

Mend it, don't end it: optimal mortality in affairs of honor*

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Abstract

Duels, also known as affairs of honor, were an important mechanism for honorably settling disputes in the antebellum American South. Although barbaric by modern standards, dueling's widespread use and persistence suggest it must have yielded social benefits. We examine the welfare implications of dueling by modeling a three stage game where two agents compete in a political contest. Agents may increase their probability of winning either by moderating their position or libeling their opponent. Either agent may reduce the effects of libel, however, by challenging his opponent to a duel and thus risking death. We

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have four major results: 1) allowing dueling deters agents from libeling their opponent, 2) when dueling deters libel, agents substitute toward moderation, 3) dueling is least effective when it is most deadly, as agents will never choose to issue a challenge for a duel, 4) if policy can affect the mortality rate, then it is always possible to choose an equilibrium where no dueling occurs, but the threat of dueling reduces libel and promotes moderation. Outlawing dueling is thus never optimal.

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1 Introduction

Years later, reflecting on the Southern “Code” of dueling, [US 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.”

—*Team of Rivals*, Doris Kearns Goodwin, pg. 65

“...you do further solemnly swear that [you] have not fought a duel with deadly weapons within this State nor out of it, nor have you sent or accepted a challenge to fight a duel with deadly weapons, nor have you acted as a second in carrying a challenge, nor aided or assisted any person thus offending, so help you God.”

—Kentucky oath of office, as of July 20, 2011

Dueling was the preferred means of conflict resolution among aristocrats in the antebellum American South. While it is impossible to precisely quantify the number of duels which took place, we have constructed a data set of one interesting subset of the aristocracy, US senators, and have to date found 54 senators who participated in an affair of honor. This is approximately 20% of all senators who represented states in which dueling was tolerated.¹ 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 surprisingly ineffective dueling pistols, which were smooth-bore, short-barreled, muzzle-loaded, flintlock-fired guns which were far from state-of-the-art. In fact, a contemporary estimate puts the probability of dying in a duel at only $\frac{1}{14}$ (Schwartz, et al., 1984). These data present two puzzles. One, why was something so barbarous accorded such stature that lawyers, doctors, professors, clergy, newspaper editors, congressmen, future presidents, and sitting vice-presidents viewed it as an acceptable means of conflict resolution?

¹Henry Clay, Humphrey Marshall, David C. Broderick, Armistead T. Mason, Andrew Jackson, George A. Waggaman, James Shields, John Randolph, William H. Crawford, John Rowan, George M. Bibb, Thomas H. Benson, James D. Westcott, David Barton, James Gunn, James Jackson, Josiah Johnson, Thomas Clingman, John Fremont, Sam Houston, John Crittenden, Pierce Butler, Thomas Metcalfe, John Adair, Benjamin Gratz Brown, Henry Geyer, Henry Foote, Louis Wigfall, Alexander Buckner, Lewis Linn, Garrett Davis, Jonathan Dayton, George McDuffie, William Gwin, John Breckenridge, James Farley, George Wallace Jones, Harrison Riddleberger, James Hammond, Dewitt Clinton, Edward Lloyd, Robert Wright, Thomas Rusk, George Campbell, Jefferson Davis, William R. King, Gabriel Moore, Clement C. Clay, William C. C. Claiborne, Jeremiah Clemens, Ambrose Sevier, Solon Borland, Aaron Burr, Judah Benjamin, and Franklin Pierce. Senators Pierce, Bibb, Johnson, Crittenden, Adair, and Davis acted as seconds in duels, but may not have ever participated as principals. Senator Linn participated in a friend’s duel as a surgeon. Senators Metcalfe, Davis, Dayton, Hammond, Rusk, King, and Benjamin issued calls to the field of honor, but were declined or otherwise unable to come to acceptable terms. Sen. Barton is not known to have been personally involved in a duel, but his brother Joshua was killed in one defending charges the senator had made in a newspaper against a rival. The other 41 acted as principals on the field of honor. We do not count William Yancey, who was a confederate senator from Alabama.

Two, why did such an august institution use inferior weapons when more modern guns were available?

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.” In our reading of history, “disagreements in politics” include military leaders battling for career advancement, academics arguing over how a department should be run, two lawyers disagreeing over a point of law, as well as professional politicians competing for public esteem. In each case, opposing gentlemen compete for the esteem of a third party, be it military superiors, the faculty in an academic department, a judge and jury, political colleagues, or even the general public.

In this paper, we develop a model in which two gentlemen compete for public opinion. Each can increase his chance of winning either by moderating his position to be more in line with the median opinion or by libeling his opponent. Libel reduces the benefit to moderation, either by distorting the opponent’s position, or by increasing the randomness of the contest and thus pushing both agents’ win probability towards $\frac{1}{2}$.

In societies such as the antebellum South, where duels were widespread, a duel was seen as an essential way to refute attacks on one’s honor. In *Honor and Violence in the Old South*,² Wyatt-Brown argues “almost all [duels] arose because one antagonist cast doubt on the manliness and bearing of the other... The stigma had to be dealt with or the labels would haunt the bearer forever.” We therefore model participation in a duel as reducing the effectiveness of libel. Because libel and moderation are substitutes, if the price of libel increases (as when the threat of a duel is higher), then moderation increases. Importantly, we do not assume that honor enters agents’ utility functions, but that they care about it only as much as it affects their probability of winning the contest.³

We find that if dueling is afforded public legitimacy, then: one, the threat of dueling has a deterrent effect on provocative behavior. Two, increasing the cost of a duel (for example by outlawing it) leads to more political extremism. Three, dueling needs to be relatively safe to be effective: if dueling weapons are too deadly, no one will issue a challenge, rendering the institution useless. Four, if policy can affect the cost of dueling, then it is always possible

²Oxford University Press 1982

³Were honor to be included in agents’ utility functions, of course, this would result in more duels, but the paper’s mechanisms and main conclusions would be unaffected.

to construct an equilibrium with no dueling but with less bad behavior than were dueling outlawed. It is thus possible that dueling was an efficient institution.

Our paper contributes to the literature on social norms (see section 3) by arguing that dueling is an important social norm that arose to enforce good behavior in the absence of an effective legal system. We find that a rational policy maker will allow dueling only when the public accepts its legitimacy as a method of redressing defamation and when mortality from dueling is not too high.

We begin by providing an overview of dueling as an institution, arguing along the way that dueling was common, frequently motivated by political disputes, afforded much more legitimacy than the legal system, and quite safe. We then discuss dueling as a social norm, and explain its contribution to the literature on norms. We then present a model of dueling that shows that optimal mortality from dueling is neither very high nor very low, and that dueling is welfare-improving under these circumstances.

2 Overview of dueling

In this section, we seek to establish several facts about the institution of dueling, as well as give an overview of the process leading up to a duel.

2.1 Dueling was common among antebellum Southern gentlemen

While the July 11, 1804 duel between Alexander Hamilton and Aaron Burr — which ended Hamilton’s life and Vice-President Burr’s career — is widely known, it was not unique. Dueling was common in the Southern United States throughout the 19th century. The practice seems to have been introduced to the US by French and British officers during the Revolutionary War. Though it never caught on in New England (Stevens, 1940, pg. 31), and was anathema in the rest of the North after the 1804 death of Alexander Hamilton, the South felt no such restraint until after the Civil War.⁴ In addition to the 54 senators mentioned in the introduction, at least 29 governors, 56 US congressman, and 7 cabinet secretaries participated in duels, with almost all coming from the South or the pre-1804 North. Surviving records indicate that

⁴*A history of the old South*, 1975, by Clement Eaton provides an interesting account of shifting attitudes towards dueling in the North and South.

at least 50 duels were fought at the Blandensburg dueling grounds outside of Washington DC alone, though this figure “would not compare” with The Dueling Oaks (New Orleans) or Dueling Island (Vicksburg, TN) (Stevens, 1940, pg 145). A nineteenth-century newspaper account claims “between 1834 and 1844 scarcely a day passed without duels being fought at the Oaks.”⁵

Despite the ineffectiveness of dueling pistols, duels claimed the lives of three US senators (one sitting),⁶ one signer of the Declaration of Independence,⁷ one standing congressman,⁸ and naval war hero Stephen Decatur.⁹ Henry Clay¹⁰ and Andrew Jackson¹¹ both participated in multiple duels. Abraham Lincoln narrowly avoided a duel by the maneuvering of his representatives, but the feud was serious enough that both parties did arrive at the agreed-upon location.¹² While it is much more likely that records of duels involving prominent politicians will persist across the years, we have no reason to believe that prominent professional politicians dueled more often than other gentlemen; that the names of most nineteenth century lawyers, clergy, newspaper editors, professors, military officers, or doctors are lost to history should not be construed to mean that these latter groups had fewer affairs of honor than politicians. For example, one source suggests that $\frac{2}{3}$ as many naval officers died on the field of honor as died in all naval conflicts between 1798 and the start of the Civil War (Stevens, 1940, pg. 73).¹³ While a similar estimate for the army is elusive, affairs of honor were common

⁵ *Times-Democrat*, March 13, 1892.

⁶ Armistead T. Mason of Virginia was killed by his brother-in-law on 2/6/1819. George A. Waggaman of Louisiana was killed on 3/31/1843. David C. Broderick of California was shot on 9/13/1859 by David S. Terry, a chief justice of the California supreme court, who resigned “to free himself from possible criticism” which might arise upon his shooting Sen. Broderick.

⁷ Button Gwinnett, died 5/16/1777 at the hands of Lachlan Macintosh, a brigadier general in the Continental Army.

⁸ Congressman Jonathan Cilley of Maine was killed by standing Congressman William Graves of Kentucky on 2/24/1838. Two other active congressmen served as the seconds (Stevens, pp. 219-227).

⁹ Decatur was shot by a subordinate officer he had once court-martialed for ‘unpreparedness’ on 3/22/1820 (Seitz, 1966).

¹⁰ Clay dueled former Sen. Humphrey Marshall, of Kentucky, on 1/19/1809. Both men were shot, but survived. Clay also dueled Sen. James Randolph on 4/8/1826, but managed only to shoot a hole in his coat.

¹¹ When Jackson announced his candidacy for the presidency, a political opponent published a pamphlet entitled “The Indiscretions of Andrew Jackson” which claimed Jackson was involved in 14 duels between the ages of 13 and 60 (Seitz, pg. 123). Only one is known to have resulted in a fatality; Jackson killed Charles Dickinson on 5/30/1806. Dickinson had himself killed 26 people in Duels (ibid.).

¹² Illinois state auditor James Shields had challenged Lincoln to a duel. Lincoln, as was his right as the challenged, selected heavy broadswords wielded while standing on a narrow plank as his preferred weapon. The duel, scheduled for 9/22/1842, never took place. The two became friends and President Lincoln later appointed Shields a brigadier general in the Union army (Seitz, 1966).

¹³ In addition to the War of 1812, this period includes the Barbary pirates conflict and an undeclared quasi-war with France.

among army officers as well.

Despite its frequency, there has not been one single court martial for dueling in the history of either service.

2.2 Duels arose out of political disputes

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 destory 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 dueled followed, ending with Clay being seriously wounded with a bullet in his thigh.

George Trotter, while serving as editor of the *Kentucky Gazette*, objected both to Charles Wickliffe’s pro-slavery stance and his having murdered the previous editor.¹⁴ Wickliffe invited Trotter to an interview, and was immediately accepted on the condition that the duel be fought at the unusual distance of only 8 feet. Wickliffe was soon dead.

Hamilton and Burr were old political enemies. Decatur was shot by a former subordinate officer who disagreed with Decatur’s assessment of him during a court martial. Andrew Jackson’s one fatal duel arose out of a dispute over the proprietor of a horse wager, with his eventual victim being goaded into stepping up his dispute with Jackson by one of Jackson’s political opponents.¹⁵ Sitting congressmen George Washington Campbell and Barent Gardener fought in 1808 over the British embargo. Numerous duels arose from the Yazoo land deal, in which Georgia politicians attempted to sell seized Creek Indian lands at absurdly

¹⁴This previous dispute of Wickliffe’s grew out of opposing letters to the editor between Wickliffe and anti-slavery gentlemen. When the previous editor refused to reveal the identity of an anonymous letter writer, Wickliffe shot him. He was represented at his trial by recent US Secretary of State Henry Clay and future senator John Crittenden, and exonerated after a 5-minute jury deliberation.

¹⁵While this duel was political in nature, we acknowledge that at least one of Jackson’s other 102 documented fights, duels, and altercation was probably entirely apolitical.

low prices to a company in which many of them held stock, including at least three involving James Jackson, who at various times served as both Georgia's senator and governor. In the non-random sample of duels listed in Schwartz et al. (1984), of the 23 duels whose underlying cause is easily inferable, 15 are clearly political.

Not all duels were political, of course. Future-Senator John Rowan shot and killed his friend Dr. James Chambers following a drunken dispute over "as to which understood some of the dead languages the best". One of the two recorded duels in which two women met was over the attentions of a young man. However, the majority of duels for which records survive arose out of a political context, broadly defined.

2.3 The legal system was not seen as a viable option for settling disputes that led to duels; dueling was, itself, a well-organized social norm which enjoyed higher standing than the formal legal system. Dueling was accepted by Southerners.

Dueling was preferred to the legal system for the settling of disputes among Southern aristocracy. Southern gentility simply did not permit the use of crude civil trials, in which a socially inferior jury would stand in judgment.¹⁶ While a court may have been able to give pecuniary remuneration for an insult, a gentleman's honor would have suffered from such an arrangement. 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. According to Wells and Harwell (2001), "honor was not a quality that could be repaired through the legal system... a libel suit carried the message that the plaintiff was one who thought his honor could be repaired by monetary damages... [and was] an admission of both weakness and cowardice."¹⁷

Indeed, dueling was so accepted that gentlemen coming from the field of honor enjoyed

¹⁶As President Jackson's mom advised, "Never tell a lie, nor take what is not your own, nor sue anybody for slander, assault and battery. Always settle them cases yourself." (*Old Hickory*, by Marquis James, 1933).

¹⁷Posner (1996) proposes that dueling may have been an efficient institution "when societies are not sufficiently wealthy or organized to support powerful, centralized governments." Lessig (1995) states that "the duel was like a lawsuit."

near-complete legal immunity; even in the exceedingly rare instances in which a dueler was put in front of a (socially inferior) jury, the near-universal outcome was 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.¹⁸ We can find only a handful of duelers who were arrested, and their cases were generally dropped, often without an indictment.¹⁹ Early on, duelers would take steps to limit future legal trouble. For example, duels often took place just across state lines to muddy jurisdictions. For this reason, Hamilton and Burr dueled in New Jersey, Washington DC gentlemen traveled east to Blandensburg, Maryland, and Illinois and Missouri duelers frequented Bloody Island, in the middle of the Mississippi river and claimed by neither state. Also, seconds and doctors would turn away so as to be unable to testify in court that they saw one man shoot another. However, by the time dueling became entrenched in the South, such precautions were wholly unnecessary. Some duels had dozens of spectators, who would gamble on the outcome (Stevens, 1940, pg 79). A contemporary account claims “sometimes two or three hundred people hurried from the city to witness these human baitings.”²⁰ That gentlemen were willing to shoot at each other in front of such a large crowd says much about the probability of future legal trouble.

Strangely, a series of anti-dueling laws were passed in the South in the early-mid 19th century, including Kentucky amending its constitution to require the oath of office quoted at the beginning of this paper. These laws were dead letters upon enactment.²¹ There is almost no evidence of anyone being prosecuted under them (Stevens, 1940, pg. 13).²² Even the principals who actually killed their antagonists were rarely bothered by the law — prosecutors, judges, and juries considered defending one’s honor an acceptable motive for murder.²³

It is a puzzle as to why anti-dueling laws were so widespread, while their enforcement

¹⁸The 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 dastardly plot and loaded his weapon with his own bullet, allowing him to slay his adversary. For this he was executed (Stevens, 1940, pg. 93).

¹⁹See esp. John Rowan’s experience in Kentucky; after killing Dr. Chambers, Rowan was arrested, but despite there being no disagreement as to the facts of the case, the judge declared there was “no evidence sufficient to hold the defendant to the grand jury” and released Rowan (Coleman, 1953, pg. 11).

²⁰New Orleans *Times-Democrat*, March 13, 1892.

²¹Governor Mitchell of Georgia, who signed his state’s anti-dueling bill into law in 1809, had himself killed a man in a duel (Stevens, 1940, pg. 38).

²²Schwartz et al. (1984) find records of only 19 antebellum appellate cases pertaining to anti-dueling laws in 10 Southern states.

²³When Congressman William Yancey dueled Congressman Thomas Clingman, the Alabama state legislature passed a special bill immunizing Yancey from any prosecution (Stevens, 1940).

so pitiful. One possibility, suggested by Schwartz et al. (1984) is that “the additional cost represented by the possibility of prosecution somehow added to the efficacy of the convention.” Our model is principally concerned with the optimal mortality level in a duel, and argues that the deliberate use of inaccurate dueling pistols may have made dueling more effective as a deterrent of libelous behavior. Perhaps the anti-dueling laws were seen as a cheap manner in which to slightly increase the cost of a duel, by introducing a small probability of prosecution, and that this increased cost was efficient. It is also possible that Southern lawmakers simply wanted to wash their hands of the problem; by pointing to the tough anti-dueling legislation they passed, they could shift the blame for institutionalized murder to prosecutors, juries, and judges.

2.4 Dueling increased reputation and refuted libel

The vast majority of duels fit into the same basic mold: two political rivals are trying to gain the upper hand. At some point, the dispute becomes personal, insults are dispatched, and a call to the field of honor is issued. Upon completion of the duel, the two may remain political adversaries, but all insults exchanged are forgotten and assumed to be retracted.

It is understandable that insults increased tensions. What is harder to interpret from a modern vantage point is exactly why a meeting on the field of honor was not orthogonal to the insults exchanged. In our view, a duel fulfilled two roles in mitigating conflict: 1- it represented a relatively costless way to de-escalate tensions; participants could trade a small probability of death for the chance to end a feud with a rival without losing face and 2- it provided a reputational boost, at least in as much as it reversed the deleterious reputational effects of insults absorbed. The first role is straightforward. The second warrants a closer look.

A duelist’s honor was harmed by the insults of a feud, reducing his influence over members of his social and professional peers. Schwartz et al. (1984) argue that risking one’s life in a duel was just the way to restore one’s honor, as “the courage to face the risk of death in a duel... solely to remove the ‘stain’ of the affront or the challenge ... was the embodiment of the notion of action contrary to immediate self-interest that was the unifying conception of honor.” That is, a dishonorable person would be unwilling to risk his life in the short-term, and so participation in a duel served as a signal that a gentleman was honorable, and

thus likely to have conducted himself well in the preceding political dispute. Insults that had been leveled against him would then be forgotten as the excesses of inflamed passions, which themselves were extinguished by the calming ritual of the affair of honor.²⁴

2.5 Rules governing affairs of honor

While the legal system largely turned a blind eye toward affairs of honor, surprisingly well-defined and commonly-accepted sets of rules governed the practice from within. A meeting of Irish nobles at Clommel in 1777 produced a set of 26 rules followed in the English-speaking world until the practice's demise; two American dueling codes were published, the more important in 1838 by former South Carolina governor John Lyde Wilson (Stevens 1940).²⁵ The rules prescribed the distance the duelers should stand at (usually 30 feet), how the seconds should conduct themselves, and the type of weapons to be used. Were a challenged party to suggest a meeting at a closer distance, or that relatively more deadly weapons be used than prescribed by the code, the challenger had the right to suggest an arrangement even more likely to end in the death of at least one party. Though deviations from the code's specific prescriptions were not infrequent²⁶, those who failed to live up to the codes standards of conduct suffered large reputational hits.²⁷

The first stage to a duel was an insult, real or perceived, often in the press.²⁸ The slighted party would then write to the originator of the insult demanding a full retraction. If the

²⁴To emphasize the extent to which all was forgiven after a duel, consider Secretary of State Henry Clay's dispute with Senator John Randolph of Virginia over the matter of whether President Adams had the authority to unilaterally appoint ambassadors to a meeting of Latin American states led by Simon Bolivar. After trading insults, Clay invited Randolph to a meeting. Clay punctured Randolph's coat with his shot, after which Randolph dramatically fired into the air. They met halfway and jocosely shook hands, Randolph saying "you owe me a new coat, Mr. Clay!" to which Clay responded "I'm glad the debt is no greater! I trust in God, my dear sir, you are untouched; after what has occurred, I would not have harmed you for a thousand worlds!"

²⁵As dueling fell out of favor in England, these codes were the subject of derision, with one satirical publication advising the duelist 'If he dies, he is to go off with as good grace as possible' and not to under any circumstances choose an Irishman as a second, owing to their bellicose nature (Stevens 1940).

²⁶In 1837, a Mr. Stevens and a Mr. Anderson, both of Tennessee met at a distance of 4 feet. Jones died, Anderson had the bullet headed his way halted by the muzzle of his own pistol.

²⁷Andrew Jackson, upon murdering Charles Dickinson after re-cocking his misfired pistol, faced "many who felt that the General had grossly violated the unwritten code of dueling; and the honor for which he risked his life was seriously tarnished" (Coleman pg. 29, 1953). Jackson was able to rehabilitate his reputation only with military heroics in the war of 1812.

²⁸Burr, for example, was offended by reading a newspaper article in which the reporter alluded indirectly to Hamilton's "despicable opinion" of Burr. John Rowan and James Chambers drunkenly began quarreling over "which understood some of the dead languages the best." The argument resulted in future Senator Rowan killing Chambers in a duel to defend his honor (Coleman, 1953).

latter was unwilling, the aggrieved party would then choose between letting the matter drop or challenging his tormentor to a duel. Once challenged, refusing the duel was out of the question, as it would forever brand the refuser a coward.²⁹ Extensive negotiations between surrogates would then follow to choose the time, date, weapons, and rules for the interview, with the challenged party responsible for choosing weapons.³⁰ These ‘seconds’ were also encouraged to seek a peaceful end to hostilities, which usually demanded finding a way for honor to be satisfied without either man losing much face. On the day of the duel, the parties would arrive separately, usually accompanied by a doctor and between one and three seconds who would enforce the rules and ensure that both mens’ honor was preserved. The seconds would array themselves so as to verify the duel took place honorably, but often so as to be unable to testify in court that they witnessed one dueler killing another. Rules varied from duel to duel, but typically each combatant would fire one shot at the other from 30 feet, at which point the seconds would meet to decide if an additional round was necessary (Stevens, 1940, pg. 133).

2.6 Dueling was safe

The *Code Duello* prescribed the use of flintlock, short-barreled, smooth bore pistols (as opposed to percussion cap, long-barreled, and rifled), at great cost to accuracy. Dueling pistols did not have sights. The flintlock weapons misfired often, wasting many shots in

²⁹Declining a challenge gave the aggrieved party license to ‘post’ his antagonist, publicly declaring him a poltroon. For example, when John Randolph declined James Wilkinson’s request for a meeting, Wilkinson posted fliers all over Washington saying ‘Hector unmasked. In justice to my character I denounce John Randolph, a member of Congress, as a prevaricating, base, calumniating scoundrel, poltroon, and coward’ (Stevens, 1940, pg. 43).

³⁰The one loophole in the *Code Duello* we are aware of allowed a challenged party to extricate himself honorably by suggesting absurd weapons. For example, Senator Crittenden of Kentucky, upon receiving a challenge from Senator Rusk of Texas, replied (from Stevens, 1940):

Sir: your note of this day is received and the challenge accepted. Exercising my undoubted [right] to select the mode of battle, I [wish] to fight across the Rio Grande with field howitzers. As I do this entirely for your satisfaction, I shall require you to furnish the howitzers with a suitable supply of powder and ball, and of provisions.

I have the honor to be, etc.

J.J. Critenden

The editor of the *Tennessee Whig*, when challenged, suggested the most vile hogpen in all of Knoxville as a location, and dung forks as the weapon. Neither duel ever took place. We do not, however, see widespread exploitation of this loophole, even by agents who were in no condition to fight.

duels.³¹ Precise estimates for the probability of injury or death in an affair of honor are hard to come by. One 1836 writer estimated that 1 in 6 duelers were injured, and 1 in 14 killed.³² Another estimate puts the conditional probability of a naval officer dying on the field of honor at 20% (Stevens, 1940, pg. 71). Our data on dueling senators supports the former figure. We know of 41 senators who received fire on the field of honor, 3 of whom died. As it is far more likely that we failed to find politicians who dueled and lived than those who died defending their honor, the mortality rate among senators was probably well below $\frac{3}{41}$. The unpredictable behavior of dueling pistols rendered skill relatively unimportant; in cases where a challenged party feared the superior prowess of his opponent, he could minimize his risk by choosing weapons unfamiliar to his opponent.

If the point of dueling were to legitimize murder, then this could have been done more efficiently with better weapons. Percussion cap pistols were developed around 1830, while rifling was invented hundreds of years earlier. Why, then, did Southerners persist with such inefficient weapons? Our theoretical model demonstrates that a low mortality rate could have contributed to the efficiency of the institutions. If the function of dueling was to deter bad behavior against which the legal system was ineffective, more deadly weapons would, all else equal, provide a greater punishment. However, this greater punishment was also borne by any party requesting an interview, making it less likely that a duel would actually be employed to settle a dispute.

After a brief review of the literature, we turn to a model that addresses two important questions; one, what benefit did Southerners derive from this barbaric practice that allowed it to persist for so long? Two, why were more efficient weapons not used?

3 Dueling as an efficient social norm

The legal system in the South was seen as unable to address the grievances of Southern gentlemen, and so the social norm of dueling developed to deter bad behavior. A small literature has examined social norms as alternative legal structures. Leeson (2009a) argues that ordeals, which required suspected criminals to, for example, submerge their arms in

³¹Often enough that the term ‘flash in the pan’, referring to the gunpowder in the priming pan igniting, yet failing to ignite the powder in the barrel itself, permanently entered the lexicon. A misfire would exhaust the combatant’s turn.

³²Schwartz, et al., 1984

boiling water under the theory that God would prevent an innocent man from burning, created different incentives for the guilty and the innocent such that the institution may have enhanced efficiency. Leeson (2007, 2010a) suggests that incentives on pirate ships were surprisingly well-structured by an elaborate system of checks and balances, and that abuse by pirate captains was, as a result, quite rare.

Indeed, Coyne and Leeson (2010) go so far as to argue that stable government providing law and order to its citizens is the exception, certainly historically, and even across countries today. Coyne and Leeson 2010 provide a thorough survey of social norms identified by economists which arose to enforce good behavior in the absence of strong and effective legal systems, such as pioneers in the American Wild West forming societies to enforce property rights (Anderson and Hill, 2004) and 18th and 19th century British whalers establishing rules guaranteeing that the first to harpoon a whale had property rights over that whale, so long as the line from the harpoon to the ship was unbroken (Ellickson, 1989). Violent acts such as duels are sometimes used to enforce good behavior, such as “feuding” between families; here the mutual expectation of violent retribution “provided a powerful incentive to behave within the bounds of ... norms in the first place” (Coyne and Leeson, 2010).

We claim that dueling needed to be dangerous enough to deter bad behavior, but not so dangerous as to discourage its use. Both of these points have been made in the context of different social norms. For example, Leeson (2009b) describes how 16th century English and Scottish border “reivers” regularly raided each other’s livestock, demanded compensation in return for sparing property and persons, kidnapped for ransom, and killed each other, all in the near-complete absence of any central authority. These border reivers developed an elaborate set of customs, codified into written “law,” which regulated cross-border interaction, for example by “manbote,” requiring that a reiver convicted of killing someone undeservedly either offer himself as a prisoner to the victim’s family or offer to compensate them for their loss, or by “hot trod,” allowing the victim of a robbery to pursue the robber into the other country in order to get his property back. Care was taken so that punishments were proportional, and thus marginal deterrence and enforceability were maintained. Like duels, these customs reduced the benefit to bad behavior (theft and murder in the case of reiving, libeling your political rivals in case of dueling). Like duels, care was taken so that the punishment was not too severe; in either case, too-severe punishments would have been difficult to enforce, in

dueling's case because the cost is borne both by both parties to a dispute.

4 Model

Two agents compete for a prize, broadly interpreted as public opinion. Each agent makes three choices that affect his probability of winning. First, he publicly commits to a political position. Second, he chooses how much to libel his opponent.³³ Finally, upon observing his opponent's libel, he chooses whether or not to challenge his opponent to a duel.

A position $s_i \in [0, 1]$ closer to the median opinion (normalized to be $\frac{1}{2}$) increases an agent's probability of winning. Committing to position s_i costs $\phi(|s_i - \theta_i|)$, where θ_i is the agent's true belief. ϕ is the disutility an agent gets from having to compromise his views. Assume ϕ is an increasing C^1 function, and that as $s_i \rightarrow \frac{1}{2}$, $\phi \rightarrow \infty$.

Creating libel l costs an agent $c(l)$, where $c'(l) > 0$, $c'(0) = 0$, and $c''(l) > 0$. We consider two channels where libel affects the contest's outcome. First, libel can "redefine" an opponent, convincing the public that he is more extreme than his stated position. Second, libel can increase the entropy of the contest, pushing both agents' win probabilities towards $\frac{1}{2}$. In the former case, both agents will libel if the cost is low enough, while in the latter case only the more extreme agent has an incentive to libel.

Participation in an affair of honor potentially benefits an agent by reducing the effectiveness of both parties' libel. This assumption captures the widespread belief among Southern gentlemen that dueling was essential to restoring one's honor after a false or malicious attack. Specifically, assume agent i 's libel l_i is reduced to αl_i for $i = 1, 2$ and some $\alpha \in [0, 1)$. In a duel, each gentleman dies with probability b .³⁴

Agent 1 wins the contest with probability $\gamma(s_1, s_2, l_1, l_2)$.³⁵ The form of γ depends on the type of libel under consideration. In either case, we assume γ is a C^1 function and that

³³Our definition of libel is broader than the legal definition of libel which refers to published defamation. Here libel may also include all defamation of character, slander, negative campaigning, etc.

³⁴Note that the deliberate choice of inferior weapons helped eliminate advantages in shooting, equalizing the probabilities of death for each combatant.

³⁵Throughout the paper, we assume that moving closer to the median position increases an agent's probability of winning, but that the agent closer to the median does not win with certainty. This deviation from the basic median voter theory of Downs (1957) often arises when agents care both about winning the contest and aligning their public and private positions, and the model includes uncertainty. Our approaches of modeling the effect of libel may be viewed as either manipulating the choices of uninformed voters with personality preferences, or reducing the fraction of informed voters.

$\alpha\gamma_{l_i}(s_1, s_2, \alpha l_1, \alpha l_2) \leq \gamma_{l_i}(s_1, s_2, l_1, l_2)$ for all $\alpha \in (0, 1)$.³⁶ Winning the contest provides utility equal to B . Regardless of the outcome of the contest, each agent receives utility A from being alive.

The mortality rate b is loosely interpretable as a policy parameter. Under the *Code Duello*, most duels were fought with inefficient weapons at a distance of 30 feet or greater, far outside of the range at which the weapons were accurate. Even as the use of rifled and percussion cap weapons became commonplace, braces of antiquated dueling pistols continued to be used nearly exclusively for affairs of honor. Our model suggests the persistence of these inefficient weapons may have enhanced the efficiency of the institution.

The game proceeds in three stages. In stage 1, the agents simultaneously announce their stances s . In stage 2, each agent chooses his level of libel l . In stage 3, each chooses whether or not to challenge his opponent to a duel.³⁷ After stage three, the contest is resolved, and each agent receives payoff $A + B$, A , or 0 , if he won, lost, or died in a duel, respectively.

An alternate modeling strategy would be to assume that honor directly enters the utility function. The model would then trivially explain dueling. It would not, however, explain why dueling was concentrated among the aristocracy, for whom public opinion was important to their careers.

5 Solving the model

5.1 Case I: libel redefines opponent's position

Let θ_i and s_i be in the interval $[0, \frac{1}{2}]$,³⁸ and assume that agent 1's probability of winning is

$$\gamma(s_1, s_2, l_1, l_2) = \frac{1}{2} + s_1 - \pi(s_1, I l_2) - s_2 + \pi(s_2, I l_1) \quad (1)$$

where $I = 1$ if no duel takes place, and $I = \alpha$ if there is a duel. The function $\pi(s_i, l_j)$ defines the effectiveness of j 's libel against i . Assume $\pi_{l_s} < 0$, $\pi(s_i, 0) = 0$, $\pi_l(s_i, l) > 0$,

³⁶This assumption requires that γ not be "too concave" in l_i , and is needed to rule out the possibility that under extreme parameter values the marginal benefit of libel can increase after a challenge has been issued.

³⁷We assume that once the challenge is issued, it must be accepted. This is equivalent to assuming that anyone declining a challenge automatically loses the contest. Our reading suggests the vast majority of challenges were accepted.

³⁸This assumption is equivalent to one in which agent one chooses a position in $[0, \frac{1}{2}]$ and agent 2 in $[\frac{1}{2}, 1]$, which would cover the case in which one agent is liberal and the other conservative.

$\lim_{l \rightarrow \infty} \pi(s_i, l) = s_i$, and $\alpha\pi_l(s, \alpha l) < \pi_l(s, l)$.³⁹

We begin in stage 3, where (s_1, s_2, l_1, l_2) are taken as given. Agent 1's utility from issuing a challenge and not, respectively, are⁴⁰

$$U_1^D = A(1-b) + B(1-b) \left(\frac{1}{2} + s_1 - \pi(s_1, \alpha l_2) - s_2 + \pi(s_2, \alpha l_1) \right) - \phi(|s_i - \theta_i|) - c(l_i)$$

$$U_1^{ND} = A + B \left(\frac{1}{2} + s_1 - \pi(s_1, l_2) - s_2 + \pi(s_2, l_1) \right) - \phi(|s_i - \theta_i|) - c(l_i)$$

We define $l_2^*(l_1)$, which may be infinite, as the minimum amount of libel where (2) holds with equality.⁴¹ If l_2 exceeds $l_2^*(l_1)$, then agent 1 challenges agent 2 to a duel.

$$B(1-b) \left(\frac{1}{2} + s_1 - s_2 - \pi(s_1, \alpha l_2^*(l_1)) + \pi(s_2, \alpha l_1) \right) - B \left(\frac{1}{2} + s_1 - s_2 - \pi(s_1, l_2^*(l_1)) + \pi(s_2, l_1) \right) = bA \quad (2)$$

Agent 2 faces an analogous problem in deciding whether or not to issue a call to the field of honor; he will do so only if libeled more than $l_1^*(l_2)$. Note that at most one of the agents will view an affair of honor as increasing his expected utility, and so in any dueling equilibrium, exactly one agent prefers to duel.⁴²

Moving back to stage 2, agent 2 takes (s_1, s_2, l_1) as given and decides how much to libel by playing either $l_2^*(l_1)$, l_2^{ND} , or l_2^D , where the latter two are defined by:

$$B\pi_l(s_1, l_2^{ND}) = c'(l_2^{ND})$$

$$B(1-b)\alpha\pi_l(s_1, \alpha l_2^D) = c'(l_2^D)$$

If $l_2^{ND} < l_2^*(l_1)$, then the former is preferred to the latter. If $l_2^{ND} \geq l_2^*(l_1)$, then 2 decides between playing l_2^D , knowing that this will lead his opponent to call for a duel, or playing $l_2^*(l_1)$, and libeling his opponent the maximal amount possible without a challenge. Specifically, 2

³⁹One sensible function satisfying these conditions is $\pi(s_i, l_j) = s_i \frac{l_j}{1+l_j}$.

⁴⁰We assume that an agent's chances of winning the contest are unaffected by killing his opponent in a duel.

⁴¹Equation (2) may hold with equality for multiple levels of libel. Throughout section 5, we assume that α is small enough to ensure that only the lowest l^* affects agents' decisions. Section 6 discusses the model where higher values of α result in multiple economically significant levels of l^* .

⁴²See footnotes 29 and 37.

prefers l_2^D to $l_2^*(l_1)$ if the following incentive constraint holds:

$$\begin{aligned} U_2^D(s_1, s_2, \alpha l_1, \alpha l_2^D) &\geq U_2^{ND}(s_1, s_2, l_1, l_2^*(l_1)) \\ \iff \pi(s_1, \alpha l_2^D) - \pi(s_1, \alpha l_2^*(l_1)) &\geq \frac{2bA + Bb}{B(1-b)} \end{aligned} \quad (3)$$

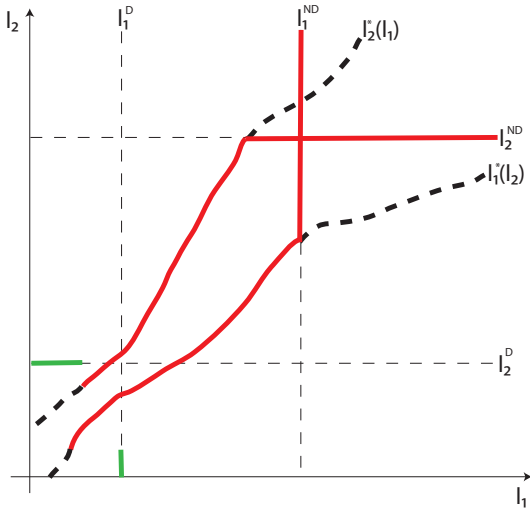
where the second line in (3) comes from substituting equation (2) into agent 2's incentive constraint. Equation (3) states that agent 2 chooses l_2^D if and only if it is sufficiently higher than $l_2^*(l_1)$. An analogous incentive constraint governs agent 1's libel decision.

In a stage 2 Nash equilibrium, either both agents choose l_i^D and a duel takes place, or each plays either $l_i^*(l_j)$ or l_i^{ND} and no duel takes place. If $l_i^*(l_j^{ND}) \geq l_i^{ND}$ for $i = 1, 2$, then (l_1^{ND}, l_2^{ND}) is a stage 2 Nash equilibrium. If, as measured by (3), l_i^D is preferred to $l_i^*(l_j^D)$ for $i \in \{1, 2\}$, $j \neq i$, then (l_1^D, l_2^D) is a stage 2 Nash equilibrium, and a duel takes place. If neither of the above hold, then there is a stage 2 equilibrium in which one of the agents is deterred, and the field of honor sits vacant.

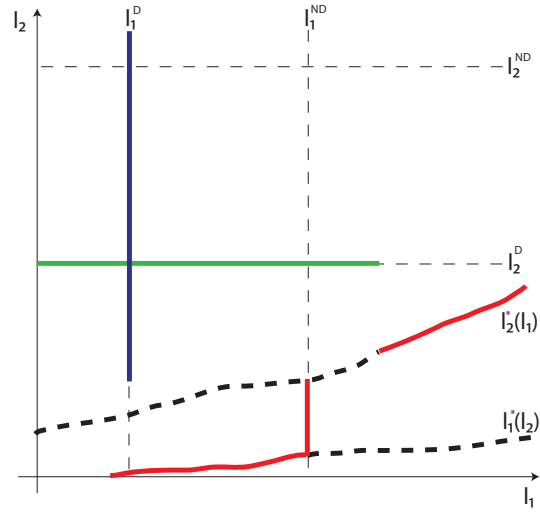
Note that there is *always* an equilibrium in which both agents play l_i^D in stage 2, and both issue a call for an interview in stage 3. Since we consider these equilibria to be implausible if neither party would benefit from a duel, we hereafter focus only on equilibria in which any agent is indifferent about issuing a call to the field of honor chooses not to duel.

An equilibrium always exists in the stage 2 game. Let $l_i(l_j)$ denote i 's best response to l_j , taking into account the stage 3 dueling decision. Clearly, $l_i(l_j) = \max\{l_i^*(l_j), l_i^{ND}\}$ if no duel takes place, and l_i^D if a duel occurs. Per the discussion above, l_i^{ND} is preferred to $l_i^*(l_j)$ if and only if $l_i^{ND} < l_i^*(l_j)$, while l_i^D is preferred to $l_i^*(l_j)$ if either l_i^D is 'enough' greater than $l_i^*(l_j)$ (i prefers to induce a challenge) or if l_j is sufficiently large (i prefers to challenge j). $(l_1, l_2(l_1))$ is an equilibrium if $l_1(l_2(l_1)) = l_1$. If no such point exists, then at least one of the agents issues a challenge in stage 3 and (l_1^D, l_2^D) is played in stage 2 of an equilibrium. Figure 2 demonstrates.

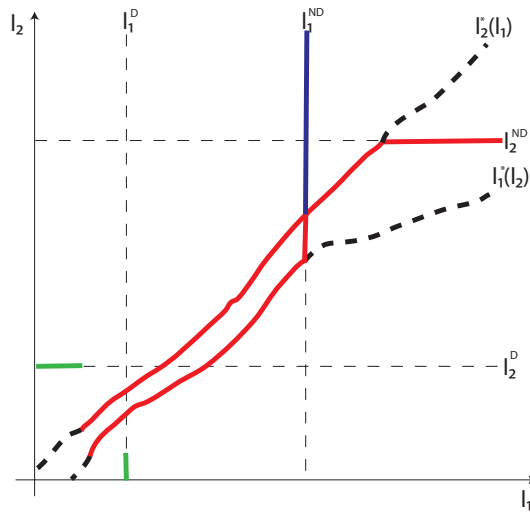
We now turn to stage 1, where agents choose levels of moderation s_1 and s_2 . Consider the best response curve $s_1(s_2)$. Each agent considers two effects when considering where to set s_i . One, the more he is being libeled in period 2, all else equal, the less he moderates, as more libel means he gets to 'keep' less of his moderation. As there is the most libel in a no dueling equilibrium and the least in a dueling equilibrium, the disincentive to moderate will



(a)



(b)



(c)

Solid lines represent best response functions $l_i(l_j)$, segmented as follows:

- Play $\max\{l_i^{ND}, l_i^*(l_j)\}$, neither issue nor induce a challenge
- Play l_i^D , induce opponent to issue challenge
- Play l_i^D , issue challenge

(d)

Figure 1: There are three possible types of equilibrium; unconstrained (figure 1a), dueling (figure 1b), and deterrence (figure 1c). An duel results only in the second case. In the first, dueling has no effect on equilibrium libel, while in the third, one or both agents libel just enough to leave their opponent indifferent between a call to the field of honor and doing nothing; they would libel more were it not for the threat of a duel.

be the largest in a no dueling equilibrium. Two, he recognizes that his moderation alters his rival's libel decision. For example, in a no dueling equilibrium, agent 1 moderating a little more causes l_2^{ND} to increase by a small amount. Proposition 1 states that, if α and b are low enough, outlawing dueling unambiguously results in more extreme agents. Requiring a low α and b ensures that dueling is an effective means of repairing honor and is not so deadly that no rational actor would ever issue a challenge.

Proposition 1 *Outlawing dueling results in more extreme agents, if α and b are low enough.*

Proof. For a fixed (s_1, s_2) , three things can happen if dueling is legalized relative to a regime in which it is illegal: 1- no change in behavior, 2- a deterrence equilibrium, or 3- a dueling equilibrium. For fixed (s_1, s_2) , libel is lowest if either case 2 or case 3 obtain, meaning legalizing dueling has the direct effect of encouraging moderation.

There is also an indirect effect of moderation on opponent's libel, that is also the most unfavorable in an unconstrained equilibrium, if α and b are low enough. From equation (2), an increase in s_i decreases $l_j^*(l_i)$ for all values of l_i , if b is sufficiently low, and so the indirect effect of moderation on opponent's libel results in more moderation when dueling is allowed if a deterrence equilibrium obtains.

If, on the other hand, a dueling equilibrium obtains, we have that

$$\Rightarrow \frac{\partial}{\partial s_1} l_2^{ND}(s_1) = \frac{B \left(\frac{\partial^2}{\partial s_1 \partial l_2} \pi(s_1, l_2^{ND}) \right)}{c''(l_2^{ND}) - B \frac{\partial^2}{\partial l_2^2} \pi(s_1, l_2^{ND})} \quad (4)$$

$$\Rightarrow \frac{\partial}{\partial s_1} l_2^D(s_1) = \frac{B(1-b)\alpha \frac{\partial^2}{\partial s_1 \partial l_2} \pi(s_1, \alpha l_2^D)}{c''(l_2^D) - \alpha^2 B \frac{\partial^2}{\partial l_2^2} \pi(s_1, \alpha l_2^D)} \quad (5)$$

Clearly, $\frac{\partial}{\partial s_1} l_2^{ND}(s_1) > \frac{\partial}{\partial s_1} l_2^D(s_1)$ if α is sufficiently low, and thus at the margin second-period libel increases more in response to increased first-period moderation in an unconstrained equilibrium than in a dueling equilibrium.

Agent i sets s_i so that the marginal benefit of moderation equals the marginal cost, for any s_j . From the above discussion, for any given level of s_i , the marginal benefit of moderation is lower in a no-dueling equilibrium than in either a deterrence equilibrium or a dueling equilibrium. Therefore, should dueling be outlawed, it is clear that the first-period equilibrium has (weakly) more extreme agents. ■

Figures 2a and 2b summarize the intuition of Proposition 1. When dueling is outlawed, there is no strategic interaction in period 1; both agents play s_i^* regardless of what his opponent plays. When dueling is allowed, each agent takes into account the increased effectiveness of moderation (as he will always have the option to call a duel to reduce his opponent's libel, if he so chooses), which leads to weakly more moderation for both players.

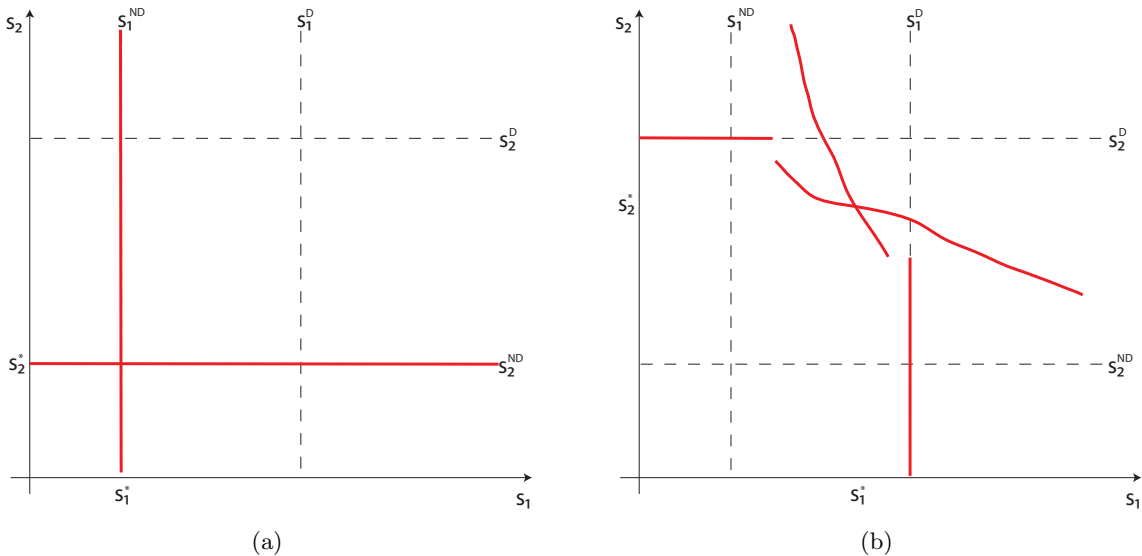


Figure 2: If a meeting on the field of honor is not an option, both agents know they will be libeled at l_j^{ND} in period 2 and set s_i accordingly (subfigure 2a). If, however, the field of honor is available (subfigure 2b), then moderation weakly increases, as for at least some (s_1, s_2) pairs, a deterrence or dueling equilibrium will obtain in period 2, which induces more moderation in period 1.

Finally, Proposition 2 states that there is less libel in any equilibrium when dueling is allowed.

Proposition 2 *If dueling is outlawed, libel (weakly) increases.*

Proof. If an unconstrained equilibrium obtains when dueling is allowed, outlawing dueling has no effect on equilibrium libel. If the legalization of dueling results in a deterrence equilibrium where one agent plays $l_i^*(l_j^{ND})$, this libel level is less than the level of libel that existed when dueling was outlawed, as otherwise the agent who was constrained in his libel choice could improve his utility by choosing the level of dueling from when dueling was illegal. If upon the legalization of dueling a dueling equilibrium obtains, as $\alpha \rightarrow 0$, the marginal

benefit of libel goes to zero, and so for sufficiently low α , surely we see less libel in a dueling equilibrium than when dueling is illegal. ■

Our model has three variables that can affect social welfare. One, presumably social welfare is decreasing in libel. Two, social welfare is increasing in the moderation of the two agents.⁴³ Three, welfare is decreasing in blood spilt on the field of honor. Propositions 1 and 2 demonstrate the tradeoff between blood as a cost of dueling and less libel and more moderation as a benefit. Indeed, if b can be manipulated through policy, it can be set so that for each possible (θ_1, θ_2) pair there is either a deterrence or unconstrained equilibrium, so that overall libel is reduced, moderation is increased, and no agents die. In our model, setting $b = 1$ is equivalent to outlawing dueling, since no agent would ever choose certain death to punish a transgressor. Thus, unlike most of the conflict resolution literature, dueling needs to be somewhat safe to be effective.

5.2 Case II: libel increases the entropy of the contest

We now consider an alternate version of the model where *total* libel, $L(l_1, l_2)$, introduces noise into the contest rather than redefining an opponent's position. We assume that L is increasing in both l_1 and l_2 . In this case, the effect of libel is random. The public may be persuaded by it, increasing the libeler's chances of winning, or it may be disgusted by it, to the benefit of the libelee. Libel thus increases the entropy of the contest, which necessary moves both agents' chances of victory closer to $\frac{1}{2}$.⁴⁴ We continue to restrict s_i and θ_i to the interval $(0, \frac{1}{2})$. We further assume diminishing marginal effects of libel, $\frac{\partial^2 \gamma}{\partial L^2} < 0$, and that the marginal effect of libel increases with the difference between the two agents' level of extremism, $\frac{\partial^2 \gamma}{\partial L \partial (|s_1 - s_2|)} < 0$.

We investigate the properties of the model's subgame perfect Nash equilibria. Without loss of generality, $|\theta_1 - \frac{1}{2}| < |\theta_2 - \frac{1}{2}|$, meaning agent 1 is more moderate than agent 2. Define the stage 3 utility of agent 1 from dueling as $U_1^D(s_1, s_2, L)$ and from not dueling as $U_1^{ND}(s_1, s_2, L)$,

⁴³Either the expected moderation of the winning agent or the average moderation of each candidate could affect welfare.

⁴⁴Formally, the entropy of a random variable x equals $-E[\log_2 p(x)]$. The entropy of the contest thus equals $[-\gamma \log_2(\gamma) - (1 - \gamma) \log_2(1 - \gamma)]$, which is maximized at 1 "bit" when $\gamma = \frac{1}{2}$.

where

$$U_1^D(s_1, s_2, L) = A(1 - b) + B(1 - b)\gamma(s_1, s_2, \alpha L) - c(l_1) - \phi(|s_1 - \theta_1|)$$

$$U_1^{ND}(s_1, s_2, L) = A + B\gamma(s_1, s_2, L) - c(l_1) - \phi(|s_1 - \theta_1|)$$

Proposition 3 *If $\theta_2 < \theta_1$, then $s_2 < s_1$.*

Proof: It is direct that $s_i \geq \theta_i$. Suppose that $\theta_2 < \theta_1$, and $s_2 \geq s_1$. Optimization requires $U_2(s_2, s_1, l_1) > U_2(s_2, s_1, 0)$, which implies that:

$$\phi(s_2 - \theta_2) - \phi(s_1 - \theta_2) < B \left(\gamma(s_1, s_2, l_1) - \frac{1}{2} \right) \quad (6)$$

where l_1 equals α if a duel occurs and 1 otherwise. Equation (6) states that, for agent 2, the increased probability of winning that results from playing s_2 instead of s_1 necessarily exceeds the additional cost of deviating from his private position. By the convexity of ϕ , it must be true that:

$$\phi(s_2 - \theta_1) - \phi(s_1 - \theta_1) < \phi(s_2 - \theta_2) - \phi(s_1 - \theta_2) \quad (7)$$

Combining (6) and (7) proves that if agent 1 had chosen s_2 instead of s_1 , then the increased costs from ϕ would have been less than the benefits from being more likely to win the contest. It is also direct that had agent 1 chosen s_2 , libel would have equaled zero in stage 2, eliminating his cost of producing libel. Therefore $U_1(s_2, s_2, 0) > U_1(s_1, s_2, l_1)$, which is a contradiction.

■

Proposition 3 establishes that only the more extreme agent 2 will ever play a positive amount of libel, as he will always take a more extreme position and thus agent 1 will always be harmed by libel.⁴⁵

Agent 1 will prefer not to challenge his opponent to a duel if $U^D(s_1, s_2, L) \leq U^{ND}(s_1, s_2, L)$, or if the following condition holds:

$$B[(1 - b)\gamma(s_1, s_2, \alpha L) - \gamma(s_1, s_2, L)] \leq bA \quad (8)$$

⁴⁵This result is similar to Stergios and Grofman (1995), who show that underdog candidates are more likely to engage in negative campaigning.

If B , the gains from winning the prize are large, or if the mortality rate b is low, then agent 1 is more likely to issue a challenge. In addition, if the gains from a duel (moving from $\gamma(s_1, s_2, L)$ to $\gamma(s_1, s_2, \alpha L)$) are large, then agent 1 will be more enthusiastic about defending his honor. Because dueling reduces the benefits of libel, the more extreme agent 2 will never challenge agent 1 to a duel.

We define L^* , which may be infinite, as the minimum level of libel where (8) holds with equality.⁴⁶

Define l^{ND} and l^D by:

$$\begin{aligned} -B\gamma_3(s_1, s_2, l^{ND}) &= c'(l^{ND}) \\ -B(1-b)\gamma_3(s_1, s_2, \alpha l^D) &= c'(l^D) \end{aligned}$$

Agent 2 then maximizes over the set $\{l^D, L^*, l^{ND}\}$, with libel level l^D resulting in a duel and l^{ND} , or L^* resulting in no duel. If equation (8) does not hold for l^{ND} , then agent 2 chooses l^{ND} and no duel occurs. If equation (8) does hold for l^{ND} , however, agent 2 chooses either L^* or l^D . If he optimally chooses L^* , then the threat of being challenged to a duel has deterred him from further libel; absent this possibility he would choose $l^{ND} > L^*$. Finally, if agent 2 optimally chooses l^D , then both agents take the field of honor.

In stage 1, both agents simultaneously choose s_1 and s_2 .

$$B(1 - b \frac{I-1}{\alpha-1})[\gamma_{s_1}(s_1, s_2, IL) + L_{s_1}(s_1, s_2)\gamma_L(s_1, s_2, IL)] = \phi'(|s_1 - \theta_1|) \quad (9)$$

$$-B(1 - b \frac{I-1}{\alpha-1})[\gamma_{s_2}(s_1, s_2, IL) + L_{s_2}(s_1, s_2)(\gamma_L(s_1, s_2, IL) - c'(L))] = \phi'(|s_2 - \theta_2|) \quad (10)$$

We now present two propositions that are similar to Propositions 1 and 2. They demonstrate that the threat of a duel increases moderation and decreases libel, and that outlawing dueling is never optimal, even if society is unwilling to accept any deaths from dueling.

Proposition 4 *Outlawing dueling results in more libel and less moderation, if α and b are low enough.*

Proof. Follows closely from the proofs of Propositions 1 and 2. ■

⁴⁶Section 6 discusses the existence of multiple levels of libel where (8) holds with equality.

Proposition 5 argues that under any possible weighting of these three variables, outlawing dueling is Pareto dominated by an alternative regime in which dueling has mortality b , for some b .

Proposition 5 *If social welfare is increasing in moderation and decreasing in libel, and if α is sufficiently small, then outlawing dueling is never optimal, as there exists some value of b where deterrence equilibria exist for some (θ_1, θ_2) , but no dueling equilibria exist.*

Proof. Abusing notation, let $l^{ND} = l^{ND}(s_1(\theta_1, \theta_2), s_2(\theta_1, \theta_2))$ for all (θ_1, θ_2) . By (8), for b sufficiently close to 1, no duels will occur and $l_2 = l^{ND} \forall (\theta_1, \theta_2)$. Furthermore, L^* is an increasing function of b that diverges to infinity as b approaches some $\tilde{b} < 1$ and so for all $b > \tilde{b}$, no duels occur. Therefore, for any (θ_1, θ_2) , there exists some $\bar{b}(\theta_1, \theta_2) < 1$ where $l^{ND} = L^*$, maximized over all values of (θ_1, θ_2) . Let $\hat{b} = \sup_{\theta_1, \theta_2} \bar{b}(\theta_1, \theta_2)$.

From equations (9) and (10), $U_2^{ND} > U_2^D$ for any (θ_1, θ_2) . For any $\delta > 0$, there exists $\epsilon(\delta) > 0$ such that $\delta > U_2^{ND}(L^*(\hat{b})) - U_2^{ND}(L^*(\hat{b} - \epsilon))$. Therefore, there exists $\epsilon > 0$ so that:

$$U_2^{ND}(L^*(\hat{b} - \epsilon)) > U_2^D(\tilde{l}_2)$$

for any $\tilde{l}_2 > L^*(\hat{b} - \epsilon)$. It is therefore optimal for agent 2 to induce a deterrence equilibrium. Therefore, there exists a value of b that results in a deterrence equilibrium for some (θ_1, θ_2) , and a no dueling equilibrium for all others. Using Proposition 4, libel decreases and moderation increases weakly for all (θ_1, θ_2) pairs and strictly for some (θ_1, θ_2) pairs. ■

We now provide an illustrative example of our model, in which both agents possess the following utility function:

$$U_i(s_i, \theta_i, l_i) = A + B \left(\frac{1}{2} + \frac{s_i - s_j}{I(l_1 + l_2) + 1} \right) - \kappa l_i^2 - \frac{1}{\lambda} \left(\frac{s_i - \theta_i}{\frac{1}{2} - s_i} \right)^2 \quad (11)$$

We now numerically solve the model using the following baseline calibration: $b = 0.025$, $A = B = 100$, $\lambda = 0.1$, $\kappa = 0.1$, and $\alpha = 0.5$. We calculate equilibrium over a lattice where θ_1 , and θ_2 vary between 0 and $\frac{1}{2}$. Figure 3 illustrates the three types of equilibria that occur over the lattice. When the difference in agents' types is large, so is the marginal benefit of libel to agent 2. He therefore chooses a sufficiently large amount of libel to induce a dueling

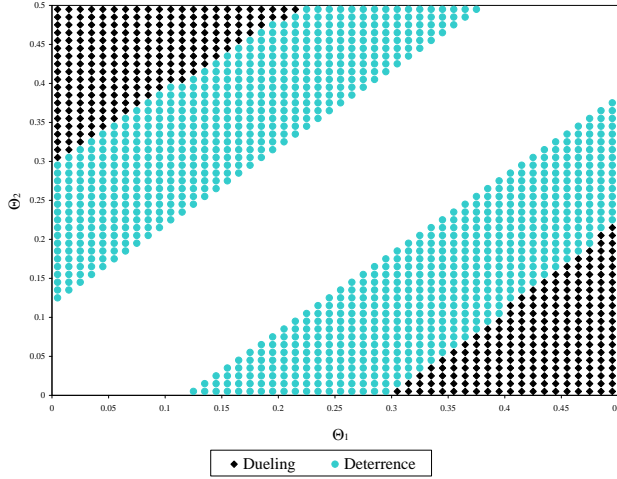


Figure 3: Equilibrium Types over θ_i and θ_j

equilibrium. If the difference between types is small, however, then agent 2's optimal choice of libel does not result in a duel, and (8) is not binding. Intermediate differences in types result in a deterrence equilibrium. In this case, (8) holds with equality, but the reduced effectiveness of libel and the risk of death make it optimal for agent 2 to avoid a duel. He therefore selects L^* , the maximum amount of libel that does not induce a duel. The threat of a duel therefore deters libel and makes him substitute toward moderation by increasing s_2 .

We now compare the equilibrium properties of each region of figure 3 to an alternative regime where dueling is effectively outlawed. For this section, we assume that θ_1 and θ_2 are uniformly distributed between 0 and $\frac{1}{2}$ in order to be able to report 'average' libel. Table 1 reports the results.

When a deterrence equilibrium arises, society is unambiguously better off by allowing dueling. The deterrence of libel induces both agents to substitute toward moderation. In addition to increasing moderation, however, less libel increases the probability that the more moderate agent wins the contest. When a dueling equilibrium arises, the effects on social welfare are ambiguous relative to a model without dueling.

The size of these three regions depends on the model's parameters. We interpret policy as influencing b , the likelihood of dying in a duel, through explicit regulation or implicit codes of

Table 1: Effects of banning dueling by equilibrium type under a uniform distribution over type space. The first header row describes the type of equilibrium that exists in a regime where dueling is allowed, where the ‘All’ columns average across all types. The second header row distinguishes between a regime where dueling is allowed and an alternate regime where dueling is effectively outlawed.

	Unconstrained	Deterrence		Dueling		All	
	Both	Allowed	Banned	Allowed	Banned	Allowed	Banned
s_i (winner)	.268	.306	.286	.328	.306	.286	.278
Libel	.830	.507	1.61	2.06	1.97	.904	1.20
Dueling Deaths	.000	.000	.000	.050	.000	.007	.000
% of Space	58.8%	27.9%		13.3%		100.0%	

conduct. As b increases, the likelihood of a duel declines. Very large values of b are therefore isomorphic to a policy that effectively outlaws dueling.⁴⁷ Table 2 reports the results.

When b is very low, duels are very likely to occur. As b increases, the parameter spaces resulting in unconstrained or deterrence equilibria grow, libel is minimized, and dueling deaths are maximized. For large b , however, the more extreme agent is able to choose a high level of libel knowing that his opponent will not choose to risk death on the field of honor. Libel thus increases as dueling deaths decline. For some intermediate levels of b (including $b = 0.045$ in the simulations), deterrence equilibria exist, but dueling equilibria never occur. For such a b , there thus exists less libel and more moderation relative to a regime without the threat of dueling. Even a society that is unwilling to accept any positive probability of its leaders being shot dead in a duel is therefore unambiguously worse off by outlawing dueling.

6 Ineffective dueling

We now consider the existence of multiple values of libel where equations (2) or (8) hold with equality. For any (s_1, s_2) , there exist either zero or two such finite values of l_i outside of a set of measure zero. In the latter case, we define these levels of libel as l^* and \bar{l}^* .

Proposition 6 *If dueling is sufficiently effective (α is sufficiently small), then agent 2 will never choose $l > \bar{l}^*$.⁴⁸*

⁴⁷Setting $\alpha = 1$ is also isomorphic to outlawing dueling.

⁴⁸For numerical simulations in section 5.2, $\alpha = 0.5$ is small enough to ensure that \bar{l}^* is never economically important.

Table 2: Effects of dueling mortality on social welfare

b	p(Uncon)	p(Deter)	p(Duel)	s_i (winner)	Libel	Dueling Deaths
0.000	0.000	0.000	1.000	0.287	1.17	0.0000
0.005	0.177	0.101	0.721	0.287	1.14	0.0072
0.010	0.289	0.202	0.509	0.287	1.06	0.0101
0.015	0.392	0.261	0.347	0.287	0.98	0.0104
0.020	0.493	0.281	0.226	0.287	0.93	0.0090
0.025	0.588	0.279	0.133	0.286	0.90	0.0037
0.030	0.677	0.261	0.063	0.286	0.90	0.0038
0.035	0.757	0.221	0.021	0.285	0.93	0.0015
0.040	0.830	0.169	0.001	0.284	0.98	0.0001
0.045	0.892	0.108	0.000	0.282	1.06	0.0000
0.050	0.943	0.057	0.000	0.280	1.13	0.0000

Proof. It is direct from our distributional assumptions that $(\gamma(s_1, s_2, \alpha l_1, \alpha l_2) - \gamma(s_1, s_2, l_1, l_2))$, agent 1's increased probability of winning from dueling, is single peaked. The value of l_2 corresponding to this peak, and hence \bar{l}_2^* , become arbitrarily large for sufficiently small values of α . An analogous result holds for \bar{l}_1^* . ■

If $l_2 > \bar{l}_2^*$, then agent 2 so extensively libels agent 1 that reducing the effect of libel by a factor of α is not worth risking death in a duel. This possibility is at odds with our reading of dueling in the antebellum American South. Dueling persisted in this region because the public considered it an acceptable avenue for demonstrated by Proposition 6, such preserving one's honor and mitigating the impact of libel. As effectiveness ensured that it did not incentivize agents to choose exorbitant levels of libel.

Dueling may therefore be an efficient institution in a society which recognizes it as a legitimate method of refuting libel. Because the historical record identifies the antebellum South as one such society, our results help explain both dueling's persistence and the reliance on such ineffective weapons. The fact that modern society views dueling as barbaric, and as a bizarre method of dispute resolution, is captured in our model by a value of α close to one. For this parameterization, the moderating effects of the institution disappear, and it is unsurprising that the practice is effectively outlawed.

7 Conclusion

It is easy to argue that dueling was an undesirable and barbarous aspect of antebellum Southern society. The costs were evident. Not only did duels frequently end in death, but those dying were usually prominent politicians, soldiers, and other respected figures in society. In addition, many of the disputes seem of minor importance to the modern eye. However, this is only half of the story, as dueling had significant benefits for the South as well. We showed that dueling may have been an efficient method of maintaining civility in society.

Dueling served to moderate personal and political attacks by introducing a potentially costly punishment. In modern society, conduct detrimental to society is prohibited by law, and the enforcement of the punishment if the law is broken is the purview of the government. In the antebellum South, where honor could not be repaired by judicial verdict, genteel society policed its own. In this sense, dueling served as a substitute for the legal means of addressing grievances available today, when such institutions did not exist, or were simply not acknowledged as an effective means of restoring one's damaged honor.

Dueling had largely disappeared by the turn of the century. Legal scholars provide two related explanations for this: that a shift in attitudes resulted in dueling being seen as barbaric instead of noble, and that the development of legal institutions rendered the practice unnecessary.⁴⁹ In our model, a shift in attitudes against dueling is easily represented by reducing the effectiveness of dueling at mitigating libel. We show that, holding the preferences of potential duelers constant, the shift in attitudes reduces both the incentive to duel and its effectiveness at reducing libel and encouraging political moderation.

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