

# The Duel of Honor: Screening For Unobservable Social Capital

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## ABSTRACT

The duel of honor was a highly ritualized violent activity practiced (mostly) by aristocrats from *c.* 1500 to 1900. The duel of honor was held in private, attended by seconds and other members of society, was illegal, and often resulted from trivial incidents. Duels were fought according to strict codes, their lethality fell over time, and certain members of society were not allowed to duel. We argue dueling functioned as a screen for unobservable investments in social capital. Social capital was used during this period to police political transactions in an age when high civil service appointments were made through patronage. The screening hypothesis explains the puzzling features of the duel of honor, its rise and fall over time and locations, and the differences between European and American duels.

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...in a state of highly polished society, an affront is held to be a serious injury. It must, therefore, be resented, or rather a duel must be fought upon it; as men have agreed to banish from their society one who puts up with an affront without fighting a duel.

[Samuel Johnson, quoted in Boswell, p. 484, 1980]

## 1. Introduction

In 1829 the Duke of Wellington, much to the chagrin of the anti-Catholic Earl of Winchilsea, helped bring about the passing of the Roman Catholic Relief Bill. When the Duke later became the patron of King's College, London, the Earl took the opportunity in writing to suggest that the Duke was acting under the "cloak of some outward show of zeal for the Protestant religion" in order that he might bring about the "introduction of Popery into every department of the state."<sup>1</sup> When the letter reached the press the Duke sought a public withdrawal and apology, and when none was forthcoming the Duke demanded "satisfaction" in the form of a duel. Winchilsea granted the duel, stating "the satisfaction which your Grace has demanded, it is of course impossible for me to decline." The duel took place the next morning, with both parties firing wide, and a letter of apology produced by the Earl immediately following.

Several aspects of this story seem incredible: the ground for the duel is trivial; the response to settle a "point of honor" with pistols an overkill; and the Earl's reply of "no choice but to accept" unbelievable. Furthermore, the immediate production of a prepared apology makes one wonder why lives were put on the line. As unlikely as these facts appear, they characterize most duels of honor.

Other aspects of dueling deepen the puzzle. The state usually protects its monopoly right over violence, and to be the sole provider of courts for settling disputes. Though dueling was generally illegal and though the punishments were often severe if convicted, duelists were seldom brought to court, rarely convicted,

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<sup>1</sup> See Baldick, (1965) pp. 104–106 for a discussion of the whole affair.

and if convicted likely pardoned. Penalties for dueling among the elites usually only occurred if there was evidence the duel was not fair or did not follow a conventional code of conduct.<sup>2</sup> Why was the state, throughout European and North American countries, so willing to allow the private use of violence? What explains the rise of the duel of honor around 1500, and its collapse at different times in different countries? What explains the myriad of codes of conduct, the role of seconds, the choice of weapon, and the efforts to randomize the outcome?

Although economists and economic historians have ignored the exotic institution of dueling, it has attracted attention among social historians and legal scholars. With social historians dueling is considered a manifestation of inherent male violence.<sup>3</sup> In contrast, legal scholars have viewed dueling as a social norm substituting

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<sup>2</sup> Kiernan reports that:

It was winked at in the eighteenth century as it had been in the Restoration epoch, and occasions for it were often as frivolous as before. Under George III (1760–1820) 172 duels were reported ... but ninety-one of them had fatal results. Legally, in all these fatal cases, murder was committed, yet only eighteen came to trial and executions numbered a meagre two. In 1771 a lawyer affirmed that he knew of no instance in England of capital punishment following a duel properly conducted.

[p. 102, 1988]

<sup>3</sup> For example, Kiernan states:

It is part of what makes man human that he should be capable of a conviction, or at any rate of being impressed by it in others, that life is not worth living at any price. He needs the assurance ... of an impregnable inner self that the outer world cannot tamper with; the pundonor, the point of honour, is its boundary-stone.

[p. 17, 1988]

McAleer expresses similar sentiments:

As the sole method by which, at certain pivotal moments, one's "masculinity" could be "expressed" and "restored," the act of dueling articulated certain upper-class German conceptions of manhood.

[p. 43, 1994]

In addition, dueling is often considered a substitute for war and provides a release for aggression.

for legal proceedings in a court of law. As such, most conclude it was an inefficient, or even irrational, replacement for traditional courts. The problem with viewing a duel as a lawsuit or trial is that the metaphor fits so badly. Lessig states:

The duel was like a lawsuit where the judge, after establishing that indeed there was a wrong, flips a coin to decide who, between the plaintiff and the defendant, should be executed for the wrong. ... No doubt then, the duel often misfired, either because the challenge itself was wrongful and the challenged suffered death, or because the challenge itself was correct but the challenger suffered death. ... To us, certain features are clearly ridiculous: the practice is random, it strikes down some of the community's most valuable citizens, and its sanction is not proportional to its harm.

[pp. 969-970, 1995]

Posner (1996) views dueling as a social norm that prevented “disputes from exploding into feuds by formalizing and channeling the means of enforcement.” For Posner, dueling was inefficient because the state is better at settling disputes and avoiding serial violence than private individuals. Schwartz, *et al.* (1984), come closest to an efficiency explanation of dueling by recognizing dueling played a role in facilitating social interactions by helping to enforce good reputations, but they also view duels as containing “strong elements of ritual, myth, and symbolism that are reflections of the deeply felt value structure of the social group.” (p. 331). As a result, for them the motivation for dueling centers around the cultural value placed on honor.

Our purpose is to provide an economic explanation of dueling and its features not based on culture, honor, gender, or court substitution. We view the duel as a screening device separating individuals in a world where patronage and trust were important mechanisms for monitoring political exchanges among a small ruling class.<sup>4</sup> As a screen it filtered out marginal aristocrats who had not invested in

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According to Nye, “... the duel was still, as it had always been, an occasion to publicly demonstrate the personal courage that testified to the qualities of a man.” (p. 85, 1998). There are, however, many substitutes for dueling to demonstrate courage. Furthermore, duels often arose in the military, and often during times of battle, where courage could easily be demonstrated without resorting to dueling.

<sup>4</sup> The duel was never an event to assist in policing ordinary business transactions where trades

unobservable social capital — an investment which constituted a bond to assure performance in the administration of government. Our screening model explains the rise and fall of dueling, its unusual characteristics — limits on participation, the role of seconds, the evolution of weapons — and differences in dueling over time and space.

## 2. A Brief History of Dueling

This paper is concerned with the “duel of honor.”<sup>5</sup> This type of duel began *c.*1500, peaked in the 1600s, and lasted in some places until the First World War. The duel of honor had several characteristics: the causes of the duel were often trivial;<sup>6</sup> the “guilty” party was not necessarily the loser of the duel; the outcome was irrelevant in terms of social standing; after a duel reconciliation was common; duels were regulated by strict sets of rules; duels were held in private and were almost always nominally illegal; and duel lethality fell over time.

Weapons in the duel of honor were restricted to a subset of lethal weapons. Early duels were fought with a rapier and dagger. The rapier was a heavy inflexible straight sword used for stabbing, while the dagger was used to parry thrusts from

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could be self enforced through reputations, efficiency wages, or courts. From the 13<sup>th</sup> century, specialized courts throughout Europe developed to enforce commercial contracts. See Avner Greif (1989, 1993) for examples of how medieval traders were able to self-police cheating. As a result, members of the European merchant class were not allowed to duel, and if caught, would be tried for murder.

<sup>5</sup> Dueling has a long history, much of which is only peripheral to the central elements of our analysis [See Baldick (1965) for a detailed history]. Dueling began around the turn of the first millennium and took the form of the “judicial duel” or “trial by combat.” These duels decided matters of justice with the belief that God would prevail for the righteous. The loser of such a duel, if not killed, would often suffer additional consequences such as the removal of a hand or hanging, depending on the crime. The other form of dueling in the middle ages was the “duel of chivalry” between knights and other nobles conducted as sport. These duels often took place on horseback, and used lances and spears as weapons. The fading of feudalism marked the end of the chivalrous duel, with the last English example in 1492 and the last French example in 1547.

<sup>6</sup> Duels were fought over an insult, a slap to the face, a slur on reputation, ‘coolness of manner’, or most serious of all, an accusation of lying. “The accusation of lying was ... the essential act which set in motion the duel procedure.” (Billacois, p. 9, 1990).

the opponent. Quickly after the start of dueling all defensive weapons such as shields, helmets, and armor were ruled out, and even the dagger was dropped as an allowable weapon. In addition the rapier was replaced with a lighter more flexible sword called the *épée*, and duels became much quicker affairs. In various regions the *épée* remained the weapon of choice, but in the eighteenth century the saber was introduced. This was a slashing weapon, and although it could cause much damage, was generally not as lethal as the *épée*. Finally, dueling with pistols was introduced in the late eighteenth century.

Dueling was a European invention. Starting in Italy, dueling quickly spread to France, what is now Germany, and the rest of Europe. Dueling was brought to the Americas and was conducted in Canada, Mexico, and the United States. Dueling ended first in the northern European countries of Europe by the late eighteenth century. It ended in England in the first half of the nineteenth century, in the United States by the civil war, and lasted in France and Germany until the first world war. Dueling was the sole domain of the ruling aristocratic class until the nineteenth century, whereupon upper middle class professionals also began to duel.

### **3. Patronage, Social Capital, and the Dueling Screen**

Unlike modern bureaucracies, governments during the pre-modern era were staffed by aristocrats and senior appointments were made primarily on the basis of patronage.<sup>7</sup> The system of patronage as then practiced deviates fundamentally from appointments and promotions in the modern civil service. There was no advertising for positions, no examination, no interview, and no requirement for professional qualifications. A civil servant often had no tenure in office and was expected to act

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<sup>7</sup> During the pre-modern era the alternative to patronage was the sale of offices. Selling offices was feasible when the incentives of the purchaser were generally aligned with the Crown. When there were incompatible incentives patronage was used. See Allen (1997) for an explanation of purchase of commissions in the Army, and Allen (2002) for an explanation of patronage in the Navy during the age of sail. As a general rule the Great Offices of the state were granted through patronage and occupied by aristocrats. The lesser offices were sold and occupied by the merchant class. This paper addresses the high civil offices granted through patronage.

on behalf of his patron.<sup>8</sup> Although patronage rings of corruption and nepotism, it was a system of promotion from within a given class based on personal connections, or social capital. At a time when monitoring inputs and outputs was difficult, trust and honesty were highly valued traits — seemingly even more valuable than skill and ability.

The critical question is why would a patron trust his appointment? Our argument is that trust was based on critical levels of social capital. Social capital is an inalienable asset which generates value through connections with other people.<sup>9</sup> Because social capital requires the cooperation of others in the group for it to be useful, it is not a form of private property like physical or human capital. As such it is not transferable to other levels of society, and investments in it are sunk. Social capital is costly to acquire, and comes from attending the same schools, social events, clubs, and churches. Social capital is also acquired through education, marriage, business connections, and family history. Social capital is often difficult to observe because it depends on the *quality* of the interpersonal associations. Like

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<sup>8</sup> Patronage was not identical in all European countries, of course, but the general principle was the same. Consider, for example, the system of appointments in England during the eighteenth century. In 1726 there were only 179 peers in the country, and with such a small number politics could not help but be personal. At the top of the civil service was the King's Household which included all the Crown's ministers at the pleasure of the King. "The Court was the heart of political and social life, for all decisions taken, all places promised, from a turnkey to a bishopric, had to be discussed and argued with the King" [Plumb, p. 50, 1963]. Ministers and members of Parliament would control different parts of the government depending on their influence. Powerful ministers possessed massive amounts of control. Patronage was passed down level by level: minister to court official, deputy lieutenant, sheriff, and justice of the peace. From these positions other positions of local government were then handed out to those in favor [See Aylmer, p. 69, (1961) for a description]. The result was a very clannish form of administration, but one where "patrons were careful to select members whose views would not compromise their relations with the government..." [Plumb, p. 41, 1963]. The entire system depended on the goodwill of its members and the ability to trust one another in exchanges where direct monitoring was almost always absent.

<sup>9</sup> The literature on social capital defines it a number of ways, but the essential element is an association between people, either formal or informal, which facilitates trade through "trust." Trust potentially lowers the cost of trading through a number of potential mechanisms: information on exogenous types, coordination resolution, and reinforcement of social and personal mores. Here we model social capital as "hostage capital," and the future return from it is lost if agents indulge in cheating behavior. For discussions of the role of social capital in economics see Dasgupta and Serageldin (1999) or Francois (2002).

all capital, social capital depreciates over time, and must be maintained if it is to continue to serve its purpose.

Although it is commonly argued that the value of social capital lies in enhancing trade, for us social capital does this specifically from *enforcing* cooperative behavior among the aristocracy through its role as hostage capital. Individual aristocrats found lacking in some way, either through unacceptable behavior or political practices, could be punished with ostracism when they have invested in social capital.<sup>10</sup> An aristocrat, virtually by definition, is someone whose entire social life, business connections, and persona are based on inclusion within the aristocratic group. To be a social outcast in an aristocratic society was to be cut-off from social, business, and governmental affairs of the ruling class — all one's stock of social capital would be worthless.

But how can one tell if a given level of social capital is present if the quality of social capital investment is not observable and cannot be measured? We hypothesize the duel was designed to screen for a critical level of social capital among the aristocracy seeking patronage appointments. Those individuals who rejected the duel demonstrated their social capital was too low, and they could not be trusted.<sup>11</sup>

As Frevert states:

To be regarded as a coward for avoiding a duel equaled expulsion from society, a social death sentence, to which possible death in a duel was obviously preferable.

[p. 41, 1998]<sup>12</sup>

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<sup>10</sup> Thus in aristocratic markets trade is policed along the lines of Klein and Leffler (1981), with one's social capital acting as a bond for good performance.

<sup>11</sup> Our theory that dueling screened for social capital is similar in spirit to the religious club literature explanations of sectarian sacrifices. Iannaccone (1992) and Berman (2000), for example, argue religious sacrifices help eliminate free riding within religious groups that provide mutual insurance for its members. In those cases and ours, a form of self-sacrifice is used to indicate an investment in something with a public good component.

<sup>12</sup> Similarly:

...failure to behave honorably was viewed with intense disfavor by the elites that accepted the dueling convention. As these elites were cohesive, loss of reputation, measured by the reduced opportunities for advantageous relations with other



We argue the duel was a low cost screen and an efficient institution during the age of patronage.<sup>13</sup> The duel was designed to be difficult to fake, easy to verify, and unenjoyable in and of itself. However, dueling had costs: it excluded large numbers of individuals from civil service; it often resulted in death or serious injury to talented people; it created an incentive for individuals to invest in acquiring dueling skills; and, although measures existed to mitigate it, at the margin cheating at duels took place. Hence, when patronage was ultimately replaced by a professional bureaucracy based on merit, dueling ceased to be practiced.

#### 4. The Dueling Screen Model

We begin by assuming two separate employment markets. The first market is an elite, aristocratic, market where self-enforced, long term political trades take place. Self-enforced agreements are sustained in the elite market because the parties stand to lose a *stream* of rents created by their investment in social capital if they cheat. Individuals in this market may be involved in the judiciary, treasury, military, or some other branch of the government, but they also gain from socially interacting with each other. In the second market, individuals only participate in lower valued market transactions, for example, producing agricultural products from an estate. Individuals in this second market are cut-off socially from the elite group. The payoff to participating in the second market is  $\underline{B}$ . Individuals are assumed to live for multiple periods.

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group members, could be very substantial.

[Schwartz *et al.*, p. 322, 1984]

<sup>13</sup> The issue of self-enforcement is critical to the discussion of optimal institutions. As has been mentioned, a king would grant an important position of state to an aristocrat in exchange for loyal service. Beneath this position would be many offices, some of which were sold, others which were further granted as patronage. Thus an office was a source of wealth to both patron and king. The value of an office depended on the net income it could generate. This income was higher if cheating problems could be mitigated. Hence the king and his chief appointments had a strong incentive to make sure the dueling screen worked. Likewise, those who dueled had a strong incentive to enter only those duels that would be recognized by the patron. The dueling codes were codifications of these self-enforcing practices.

There are  $N$  individuals in the population, each born with a different level of social capital,  $s_i$ , distributed with a cumulative density function  $F(s)$ , and ranked from highest to lowest (i.e.,  $s_1 > s_2 > \dots s_N$ ). The level of social capital at birth is *observable*, and can be augmented and maintained at a cost. This investment is sunk and *unobservable*. In every elite market exchange an individual can either be honest or dishonest, and the *total* gains from exchange are a positive function of the fraction of honest trades and the number of people involved in trade. The aggregate gains from trade for the group are given by

$$G = g(h, n) \tag{1}$$

where  $n$  is the fraction participating in trade, and  $h$  is the fraction of honest trades. By assumption  $g_h > 0$ , and  $g_n > 0$ .<sup>14</sup> Furthermore, the fraction of honest trades depends on the *reservation* level of social capital necessary to participate in trade, defined as  $s^R$ , with  $h_{s^R} > 0$ . The fraction of the population participating in trade depends on the equilibrium cut-off social capital, defined as  $s^*$ , with  $n_{s^*} < 0$ . Thus, if the reservation and equilibrium cut-off social capital increase, more trades will be honest, but fewer people will be in the trading group.

A member of the elite group benefits from two sources. First they share in the total gains from political trade. Second they interact socially in the elite group, and for simplicity we set the dollar benefit of this social interaction equal to the individual's level of social capital. Hence, elite members earn:

$$\frac{g(h(s), n(s))}{n(s)N} + s_i, \tag{2}$$

where the first term is the shared gain from trade, and the second term is the value of social interactions. We assume the king maximizes the gains from political transactions, chooses the size of the elite group, and determines the terms of the dueling screen.<sup>15</sup>

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<sup>14</sup> Subscripts denote partial derivatives. The first-best level of gains from trade is given by  $G(1, 1)$  where every potential person is participating and being honest.

<sup>15</sup> We abstract from a number of complications with this assumption. For example, we assume the king is unconcerned with the value of social interactions. We also ignore the role the elite group played in dueling conventions.

The timing of the dueling screening game is given in Figure 1. A king first chooses the reservation level of social capital (which determines the size of the elite group), and the probability of dying in a duel. Given this, an individual decides their investment in social capital. And lastly an individual must decide whether or not to duel.

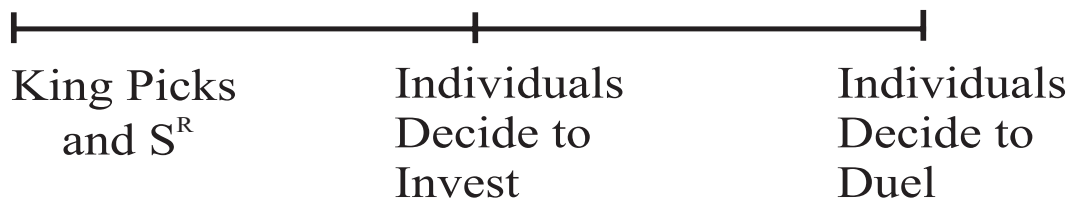


Figure 1  
Timing of Actions

#### 4.1. Optimal Size of Group: Social Capital Observable and Fixed

We begin by determining a benchmark group size when the level of social capital is observable and fixed — that is, no investment is possible. Under this assumption the problem of policing political exchanges is trivial. The aggregate gain from trade is maximized when  $h_s(s^*) + n_s(s^*) \equiv 0$ , where  $s^* = s^R$  is the equilibrium cut off social capital. Note in this case the equilibrium cut off equals the reservation level necessary enter the trading group (equal to  $n(s^*) \times N$ ).<sup>16</sup> Since no investment is possible and social capital is observable, those individuals with social capital levels above  $s^*$  participate in the elite political market, while those with social capital levels below  $s^*$  are left with only trades outside the political sphere in the non-elite group and earn a payoff of  $\underline{B}$ . In this case there is no need for a dueling screen.

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<sup>16</sup> For notational simplicity we set  $g_h = g_n = 1$ , and thus interpret  $h_s$  and  $n_s$  as the marginal benefit and marginal cost of adjusting the reservation level of social capital. The total value to the elite group is  $g(h(s^*), n(s^*)) + \sum_1^{s^*} s_i$

## 4.2. Optimal Size of Group: Social Capital Observable But Variable

To give some intuition regarding the size of the group and the relationship between the reservation and equilibrium cut-off levels of social capital, consider the case where social capital is observable and individuals make *observable* investments in social capital. Now we have a two stage problem where the king chooses  $s^R$ , and individuals then choose whether or not to invest. Solving backwards, consider the individual problem for a *given* level of  $s^R$ . If an individual is born with  $s_i > s^R$ , there is no need for investment. If an individual is born with  $s_i < s^R$  then investment occurs if the net gains to investment are greater than zero. The equilibrium cut-off level of social capital,  $s^*(s^R)$  is determined by the marginal individual, and is given by:

$$\sum^T \left[ \frac{g(h(s^R), n(s^R))}{n(s^R)N} + s^R \right] - C(s^R(s) - s^*(s^R)) \equiv 0$$

where  $C(s^R(s) - s^*(s^R))$  is the cost function for acquiring social capital.<sup>17</sup>

In the first stage the king maximizes the gains to the elite group, taking into account  $s^*(s^R)$ .

$$\max_{s^R} g \left[ h(s^R), n(s^*(s^R)) \right].$$

The first order condition is:

$$h_{s^R} + n_{s^*} \frac{ds^*}{ds^R} = 0.$$

The last derivative is positive, and if equal to one the  $s^R$  solution is identical to the benchmark case. If this derivative is greater (less than) one,  $s^R$  is greater (less than) the benchmark case. Thus the reservation level of social capital may increase or decrease with investment, but it will always be true that  $s^* < s^R$ . This means the terminal distribution of social capital will have a gap in it, as shown in Figure 2, drawn assuming the initial distribution was rectangular. Again there is no need for a dueling screen.

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<sup>17</sup> We are assuming, for simplicity, those born with  $s_i < s^R$  only invest until they reach the minimum level to reach the group. It is reasonable, but unnecessary to assume an individual may invest more than this given they value social interactions.

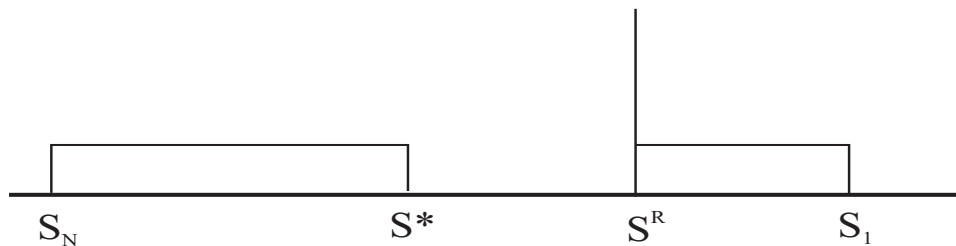


Figure 2

Post Investment Social Capital Distribution

### 4.3. Unobservable Investment and the Dueling Screen

When the levels of social capital investment are *unobservable*, the size of the elite group shrinks.<sup>18</sup> However, the cut off level of social capital remains lower than the reservation level of social capital,  $s^* < s^R$ . More importantly, when the investment is unobservable a mechanism is necessary to screen potential appointees for the reservation level of social capital, because individuals born with capital levels lower than  $s^R$  will fake the costly investment in order to enter the group.<sup>19</sup>

For the moment consider a duel as a game *repeated every period*, in which one accepts or rejects based on the level of one's social capital. An individual who survives the duel in a given period participates in trade and social interaction within the elite group, and receives the payoff given in equation (2). If we assume  $\pi$  is the probability of dying in this game, and the value of death is normalized to zero, then the decision to invest in social capital is represented in Figure 3.<sup>20</sup>

Using backwards induction, consider the choice of a faker who has reached the last

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<sup>18</sup> The group size shrinks because a duel lowers the benefits of the elite group. The spirit of the problem remains the same as in section 4.2 so we ignore the modified problem to focus on the screening condition.

<sup>19</sup> We abstract from setting higher reservation levels of social capital for higher levels of patronage appointments. There is no evidence in the historical record that any "ranking" of duels existed. We also ignore strategic issues between the two duelists. As we point out later, the rules for dueling were designed to minimize this problem.

<sup>20</sup> Although a spectrum of injuries could result, here we model the game as having only two outcomes: death and survival.

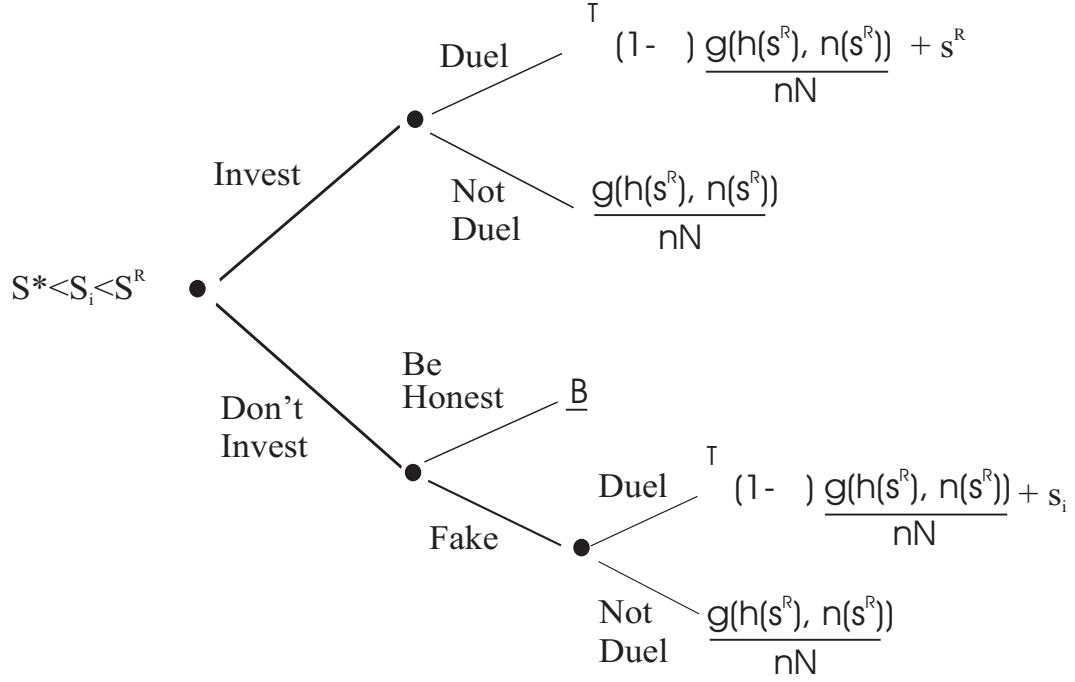


Figure 3

### Social Capital Investment Decision

node of the lower branch.<sup>21</sup> If the faker accepts a challenge to a duel, he will be allowed to stay in the group and his payoff is

$$\sum^T \left[ \pi \times 0 + (1 - \pi) \left[ \frac{g(h(s^R), n(s^R))}{n(s^R)N} + s_i \right] \right]. \quad (3)$$

If the faker decides to not duel when challenged, he receives his share of the one period political trade, but gets no value to social interaction and leaves the group. This pay off is  $1/n(s^R)N \times g(h(s^R), n(s^R))$ . In order for dueling to act as a screen, fakers must always reject a duel. This means the following condition must hold.

$$\frac{g(h(s^R), n(s^R))}{n(s^R)N} \geq \sum^T \left[ (1 - \pi) \left[ \frac{g(h(s^R), n(s^R))}{n(s^R)N} + s_i \right] \right] \quad (4)$$

A similar set of payoffs arise for the individual who actually invested and finds himself at the last node of the top branch in Figure 3. The payoffs to dueling or

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<sup>21</sup> Throughout the model discounting is ignored.

not dueling do not include the cost of investment at this stage because that cost is sunk when the challenge to a duel arises. In order for dueling to work as a screen, investors in social capital must always accept a duel. This means the following condition must also hold.

$$\sum^T \left[ (1 - \pi) \left[ \frac{g(h(s^R), n(s^R))}{n(s^R)N} + s^R \right] \right] \geq \frac{g(h(s^R), n(s^R))}{n(s^R)N}. \quad (5)$$

Moving back to the second node for the faker, we'll assume the payoff to faking is larger than the benefits of being honest. Thus the individual who does not invest will prefer to fake rather than be honest. For dueling to be an effective screen for social capital investments, it follows individuals must prefer to invest rather than fake an investment. The third screening condition is then,

$$\sum^T \left[ (1 - \pi) \left[ \frac{g(h(s^R), n(s^R))}{n(s^R)N} + s^R \right] \right] - c(s^R - s_i) \geq \frac{g(h(s^R), n(s^R))}{n(s^R)N}. \quad (6)$$

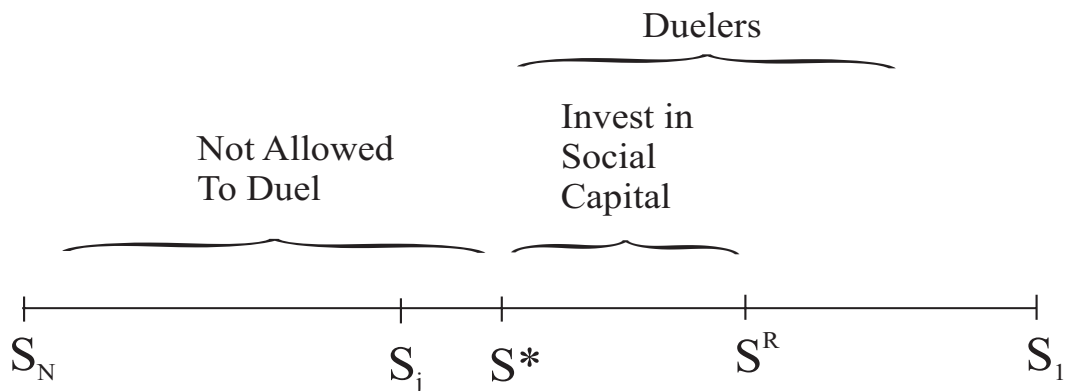


Figure 4

#### Ruling Out Non Credible Participants

Even with these three conditions, since social capital investment is both costly and unobservable, individuals born with levels below  $s^*$  still have an incentive to fake and accept a duel; that is, there is still an incentive to fake the investment in social capital and enter the elite group. Consider Figure 4. Individual  $s_j$  was born

with a low level of social capital, and will never find it profitable to invest to  $s^R$ . Thus he will fake the investment to get  $1/n(s^R)N \times g(h(s^R), n(s^R))$  rather than earn  $\underline{B}$ . However, since the initial level of social capital is observable this problem is avoided by not allowing those born with social capital levels below  $s^*$  to duel. Thus the screening conditions are:

### The Screening Conditions

1. Fakers Prefer to Not Duel: equation (4).
2. Investors Prefer to Duel: equation (5).
3. Individuals Prefer to Invest Rather Than Fake: equation (6).
4. Low Social Capital Types Not Allowed to Duel.

The duel is designed by choosing  $\pi$  from the first two screening conditions.<sup>22</sup> If  $\pi$  is set too high, social capital investors reject duels and the screen is ineffective. If  $\pi$  is set too low, individuals don't invest, accept duels, and cheat with too high a frequency on political trades — again the duel is ineffective. The optimal  $\pi$  is chosen so that individuals born with social capital levels  $s^* < s_i < s^R$  invest and accept duels. Anyone who rejects a duel demonstrates they have not made the relevant investment and should not be trusted. Once  $\pi$  is determined for a given  $s^R$  the king then chooses  $s^R$  using the third screening condition, and the size of the elite group is determined.<sup>23</sup>

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<sup>22</sup> See the Appendix for the solution.

<sup>23</sup> A simpler social capital game would have no investment, but unobservable initial levels of social capital. In such a game the king would choose the optimal size of the group in a fashion similar to the benchmark case, and then would design a duel screen with only conditions (1) and (2). The additional dueling screens would not be relevant. We present the more complicated model because investment in social capital was important both for those joining the elite group, and for those members who had to maintain their social capital. If there were no investment in social capital, individuals would only have to duel once to reveal their type.



#### **4.4. Duels vs Lotteries and Russian Roulette**

It is clear any screening device based on self-sacrifice could reveal social capital and sift potential trading partners. Why would dueling be more efficient than a lottery, Russian roulette, or some other such mechanism? Consider a lottery, where those interested in participating in government submit their names to a gamble with some probability of death. In such a lottery the probability of dying could be random, no effort would be made to train for the lottery, no one would be born with an inherent advantage, and presumably the cumbersome procedures of the duel could be avoided.

The problem is that a lottery requires monitoring since the outcome is subject to manipulation. Who would trust such a lottery? With such a screen it might prove prohibitively costly to convince participants the outcome was indeed random. The same problem holds for any screen requiring the administration of a third party. On the other hand, the competitive adversarial nature of the duel gave it three advantages over alternative administered screens. First, duelists could trust the honesty of the duel because it was under their control and each had an incentive and ability to ensure fairness. Second, members of the elite group could trust the fairness of the dueling screen because its clear all or nothing character, role of seconds, imminent occurrence, and other institutional features provided a screen not easily subject to manipulation. Third, the competitive nature of duelists attempting to prove their social capital in an effort to be eligible for patronage meant successfully “staged” duels would yield only short term benefits. Dueling involved self-selected duelists who had (incomplete) information on the social capital of others in their peer group. Individuals who entered the elite ruling group on the grounds of a staged duel would likely find themselves soon challenged by more legitimate holders of social capital. Hence, the private duel, with its verifiable fairness, restrictions on manipulation, and constant threat of occurrence made it a low cost screen.

### **5. Predictions and Tests of the Dueling Screen Hypothesis**

## 5.1. Limits on Participation

The screening model makes a strong prediction on dueling participation. First, since social capital acquired at birth is observable, there is no need for individual's born with social capital well above the critical level to enter a duel — it is already known they meet the threshold level. Hence, the very highest members of society should not be allowed to duel. Second, since it never pays individuals with levels of social capital below  $s^*$  to invest, these individuals are also barred from participating.<sup>24</sup> Dueling is predicted among the marginal aristocracy.

The predicted limits on participation are consistent with the historical facts of dueling. Several classes of individuals were not allowed to duel, nor were they allowed to be challenged. Royal family members for example, were excluded from dueling, and high nobility were often prevented from it.<sup>25</sup> In addition, during times of war, and especially during battles, military officers were not allowed to duel. Officers were not allowed to duel with officers of a higher rank. Indeed, it would appear that most dueling took place among the lower levels of the ruling elite.<sup>26</sup>

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<sup>24</sup> Low social capital individuals may want to duel for other reasons — they might be exceptional duelists, they might have staged the duel, or they might be using the duel to settle a dispute — but in all cases, allowing these individuals to duel destroys the screen. Low social capital individuals who duel impose social costs with no offsetting benefits, and they should be barred from the practice. There is a third class of individuals who, although not barred from dueling, virtually never dueled: women. Although there are records of women duels, the numbers were trivial. The lack of dueling resulted from their lack of participation in civil administration.

<sup>25</sup> Halliday notes that:

... courts of honour attempted to deter challenges made for frivolous reasons. These courts were particularly common in the 16th century and were most useful when the *higher nobility* was involved. Monarchs — Elizabeth I most notably — kept a close eye on their courtiers and intervened to prevent the loss of valued advisors. But lesser aristocrats and those with patrician pretensions either duelled impetuously or ignored the existing avenues of mediation.

[p. 3, 1999]

<sup>26</sup> The duel was designed for individuals like John Churchill. Born to a poor squire, he entered the household of the Duke of York as a simple page. Churchill's life was an example of constantly

The lowest members of European society were not allowed to duel. This was accomplished by making dueling illegal for everyone, but allowing aristocrats the privilege of dueling without concern over arrest. Ironically, those making anti-dueling laws were the very individuals most active in dueling. While many writers on dueling find the practice of dueling among legislator incongruent with laws banning the practice, this is an implication of the screening hypothesis.<sup>27</sup> Dueling was illegal in order to prevent individuals with low levels of social capital from participating. Although aristocrats convicted of dueling could always receive a pardon, commoners caught engaging in a fatal duel were charged with murder.

This important point distinguishes legal theories of dueling with the screening hypothesis. Most legal scholars writing on dueling argue the state actually wanted to eliminate dueling through the use of legal sanctions, and that the anti-dueling laws were ultimately successful in changing social norms and eliminating the practice. There are several problems with this theory. First, dueling was always illegal, and yet it lasted for centuries. Second, the anti-dueling laws *were* enforced and effective — lower class individuals were effectively barred from dueling. Finally, when dueling ended it was not replaced by law, but by a meritocracy.<sup>28</sup>

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investing in social capital. Along the way to becoming the Duke of Marlborough he fought at least two duels to demonstrate this investment.

<sup>27</sup> For example, Steward notes that:

Ironically, the roots of violence in Missouri were nurtured by men espousing an extreme sense of individualism and were cultivated by statesmen ostensibly professing the best of democratic traditions.

[p. 6, 2000]

<sup>28</sup> Although it is common in the legal social norm literature to see anti-dueling laws upheld as an example of how the law can be used to change social norms, we agree with Wells (2001) who suggests this implication is mostly in the imagination of those seeking to manage social behavior. Dueling ended when its role as a screen ceased, not because it was illegal. Dueling was reserved only for aristocrats, those individuals for whom civil service and the administration of the kingdom was an option. As Kiernan states: “Its affiliation was always and everywhere with social groups occupying a pre-eminent and privileged position, or inspired by the striving towards such a position...” (Kiernan, p. 2, 1988).

## 5.2. The Cause, The Challenge, and The Consequence of Duels

One of the most obvious predictions of the screening hypothesis is that the grounds for the duel, the identity of the challenger, and the outcome are all irrelevant. The importance of the duel was its function as a screen, and participants — either as the challenger or the challenged, whether they win or lose — demonstrated they had invested in social capital.

There is strong evidence for this in the historical record. Unlike earlier judicial duels fought over capital crimes, duels of honor were fought over any slight against ones' character, family, or reputation. McAleer, writing on the duel in Germany noted that virtually all duels were the result of either impoliteness, cursing or attribution of shameful qualities, or touching another's person.<sup>29</sup> Within these broad categories, there existed a virtual limitless number of grounds for a duel, and the historical record shows that duels were fought over trivial slights, as well as issues of great slander.

Trivial grounds for duels have been used by social historians as evidence of its irrationality or manifestation of inherent male violence. Kiernan, in one of the most comprehensive studies, states:

The triviality of many disputes, which satire could scarcely exaggerate, and the willingness of so many men, young men in particular, to risk death, maiming, or exile, on the spur of the moment, suggest an infantile mentality, minds incapable of serious thought, and reacting to any stimulus like automata.

[p. 117, 1988]<sup>30</sup>

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<sup>29</sup> McAleer, p. 47, 1994.

<sup>30</sup> Similarly, Frevert suggests that the trivial nature of dueling grounds was simply the result of a culture of sensitivity:

The conflict was generally triggered by an insult or an offense to one's honor, the definition of which might depend on the individual involved. The early modern period was marked by extreme sensitivity in the perception of such offenses ...

[p. 38, 1998]

On the other hand, Schwartz *et al.*, are on the right track when they state that:

In addition to the irrelevance of the dueling grounds, there was no social advantage to challenging or winning. Who initiated or became the victor was irrelevant in a duel. Parker 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.”<sup>31</sup> Indeed, one of the great ironies of dueling — but an implication of screening — was the subsequent renewal of friendships among adversaries.<sup>32</sup>

### 5.3. Exogenous Probabilities Through Dueling Rules: The Code Duello

If dueling acted as a screen, then it was critical the probability of death be exogenous to the participants since failure to do so violates the screening conditions. With endogenous probabilities individuals invest in skills that alter the probabilities in their favor. Hence a good marksman or a good fencer may find a given duel acceptable simply because they stand a good chance of winning and not because they’ve made the necessary investment in social capital. An additional problem with endogenous outcomes is the inefficiency that results from investments in dueling skills where an “arms race” develops as individuals over invest in talents to increase their odds of winning. In the language of dueling, there was to be a “level playing field,” and this essentially meant the outcome was to be random.<sup>33</sup>

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The duel, in these [trivial] circumstances, may be viewed as a means for the two parties to demonstrate that, whatever the facts of the precipitating incident, they are in fact honorable people.

[p. 345, 1984]

<sup>31</sup> Parker, pp. 8-9, 2001.

<sup>32</sup> Histories of individual duels are replete with such stories. Samuel Pepys diary contains references to at least 13 duels. One is a duel between Tom Porter and a Mr. Bellasses. Porter makes a fatal wound and Pepys records the following: “he called T. Porter and kissed him and bade him shift for himself ‘For Tom, thou hast hurt me ... I would not have thee troubled for what thou has done.’ Then Pepys notes “both of them most extraordinary friends” (Pepys, p. 364, V. 8, 1970).

<sup>33</sup> “A fair duel was a game of chance that displayed the willingness of both principals to die for their honor, not their skill at inflicting pain or death.” (Freeman, p. 178, 2001).

An important method of achieving randomness was the institution of dueling rules.<sup>34</sup> The Code Duello was a set of rules drawn up by Irish gentlemen delegates at Clonmel Summer Assizes, in 1777. Although the code was prescribed for general use in Ireland, it was generally followed in England, the Continent, and America with small variations throughout the 19<sup>th</sup> century; in fact, the 26 rules were called “The Twenty-Six Commandments.” These rules delineated the rights of the challenged and challenger, grounds for terminating the duel, rules for conducting the duel, and the rights and obligations of the seconds. Many of these rules kept the probability of death exogenous.

A series of rules restrict expert duelists or staged duels. For example, consider the following rules:

**Rule 6.** If A gives B the lie, and B retorts by a blow ... no reconciliation can take place till after two discharges each, or a severe hit ...

**Rule 7.** But no apology can be received, in any case, after the parties have actually taken ground, without exchange of fires.

**Rule 13.** No dumb shooting or firing in the air is admissible in any case.

Staged duels reduced the effectiveness of the dueling screen. Insults could be traded and a duel agreed to that in actual fact was all an act. As rules 6 and 7 state, however, certain events automatically triggered a duel, and once on a field shots must be fired. Rule 13 states shots must be fired at the opponent.<sup>35</sup> All duels

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<sup>34</sup> There were many sets of rules, with the first widely popular set published in Venice in 1550 by Girolamo Muzio. In these early rules, several features are common: seconds must be present; deadly weapons must be used; generally the challenged was allowed the choice of weapon, and other, but not all, features of the duel that influenced the absolute and relative lethality; and the duel was to take place without delay, usually the next morning.

<sup>35</sup> Even if shots were directed at non-fatal parts of the body, in an age lacking antibiotics any wound could kill. Indeed, most deaths from dueling resulted from infections rather than the wound itself. This is why duelists often stripped to the waist. Interestingly, the duel with Wellington

required seconds, and usually had a doctor and others present. All of these features lowered the chance of fake duels.

Many of the rules were designed to make the outcome random. Pistol duels were conducted with inaccurate weapons, and being hit was largely a matter of chance. This randomness was enhanced by several rules:

**Rule 3.** If a doubt exists who gave the first offense, the decision rests with the seconds; if they won't decide, or can't agree, the matter must proceed to two shots or to a hit.

**Rule 17.** The challenged chooses his ground; the challenger chooses his distance; the seconds fix the time and terms of firing.

**Rule 18.** The seconds load in presence of each other ....

**Rule 20.** In all cases a miss-fire is equivalent to a shot, and a snap or non-cock is to be considered as a miss-fire.

**Rule 22.** Any wound sufficient to agitate the nerves and necessarily make the hand shake, must end the business for that day.

The pistol duel was designed to provide a limited number of attempted shots since better marksmen could better calibrate the weapon and gain an advantage with

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and Winchilsea ended with each firing into the air. This duel occurred when dueling was ending in Britain. In an earlier time, another country, or with a lesser participant, such an episode would have not ended the duel. McAleer, notes that:

To compound the danger factor yet more, the bighearted gesture of shooting over an opponent's head or firing off into the woods, as often portrayed in fantasy, was strictly forbidden by the dueling codes. ... Were the seconds to note such a conspicuous miss, it was their duty to rush between the combatants before an opponent could return fire, to reprehend the offender and begin anew, ...

p. 69, 1994]

unlimited shooting. The duel also had a set time for shooting, and required seconds to load. An expert with the pistol would have an advantage in correctly and quickly loading his weapon. Rules 17 and 18 eliminated this advantage. Finally, to the extent a better duelist was less likely to become agitated by a wound, rule 22 worked against him. Other rules developed to randomize events. For example, not only was rifling the barrel not allowed, but dueling pistols had short barrels (reducing accuracy) and aids in aiming were also discouraged.<sup>36</sup> McAleer points out that:

The piece was ordinarily fitted with sight and bead, but these must have been removable since most duels were prosecuted minus their aid — and for the same reason that groves of trees were avoided as dueling sites: so as not to inordinately channel one's aim.

[p. 65, 1994]

Although it varied from time to time, a general theme in dueling rules was to assign rights in favor of the challenged. For example, consider:

**Rule 15.** Challenges are never to be delivered at night, unless the party to be challenged intend leaving the place of offense; before morning; for it is desirable to avoid all hot-headed proceedings.

**Rule 16.** The challenged has the right to choose his own weapon, unless the challenger gives his honor he is no swordsman ...

Rule 16 was not always found in earlier rules, but it took away a major advantage of the challenger and leveled the playing field considerably. As Rule 17 stated, other rights regarding the ground and the timing of shots were not held by the challenger. Indeed, since challenges could also be provoked, we should not be surprised rights were also held by the challenger and the seconds. In German dueling codes there was a complicated sets of rights to the “insulted” party depending on the level of insult.

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<sup>36</sup> It is worth pointing out that the impediments placed on pistols made them *inaccurate* not *ineffective*. Dueling pistols were well crafted, expensive, and looked after. They were expected to work every time. In the spirit of the literature on optimal punishments, one might think more accurate weapons, leading to fewer costly duels might be more efficient. However, accurate weapons open the door for training and marksmanship, which destroys the value of the duel as a screen. Hence, more accurate weapons would not be more efficient.



McAleer notes these rules were designed to prevent “ruffians with strong arms and practiced eyes to go around intentionally picking fights.”<sup>37</sup> Rule 15 essentially protected unassuming victims from accepting duels from strategic challenges in the heat of the moment. A final set of rules pertained to the ending of the duel, and essentially amounted to “first blood.” Duels, especially towards the end of dueling, were usually not fatal. Aside from efforts to make the duel random, the first blood rules also reduced the chance of death. The rules on limiting shots have already been mentioned, but the same held true for swords.

**Rule 5.** If swords are used the parties engage until one is well blooded, disabled, or disarmed; or until, after receiving a wound, and blood being drawn, the aggressor begs pardon...

In fencing duels gloves were generally not worn, which meant most first wounds were to the armed hand since it was closest to the opponent’s blade. The first blood rule in fencing duels eliminates any advantage one duelist might have due to physical size or strength. Since each duelist used a weapon identical to the other, the opponents armed hand was the same sword distance away from each other. This was not true of the opponent’s torso since individuals with longer reaches have an advantage in attacking the body. There were other restrictions on sword duels that hindered excellent fencers. McAleer notes that:

The duelist was not allowed to follow-up an attack which had disarmed his opponent or had caused him to stumble and fall. It was impermissible to transfer a blade from one hand to the other. Parrying of the opponent’s blade with one’s free hand was not allowed, ...

[p. 61, 1994]

In fencing duels it was more difficult to level the playing field than in pistol duels, which explains why duels evolved generally into pistol fights.<sup>38</sup>

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<sup>37</sup> p. 47, 1994.

<sup>38</sup> McAleer notes that in Germany during the 19th century, only about one in four duels were with sabers (p. 58, 1994). He also notes the difficulty in equalizing the duel with sabers:

## 5.4. The Role of Seconds

One of the most important aspects of dueling was the presence of seconds. These men were chosen by the duelists, and played a role from the beginning to the end of a duel. All communication and negotiation was done between the seconds, not the duelists. Weapons were inspected and armed (if pistols) by seconds. Social historians often contend the role of seconds was little more than ceremony allowing the aristocracy to view dueling as less barbaric and above the mere brawl of the common man.<sup>39</sup> To the legal scholar dueling substituted for court actions, and thus the role of the second was to act as a mediator and judge, and to prevent the action from escalating in violence.<sup>40</sup>

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Although saber duels [without thrusting] were historically suggestive of the blunted weapons used in medieval jousting, saber duels [with thrusting] were theoretically adjured as “more chivalrous” because of the circumspect and deliberate style they fostered, giving physically disadvantaged opponents an even chance. ... in saber duels [with thrusting] physically weaker duelists were compensated, while technically inferior duelists were reimbursed in matches [without thrusting]. What was fair to the strong was annoying to the skilled ... Consequently, sabers under both species were generally disdained, and even relative experts shunned the form.

[p. 63, 1994]

<sup>39</sup> Frevert states:

The purpose of such rules [including the role of seconds] was to elevate the single combat of honor above ordinary quarrels and to give it a certain outward dignity.

p. 39, 1998]

<sup>40</sup> Schwartz *et al.* state:

The seconds could, in principle, have engaged in the settlement process in two ways. Under one conception, each second would attempt, like an attorney representing a party to litigation, to achieve the best possible results for his principal, given the probabilities of the various outcomes of the duel and the costs of preceding to successive stages. The second possibility is that the seconds were obliged to conduct settlement negotiations so as to achieve a result which accorded with the merits of the dispute giving rise to the challenge.

[p. 337, 1984]

Under our screening hypothesis the seconds play three different roles. First, screening requires the second to prevent strategic duels, and prevent their friend from becoming the victim of an opportunistic excellent duelist. Second, these men would have indirectly made collusion among duelists more difficult.<sup>41</sup> Third, the second was to ensure the odds of dying were as fair as possible. Weapons were to be inspected, guns were to be loaded, conditions such as the placement of the sun, the firmness of the ground, location of trees (for aiming), etc, were to be considered. In short, the role of seconds was to increase the randomness of the duel.<sup>42</sup> This explains the confusing observation of seconds at times refusing duels and other times insisting they take place. The second's role was not to avoid all duels, only those duels that were not legitimate.<sup>43</sup>

### 5.5. Changes in Lethalness Across Jurisdictions

In the screening model the reservation level of social capital is chosen such that equation (6) is binding, which means the optimal lethality is given by

$$\pi^R = 1 - \frac{G + C}{T(G + s^R)}$$

where  $G = g(h, n)/nN$ . Clearly,  $\partial\pi^*/\partial C < 0$ . This means, if social capital is more expensive to acquire, the duel is less lethal. Essentially social capital and

<sup>41</sup> First, simply having more individuals involved in a duel makes collusion more difficult. Second, since a doctor and other notables generally attended duels, seconds were required to carry out the duel rules that raised the cost of collusion. Finally, seconds involved in collusion must be paid off since their social capital is not enhanced by a successfully staged duel.

<sup>42</sup> The cover picture of Murray's 1984 catalog of Lt. Col. William Orbelo's collection of American dueling pistols is of two .60 caliber flintlock pistols. However, on the inside jacket it states: "Interestingly, one pistol is smooth-bore and the other rifled. In many early dueling codes rifled barrels were illegal, although some gunmakers produced guns with secret rifling, which was invisible at the muzzle." (p. 4, 1984). It was a critical job of the second to minimize such practices.

<sup>43</sup> The legitimacy of the duel, and the behavior of the duelist was extremely important. To misbehave in any way could often be as serious as turning down a duel. Pepys alludes to such a situation in one of his many brief comments of duels of the day: "the world says that Mr. Mountagu did carry himself very poorly in the business and hath lost his honour forever with all people in it. (Pepys, p. 157, V. 3, 970). Unfortunately Pepys does not record what Mr. Mountagu did.

lethality are substitutes. Larger investments in social capital mean larger streams of earnings in the elite group, so anyone caught cheating on an exchange stands to lose significantly more, and as a result, the chance of loss of life in a duel need not be as high.

It seems reasonable to suppose aristocratic societies had higher costs of acquiring social capital than more egalitarian ones. It is practically the definition of aristocracy that movement through social ranks, including those within the upper class, is difficult. In egalitarian societies, social status often depends on few dimensions, sometimes just on wealth. Movement from the middle class to the upper class in Europe was considerably more difficult than in the New World, and as a result dueling is predicted to be less lethal in Europe.

### *Dueling in America*

The first reported duel in America was between two servants of a Massachusetts gentleman in 1621.<sup>44</sup> The most famous duel in history, the Burr-Hamilton duel in 1804, was also an American duel.<sup>45</sup> Although no unique American dueling rules arose and American duels were conducted along the same procedures as European duels, the two duels just mentioned contain the essential differences. First, duels in the Americas were essentially open to everyone. There were duels among gentlemen

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<sup>44</sup> Baldick, p. 115, 1965.

<sup>45</sup> Given its notoriety it is worth examining the Burr-Hamilton duel in slight detail. Both participants were members of the ruling elite of the time. Hamilton, did not want to fight the duel, and wrote a letter during the negotiations outlining his beliefs on the practice. In it he states he opposed dueling because of his religious principles, his concern for his wife and children, his obligation towards his creditors, his lack of ill will towards Colonel Burr, and he felt he would gain nothing from the fight. On the other hand, he felt it was unavoidable because to go through would give him “the ability to be in future useful, whether in resisting mischief or effecting good, in those crises of our public affairs, which seem likely to happen, would probably be inseparable from a conformity with public prejudice in this particular. (Kline, p. 401, 1973). Although Burr killed Hamilton he was never convicted of murder. Indeed, he was allowed to finish his term as Vice-president, and in 1812 he resumed his New York law practice and continued in that profession for 24 years. He was buried in 1836 with full academic and military honors. All aspects of this story are consistent with our screening model.

and commoners, landholders and the landless.<sup>46</sup> Second, the duel in America was more deadly than those in Europe. Baldick, in quoting Tocqueville, states:

In Europe one hardly ever fights a duel except in order to be able to say that one has done so; the offence is generally a sort of moral stain which one wants to wash away, and which most often is washed away at little expense. In America one only fights to kill; one fights because one sees no hope of getting one's adversary condemned to death. There are few duels, but they almost always end fatally.

[p. 115, 1965]

The two differences in American dueling are consistent with our model. Since all of the colonies lacked a well defined aristocracy, observations of endowed social capital is less easily observed. As a result, there were no restrictions on the abilities of anyone to duel.<sup>47</sup> Furthermore, an egalitarian society has more lethal duels.<sup>48</sup> European duels of the 19th century had a fatality rate of around 2%.<sup>49</sup> In contrast, Schwartz, *et al.*, claim that the fatality rate in U.S. pistol duels was 1 in 14, or

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<sup>46</sup> In addition to Burr and Hamilton, General Andrew Jackson, the future president, fought in a duel, as did Senators, and Supreme Court Judges. Abraham Lincoln even met on the field of honor to fight a duel in 1842 with broadswords. His opponent, James Shields, had second thoughts and the duel was not carried out (Steward, p. 126, 2000).

<sup>47</sup> Halliday, noting the social status of duelers in Canada, states:

Most Canadian duellists would have been regarded as country bumpkins by the patrician classes in England, and only a rare colonial duel was even noticed by British reporters or authors. In the international realm of duelling, Canadians were small fry, and their encounters decidedly *déclassé*.

[p. 6, 1999]

<sup>48</sup> In his discussion of Missouri duels, Steward contrasts the differences in social status between the old South and Missouri. Whereas the old South had a formal class structure, Missouri was more egalitarian. He also notes a difference in lethality consistent with our hypothesis:

Missouri was not like the Deep south. In Dixie many duels were "bloodless" ... While southern duels often left both reputation and body undamaged, Missourians sought satisfaction with blood.

[p. 8, 2000]

<sup>49</sup> Hughes reports that the fatality rate for Italian duels in the late 19th century actually fell to half of one percent (p. 73, 1998).

slightly more than 7%.<sup>50</sup> In addition, American dueling was more common in the South than in the North. Given that the social structure of patronage was stronger in the south this is also consistent with our hypothesis.

### 5.6. No Patronage, No Dueling: The English Commonwealth

Dueling did not exist simply because there were no alternatives, or because the central legal authority was weak. It existed because it was an efficient screen in times of patronage. Posner (2000) suggests that the end of dueling resulted from increases in wealth that were able to fund better mechanisms for settling disputes. he states:

So when states finally gain a sufficient amount of wealth and power, they replace the forms of nonlegal regulation [dueling] with more purely legal institutions, and eventually succeed because the legal institutions are better.

[p. 218, 2000]

Posner's argument is consistent with the general rise in wealth and decline of dueling through out the 19th century. However, it is inconsistent with the history of dueling during the English commonwealth.

Dueling was most popular in the 17th century. Thomas Hoby's translation of the Italian Castiglione's *The book of the courier* in 1561 is the first English book to mention dueling among aristocrats. Over the next forty years several treatises on dueling, courtesy guides, and codes of honor were published in England, and there was a concomitant increase in the amount of dueling. Peltonen reports that "the numbers of duels and challenges mentioned in newsletters and correspondence jumped from five in the 1580s to nearly twenty in the 1590s. The peak was reached in the 1610s with thirty-three recorded duels and challenges, although the number of actual duels and challenges must have been much higher."<sup>51</sup>

By accounts, however, there was a dearth of dueling in England from 1642-1660, the years of the Civil War and Commonwealth. Baldick states: "After thriving

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<sup>50</sup> In most of the American duels discussed by Baldick the outcomes were fatal.

<sup>51</sup> Peltonen, pp. 9-10, 2001.

during the first decades of the seventeenth century, duelling became an extremely rare occurrence in the Civil War. ... The same conditions obtained during the Protectorate, .... After the Restoration, duelling very naturally regained all its previous prestige, and soon ballrooms, coffee-houses and public walks were all scenes of fighting and bloodshed.”<sup>52</sup>

During the non-republican years the government of the monarchs ruled much as they had in times past, through the use of patronage. It was the prerogative of the royal court to deliver positions within the administration, military, and general government to whom it pleased, and as discussed earlier these ministers would then act as patrons to lesser individuals for other positions in the civil service. However, the Civil War and the subsequent government of Oliver Cromwell was considerably different. Aylmer states that “The coming of the Protectorate and the institutional changes which followed it altered the pattern of appointments appreciably. Direct appointment by Parliament virtually disappeared.”<sup>53</sup>

It would be an error to suggest Cromwell, who enjoyed virtually supreme power and had complete control in appointing great officers of state, dispensed with a system of patronage, but just as incorrect to suggest that the system of appointment and promotion remained the same. At a fundamental level, the Civil Wars and the subsequent governments were driven by serious divisions of theology, and at one level Cromwell screened appointments with a “religious screen”. At a personal level Cromwell was concerned with what he termed “the root of the matter” which most historians seem to take as a minimum standard of Puritan belief. Consistent with this is the purging of many administrative positions based on belief.<sup>54</sup> Having said

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<sup>52</sup> Pp. 67–69. Kiernan also confirms this: “In England [dueling] fell off after 1642 when the civil wars broke out, but in the Royalist camp steps had to be taken to curb it.” (p. 94, 1988).

<sup>53</sup> p. 70, 1973.

<sup>54</sup> There was the “Plundered Minister’s Committee” which was “responsible for purging non-puritan Episcopalian clergymen and imposing tests on all others; these were often replaced by previously ‘plundered’ puritan ministers.” (Aylmer, p. 10, 1973). He also introduced the “Ejection Commissioners” to get rid of ministers for “misconduct or non-subscription to the prescribed minimum of Protestant belief.” (Aylmer, p. 61, 1973).

this, though, Cromwell put an emphasis on merit and ability that was absent in the royal administrations prior to and after the Commonwealth. Aylmer puts it this way:

The Commonwealth was a revolutionary regime. It had come to power through civil war and military force, and its legality was not universally recognised in the country. This put a premium on political or ideological reliability, and meant that loyalty to the government was something which patrons needed to stress, and appointing bodies to satisfy themselves about. *It also led t a formidable battery of tests and oaths.* ... over and above loyalty and morality, we find emphasis on men's actual fitness for the work in question. It could mean a particular skill in writing, accounting or foreign languages, or a more all-round ability.

[pp. 61–62, 1973, emphasis added]

Thus we find strong evidence that dueling was tied to the system of patronage. When civil service positions were dealt out among the aristocracy dueling was active. When Cromwell instituted a system of appointment based on religious beliefs and merit, the practice of dueling stopped. Dueling owed its existence not to the level of wealth, but to the presence of patronage.<sup>55</sup>

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<sup>55</sup> China provides another case where there was an absence of patronage and dueling. Beginning as early as the third century B.C. and ending in 1905, China introduced a series of imperial examinations for the civil service. Hucker states:

Early imperial China is nevertheless famous, and deservedly so, for instituting and systematizing rational, merit-oriented techniques for the recruitment, placement, and evaluation of government officials that had no counterparts elsewhere until very recent times.

[p. 156, 1975]

Once appointed to an office, a man served on probation for a year; if he performed satisfactorily, the appointment was then made permanent. Every third year officials submitted efficiency ratings on their subordinates, which led to salary adjustments and occasionally to promotions, demotions, or dismissals.

[p. 159, 1975]

These exams were conducted as a series of tournaments. Exams would be held over several weeks each year in small country towns, with the very best students moving on to provincial capitals, and then to the royal court. Once eligible and appointed on the bases of merit, performance was monitored on the job. Consistent with our model, in this system of merit based civil service dueling did not exist because its screening function was not required.



## 5.7. Dueling's Decline in the Late Nineteenth Century

Dueling existed because of patronage in the senior civil service. Our final piece of evidence on this point is the decline of dueling throughout the 19th century. For England, the eighteenth century saw tremendous growth in its Empire. By end of this century, the colonies of British North America and India were not controlled by monopoly companies, but rather were being administered by the British civil service. This change was part of an enormous growth in the civil service. Whereas at in 1700 there may have been one to two thousand members, by 1914 the British Civil Service had 167,628 employees, and by 1919 this had grown to 393,205.<sup>56</sup> These positions were not filled by patronage, but through examinations, and interviews with selection boards. For other European countries like France and Germany, the nineteenth century would see large formations of colonies around the world with similar civil administrations, again appointed generally outside the realm of patronage.

Likewise in the United States the 19th century saw a decline in the role of patronage, culminating in the Pendleton Act of 1883. Johnson and Libecap (1994) document how the increase in the sheer size of the civil service over this period prevented the President or members of Congress from controlling and benefiting from their patronage appointments. In noting that the federal work force grew from 26,000 to 51,000 between 1851 and 1871, they note:

When the labor force was small, federal politicians could monitor the actions of their appointees to guarantee their allegiance and to see that they responded to the demands of influential constituents. .. As the federal labor force grew, however, careful supervision of patronage workers by the President or members of Congress, as had been practiced earlier, became more difficult.

[pp. 97–98, 1994]

Other changes were taking place between 1780 and 1850 that also led to the radical reforms in civil administration. The industrial revolution, changes in com-

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<sup>56</sup> Campbell, p. 56, 1965. Brewer (p. 65, 1990) states that in the 17th century “the overall picture is clear: the central administrative apparatus was tiny.” He estimates that in 1688 the civil service employment was 2500 men. By 1760 he estimates it had grown to 16,000.

munication technology, and tremendous falls in transportation costs all led to a huge increase in the size and wealth of the middle class. This increase in wealth outside the aristocratic group increased the gains from trade outside the aristocracy, and lowered the attractiveness of social capital as a method for policing exchanges in the elite group.

Regardless of the reasons, whether from increased size of bureaucracy, better gains from outside the group, and lower cost methods of measuring merit, there is no denying the use of formal patronage was replaced by a professional bureaucracy in the first half of the 19th century.<sup>57</sup> As merit replaces patronage, dueling ceases to play a screening role. Not surprisingly then, with the changes in size of governments in Europe and the United States came the end of dueling and a general fall in lethal duels. In England the duel all but ceased to exist by 1850. In France and Germany the duel remained until WWI, but the probability of death diminished greatly. In Germany, sword duels ceased using the *épée* and switched to the saber. This weapon was curved to prevent penetration and the tip was often dulled and the blade rinsed with an antiseptic carbolic acid solution to prevent infection.<sup>58</sup> Most German duels, however, were with pistols, and as has already been mentioned, the dueling rules essentially guaranteed a low fatality rate. As for the French duel of the late 19th century, the chance of death had become something of a joke in other parts of Europe:

The Germans did indeed regard dueling in the Third Republic as something of a joke because of its hilariously low fatality rate, which, from a pool of between four and five hundred duels a year until the first decade of the twentieth century, never exceeded twelve annual deaths and was often as low as two per year.

[McAleer, p. 75, 1994]

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<sup>57</sup> Although a theory of patronage versus merit based bureaucracies is beyond the scope of this paper, this suggests an economies of scale for merit. Patronage was efficient for small numbers of appointments, but with large bureaucracies the fixed costs of instituting merit appointments became feasible. An alternative hypothesis, also consistent with our analysis, is that the transition from patronage to meritocracy was motivated by increases over time in the spot market gains from trade. Such increases could have made the required conditions for a dueling screen unsatisfactory.

<sup>58</sup> McAleer, p. 62, 1994.

Although his estimates on the number of duels is different, Nye suggests the same chance of survival:

between 1875 and 1900 there were at least two hundred duels each year, perhaps three hundred in certain years, and in periods of unusual political effervescence ... dozens of duels a week for weeks on end... Fatalities were rare. ... there were probably no more than two dozen deaths in duels in this era.

[p. 88, 1998]

Contrast this with French dueling at the turn of the seventeenth century where “[T]he cream of the French nobility — perhaps ten thousand men — perished in duels in the last decade of the sixteenth and first decade of the seventeenth centuries.”<sup>59</sup> Indeed it has been estimated that over the first half of the seventeenth century between 300 and 500 noblemen died from duels per year.<sup>60</sup> By WWI dueling was little more than fencing with the possibility of scaring due to limited face protection.<sup>61</sup> Dueling had ceased to be used as any form of screen for social capital.<sup>62</sup>

## 6. Conclusion

The 19th century was a transition century. One is amazed at the number of institutions that developed centuries earlier and were either seriously transformed or terminated during this time. Patronage and purchase of military and civil offices, along with dueling are just a few examples. Viewed from the 21st century many of these institutions seem archaic and beyond economic rationale. Yet, if we seriously believe institutions are formed for the purpose of maximizing wealth net of transaction costs, then understanding these costs should provide an explanation

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<sup>59</sup> Nye, p.83, 1998.

<sup>60</sup> McAleer, p. 18, 1994.

<sup>61</sup> McAleer states “By the end of the nineteenth century, the ritual had become overly refined and excessively formalized, indicating a shrinking, a withdrawal. The self-conscious obsession with technique and protocol was a symptom of decadence.” (p. 45, 1994).

<sup>62</sup> Hughes reports that dueling fatalities also fell in Italy over the last part of the nineteenth century. Of 3918 duels reported between 1879–1899 in Italy, only 20 deaths resulted. Italians in this period also fought with sabers (p. 73, 1998).

of these rules. We take as given that civil servants were appointed through a system of patronage in a world where direct monitoring of service and appointment and promotion based on merit seldom existed. We view dueling as a response to the problem of selecting who would be eligible for such positions of power. Our model implies a participation constraint to duel, whereby participation in dueling indicated a sufficient investment in social capital had been made. This investment policed behavior in self-enforced political transactions. Our hypothesis not only provides an efficiency rationale for dueling, but it also explains many of its puzzling features. Dueling was not a recreational sport, not an irrepressible manifestation of masculine aggression, nor a poor substitute for law courts. The purpose of dueling was to screen for individuals who would behave properly in their post and not threaten the position of their patron.

## Appendix

### *The Optimal Level of Lethalness*

Equations 4–6 of the model described the necessary conditions for the dueling screen to work. The question arises, does a  $\pi$  exist that satisfies these equations. Solving equation (4) for  $\pi$ , and letting  $G = g(h, n)/nN$ , yields:

$$\pi_i > 1 - \frac{G}{T(G + s_i)}.$$

Any probability of death greater than the term on the left keeps fakers from dueling. Solving equation (5) for  $\pi$  yields:

$$\pi^R < 1 - \frac{G}{T(G + s^R)}.$$

Any probability of death lower than the term on the right induces investors to accept the duel. Since  $s_i < s^R$ , it follows that  $\pi^R > \pi_i$ . Suppose the king chooses a lethalness in between these two values, call this probability  $\hat{\pi}$ . Individuals with social capital less than  $\hat{s}$  turn down the duel because the duel is too lethal. However, for individuals with social capital levels greater than  $\hat{s}$  but less than  $s^R$ , this lethalness is *lower* than their critical probability. That is, equation (4) is not binding on this group and they duel instead of rejecting. This means the equilibrium level of lethalness is  $\pi^R$ . Once  $\pi^R$  is determined, the king will use equation (6) to determine the optimal level of  $s^R$ , and the size of the group is determined. These values of  $\pi$  are shown in Figure A.1.

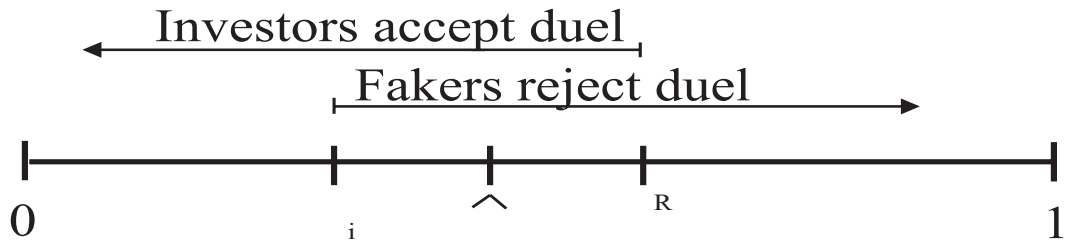


Figure A.1

The Optimal Lethalness

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