island. Weapons, pistols — distance, ten paces. Two shots were passed without effect, when, on the intervention of friends, the affair was adjusted and the parties exchanged friendly salutations.

The difficulty originated from some circumstances connected with the recent canvass of the two gentlemen while candidates for Congress before the people of this District. We refrain from comments, and only mention this satisfactory settlement of the matter because there has been considerable excitement in regard to it in the public mind, and because we feel assured that the announcement will cause much real pleasure among the friends of both the gentlemen.

Some announcements were terser, merely stating that a duel had taken place and the conflict ended honorably, such as the following announcement from a duel’s seconds appearing in the Columbia Telescope (9/20/1834):



The affair of Honor pending between Mr. William L. Allston and Mr. William M. Armstrong, having been referred to us, was Honorably adjusted.

Lancasterville Sep. 10th 1834

JAMES H. WITHERSPOON

JAMES J.B. WHITE

JOHN M. STARKE

Reporting standards varied across newspapers; for example, an October 27, 1830 article in the *Arkansas Gazette*, upon reporting “an honorable adjustment of the dispute, to the mutual satisfaction of both parties,” left it to “Madame Rumor, ‘with her hundred tongues,’ to communicate the names of the parties.” Examples of similar reports abound, in which Southern newspapers presented, without irony, the basic facts of a duel, what was known about the underlying dispute, and whether or not the affair was conducted honorably.<sup>xv</sup> The widespread uncritical reporting of particular duels suggests two things: one, dueling was accepted as common practice by Southerners. Two, duels were not private affairs, but were conducted at least partly for public consumption, and Southern gentlemen were likely to be well aware of how the parties acquitted themselves in any affair of honor. In addition to the press’ reporting of affairs of honor, Southern duels were often attended by scores of people. For example, the *Camden Confederate* (11/6/1863) reports “there were about seventy-five spectators at the scene” of a “fair stand up fight (with) both parties evincing great coolness” resulting in the death of a Mr. Copeland of Maryland.

Dueling appears to have been preferred to the legal system for the settling of disputes among Southern gentlemen, who disdained civil trials in which they would be judged by a jury they felt were socially inferior. Williams (1980) describes the duel as “clear evidence of the disinclination of Southerners to use the courts in connection with personal matters.” While a court may have been able to give pecuniary remuneration for an insult, they could not remedy the damage to a gentleman’s honor. As General Oglethorpe put it, a meeting on the field of honor was “essentially self-defense... a man has a right to defend his honor” (Stevens, 1940, pg 14). Schwartz et al. (1984) posit that contemporary courts’ reluctance to accept “truth of the matter asserted” as a viable defense may have rendered a jury award ineffective at restoring honor.

Southern gentlemen returning from the field of honor often enjoyed legal immunity; even in the rare instances in which a dueler was tried by a jury, the outcome was often acquittal. There is only one record of an execution resulting from a duel, in Illinois, and even this was more for dishonorable conduct than murder.<sup>xvi</sup> A contemporary account claims “sometimes two or three hundred people hurried from the city to witness these human baitings,” suggesting that the probability of future legal trouble was quite low (*New Orleans Times-Democrat*, March 13, 1892). Similarly, participation in a duel seemed to (if anything) help, rather than hinder, a politician’s path to high office (see Section 2.2, *supra*).

Greenberg (1990) describes dueling in the South as an “elite response to insult,” especially accusations of lying. While the duel appears to have remedied such an insult in the South, he writes that Northerners, including Benjamin Franklin, simply didn’t understand why participation would have such an effect. Northern newspapers were far more likely to report duels with derision. This treatment of affairs of honor in the press reflects Northern attitudes towards dueling, but it also greatly reduced the effectiveness of an affair of honor at achieving any end whatsoever—as duels were fought for public consumption, the fact that they would not be generally accepted by the press by itself ensured Northerners would pursue other methods of resolving conflicts, such as jury trials.

Duels were looked upon with scorn and derision of increasing intensity the farther north one traveled. The sarcasm in a 2/15/1872 New York Times article, describing three duels that occurred in New Orleans, is typical:

Now it is not often that New Orleans has so great a treat as three duels at once. And so the (visiting) Grand Duke has very opportunity arrived there, we trust it may occur to some of the gentlemen concerned in these various little difficulties, that they have an admirable chance to make the demands of honor serve the duties of hospitality. Let the three combats be fought in public, and the Grand Duke be invited to attend. So novel an exposition of New Orleans habits would undoubtedly gratify the illustrious visitor, and the duelists might find access of satisfaction in dying at his princely feet. A little ingenuity would make of the affair a most attractive and imposing spectacle. Capt. Scott, for example, might engage one of his adversaries with his shot-gun, while he kept the other in play with his sword. In the meantime, Messrs. Carter and Badger could be keeping up a lively fusillade on the outskirts. Better still, the combatants could throw their various honors into “pot”, and join a general battle. Or each might take turns in standing the assault of the other four. If all the gentlemen should be unhappily killed, sorrow would be assuaged in the reflection that honor was quite appeased, and that each had obtained all the satisfaction he could possibly desire. If New Orleans gentlemen will insist on this prerogative (of dueling), they ought not to be selfish in their enjoyment, especially with a Grand Duke to be exceptionally honored.

The Hamilton-Burr duel, involving a founding father and the sitting vice president, naturally attracted national attention, with views of the affair predictably fracturing upon regional lines. James Robertson of Tennessee, generally an opponent of dueling, wrote that “I suppose that if dueling could be justifiable, it must have been in his case” (Brands, 2005). Indeed, Brands writes that when passing through Nashville, Burr “was feted as a celebrity and a minor hero. No one in Nashville held his killing of Hamilton against him. Honor was honor, and, besides, to most Tennesseans, the fewer Federalists the better.” The duel, however, destroyed Burr’s reputation in the North. Brands writes that Burr was “politically ruined” and that his fellow Republicans considered him “an embarrassment and a liability.”

Perhaps because of the legitimacy of the institution, duels appeared to rehabilitate the reputations of both participants. As Parker (2001) notes, “the restoration of honor did not depend on the outcome of the confrontation. Ideally, a well-fought duel reconciled the two adversaries, reestablished mutual respect, and ‘cleansed’ the stain caused by the original insult.” Allen and Reed (2006) provide evidence that “the subsequent renewal of friendship among adversaries” was common, with duels refocusing the public’s attention away from the libelous behavior that led to the duel. Online Appendix B contains various accounts of duels that ended amicably, with any libel ostensibly withdrawn.

### 3 Dueling as an efficient social institution

What should we make of the frequency with which Southern gentlemen used relatively harmless dueling pistols to settle public contests? This section employs a game theoretic model to make the paper’s main argument: given weak state institutions in the Antebellum South, Southern dueling may have been an efficient social institution, and its availability may well have increased combatants’ expected utility, *ceteris paribus*. The parameters of Southern dueling—in particular its acceptance among elites and the use of dueling pistols as weapons—likely contributed to its efficiency, and lower social acceptance or

deadlier weapons would likely have tilted the scales towards inefficiency. The model uses the facts developed in Section 2 as inputs. In Section 3.1, we rely on verbal descriptions of the incentives faced by Southern gentlemen, while Section 3.2 presents our results in a non-technical format. Online Appendix A fully describes the technical details to the model and results of this Section, as well as comparative statics and numerical simulations following from functional form assumptions.

### 3.1 A game theoretic model of dueling

We model a duel as one possible outcome in the final stage of a multi-stage game. In the first stage, two randomly matched agents interact in a contest for public esteem (such as an election, letter-writing campaign, or gossip campaign). We assume the contest has one winner and one loser, and each agent would like to win the contest.<sup>xvii</sup> The agents have different types that render them more or less likely to win. An agent’s type—Agent  $i$ ’s type is denoted  $\theta_i$  in the formal model described in Online Appendix A—encompasses his positions on issues, his charisma, his past reputation, or any other factor that might affect the probability with which he wins the contest. Without loss of generality, we assume that a higher type is more likely to win the contest; such a type may have a position more in line with that of the median member of the public or may have a broader social network. To consider the concrete examples from Section 2.2, perhaps the contest is for influence in choosing methods of instruction at a university, or in choosing trade policy towards foreign countries. In these examples, type might represent each agent’s position on the policy question. Victory in the contest could be adoption of an agent’s preferred policy, or simply having relatively greater influence in crafting the policy. Each agent’s type is immutable and is publicly observable.<sup>xviii</sup>

An agent’s probability of winning the contest is increasing in his type and decreasing in his opponent’s type. While higher types are more likely to win contests, type is not determinative; agents with less favorable types can and do win contests, due to (unmodelled) factors such as luck.

Agents may attempt to improve their chance of winning the contest in various ways. For example, they might work to clearly state their own views, or to explain the merits of these views to members of the group they aim to influence (i.e., they might use constructive communications). Further, they might seek to discredit their opponent, such as by undermining his credibility, attacking his motives, distorting his views, or suggesting he is generally untrustworthy and undeserving of public esteem (i.e., destructive methods). We abstract from the former with the understanding that both agents would use such means to the extent practicable. We summarize the latter, destructive communications in one variable, which we call “libel.” Libel—the amount of Agent  $i$ ’s libel is denoted  $l_i$  in the formal model presented in Online Appendix A—distorts the public’s perception of its subject’s positions. For example, while an agent with a high type may be more likely to win a contest *ex ante*, libel directed at that agent would cause the public to perceive that agent as though he were of a lower type, thus lowering his likelihood of winning the contest. Thus, we model the probability of an agent winning the contest as increasing in his “perceived type”, defined to be a decreasing function the amount of libel produced by his opponent.

Producing libel is costly. Costs may be pecuniary (e.g., printing libelous pamphlets) or non-pecuniary (e.g., the time cost of preparing editorial material regarding a rival’s moral fitness). We model these costs as convex, so that additional libel becomes costlier as more has been thrown (or, equivalently, that libel has diminishing effectiveness). In the formal model presented in Online Appendix A, Agent  $i$ ’s cost of libel is given by a function  $c(l_i) = c * l_i^2$ , with the parameter  $c$  being proportional to the marginal cost of libel. We assume that agents in a contest with one another simultaneously choose libel levels (although simultaneity is not essential to any result).

Once libel levels are realized, either agent may choose to issue a challenge to the other. A challenged agent may choose to accept the challenge—in which case a duel takes place—or to refuse. Consistent with the historical record, we assume that refusing a challenge lowered an agent’s perceived type, e.g., by tarnishing the agent’s reputation. In the formal model described in Online Appendix A, Agent  $i$ ’s perceived type is  $\theta_i - \theta_i \gamma \frac{l_j}{1+l_j}$ , where  $\gamma \in (0,1)$  is the effectiveness of Agent  $j$ ’s libel in affected Agent  $i$ ’s perceived type. Indeed, declining a challenge gave the aggrieved party license to ‘post’ his antagonist, publicly declaring him a poltroon (Holland, 2003). Thus, we assume that the cost of refusing a challenge was prohibitively high for most challenged parties.<sup>xix</sup>

If a duel takes place, it has the effect of diminishing the effect of both agents’ libel. Based on the material presented in Section 2, duels appeared to defuse arguments and to shift the nature of underlying contests away from libel and back to the merits of the participants’ positions. As seen in Section 2.4, a successful outcome of a duel was for the combatants to exchange shots, and then to “exchange[] friendly salutations,” and contemporary reports describe such resolutions without reference to the underlying contest. This is both because the friendly salutations that follow presumably constitute a withdrawal of previous libel, and because a duel was widely acknowledged as a way for a dueler to “defend his honor.”<sup>xx</sup> Thus, we model a duel as removing a percentage of both agents’ libel, so that the contest is decided as though both agents issued less libel. In the formal model presented in Online Appendix A, the perceived type of Agent  $i$  after a duel takes place is given by  $\theta_i - \theta_i(1 - \alpha) \gamma \frac{l_j}{1+l_j}$ , where  $\alpha \in (0,1)$  is the effectiveness of a duel at reducing the effect of libel, So that a higher value of  $\alpha$  eliminates more of the negative effects of libel on an agent’s perceived type..

Of course, dueling is costly to both agents to the extent it carries a risk of death or injury, each of which lowers an agent’s utility—in the formal model presented in Online Appendix A,  $A$  is the disutility of death, and  $d$  is the probability of dying in a duel. We assume that agents engage in standard cost/benefit analysis in deciding whether or not to challenge their rival to a duel. Agents weigh the probability of death or injury against the benefit to his reputation from participating in an affair of honor and removing some of the libel thrown at him. In particular, while a duel’s reduction of libel applies to both agents, an agent who received relatively more libel may have more to gain from a duel. It follows that the more libel leveled against an agent, the greater the benefit to his dueling, all else equal. While either agent could refuse the duel, the cost of turning down the challenge was high enough that such rare incidents were noted in newspapers in the Antebellum South.

Two parameters inform an agent’s choice of whether or not to issue a challenge. First, the “effectiveness” of a duel in reducing libel (specifically,  $\alpha$ , the fraction of libel that is eliminated by a duel) determines the potential benefit to a duel. Evidence presented in Section 2.4 suggests that this fraction was non-zero, and may have been large, in the Antebellum South. In contrast, this fraction was likely at or below zero in the North, at least following the Burr-Hamilton duel.

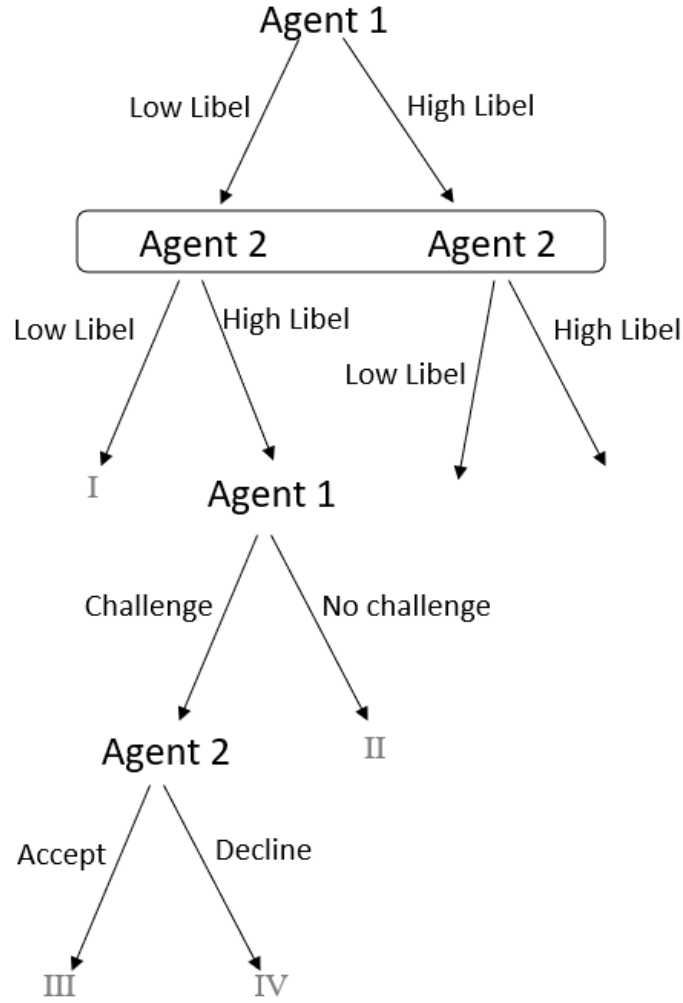
Second, the probability of dying in a duel (the parameter  $d$ ) affects the cost of dueling. We assume for simplicity that all duels carry the same probability of death; this is consistent with the widespread use of inaccurate dueling pistols (see Section 2. 3), and widely adopted conventions that specified how gentlemen should behave during interviews. We further assume away (again, for simplicity) the probability of sustaining non-fatal injuries in a duel. Thus, a duel results in the death of zero, one, or both agents. We further assume that both agents have the same disutility of death (the parameter  $A$ ).

Figure 2 depicts representative strategies from an extensive form representation of the underlying game; while we model libel as a continuous variable, for the purposes of the figure we have simplified the agents' choice to one of high or low libel. Working backwards, if a challenge has been issued, the challenged agent is assumed to suffer a reputational cost from declining that outweighs any costs associated with participating in a duel, such Agent 2 prefers outcome III to outcome IV. Knowing this, an agent is more likely to prefer to issue a challenge if libel directed at him is high, and libel the agent directed at his opponent is low; the optimality of issuing a challenge also depends on the deadliness of a duel and its effectiveness in reducing the harmful effects of libel. Depending on these parameters, and within the example in the figure, Agent 1 may prefer either outcome II (from not issuing a challenge) or outcome III (from issuing a challenge). Finally, in the game's initial stage, both agents choose libel to equate the marginal benefit of libel (a greater probability of winning) with the marginal cost, bearing in mind that too much libel may prompt a duel. Depending on the cost of the duel, the effect of a duel on libel, and the agents' relative type, in the example depicted in the figure Agent 2 may prefer outcome I or whichever of outcome II or II would realize if Agent 1 chooses a high level of libel.

As a general matter, three types of equilibria are possible. In an *unconstrained equilibrium*, the level of libel chosen by agents in the first stage is insufficient to trigger a challenge to a duel by either agent in the second stage. In this type of equilibrium, the game's second stage does not alter agents' decision making in the first stage. Second, in a *dueling equilibrium*, a duel takes place in the second stage. In such an equilibrium, one agent is libeled so much in the first stage that he finds it optimal to issue a challenge in the second stage. Of course, agents will anticipate a challenge in such equilibria, which diminishes the expected return to libel in the first stage. Finally, in a *deterrence equilibrium*, at least one agent chooses to libel his rival less than he otherwise would in order to avoid a second stage duel. No duel takes place in these equilibria, but the threat of a duel results in less libel in the first stage.

In summary, the primitives of our game theoretic model are: the cost of libel ( $c$ ), the effectiveness of libel in influencing the contest ( $\gamma$ ), the probability of dying in a duel ( $d$ ), the effectiveness of a duel in reducing effective libel ( $\alpha$ ), and the disutility of death ( $A$ ). Our results map these primitives into various outcomes. We rank outcomes in terms of social welfare and derive our main results in the following section. Two results are of particular importance. First, if dueling is effective at reducing libel, the legalization of dueling may be welfare enhancing. Second, the probability of dying in a duel affects social welfare non-monotonically, and welfare is maximized by an intermediate value, neither too high nor too low.

Figure 2: Extensive form game



### 3.2 Results

Online Appendix A leverages functional form assumptions to formally solve the model via backward induction. We provide an intuitive description of major findings here.

First, at most one agent would prefer to issue a challenge to a duel in the game's second stage. This is because the contest is zero sum: one agent will win and the other will lose.<sup>xxi</sup> A duel may change the probabilities of each agent winning, but it cannot do so in a way that would make both agents more likely to win the contest. Of course, it is possible that it does not increase the probability of either agent winning by enough to offset the possibility of dying in a duel, in which case no agent will choose to issue a challenge in the second stage.

Second, we use the standard Nash equilibrium concept to solve for optimal libel levels in the first stage of the game. This means that each agent chooses the level at which he libels his rival to equate the marginal benefit and marginal cost of libel, accounting for the possibility that a duel may occur in the second stage, which both lowers the return to libel (as a duel partially eliminates the effect of libel) and makes death a

possibility. In an unconstrained equilibrium, each agent simply equates the marginal benefit and marginal costs of libel. In a dueling equilibrium, each agent does the same, but accounts for the diminished return to libel. Finally, in a deterrence equilibrium, the agent who is deterred plays the maximum libel level that will not induce a challenge from his rival.<sup>xxii</sup>

Third, which type of equilibrium occurs depends on the model's underlying parameters, such as the probability of dying in a duel, the effectiveness of a duel in reducing libel, and the difference in type between the two agents. In particular, duels occur when the probability of dying in a duel is low, the effectiveness of a duel in reducing libel is neither too high nor too low, and the difference in type between the two agents is large. The intuition is as follows. If duels are too deadly, no agent will want to partake, regardless of effectiveness in reducing libel. If duels are ineffective at reducing libel (e.g., because more traditional institutions provide greater value in resolving disputes), there is no point in risking death to duel. On the other hand, if duels are very effective at reducing libel, they provide an effective deterrent to excess libel, and neither agent will choose to libel his opponent enough to induce a duel in the game's second stage. Finally, the difference in type between the two agents matters because an agent with a type that is *ex ante* less likely to win the contest has a greater return to libeling his opponent, and thus, all else equal, duels are more likely to occur in contests involving such agents.

Fourth, deterrence equilibria occur for intermediate levels of the probability of death from a duel. If a duel is somewhat likely, but not overwhelmingly likely, to result in the death of one or both agents, it becomes a more credible threat, and in the game's first stage each agent will believe that his rival may well challenge him to a duel if he were to excessively libel the rival. This threat evaporates if duels are overly deadly, as an agent will know that even egregious libel is unlikely to result in a challenge, as his rival would not find it optimal to incur such a high risk of death to restore his honor. The balance between deterrence and acceptance is not unique to duels. Leeson and Coyne (2012) argue that a superstitious belief that sassywood ordeals are reasonably safe for the innocent but deadly for the guilty – supported by manipulation of the ordeals by sassywood specialists – underlies broad Liberian public support for the institution. Leeson (2012) argues that priests manipulated the outcomes of ordeals to ensure they harmed participants often enough to be credible, but not so often that innocents refused to participate.

Fifth, we posit that total social welfare is decreasing in both the number of duels (because duels result in at least occasional deaths) and the amount of libel (because libel distorts political and other processes, resulting in suboptimal outcomes). If so, it follows (from the previous paragraph) that an intermediate level of deadliness of dueling weapons generates the greatest social surplus, as such weapons can deter bad behavior (libel) without excessive deaths. Indeed, in the context of our model, the deadliness of dueling weapons can even be chosen so as to result in no duels in equilibrium, but to still deter excessive libel. In the absence of strong institutions allowing aggrieved parties to seek redress for damages caused by libelous speech (as in the modern era), this level of deterrence is arguably superior to a regime that outlaws dueling, as both regimes produce zero dueling deaths, but allowing for the possibility of a duel deters libel.

This result is the most important point we make in the paper, so it is worth unpacking further. Figure 3 plots, for a numerical example, the equilibrium number of deaths per public contest (as opposed to per duel), and the units of libel chosen, for various levels of the probability of dying in a duel, ranging from 0 (duels are perfectly safe) to 10.4% (i.e., higher than the mortality rate observed in the Antebellum South, per Section 2.3). As the mortality rate increases from 0, duels become more of a deterrent, reducing libel (albeit at the expense of some deaths). As the mortality rate increases further still, agents are more hesitant to issue challenges. Thus, the deterrent effect begins to evaporate, and the level of libel observed in equilibrium increases (while the number of deaths/contest decreases).<sup>xxiii</sup>

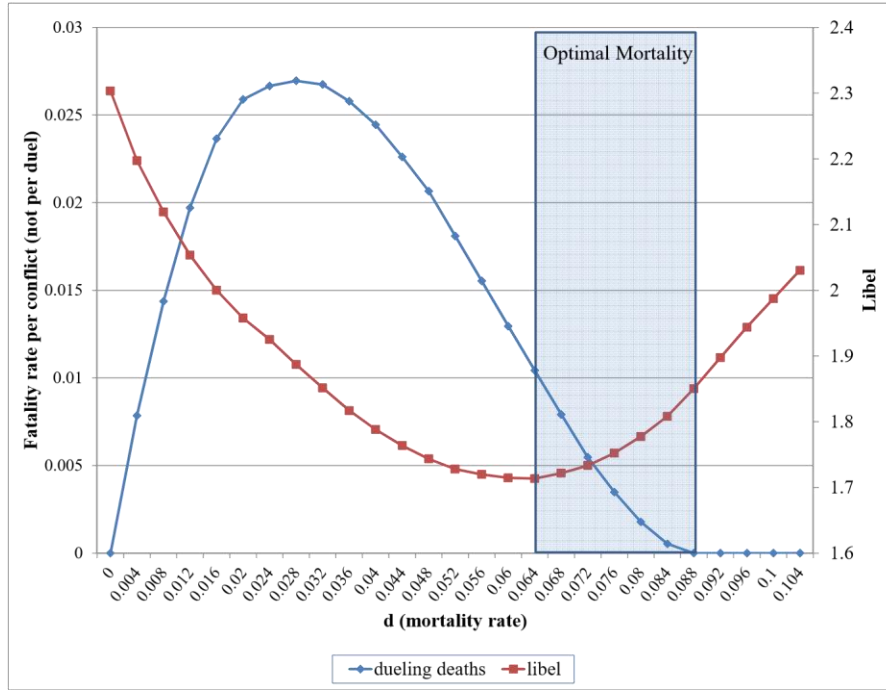
While we are agnostic how society should trade off deaths from dueling against lower libel levels, the optimality of an intermediate level of deadliness from dueling holds regardless of how this tradeoff is resolved. In Figure 3, mortality rates corresponding to the shaded region, labeled “Optimal Mortality,” Pareto dominate points outside of the shaded region. This is because for any point not in the shaded region, the same level of dueling deaths can be obtained in the shaded region, with lower libel. To be clear, Figure 3 represents a particular numerical example, but the same intuition would hold even for different model parameters.

Sixth, the effectiveness of a duel in reducing libel is a key determinant of the frequency of duels and the level of libel. If dueling is ineffective at reducing libel, then a duel is not a credible threat capable of deterring libel. As seen in Section 2.4, dueling was widely mocked in the North, and thus was unavailing as a method of restoring one’s honor, even in the face of vicious libel. On the other hand, as seen in Section 2.4, in the absence of credible legal institutions, Southerners saw dueling as a legitimate means of honorably ending conflicts, which thus established a duel as a credible threat, capable of deterring libelous behavior.

Seventh, and finally, the existence of multiple equilibria offers context for why dueling persisted in the U.S. South long after it fell out of favor elsewhere. In our model, which equilibrium obtains depends on the model’s underlying parameters. For instance, if duels are likely to be very deadly, no one will ever issue a challenge, and the threat of a duel will not deter libelous conduct. Similarly, if duels are held in low regard by the citizenry, they will be ineffective at ending conflicts, and will likely be ineffective at reducing the effects of libel, in which case agents will be hesitant to issue a challenge. In either case an unconstrained equilibrium is more likely to result. A dueling equilibrium is more likely to result when public’s acceptance of dueling is sufficiently high, but the deadliness is not too great. If (consistent with the historical record) a duel needed to be at least somewhat deadly in order to satisfactorily resolve a contest, then the effectiveness of dueling may have depended on duels being somewhat, but not overly, deadly.



Figure 3: Average libel and deaths per contest



### 3.3 Empirical Support

In this section, we provide empirical analyses with our data sets to buttress some of our theory and simulation results. As described in the introduction, our first data set collects anecdotal evidence of dueling by U.S. Senators. While historical accounts will be incomplete, the prominence of the participants most likely means that records will be more complete than affairs of honor involving the public at large.

Our second data set is the universe of dueling incidents reported by two large newspapers from 1861 to 1865: the New York Times and the Richmond Daily Dispatch.<sup>xxiv</sup> The two newspapers were selected for study because, to our knowledge, they are one of the few, if not the only, newspapers with extensive digitized archives that go back to the Antebellum South. Also, the two newspapers seem to employ separate correspondents. As such, accounts of duels do not overlap. We initially extracted over 600 articles that contain variations on the word “duel” and “affairs of honor.” Of these, we found a large majority did not pertain to the duels we were interested in. Many were descriptions of battles between the North and the South (“artillery duels”), rumors of duels scheduled or finished with no additional details, or other unrelated materials. After excluding irrelevant and unusable items, we were left with 130 articles.

Figure 4 shows the trend in participation in duels reported by the newspapers. This figure is analogous to Figure 1, which shows a large number of senators participating in duels prior to the run-up of the Civil War. After the war, this number plummeted. Similarly, the number of accounts of dueling in newspapers is much higher in 1861 and declines precipitously throughout the war period. These trends imply, first, that duels were on the decline over the long run. This may have been due to the strengthening of institutions to settle disputes or simply that dueling for honor was becoming less in vogue. Second,

dueling was concentrated in the South, and as the Civil War became an existential struggle, the luxury of engaging in affairs of honors seems to have disappeared.

Figure 4: Count of articles about duels appearing in the New York Times and Richmond Daily Dispatch, 1861-1865

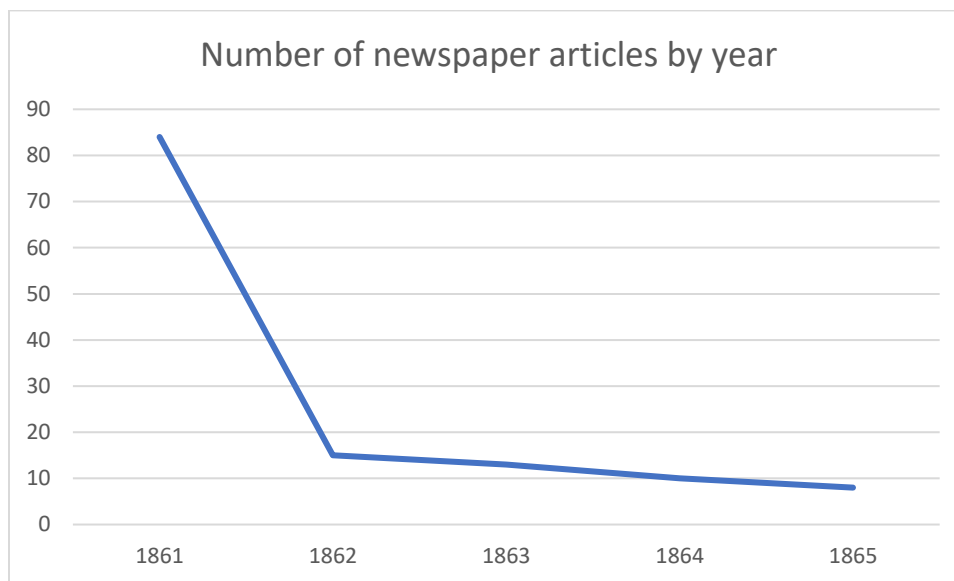


Table 1 shows summary statistics for our newspaper database. Several features of the data stand out. First, over half of the articles describe duels featuring prominent public figures. As newspapers report on what the public would find interesting, this likely induces selection into which of many duels are reported in newspapers. In particular, it is likely that there were many unreported duels featuring non-prominent participants and with motivations and results not of particular interest to the newspaper-reading public. In addition, the probability of death from the newspaper articles is approximately 0.27, which is more than three times what was reported in Schwartz et al. (1984). This again implies that duels by themselves were not necessarily newsworthy.

Over half of the duels in the newspaper articles end with minor to no injuries or without actual shots being fired. Descriptions of conclusions of such incidents are straightforward and matter of fact, with no negative sentiment found. This supports the assumption underpinning our model that the issuing of the challenge is the important event, and the outcome is somewhat secondary.

We find that among duels with known causes, the most common reason for the duel was political arguments. However, the largest category of reasons is unknown, or at least unspecified in the relevant newspaper article. This may imply that the reason for the duel was already widely known to the public, and the reporter did not feel the need to describe it. The most common weapon used was the standard dueling pistol. However, as with reasons for the duel, the largest category of weapons is unspecified. It is likely that the vast majority of these duels used dueling pistols, and these weapons were not described by the article as their presence was unremarkable. Finally, as expected, a large majority of duels were fought in the South (among known locations). The imbalance in the number of duels is interesting as the number of articles from the New York Times is approximately double the number of articles from the Richmond Daily Dispatch.

Table 1: Summary statistics from articles appearing the New York Times and Richmond Daily Dispatch, 1860-1865

		Mean	Std. Dev.
Participants	Prominent Figures	0.55	0.50
	Average Citizens	0.31	0.46
Outcome	Death	0.27	0.45
	Major Injury	0.09	0.29
	Minor Injury	0.16	0.37
	No Harm	0.15	0.36
	Ended Peacefully	0.21	0.41
Reason for Duel	Political	0.18	0.38
	Military	0.08	0.27
	Personal Insult	0.06	0.24
	Financial	0.03	0.17
	Miscellaneous	0.17	0.38
	Unknown	0.48	0.50
Weapon	Dueling Pistol	0.25	0.44
	Unspecified	0.53	0.50
Location	South	0.44	0.50
	North	0.15	0.36
	Foreign/Unknown	0.41	0.49
Observations		130	

Note: Excluded category for duel participants is “citizens of ill-repute.” “Miscellaneous” categories for “Reason for Duel” include “romantic” and “dishonorable”. Excluded category for weapons is the small number of articles identifying weapons that are not standard dueling pistols.

Table 2 breaks down the outcome of the duels into South and North. The most salient differences between duels in the North and the South is the expected level of violence. Death and dismemberment were almost half of the expected outcomes in Southern duels, whereas the conflict ending without an actual exchange of gunfire or other forms of violence was the most likely outcome for Northern duels.

Table 2: Dueling outcome by region

By region	South		North	
	Mean	Std. Dev.	Mean	Std. Dev.
Death/Major Injury	0.46	0.50	0.35	0.49
Minor injury/no harm	0.39	0.49	0.25	0.44
Ended Peacefully	0.11	0.31	0.40	0.50
Observations	77			

Table 3 shows linear probability model regression results where the outcome is that a duel takes place after the issuance of a challenge. Model 1 includes information only on the reason for the duel. Model 2 adds the social status of the participants. Model 3 adds interaction terms between the status of the participants and whether the duel was due to a political dispute.<sup>xxv</sup> Finally, Model 4 includes variables for weapons used, location, and whether the challenge was issued prior to the Civil War. We caution that these results should be interpreted in the context of a selected sample. As mentioned previously, it is

likely that many challenges that ended peacefully were under-reported. The sample contains reports of incidents where, although no physical violence occurred, the newspaper still deemed it worthy of print.

The negative parameters on political dispute (in Models 1 and 2), and on the interaction term between prominent citizens and political dispute (in Models 3 and 4) may seem odd, when one of our central claims is that political disputes play a central role in dueling in the Antebellum South. However, the implication of the results is that in political disputes, especially among the social elite, a challenge is much more likely to be concluded without trading gunfire, and someone being injured or killed. This again implies that the issuance of the challenge and its acceptance are the salient features of the duel, and the violence arising from the duel itself may not be necessary for mutual satisfaction.<sup>xxvi</sup> As we saw in Table 2, challenges are more likely to be resolved through a violent duel in the South.

Table 3: Linear probability regression results, outcome variable is whether a duel takes place

VARIABLES	(1)	(2)	(3)	(4)
Political Dispute	-0.278** (0.110)	-0.298** (0.119)	0.0105 (0.167)	0.0124 (0.158)
Military Dispute	0.0465 (0.130)	0.0329 (0.130)	0.0722 (0.139)	0.0517 (0.132)
Personal Insult	-0.0258 (0.119)	-0.0483 (0.124)	-0.0281 (0.112)	-0.00919 (0.111)
Prominent Figures		0.0709 (0.0931)	0.0901 (0.0956)	0.0534 (0.0944)
Private Citizen		0.130 (0.0904)	0.150 (0.0980)	0.0967 (0.0976)
Prominent x Political			-0.447** (0.219)	-0.403* (0.206)
Citizen x Political			0.0551 (0.286)	0.0814 (0.268)
Dueling Pistol Used				0.111* (0.0651)
South				0.115* (0.0674)
Pre-Civil War Years				-0.0240 (0.0822)
Constant	0.840*** (0.0390)	0.767*** (0.0808)	0.748*** (0.0846)	0.717*** (0.0991)
Observations	130	130	130	130
R-squared	0.068	0.086	0.124	0.159

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

Table 4 shows linear probability model regression results for the sub sample of articles where a duel did not terminate peacefully. The dependent variable is that the duel ends with the death or major injury of at least one combatant. The regression specifications are built up in the same way as described for Table 3. Although not statistically significant, a suggestive finding is that a political dispute is more likely to end

in death or major injury compared to other reasons. Prominent public citizens are more likely to suffer grave bodily harm if they are involved in a duel. Private citizens in general may be more likely to suffer harm, although a puzzling finding is that if the dispute is political in nature, they are much less likely to be seriously injured or killed. This may be due to our selected sample. The public will be more interested in the details, including the cause of the dispute, when prominent citizens are killed in duels. At the same time, prominent citizens may be more likely to argue and duel over political matters compared to the average citizen. Then, for average citizens, even in the few cases of duels arising from political arguments, newspapers may be less inclined to report on these details due to the lack of interest from the public.

The parameter estimate on prominent figures speaks to the real social harm that dueling can cause: serious disputes that cannot be resolved before the actual execution of the duel can result in the death or dismemberment of even social and political elites. Somewhat surprisingly, disputes of military matters or grave personal insults are not associated with higher likelihood of traumatic outcomes.

*Table 4: Linear probability regression results, dependent variable is whether a duel resulted in a death*

VARIABLES	(1)	(2)	(3)	(4)
Political Dispute	0.185 (0.148)	0.112 (0.172)	0.165 (0.263)	0.183 (0.276)
Military Dispute	-0.120 (0.181)	-0.146 (0.185)	-0.246 (0.182)	-0.260 (0.185)
Personal Insult	-0.116 (0.204)	-0.159 (0.209)	-0.176 (0.208)	-0.175 (0.219)
Prominent Figures		0.217* (0.116)	0.275** (0.115)	0.281** (0.118)
Private Citizen		0.219* (0.122)	0.332*** (0.124)	0.336*** (0.127)
Prominent x Political			0.243 (0.293)	0.248 (0.296)
Citizen x Political			-0.897** (0.343)	-0.943** (0.395)
Dueling Pistol Used				-0.0666 (0.110)
South				0.119 (0.104)
Pre-Civil War Years				0.00406 (0.115)
Constant	0.449*** (0.0570)	0.274*** (0.0900)	0.215** (0.0872)	0.168 (0.125)
Observations	103	103	103	103
R-squared	0.021	0.063	0.113	0.129

Data is restricted to conditional on duel occurring. Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Finally, we use a standard sentiment analysis tool — spaCy<sup>xxvii</sup> — to assess the tone associated with articles in both newspapers. The algorithm, which is trained on a manually classified corpus of movie reviews appearing in newspapers, scores each article’s tone on a scale of 0 to 1, with 0 being the most negative, and 1 being the most positive. We augment the algorithmic scoring with our own manual review, in which we flagged sarcastic and/or condemnatory articles against dueling.<sup>xxviii</sup> This step was necessary because the machine learning algorithm we employed cannot reliably assess sarcasm. We found that 10% (8 out of 80) New York Times articles used sarcasm or strong condemnatory language, while zero of the fifty articles in the Richmond Daily Dispatch used such language.

Table 5 and Table 6 present correlation matrices describing how various factors — whether a challenge was peacefully concluded (labeled No duel), whether the participants or a duel were prominent, whether the duel’s cause was political, and whether a duel took place in the U.S. South — are correlated with article sentiment, and with each other. We find that article sentiment is positively correlated with peaceful conclusion in the northern *New York Times*, but uncorrelated with no violence taking place in the Southern *Richmond Daily Dispatch*. Sentiment is roughly equally correlated with a duel’s political nature in both papers. A duel taking place in the South is negatively correlated with sentiment in the *Times* but positively correlated in the *Dispatch*. Finally, sentiment is much more positively correlated with prominent participants in the *Times* than in the *Dispatch*, but this appears to be mainly due to higher correlation between “No duel” and “Prominent” and between “Political” and “Prominent” in the *Times*, relative to the *Dispatch*.

Table 5: Correlation between article sentiment and other factors, New York Times

	Sentiment	No duel	Prominent	Political	South
<b>Sentiment</b>	1.00				
<b>No duel</b>	0.16	1.00			
<b>Prominent participants</b>	0.16	0.22	1.00		
<b>Political origin</b>	0.19	0.34	0.56	1.00	
<b>South</b>	-0.06	-0.25	-0.25	-0.16	1.00

Table 6: Correlation between article sentiment and other factors, Richmond Daily Dispatch

	Sentiment	No duel	Prominent	Political	South
<b>Sentiment</b>	1.00				
<b>No duel</b>	0.00	1.00			
<b>Prominent participants</b>	-0.12	0.03	1.00		
<b>Political origin</b>	0.20	-0.11	0.17	1.00	
<b>South</b>	0.09	-0.02	0.10	-0.08	1.00

## 4 Conclusion

It is easy to argue that dueling was an undesirable and barbarous aspect of Antebellum Southern society. The costs were evident. Duels resulted in the deaths of scores of Southern politicians, soldiers, editors, physicians, attorneys, and other respected figures in society. That this system was able to last for such a long period of time, was endorsed and found enthusiastic participants among the political and social elite, and served as a means of restoring or defending personal reputation is a historical puzzle that has attracted the attention of legal scholars and economists.

Our game theoretic model offers explanations for two important phenomena related to dueling. First, dueling had to be relatively safe to be an effective deterrent to libel, and so the seemingly irrational choice of archaic and inaccurate (but still occasionally deadly) dueling pistols may have been an efficient social choice that both lowered libel and ensured that duels would occasionally take place. Second, we offer a more nuanced explanation for the value Antebellum Southerners derived from dueling in the absence of more traditional institutions than is available in the literature. In particular, we incorporate available historical evidence into a game theoretic model which implies that agents rationally chose to engage in dueling in order to lessen the effects of libel, and the threat of a duel likely deterred libel to some extent, relative to what would have existed with a less effective method of conflict resolution. Further, our novel data set constructed from digital archives of two leading newspapers during this period and regression and sentiment analysis serve to empirically buttress many of our theoretical findings.

Conditions unique to the U.S. South may have allowed dueling to persist there for decades longer than in other geographies. The South's lack of state capacity, its acceptance of low-quality dueling weapons, and a culture that disproportionately valued public reputation above all may have contributed to the persistence of dueling. The Civil War and Reconstruction, and concomitant institutional and cultural shocks, altered conditions such that Southern gentlemen no longer found value in dueling as a tool for dispute resolution.

Finally, the salient findings in our paper also have parallels to the game theoretic, political science, and macroeconomic literatures that deal with games of deterrence, stability, and mutually assured destruction (MAD) in international conflicts.<sup>xxix</sup> While we hesitate to draw too straight a line between pistol dueling in the Antebellum South and modern interstate nuclear competition, both use the possibility of annihilation as a deterrence mechanism against bad behavior by the opponent.

The MAD literature focuses on the repeated game played between two nations as they make decisions to invest in weapons of increasing deadliness. A severe conflict could trigger the release of both weapons stockpiles, resulting in the destruction of both nations. The first-best outcome is zero stockpile (usually unenforceable without a social planner). A realistic outcome may be for both sides to accumulate a stockpile to assure mutual destruction, which increases the cost of a conflict on both sides.

Further, the literature asserts that stability of "deterrence balance" between two competitors in an international arena is high when both have similar ability to strike back at the aggressor, and the costs imposed on the combatants would be extremely high.<sup>xxx</sup> Then, both sides may be held in check from using their most effective weapons. However, this led to what academics called the "stability-instability paradox," where the cost of nuclear war (and the reluctance of rational actors to engage in it) invites more low-scale, limited conflicts.<sup>xxxi</sup>

Participants in duels do not make independent decisions to invest in weapon effectiveness. Indeed, "effective" weapons were purposefully eschewed in most cases.<sup>xxxii</sup> Our model emphasizes that neither a zero chance nor certainty of death is optimal, as both cases render the mechanism toothless. Norms of the Antebellum South moderated the violence in duels, in essence imposing a deterrence balance while controlling the cost of the duel. The appropriate deadliness of dueling weapons reduces the level of low-scale conflicts (e.g., libel), resulting in a more civil society. Even as the scale (individuals vs. nation states), the reasons, and the stakes change, some fundamental aspects of conflicts are constant: the interplay among weapon technology, the size of the reward from winning, and the difference in likelihood of victory in the dispute prior to the conflict determines how much low and high-level violence society will experience in these contests.

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<sup>i</sup> We thank seminar participants at the Naval Postgraduate School, University of Kentucky Law School, University of Kentucky Economics department, University of South Carolina, and the IIOC, Ning Yu for providing code used to download and process news articles, Emma Patard for research assistance, three anonymous referees and the editor for helpful comments. The views expressed are the authors' own, and do not necessarily reflect the views of the authors' employers. This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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<sup>v</sup> See <https://apps.legislature.ky.gov/Law/Constitution/Constitution/ViewConstitution?rsn=263>.

<sup>vi</sup> See Online Appendix B for the complete list.

<sup>vii</sup> Billacois (1990) describes this phenomenon in early-modern France, while McAleer (1990) does so for Germany until the outbreak of the First World War.

<sup>viii</sup> See Byron (2008) for a list of governors who participated in duels.

<sup>ix</sup> See Online Appendix B for descriptions of duels mentioned.

<sup>x</sup> Hacker (2011) provides estimates of Civil War fatalities.

<sup>xi</sup> Scheel, Eugene. "Vitriolic Exchanges Led to Fatal Duel". Washington Post, February 16, 2003 (describing how political rivals Mason and McCarty exchanged insults including Mason's calling McCarty "an ass in lion's clothing" and McCarty stating that Mason had a "paucity of talent which rendered him so conspicuously dumb in the Senate of the United States").

<sup>xii</sup> "The Death of Broderick," Harper's Weekly, October 22, 1859.

<sup>xiii</sup> At 73-74, Kelly describes 37 deaths in 61 duels between 1716-1750, with 27% of these duels being fought with pistols (and the remainder with swords). From 1751-1770, Kelly finds 20 deaths in 83 duels, with 81% of these duels being fought with pistols. Assuming both guns and swords have constant fatality rates across time periods, the implied number of fatalities per duel using pistols and swords, respectively, are given by  $f_p$  and  $f_s$  in the system of equations:

$$\begin{aligned} .81f_p + .19f_s &= \frac{20}{83} \\ .27f_p + .73f_s &= \frac{37}{61} \end{aligned}$$

Solving this system yields  $f_p = 11.2\%$  and  $f_s = 78.9\%$ , meaning that an estimated 11.2% of pistol duels resulted in the death of one of the two participants. Dividing these numbers by two yields the fatality rate to an individual

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participant, as described in the text. If accounts of “mortal wounds” are counted as deaths, the implied fatality rates are higher.

<sup>xiv</sup> See calculation in endnote xiii.

<sup>xv</sup> See Online Appendix B for a selection of nineteenth century U.S. newspaper articles about specific duels.

<sup>xvi</sup> The duel’s seconds intended to stage a mock duel to test the challenged man’s courage, so they gave the principals unloaded weapons. The man in question learned of this plot and loaded his weapon with his own bullet, allowing him to slay his adversary. For this he was executed (Stevens, 1940, pg. 93).

<sup>xvii</sup> We assume that the contest has a single winner and a single loser for simplicity. Allowing for a more granular set of possible outcomes, such as partial victories would not change the workings of the model or our results.

<sup>xviii</sup> In some cases, an agent’s type may not be easily observable. In particular, it is not difficult to imagine circumstances in which an agent might lie about its type, in order to increase the probability of winning the contest. Our model extends immediately to the case where the outcome of the contest depends on perceived, rather than actual, type. Allowing for an agent to partially determine its perceived type would require adding an initial stage to our model, in which the agent weighs the costs and benefits of changing type. Once this stage completes, agents would play the game we describe.

Finally, we model matches between agents as random, solely to efficiently capture the diversity of topics, positions, and agents involved in duels. Rational agents would, of course, select into which contests they participated in to some extent, which would affect the distribution of random type matching – and thus the distribution of model outcomes – but not the model equilibrium for a given pair of types.

<sup>xix</sup> See Online Appendix B for historical examples of the high cost of refusing a challenge. In practice, the relative cost of declining a duel depends on the probability of death from a duel. However, for a sufficiently high probability of death from a duel, issuing a challenge is never optimal if the challenge will be accepted. This places an upper bound on the cost of declining that would ensure doing so is never optimal.

<sup>xx</sup> *Supra*, Section 2.2.

<sup>xxi</sup> As modeled, an agent’s utility from winning the contest is unaffected by his having died in a duel. This is an appropriate assumption if the dueler cared about the policy issue for reasons above and beyond his being able to live under his preferred policy. This assumption is easily relaxed with no meaningful impact on our results.

<sup>xxii</sup> It follows from the previous paragraph that at most one agent can be deterred in a deterrence equilibrium.

<sup>xxiii</sup> The functional form and numerical simulations used to generate Figure 3 is described in detail in Online Appendix A.

<sup>xxiv</sup> We collected additional New York Times articles on dueling from 1860.

<sup>xxv</sup> We do not interact the status of the duelers with military dispute or personal insult due to collinearity, as only a small number of challenges were issued for these reasons.

<sup>xxvi</sup> It is worth emphasizing that the lack of gunfire in the termination of a duel (sometimes through negotiated settlements by the combatants’ seconds) is far different from a challenge that is refused. The former is considered an honorable affair, while the latter would be met with shock and derision (for the one refusing the challenge), especially in the South.

<sup>xxvii</sup> See <https://pypi.org/project/spacytextblob/>.

<sup>xxviii</sup> See Section 2.4 above for an example of such sarcastic text appearing in the New York Times.

<sup>xxix</sup> See John et al. (1993), Garfinkel (1990), van der Ploeg and de Zeeuw (1990), Intriligator (1975), Snyder (1961), and Rauchhaus (2009) among others. We thank an anonymous referee for helping us to make the connection to this literature.

<sup>xxx</sup> See Anderton CH and Carter JR (2007) A Survey of Peace Economics. In: Sandler T and Hartley K (eds) *Handbook of Defense Economics*. Elsevier, pp.1211-1258.

<sup>xxxi</sup> See Rauchhaus (2009) for a detailed review.

<sup>xxxii</sup> A person challenged to a duel may request deadlier weapons, but most duels used dueling pistols or bladed weapons.