The Mounties and the Origins of Peace in the Canadian Prairies*

Pascual Restrepo

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Abstract

In a study of the settlement of the Canadian Prairies, I examine if differences in violence across regions reflect the historical ability of the state to centralize authority and monopolize violence. I compare settlements that in the late 1880s were located near Mountie-created forts with those that were not. Data from the 1911 Census reveal that settlements far from the Mounties' reach had unusually high adult male death rates. Even a century later the violence in these communities continues. In 2014, communities located at least 100 kilometers from former Mountie forts during their settlement had 45% more homicides and 55% more violent crimes per capita than communities located closer to former forts. I argue that these differences may be explained by a violent culture of honor that emerged as an adaptation to the lack of a central authority during the settlement but persisted over time. In line with this interpretation, I find that those who live in once-lawless areas are more likely to hold conservative political views. In addition, I use data for hockey players to uncover the influence of culture on individual behavior. Though players interact in a common environment, those who were born in areas historically outside the reach of the Mounties are penalized for their violent behavior more often than those who were not.

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1 Introduction

In this paper, I explore how the historical ability of the state to centralize authority and monopolize violence affects past and contemporary violence and shapes culture. The term "culture" refers to internally-held rules of behavior, which manifest themselves as behavioral heuristics or gut-feelings that determine an individuals' actions and views. I test a hypothesis devised by Norbert Elias (1969) that recently has been explored by Steven Pinker (2011) in his book "The Better Angels of Our Nature." In its simplest form, the hypothesis suggests that areas that lack a legitimate central authority able to monopolize violence will develop a violent code of honor (a concept introduced by Nisbett and Cohen, 1996). This code is characterized by a reliance on self-justice, low self-control, and a readiness to take revenge and respond to insults. The traits that comprise this code are transmitted by parents and society until they become second nature for individuals in these communities. In contrast, in areas where the state manages to monopolize violence legitimately, violent codes of honor give way to a centralized exercise of authority.[1] These areas are characterized by self-restraint, empathy, and a reliance and trust in the government to adjudicate disputes, and these traits, too, become second nature to those born and raised in these areas.

The hypothesis predicts that, in once-lawless areas that were formerly outside the control of the state, violence will persist. It also suggests that individuals born and raised in these areas will inherit a violent set of behavioral rules and a world view that revolves around self-justice—cultural traits that continue to drive behavior even when the ecological and historical conditions that spawned these traits are long gone.

This hypothesis predicts that, in once-lawless areas that were outside the control of the state, violence will persist. But more importantly, the hypothesis suggests that individuals born and raised in these areas will inherit a violent set of behavioral rules and a world view revolving around self-justice. These cultural traits drive individuals behavior even when the ecological and historical conditions that originated them are long gone.

Cultural traits that support violence thrive when the monopoly of force is weak and the risk of expropriation is high. In such an environment a violent code of honor becomes useful because it constitutes a credible deterrence policy: the widely held belief that you will meet any challenge with violence lowers predation. The problem with these cultural traits is that they cannot be fine-tuned and will permeate behavior in a wide range of situations. Elias (1969) famously argued that, in 19th century Europe, improvements in table manners were part of the same psychological process that reduced brawls and fights away from the dinner table (see also Pinker, 2011). Thus, a community distinguished by a culture of honor could over the long term experience a high incidence of homicides and other violent crimes that originate in insults, bar brawls, or quarrels that have nothing to do with the protection of property. As the sociologist Donald Black argues, the majority of homicides are perceived by perpetrators as acts of self-justice (see Black, 1993), and are unrelated to the circumstances that brought a culture of self-justice in the first place.[2]

[1] The defining feature of a monopoly over violence is that a reliable third party—the State—credibly punishes individuals who threaten the life and property of others. Individuals believe that there is an external cost to offending others' life and property—a perception that would materialize.

[2] A large share of homicides occur following arguments between acquaintances (see Reed, 1981 and Simpson, 1985). As a homicide detective quoted in Nisbet and Cohen (1996) puts it, "Murders result from little

I test this hypothesis by studying the settlement of the Canadian Prairies from 1890 to 1920. Before the period of settlement , the Royal Canadian Mounted Police—the Mounties—established a series of forts, and from these forts they exercised authority, enforced contracts, and protected the property of settlers. In other words, the Canadian state monopolized violence in settlements near forts but remote areas remained lawless during settlement and in subsequent years. For the large numbers of immigrants who settled the Prairies, property could be protected or disputes settled either through the intervention of Mounties, where they were present, or through self-justice.

In contrast to the settlement of the US Great Plains, Canada's settlement of its Prairie offers a unique historical case of the settlement and incorporation of a large borderland that was predominantly peacefully. As argued by some (Macleod, 1973, Graybill, 2007), the early deployment of the Mounties in the Prairies is partly responsible for the fact that law and order predominated during later settlement. In his book, "The Better Angels of our Nature," Steven Pinker supports this view, writing that "Canadians kill at less than a third of the rate of Americans, partly because in the 19th century the Mounties got to the western frontier before the settlers and spared them from having to cultivate a culture of honor" (Pinker , 2011).

I show that during their settlement areas distant from existing Mountie forts were more violent. Although there are no official homicide statistics for this period, data from the 1911 Census reveal male mortality patterns: communities far from forts had more widows than widowers than comparable communities near forts, suggesting anomalously high adult male death rates in the former. We do not know why male death rates in these communities were high, but homicide is probably one of the principal causes. Recently compiled homicide and violent crime statistics reveal that, even a century later, violence in these communities remains distinctively high, even though the state and its representatives, including Mounties, are now present throughout Canada. My interpretation is that historically-lawless communities nurtured a violent culture of honor that has persisted to the present day. In contrast, communities located near the early forts were controlled by Mounties and thus did not develop such cultural traits.

As argued below, the decision of where to locate early Mounties forts was driven largely by political considerations unrelated to violence, and the ethnic and economic composition of immigrants was not affected by proximity to forts. These observations imply that a causal interpretation of these findings is plausible .

One mechanism that might explain the persistence of violence is politics, and it builds on the argument presented by Spierenburg (2006). In historically-lawless areas, he claims, individuals may have seen the arrival of the Mounties as illegitimate. These individuals had already developed a world view that valued self-justice, and they believed that the external authority of the Mounties threatened their private order. This attitude could have fostered political views that supported self-justice, and these in turn could have weakened the grip of the State in once-lawless communities. Indeed, there is some indirect support for this interpretation. In once-lawless areas, people are more likely to vote in parliamentary elections for the conservative party. This party favors a limited role for government and opposes restrictions on gun ownership—the epitome of self-justice.

ol' arguments over nothing at all. Tempers flare. A fight starts, and somebody gets stabbed or shot."

A second mechanism is that culture may have a persistent influence on behavior. To demonstrate the role of culture I compare the behavior of hockey players born in different communities within the Canadian Prairies. Hockey players born in once-lawless communities seem to carry to the ice rink a particularly violent code of honor. Hockey is a fast full-contact sport in which physical violence is tolerated, if not encouraged. Hockey players constantly board, block, charge, check and cross-check one another. Players retaliate in the heat of the moment, and they may go so far as to drop their gloves and fight each other. When their behavior is judged too aggressive players are penalized. The players share a common environment and rules in the ice rink, but those who were born in areas historically outside the reach of the Mounties were penalized more often than those who were not. Interestingly, in recent seasons, experienced players and younger cohorts have been less influenced by their cultural background.

This evidence supports the view that Canadians born in once-lawless communities inherit a violent code of honor that drives their behavior. This code is held internally and manifests itself instinctively when players are encouraged to respond aggressively in the ice rink. Although their origins lie in the historical past, these cultural traits even 100 years later continue to influence behavior in activities as varied as playing ice hockey.

The last question I explore is whether the Mountie authority was able to displace the pre-existing cultures of honor introduced by settlers. To test this, I focus on the case of settlers from Great Britain. Nisbett and Cohen (1996) suggested and Grosjean (2013) recently tested and confirmed the hypothesis that Scots-Irish who settled in the U.S. brought with them from the borderlands of England a culture of honor nurtured during years of herding. I find evidence that Scots who settled in Canada brought with them the same culture.[3] Consistent with Nisbett and Cohen's hypothesis, settlements that had a large share of Scot settlers were more violent historically and remain so in the present, and they breed hockey players who get more penalty minutes in the ice rink. But the Scots' culture of honor persisted only in historically lawless areas that during the period of settlement had been outside the areas of Mountie authority. When the Scots settled areas near the Mountie forts, the influence of their culture of honor vanished. This finding is consistent with Grosjean's (2013) conclusion that in the U.S., Scot-Irish cultural traits persisted only in areas that had weak institutions.

Consistent with Nisbett and Cohen's hypothesis, places with a large share of Scot settlers were more violent historically and until present day, and breed hockey players that get more penalty minutes in the Ice rink. However, the culture of honor brought by Scots only persisted in historical-lawless areas that were outside of the Mountie authority during the settlement. This finding is in line with the evidence for the U.S. provided by Grosjean (2013), who documents that the Scot-Irish cultural traits only persisted in weakly institutionalized areas.

Why was the Mounties early expansion so successful at deterring the culture of honor brought by the Scots, while the later consolidation of the Mountie authority after the settlement did not end cultures of honor in historically lawless areas? There are several potential explanations. First, timing might have determined the legitimacy of the state as it expanded.

[3]This was not the case for the Irish settlers that came to Canada and who were different from the Irish that settled the United States South. The American Irish emigrated from pastoral and herder communities in Ulster. The Canadian Irish emigrated from deeply religious farming communities. The two groups were culturally distinct, and only the former carried with it a culture of honor.

In the areas near forts Mounties assumed control before the arrival of immigrants and the establishment of new communities. In other areas, the Mounties arrived after communities had been established. In the former arriving settlers seems to have accepted the authority of the Mounties. In the latter settled populations resisted the expansion of the state, seeing it as an external threat to an already-established private order of justice. It is also possible that in once-lawless areas, settlers specialized in economic activities that did not require a centralized authority, and thus they created local institutions that promoted self-defense. In these communities, specific economic activities and institutions may have rendered the consolidation of the Canadian state less effective. Third, perhaps the Mountie expansion did dampen the culture of violence in once-lawless communities, but if so, it did not remove it entirely.

The rest of the paper proceeds as follows. Section 2 reviews the literature and explains my contribution. Section 3 presents the historical background of the Canadian Prairies settlement. Section 4 describes my measure of the monopoly of force during the settlement and describes Mounties activities at the time. Section 5 presents results on violence. Section 6 reviews the behavior of hockey players, and section 7 examines the persistence of violence through political views and institutions. Section 8 analyzes the cultural traits brought by Scot immigrants and their effects. Section 9 concludes.

2 Related literature

My paper is related to a classical discussion about violence and the role of the state in curbing it. When the monopoly of force is weak, societies descend into what Hobbes called "the natural state of man." In such a state of affairs, "we find three principal causes of quarrel: First, competition; secondly, diffidence; thirdly, glory" (Hobbes, The Leviathan, 1651); men predate (competition), strike preemptively (diffidence), and protect their reputation (glory). As noted by Hobbes (1651) and more recently by Weber (1946) and Elias (1969), violence escalates as a consequence. A monopoly of violence by the state interrupts these dynamics by reducing the incentives to predate. This renders preemptive strikes unnecessary and a reputation for retaliation useless. My paper tests some of these ideas and explores the divergent cultural paths taken by communities in the same country that in the past were or were not subject to the state's monopoly of violence.[4]

Within economics, my paper is related to the literature on the empirical determinants of culture (see Alesina and Giuliano, 2013; and Nunn, 2009, 2012, 2013; for extensive surveys of the relevant literature). First, it is related to the study of the historical determinants of cultural traits. This literature shows that culture may have its origins in distant historical events and that culture may endure over time and places even after the specific ecologic

[4] A more specific literature examines the direct effect of police authority on violence reduction. Some of this literature focuses looks at how law enforcement affects crime and violent behavior. Building on the insights of Becker (1969) and Ehrlich (1973), many scholars (see Levitt, 1997; Corman and Mocan, 2000; Di Tella and Schargrodsky, 2004; Evans and Owens 2007; Draca, Machin and Witt, 2011; and Buonanno and Mastrobuoni, 2012) use a variety of techniques to estimate the direct effect of enforcement on crime. Similarly, Couttenier, Grosjean and Sangnier (2013) show that the presence of the state curbed violent outbursts during the gold rush in the U.S. western frontier, although violence persisted (through institutional quality and culture) in other communities as a means of enforcing property rights.

conditions that shaped it are long gone. Alesina, Giuliano and Nunn (2013) conclude that cross-country, cross-region and cross-ethnicity differences in gender roles are related to agricultural practices that existed during the pre-industrial period. These differences are also detectable in the beliefs of the children of those who immigrated from different countries and regions to the U.S. and Europe, suggesting an important role for culture. Voigtlander and Voth (2012) trace the origins of anti-Semitism in Germany to plague-era pogroms, showing that cultural traits can persist locally for long periods (over 600 years). Nunn and Wantchekon (2011) demonstrate that Africans whose ancestors were heavily raided during the slave trade today show less trust towards strangers.

A subset of this literature examines how past institutions shaped culture—a theme also addressed in my paper. Alesina and Fuchs Schundeln (2007) show that the political institutions of East Germany produced views about the state that differed from those of West Germans. These differences persisted for a time after the fall of the Berlin wall, but now they are gradually fading away. Similarly, Pesakhin (2010) and Becker et al. (2011) show that self-reported cultural traits differ across different sides of old empire borders that had historically different institutions. Guiso, Sapienza and Zingales (2013) demonstrate that the Middle Ages institution of free cities affects contemporary levels of trust.

One body of literature that is closely related to my paper studies the origins of violent cultures of honor. This literature dates back to Nisbett and Cohen's book "Culture of Honor: The Psychology of Violence in the South." The authors argue that the "southern preference for violence stems from the fact that much of the south was a lawless, frontier region settled by people whose economy was originally based on herding." The ease with which herds could be stolen and the lawlessness in the vast South led southerners to develop a culture of honor that persists until the present day. The defining element of a culture of honor is that individuals resort to violence to protect their reputation and property; "Every man should be sheriff on his own hearth," as the proverb says. Nisbett and Cohen present a variety of data that support this interpretation. In conflict-related homicides white southerners kill more than their northern counterparts. Citing surveys and laboratory experiments, they show that southerners endorse violence not in the abstract but as a means of self-protection: southerners are more sensitive to insults and suffer different physiological responses when insulted.[5] Additional research supports Nisbett and Cohen's conclusion. As noted by Reaves (1993), white male homicide rates in the south are higher in the hills and dry plains, which are more suitable for herding, than in farming regions. Grossjean (2013) shows that in the south the percentage of Scots-Irish settlers who resided in a given county during the 19th century predicts its past and current homicide rates. The effect is not present in the north, and she shows that Scots-Irish had a persistent effect on violence only when institutional

[5]In the experiments, a confederate of the researchers—whose role was unknown to the subject—would push and insult a random subset of subjects before taking a test. As measured by revealed anger and projected hostility, Southerners were more sensitive to the push. This was confirmed by objective measures in test subjects of cortisol and testosterone, which are hormones associated with stress and dominance. In a variation of the experiment, a second confederate measuring 1.91cm and weighting 114kg would walk straight towards the subjects after they had been randomly bumped (or not). Bumped southerners did not move from the large confederate trajectory until he was about one meter away, as compared with three meters for non-insulted southerners. Among northern subjects, the insult did not change their reaction. In both cases they cleared the way when the confederate was two meters away.

quality was low.

My contribution to the literature on the origins of culture is twofold. First, I show that a particular institution—the monopoly of force—prevents the development of cultures of honor. As suggested by Pinker (2011), cultures of violence can be traced to historical contexts of lawlessness. Second, I show that Scots' settlers brought a culture of honor to Canada, but it only thrived in areas that were outside the authority of the Mounties.

My paper contributes to the literature that moves beyond survey measures to isolate the role of culture. The challenge in identifying the role of culture—understood as rules of behavior held internally by individuals—is that behavior and survey responses are affected by many types of external influences. When answering a survey, individuals may pay lip service to the majority views in their societies. Moreover, their daily behavior may be influenced by institutions or economic forces. Researchers have overcame this obstacle by comparing the behavior of individuals who have different cultural origins but now share a common environment. In this environment individuals share a common set of formal rules and institutions. This strategy isolates the role of culture—which individuals carry across borders—from institutions and economic factors in the immigrants' communities of origin. Giuliano (2007) notes that second-generation immigrants from western Europe tend to replicate family structures from their country of origin, which suggests a continuity of culture in certain social ties. According to Algan and Cahuc (2005), cultural background affects the labor supply of workers who have moved to the same country. They emphasize the role of tastes for family structure inherited from different ancestries. Fernandez and Fogli (2009) demonstrate that among second-generation American women culture, which is passed to younger generations, influences fertility and labor market decisions. Fisman and Miguel (2007) study the behavior of UN diplomats who have moved from other countries to New York. They find that diplomats from more corrupt countries accumulate more parking violations than those from less corrupt countries. (Before 2002, diplomats were exempt from paying parking tickets). Ichino and Maggi (2000) find that when it comes to shirking those who work in a large bank in Italy carry their cultural background to work. Miguel, Saiegh and Satyanath (2011) show that soccer players are influenced by their cultural background in the soccer pitch: all of the players participate in European Leagues, but players from countries afflicted by civil war get carded (penalized) more often. I show that people from different communities, even when those communities are located in the same province, carry distinct cultural expectations and behaviors to the hockey rink.

Finally, my discussion on the persistence of cultures of honor and the persistence of cultural traits carried by settlers contributes to the literature on the interplay between culture, understood as informal rules of behavior, and institutions, understood as external and formal rules of behavior. In his book "Albion's Seed: Four British Folkways in America," the historian David H. Fischer argues that political arrangements in the U.S. were determined by the culture of the British groups who settled each area (Fischer, 1989). For instance, puritan pilgrims from East Anglia who arrived in Massachusetts set up institutions to promote education and order. People from the borderlands of England (the Scots-Irish) settled the Backcountry. They brought with them a culture of self-justice, and so they favored minimal government intervention and a limited justice system. Building on these ideas, Spierenburg (2006)—and in a recent op-ed, Steven Pinker—argue that cultures of honor permeate pol-

itics and foster conservative political views.[6] The premise of these arguments is that in a society whose individuals come from different cultures each individual will favor institutions that are complementary to or consistent with his or her own world view.[7] I present evidence consistent with this point. In the Canadian Prairies, communities with cultures of honor, which arose in once-lawless areas, are more likely today to support the conservative party. My paper also suggests that the right institutions at the right time may crowd out inconsistent cultural norms. Like Grosjean (2013), I find that cultures of honor brought by settlers did not thrive in areas that already were dominated by the Mounties. But this finding is hard to generalize because the outcome depended on whether communities recognized the Mounties as a legitimate authority—as in areas policed by Mounties during the period of settlement—or as an external threat to the status quo—as in areas where the arrival of Mounties postdated settlement.

3 The settlement of the Canadian Prairies

The formal origins of the Mounties date to 1873, when Canadian prime minister Sir John A. MacDonald created the North West Mounted Police via a parliamentary act (it was renamed Royal Northwest Mounted Police in 1904 and the Royal Canadian Mounted Police in 1920). The objective of the force was to bring order to the newly acquired Prairies—the territory of modern day Alberta, Manitoba and Saskatchewan. Prior to the arrival of immigrants, the Prairies were home to natives, fur traders, and whiskey traders from Montana who used the area as a temporary hideout. In what constituted a process of incorporation of the Canadian western frontier, the Mounties prepared the territory for settlement, which took place from 1890 to 1920.

The deployment of the Mounties occurred in 1874 during The March West: the first Mountie campaign consisted of 300 men. The March West started at Fort Dufferin, in Manitoba, and went across the Prairies until it reached southern Alberta. The Mounties established several forts along their route and at other strategic locations. The precise location of these early forts followed political considerations: to disrupt illegal whiskey trading from the U.S.; supervise treaties with the First Nations (the indigenous population); regulate the fur trade; and defend the territory from U.S. expansionary pressure (Graybill, 2007).

Forts consisted of barracks, stables, and field hospitals organized around a central square. From their forts, the Mounties exercised authority over large areas of the Prairies. The early

[6] `http://opinionator.blogs.nytimes.com/2012/10/24/why-are-states-so-red-and-blue/?_php=true&_type=blogs&_r=0`. Accessed on May 5th, 2014.

[7] In the economics literature, several papers argue there are complementarities between culture and institutions. Hayek (1960) proposes that the complementarity is so strong that it could only be the result of the organic evolution of institutions. Guiso, Sapienza and Zingales (2013) show that for a democracy to function well a culture of trust is needed (based on the ideas of Putnam et al., 1993). Todd (1990) argues that communism only flourished in places where families had strong hierarchies and are egalitarian among siblings. These places had values that were more consistent with communist rule. Tabellini (2009) proposes a model in which people may favor formal institutions that are consistent with their informal social rules. Acemoglu and Jackson (2014) argue that private cooperation (i.e., whistle blowing) is required to implement some formal laws. This creates a complementarity between formal laws and the social norms that guide the behavior of cooperating individuals.

forts soon became division headquarters and gave to surrounding areas a sense of permanence and stability. From these forts, the Mounties organized moving patrols to cover the Canadian territory (during the early 1890s, their horses allegedly traveled close to 2.4 million km on patrol every year). Patrols guaranteed that representatives of the monopoly of force made appearances throughout the territory, although this was more common in areas close to forts than in places far from forts (particularly during the winter, when long patrols were canceled and temporal posts were closed).

In 1985, at the end of their initial expansion, more than 800 Mounties had established their presence across the Prairies in forts and moving patrols. By 1905, about 4,200 men had served in the Mounted Police, a sign of its rapid consolidation. As migration to the Prairies increased, the force focused its efforts on maintaining peace and order in new settlements in Alberta, Saskatchewan, and the north of Manitoba. From 1920 onwards, the Mounties became a national police force, and they gradually achieved coverage of all the Canadian territory. Currently, the police counts with 28,640 members organized in 750 detachments, covering the entire territory (except Quebec and Ontario, which maintain provincial police forces).

Several features make the Mounties more than an ordinary police force and explain the key role played by this institution during settlement. The Mounties deployment was a centralized move by Ottawa. Their origin and initial allocation was a top-down process that produced little local resistance (it preceded the settlement of the Prairies, and the Mounties managed to have peaceful relations with natives). The Mounties, in fact, had a highly centralized structure. Officers came from eastern Canada's elites, and they were trained in military and legal affairs. Their functions went beyond traditional law enforcement duties: they served as mailmen, judges and magistrates, collected customs, acted as census takers and provided medical services. As one Mountie observed, members of the force "acted as magistrates, sheriffs, constables, collectors of customs, postmasters, undertakers, issuers of licenses. We married people and we buried people. We acted as health inspectors, weather bureau officials, Indian Treaty makers; but above all, as diplomats" (see Fitzpatrick, 1921). This variety of services led the Mounties to be viewed as the legitimate authority in settlements near their forts. Historical evidence cited by R.C. Macleod supports this view, and it suggests that the Mounties discipline and their system of forts and patrols were successful at maintaining peace during the settlement (see Macleod, 1973).[8]

The settlement of the Canadian Prairies by European immigrants, eastern Canadians and other North Americans took place rapidly from 1890 to 1920: in 1881, Manitoba and the northwest territories had a combined population of 75,000; in 1901 the population was 460,000; by 1916, a census of the Prairies registered 1,700,000 inhabitants. Settlement was

[8]My survey of the Mounties history has been rather favorable, specially when compared to similar police forces (i.e., the Rangers). However, there are dissenting views suggesting there is more mythology than fact surrounding the Mounties. For instance, despite recognizing obvious differences with the U.S. Rangers, Graybill (2007) argues that the Mounties were elements of incorporation. He emphasized the role of Mounties in protecting white settlers from natives; removing people of mixed ancestry that posed a treat against economic interests of settlers; and siding with capitalists to disrupt labor unrest and strikes. Hildebrandt (1994) argues that the Mounties were part of a process of cultural imperialism. They did not respect natives' culture, and instead promoted policies that resulted in their starvation. I do not claim (or think) these views are false. My argument confines to the fact that the Mounties did provide benefits in terms of enforcing the law and reducing inter personal violence, at least among white settlers.

held back until the late 19th by the Canadian rocky shield, which is a large stretch of land that separates Eastern Canada from the Prairies. It is unsuitable for agriculture. The late arrival of immigrants allowed the Mounties to prepare the way for settlers. The early Mounties deployment did not precipitate the immigration wave, which occurred well after the March West. Instead, immigrants came in large numbers when Clifford Siftons, the Minister of Interior, started an aggressive campaign to attract settlers. The soil quality of the Prairies was advertised in Europe and settlers were promised 160 acres of land and subsidies for their travel expenses. In addition, the Canadian Pacific Railroad advanced west, which facilitated transportation, and pioneers introduced new varieties of wheat that could be profitably grown in the Prairies, thus facilitating farming.

Immigrants settled in ethnic blocks that were scattered around the prairies in locations that were largely determined by federal policies and the availability of land. The federal government explicitly attempted to space ethnic blocks throughout the Prairies with the goal of consolidating a national culture (see Anderson, 2006). Thus, there was a limited role for self-selection of immigrants in certain areas.

4 Measuring the monopoly of violence by the Mounties during the settlement

To demonstrate the role of the Mounties, I compare settlements that in the late 1890s were located near Mountie-created forts to those that were not. I focus on the ten main forts created during the early deployment of the Mounties from 1874 to 1895, whose location was largely determined by the March West and the primary objectives of the Mounties during its initial expansion (namely, to disrupt whiskey trading, enforce treaties with the First Nations, and control U.S. expansionary pressures in the south). Figure 1 shows the Prairies and the location of the Mounties' forts. The early Mountie forts include (in chronological order of foundation): Dufferin, founded in 1872; Ellice, founded earlier but in use in 1875; Whoop Up, recovered from whiskey traders in 1874; MacLeod, founded in 1874; Calgary, founded in 1875; Saskatchewan, founded in 1875; Battleford, founded in 1876; Walsh, founded in 1878; Carlton, leased by the Mounties in 1880; and Writing on stone , founded in 1887. Not all forts outlasted the settlement. Most were replaced by larger headquarters in the same town, others were replaced by nearby ones, and a few were abandoned.

Though new forts were created during 1895 and 1920, I abstain from using their locations to measure Mounties' presence. From 1895 onwards, the location of new forts reflected the need to police the growing settlements and the national expansion of the force. Though relevant, this corresponds to an endogenous expansion of the force that is likely to respond to local conditions (including unrest or violence).). Instead, the location of early forts is largely exogenous to violence during the settlement, and I exploit only this variation here.

I denote by d_c the geodesic distance of a community's centroid in my sample to the nearest Mountie fort that preceded the settlement. Figure 1 shows the location of the communities in my sample color-coded to denote their proximity to the early forts. A (weakly) decreasing function of d_c, $M(d_c)$, provides exogenous variation in the exercise of authority by the Mounties and their monopoly over violence during the settlement of the

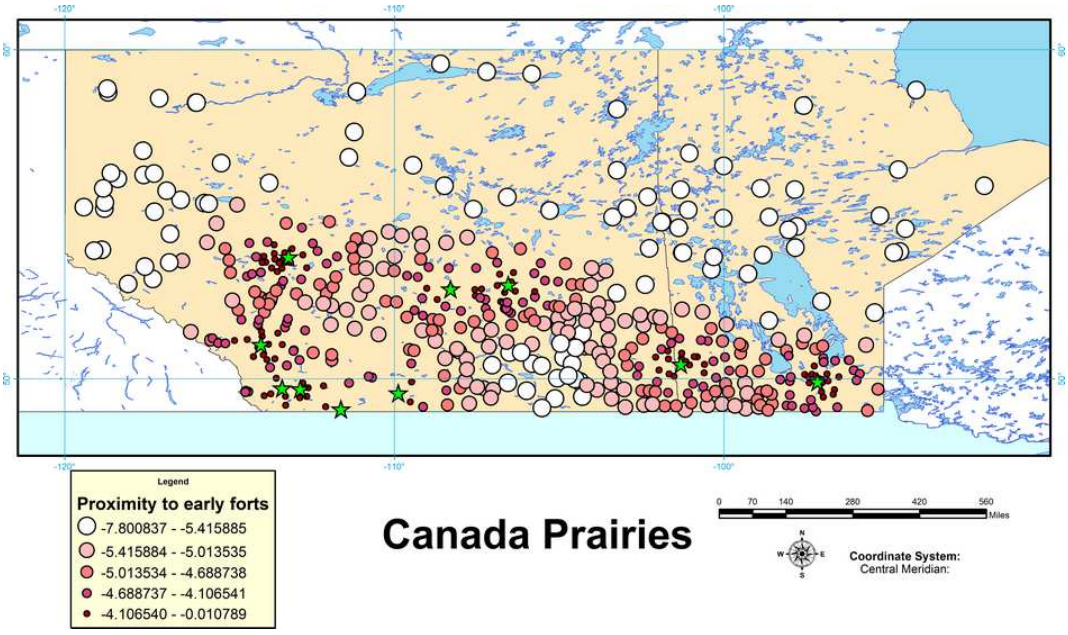

Figure 1: Location of Mounties' early forts (green stars) during their deployment circa 1895 and centroids of Canadian communities in my sample. The red-color scale indicates proximity to the forts.

Prairies.

I will interpret regressions results as causal and will discuss potential confounding factors as they arise in the presentation of my results.

5 Effects of early deployments in contemporary and past violence

5.1 The persistent effects of the Mounties

I use the average homicide and violent crime rates reported at the police station level in Canada from 2008 to 2012.[9] There is at least one reporting station for each community in Alberta, Manitoba and Saskatchewan; some communities having several stations with non-overlapping jurisdictions. Each incident is counted in the statistics of the station in charge of the jurisdiction where it occurred. Overall, there are 541 reporting stations located in 362 communities covering the entire Prairies, though not all stations report both homicide and violent crime rates. The average homicide rate in the prairies during these years is about 2.5 per 100,000 inhabitants, and the violent crimes rate is about 2,300 per 100,000 inhabitants. Though these numbers are lower than corresponding U.S. statistics, they mask large regional differences.

[9]The crime statistics in Canada consist of a compilation of different police station reports. All of these stations are run by the Mounties, who have federal policing duties in present day Canada. The data can be downloaded from `http://www.statcan.gc.ca/`, and contains yearly reports for each police station.

I estimate the following regression model

$$\ln v_{scp} = \beta M(d_c) + \alpha_p + \Gamma X_s + \Theta X_c + \varepsilon_{scp}. \tag{1}$$

Here $\ln v_{scp}$ is the log of the homicide or violent crimes rate reported by station s, whose jurisdiction lies in community c and province p, averaged from 2008 to 2012.[10] $M(d_c)$ is my proxy for Mounties' strength during the settlement. In this section I use two particular functional forms: a dummy that takes the value of one for communities within 100 km of some early fort and zero otherwise, and minus log of the distance.[11] X_s and X_c are station level controls (if located in urban or rural areas) and county level controls, respectively. The error term ε_{scp} is allowed to be correlated within county, which is the level of variation of my treatment. All reported standard errors are therefore clustered at the county level and robust against heteroskedasticity.

Table 1 presents my results. Column 1 in the top panel presents estimates of equation (1) in which I control for province fixed effects and a dummy for rural areas. I use minus the log distance to the early Mounties' fort as my measure of exposure to the monopoly of force during the settlement. The estimates indicates that communities 10% closer to the former Mountie forts during their settlement have a 2.45% lower homicide rate (standard error=0.58%). In column 2 I add a set of covariates from the 1921 census, including share of Catholics, Protestants, Christians, and share of immigrants from different ethnic origins, as well as a cubic polynomial in the county population during the settlement. In column 3 I add a cubic polynomial on the county population in 2011. The controls in columns 2 and 3 could be affected by the Mounties' presence, and constitute bad controls (especially contemporaneous population). However, it is reassuring to observe that the estimates remain significant and negative in their presence. Columns 2 and 3 indicate that my estimate is not driven by differences between large population centers and other areas or by differential settlement patterns.

Columns 4 to 6 reproduce columns 1 to 3 using a dummy variable that takes the value of 1 for communities within 100km from the early forts as a proxy for the Mounties' presence during the settlement. The 100km threshold represents the distance that could be covered by a horse in a couple of days. The exact number is rather arbitrary, but I obtained similar results using different thresholds (50km, 75km, 125km). The estimate in the top panel, column 4, shows that communities within 100 km from the early Mounties' forts have 45.9% less homicides per capita (standard error=12.2%) than more distant areas. This result remains roughly unchanged when I control for other covariates in columns 5 and 6.

The bottom panel presents analogous results using violent crimes as the outcome. Violent crimes include homicides, attempted murders and assaults, among others. My estimate in column 1 implies that communities 10% closer to the Mounties' forts around 1895 have

[10] Since $v_{scp} = 0$ for some communities I use a monotone transformation of the homicide rate defined as $\ln(v_{scp} + a)\mathbb{E}\left[\frac{v_{scp}+a}{v_{scp}} \middle| v_{scp} > 0\right]$, with $a = \min_{v_{scp}>0} v_{scp}$. This is well defined, approximately equal to $\ln v_{scp}$ when a is small, and the regression results can be interpreted as if the LHS variable is in regular logs (for small changes). My results hold for different values of the shifting parameter a, or if instead I use a dummy for whether $v_{scp} > 0$ as the dependent variable.

[11] I use $M(d_c) = -\ln(1 + d_c)$ so that I do not give a large weight to communities in which forts were located, and for which $d_c \approx 0$. However, using $M(d_c) = -\ln d_c$ yields similar results.

Table 1: Effect of Mounties' presence during the settlement on contemporary violence.

Mounties' measure:	*Minus log distance*			*Within 100km from fort*		
	(1)	(2)	(3)	(4)	(5)	(6)
	Dep. variable is the log homicide rate between 2008-2012.					
Mounties early presence	-0.245***	-0.208***	-0.196***	-0.459***	-0.453***	-0.442***
	(0.058)	(0.071)	(0.071)	(0.122)	(0.137)	(0.136)
R-squared	0.049	0.115	0.122	0.038	0.116	0.124
Observations	541	541	541	541	541	541
Clusters	362	362	362	362	362	362
	Dep. variable is the log violent crimes rate between 2008-2012.					
Mounties early presence	-0.341***	-0.268***	-0.244***	-0.630***	-0.601***	-0.573***
	(0.064)	(0.076)	(0.076)	(0.114)	(0.123)	(0.123)
R-squared	0.072	0.148	0.161	0.048	0.152	0.167
Observations	532	532	532	532	532	532
Clusters	358	358	358	358	358	358
Covariates:						
1921 census covariates		✓	✓		✓	✓
Current population			✓			✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on contemporary violence. The dependent variable in the top panel is the log of the homicide rate between 2008-2012. The dependent variable in the bottom panel is the log of the homicide rate between 2008-2012. The unit of observation is the reporting station. In all specifications I control for a full set of province effects and a dummy for rural stations. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county level are in parentheses.

contemporary violent crimes rates 3.41% lower (standard error=0.64%) than average, and communities within 100 km from early forts have a 63.0% lower violent crime rate than more distant areas (standard error=11.4%).

Though both proxies for Mounties' presence give similar results, I use minus the log of distance as my preferred measure of Mountie authority during settlement in the remaining exercises.

Figure 2 shows scatter plots of the partial correlation between my preferred proxy for the presence of the Mounties during the settlement and homicide (left panel) or violent crimes (right panel). These plots confirm my findings in the specifications in column 1 of Table 1.

Though I directly controlled for population and settlement composition, I follow additional strategies to show that these factors do not confound my estimates. First, I analyze the role of population. The presence of Mounties is associated with larger settlements in 1921 and larger populations in 2011. Both relationships are highly robust and significant. Thus, population could be a potential confounding factor. I do not think this is problematic for my findings. If anything, the literature argues that densely populated areas are more prone to homicides and violent crimes (see Glaeser and Sacerdote, 1999). To further address this issue, I restrict the sample in several ways and present my results in Table 2. The top panel shows similar results if I restrict the sample to police stations whose jurisdiction lies

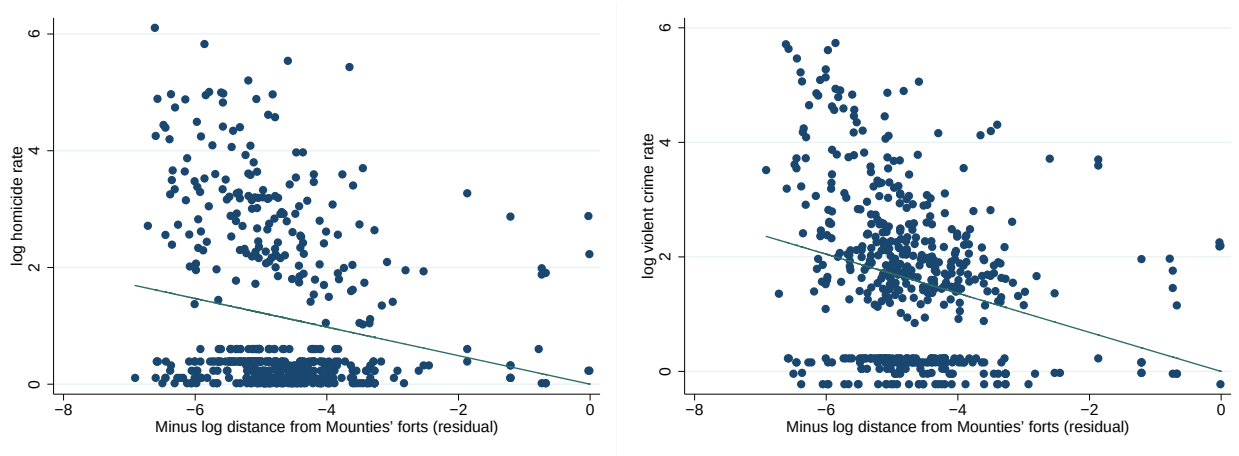

Figure 2: Partial correlation between Mounties' early presence and contemporary violence between 2008 and 2012. The left panel depicts results using the homicide rate in the vertical axis; while the right panel does the same for the violent crimes rate. In both figures, state fixed effects and a dummy for rural reporting stations are partialled out.

in rural areas, both for homicides (left panel) and violent crimes (right panel). Likewise, the bottom panel shows similar results if I restrict the sample to the 75% smallest communities in my sample in terms of population in 2011. These results suggest I am not capturing differences between large urban areas and small rural towns. If anything, my preferred estimates in columns 1 and 4 in both panels of Table 2 are more negative than their corresponding estimates in column 1 of Table 1. This result is consistent with a common finding in the literature of historical persistence: the past is most important in rural areas or small towns that had limited external influences.

Among the variables controlling for the ethnic origins of settlers, only the share of Scots or Irish settlers in 1921 is consistently associated with contemporary violence. Settlers from other areas (British, continental Europe, eastern Europe, and Asia) do not appear to have an influence on subsequent levels of violence. In section 8, I will discuss the role of Scots and Irish settlers in more detail. For my purposes in this section, I simply show that Scots and Irish settlers did not selectively settle areas far from the Mounties. Figure 3 shows that there is no partial correlation between Mounties' presence and the share of settlers from Scotland and Ireland (the t-stats for a test of significance of the Mounties' presence are 1.24 and 1.38, respectively). This evidence suggests my estimates do not capture differential settlements patterns or self-selection of different type of immigrants in lawless areas. This result is consistent with historical evidence that suggests that the prairies were a "cultural mosaic," with small ethnic enclaves—of Scots and Irish settlers, for instance—spaced throughout the territory due to the Federal government actions.

As suggested by the map in Figure 1, more former Mountie forts were located in the south and center of the Prairies than in the north. To what extent my estimates capture broad differences between northern and other communities? In Table 3, I present several exercises to explore this distinction. In the first two panels I find negative effects of the presence of Mounties on contemporary violence after removing from the sample the top 5%, or the top 10% communities located more to the north, respectively. As I remove more northern

Table 2: Effect of Mounties' presence during the settlement on contemporary violence in different subsamples.

Violence measure:	*Homicides*			*Violent crimes*		
	(1)	(2)	(3)	(4)	(5)	(6)
	Sample of rural police stations.					
Mounties early presence	-0.292***	-0.190*	-0.165*	-0.493***	-0.377***	-0.329***
	(0.083)	(0.099)	(0.099)	(0.083)	(0.095)	(0.094)
R-squared	0.053	0.138	0.145	0.131	0.263	0.286
Observations	367	367	367	360	360	360
Clusters	324	324	324	319	319	319
	Sample of 75% smallest communities.					
Mounties early presence	-0.299***	-0.233**	-0.230**	-0.371***	-0.299***	-0.283***
	(0.092)	(0.097)	(0.098)	(0.096)	(0.101)	(0.103)
R-squared	0.071	0.148	0.154	0.064	0.167	0.172
Observations	405	405	405	398	398	398
Clusters	304	304	304	300	300	300
Covariates:						
1921 census covariates		✓	✓		✓	✓
Current population			✓			✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on contemporary violence. The dependent variable in columns 1 to 3 is the log of the homicide rate between 2008-2012. The dependent variable in columns 4 to 6 is the log of the homicide rate between 2008-2012. The unit of observation is the reporting station, and I use the subsample specified in each panel. In all specifications I control for a full set of province effects and a dummy for rural stations. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county level are in parentheses.

communities from the sample, the estimates get closer to zero. When I remove the 25% most northern communitie s, my estimates on homicides are negative but not significant. The estimates for the violent crime rate still suggest that a 10% increase in proximity to the Mounties' reduces the violent crimes rate by 1.65% (standard error=0.69%). Directly controlling for latitude and longitude has a similar effect, and only my estimates on violent crime rates remain significant. Figures A1 to A5 in the appendix illustrate the variation exploited in each sub-sample.

These results suggest that part of the variation I am exploiting is the coarse difference between northern communities and others—specially for the results involving the homicide rate. I do not think this is problematic. It is precisely this broad and coarse variation what should matter for the development of divergent cultures. The lack of a monopoly of violence during the settlement arises precisely because some communities lie in remote and hard to access areas.

From an identification perspective, the fact that my estimates partly exploit north vs. south differences is not worrying either. If latitude was associated with more homicides

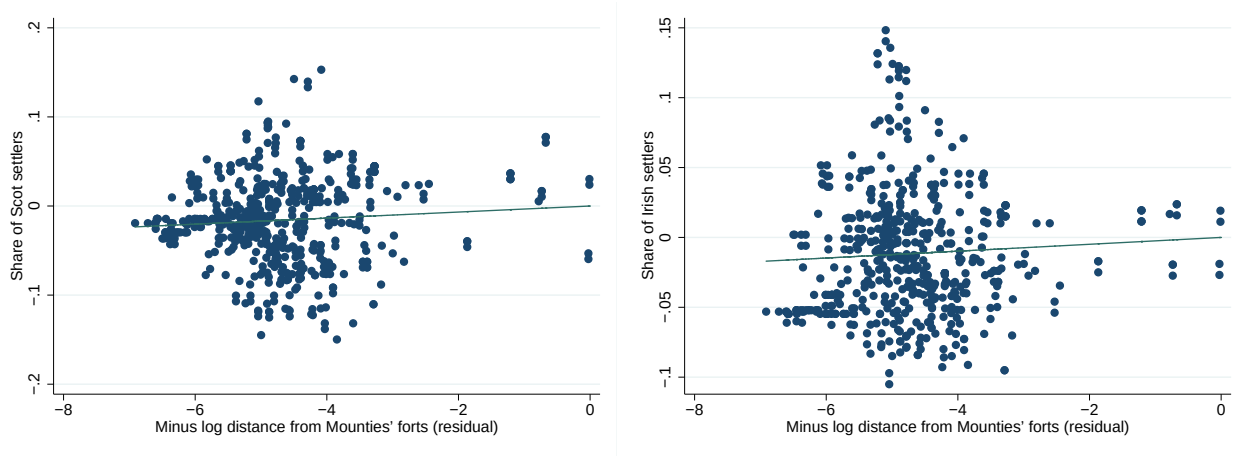

Figure 3: Partial correlation between Mounties' early presence and share of Scots and Irish settlers in 1921. In both figures, state fixed effects and a dummy for rural reporting stations are partialled out.

through other channels, this would potentially confound my estimates. But the literature on crime suggests that more northern communities should be less violent because temperatures are lower (see Anderson, 1989 and Reifman, Larrick and Fein, 1991). And while in Canada the north appears to be more violent, the pattern is reversed in the U.S., where the south is more violent. My view is that conditions during the settlement, and not latitude, explain these differences. In the U.S., the deep south was the frontier lawless area, while in Canada, the north of the Prairies played this role.

In the appendix, I explore the sensibility of my results to outliers using several techniques. Figure 2 already reveals no outliers. Results eliminating communities with a large standardized residual or a large cook's distance confirm this. Finally, I also explore the sensitivity to additional controls.

5.2 The Mounties role during the Prairies' settlement

So far I have established that the historical presence of the Mounties during settlement is related to contemporary peace. However, my interpretation of the results is based on the assumption that the Mounties created peaceful settlements in areas they patrolled frequently and were closer to their early forts. Settlements far from the Mountie forts were presumably lawless and looked more like the Wild West. The main challenge in testing this assumption is that there are no official crime statistics at the turn of the 20th century.

To make progress, I use the ratio of widows to widowers from the 1911 census as a proxy for homicides (this measure is only available for the 1911 Census). Since men kill other man more than they kill women (see Kellermann and Mercy, 1992), an increase in homicides becomes the prime suspect behind an elevated ratio of widows to widowers. Disease, economic hardship and other factors affecting mortality of men and women proportionally do not affect this measure.

Table 3: Effect of Mounties' presence during the settlement on contemporary violence controlling for differences between north and south.

Violence measure:	*Homicides*			*Violent crimes*		
Sample:	All	Rural	Small communities	All	Rural	Small communities
	(1)	(2)	(3)	(4)	(5)	(6)
	Excluding 5% northern.					
Mounties early presence	-0.212***	-0.266***	-0.255**	-0.301***	-0.439***	-0.321***
	(0.061)	(0.088)	(0.101)	(0.066)	(0.084)	(0.101)
R-squared	0.037	0.042	0.060	0.060	0.107	0.045
Observations	512	345	377	505	340	372
Clusters	339	303	282	335	299	278
	Excluding 10% northern.					
Mounties early presence	-0.148***	-0.180**	-0.189**	-0.252***	-0.361***	-0.253***
	(0.056)	(0.086)	(0.093)	(0.066)	(0.082)	(0.094)
R-squared	0.021	0.025	0.041	0.053	0.084	0.029
Observations	486	325	359	479	320	354
Clusters	321	286	267	317	282	263
	Excluding 25% northern.					
Mounties early presence	-0.039	-0.068	-0.040	-0.165**	-0.211**	-0.113
	(0.052)	(0.089)	(0.091)	(0.069)	(0.087)	(0.085)
R-squared	0.010	0.016	0.030	0.065	0.053	0.020
Observations	405	267	285	399	263	281
Clusters	266	232	215	262	228	211
	Controlling for latitude and longitude.					
Mounties early presence	-0.058	-0.058	-0.031	-0.144**	-0.215***	-0.050
	(0.050)	(0.081)	(0.074)	(0.065)	(0.078)	(0.069)
R-squared	0.112	0.119	0.138	0.150	0.234	0.166
Observations	541	367	405	532	360	398
Clusters	362	324	304	358	319	300

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on contemporary violence. The dependent variable in columns 1 to 3 is the log of the homicide rate between 2008-2012. The dependent variable in columns 4 to 6 is the log of the homicide rate between 2008-2012. The unit of observation is the reporting station, and I use the subsample specified in each panel. In all specifications I control for a full set of province effects and a dummy for rural stations. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county level are in parentheses.

I estimate the following regression

$$\ln\left(\frac{\text{widows}_{cp}}{\text{widowers}_{cp}}\right) = \beta M(d_c) + \alpha_p + \gamma X_c + \varepsilon_{cp}. \tag{2}$$

Here, $widows_{cp}$ and widowers_{cp} are the number of widows and widowers in county c and province p during the 1911 census. $M(d_c)$ is my proxy for Mounties' strength during the settlement. α_p are a full set of province fixed effects and X_c are county level historical

controls (including share of settlers from different ethnicity and religion, and population).[12] The error term ε_{cp} is assumed to be independent. All reported standard errors are robust against heteroskedasticity.

Table 4 presents several estimates of model (2). In column 1 I present estimates using province dummies as controls and using the minus log specification for $M(d_c)$. My results suggest that settlements 10% closer to early Mounties' forts had 1.22% less widows than widowers. The result holds after adding historical covariates in columns 2 and 3, or using alternative functional forms for $M(d_c)$ in columns 4 to 6. As before, the result also holds if I restrict the sample by removing the 10% most northern municipalities, though my estimates are smaller and less precise.

Table 4: Effect of Mounties' presence during the settlement on log widow to widower ratio in 1911.

Mounties' measure:	*Minus log distance*			*Within 100km from fort*		
	(1)	(2)	(3)	(4)	(5)	(6)
	Full sample of all communities					
Mounties early presence	-0.122***	-0.127***	-0.114***	-0.163***	-0.147***	-0.174***
	(0.029)	(0.029)	(0.028)	(0.046)	(0.047)	(0.041)
R-squared	0.083	0.148	0.392	0.037	0.098	0.371
Observations	348	348	348	348	348	348
Clusters						
	Excluding 10% more northern communities.					
Mounties early presence	-0.062*	-0.065**	-0.087***	-0.089*	-0.071	-0.134***
	(0.032)	(0.030)	(0.029)	(0.049)	(0.047)	(0.043)
R-squared	0.021	0.109	0.320	0.013	0.097	0.309
Observations	317	317	317	317	317	317
Clusters						
Covariates:						
Historical population		✓	✓		✓	✓
Historical composition			✓			✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on violence during the settlement. The dependent variable is the log of the widow to widower ratio in each county. The unit of observation is the county, and I use the subsample specified in each panel. In all specifications I control for a full set of province effects. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity are in parentheses.

I interpret these findings as evidence that settlements near the Mounties had environments in which men died less, presumably because of lower levels of violence. However, using the widow to widowers ratio as a proxy for violence raises obvious concerns: factors unrelated to violence add noise (i.e., accidents, gender-specific diseases, discrimination, etc.); not all

[12]Unfortunately, such controls are not available for the 1911 census, so I have to control for their 1921 levels. I am currently in the process of fully digitalizing all censuses, and will be able to control for 1911 variables in future versions of this paper.

homicides create more widows than widowers because not all murdered man are married. Also, widows could have lost their husbands in other communities and then moved. Given these shortcomings, the results in this section have to be interpreted with caution. That said, other authors support my interpretation and argue, using historical sources, that the Mounties law enforcement efforts were associated with lower levels of crime. For instance, Macleod (1973) uses Mountie diaries and documents the low crime rates that prevailed in areas under the Mounties' control.

6 The role of culture: evidence from ice hockey

As mentioned in the introduction, I view the persistence of violence as a consequence of deeply held cultural beliefs about honor that settlers developed in once-lawless areas. However, other factors may also play a role. Conditions during the settlement also affect the development of institutions, policies, laws, social and economic conditions more conducive to violence. The effects on contemporary violence could reflect the effect of these external channels.

To support my interpretation, I isolate the role of culture—which corresponds to a mindset that becomes second nature and drives individual behavior—from other external factors by comparing the behavior of hockey players.

Every season, hundreds of players from diverse cultural backgrounds participate in professional and minor leagues across North America. Hockey is a fast full-contact sport in which physical violence is tolerated, if not encouraged. Hockey players constantly board, block, charge, check and cross-check one another. Players retaliate in the heat of the moment, and they may go as far as to drop their gloves and fight each other. When their behavior is judged too aggressive players receive penalties, and these provide an objective measure of how violently players behave.

To uncover the role of cultural background, I compare the behavior of players from different community on the ice rink. Because players face a common set of rules and environment in the ice rink, their violent actions reflect differences in internally-held codes of behavior that cause players to instinctively retaliate, act on their impulses and defend their honor.

Formally, I estimate the following model

$$\ln y_{istcp} = \beta M(d_c) + \Gamma X_{is} + \alpha_p + \delta_s + \eta_t + \varepsilon_{iscp}. \tag{3}$$

Here, y_{iscp} are penalty minutes per game received by player i, during season s, born in county c in province p, and currently playing for team t. The variable of interest is $M(d_c)$, which is my proxy for Mounties presence during the settlement in the player's county of birth. In this section I focus on my preferred specification using the minus log functional form. X_{is} includes individual controls (age, experience, first season dummies, position dummies, among others). $\alpha_p, \delta_s, \eta_t$ are a full set of province fixed effects, season fixed effects and team fixed effects. The error term ε_{iscp} is allowed to be correlated within communities of birth, which is the level of variation of my proxy for Mounties' presence during the settlement. All reported standard errors are therefore clustered at the county level and are robust against heteroskedasticity.

Before moving to the estimation I summarize the hockey data, which is the only non-standard dataset used. I have data on the careers of players who played in the NHL at some point in their careers. For each of them, I have playing statistics for all the seasons played in leagues in North America since 1980. These leagues include the National Hockey League (NHL), minor pro leagues, junior and college leagues in the U.S. and Canada. I have data on player characteristics, including year and place of birth, experience, current team, position, and height and weight. For each season I observe the league and team in which the player skated, as well as several statistics, including games played, points and penalty minutes. I restrict my sample to players born in the Prairies; and I match each player to his community of birth. Overall, my sample includes 10,980 player/seasons observations, for 1,269 male players from 208 different Prairie communities. The subsample of seasons played in the NHL includes 4,666 observations for 737 players. I use penalty minutes per game as a proxy for violent behavior in the ice rink. Players receive penalty minutes when they behave violently or recklessly, charge or hit other players, or engage in fights. Fights are tolerated, but the instigator and the more aggressive player involved receive penalty minutes. Although I view penalty minutes as reflecting a wide range of violent, aggressive, retaliatory or careless behavior, the measure is imperfect because it includes noise unrelated to violent behavior (see the Appendix for a list of all the infractions resulting in penalty minutes).

I present estimates of equation (3) in Table 5. I add controls in different columns as described in the bottom rows. The top panel presents results for the NHL seasons and the bottom panel for seasons in all leagues in my sample, which includes minor leagues. Column 5 contains the more demanding specification. In this column I control for province and season fixed effects, team fixed effects, year of birth effects, NHL cohort effects, height and weight. Thus, this model compares the behavior of players in the same team and season, with the same age and experience but who inherited different cultural backgrounds from their communities of birth. These players face the exact same external conditions and rules, and even cater to the same fans and audience.

My estimate in the top panel focuses on NHL seasons and shows that players born in communities that were 10% closer to historical Mountie forts during the settlement receive 0.64% less penalty minutes per game (standard error=0.19%). When I consider all leagues in the bottom panel, I obtain similar findings.

Figure 4 presents a scatter plot of the correlation between Mounties' proximity during the settlement and penalty minutes per game (all covariates are partialled out). To ease the interpretation, I aggregate the observations in single bins for each community, and let the size of each marker reflect the number of players born in that community. The left panel plots the data for the NHL seasons and the right panel plots the data for all available seasons.

The model in equation (3) is similar to others previously estimated in the literature and outlined in the literature review. Despite the similarities, my evidence offers some improvements over previous contributions. First, actual behavior may be more informative than self-reported views measuring culture. Second, many studies compare the behavior of people from different ancestries living in a common geography. However, the fact that people live in the same place does not imply that they face the same external conditions: homophily and segregation imply people face different contexts, even when living in the same geographical area (Bisin and Verdier, 2000). However, I cannot rule out the possibility that players behave violently on the ice rink to conform to what is expected of them in their

Table 5: Effect of Mounties' presence during the settlement in a player's county of birth on his penalty minutes per game.

	(1)	(2)	(3)	(4)	(5)	(6)
	Only NHL seasons.					
Mounties presence	-0.066***	-0.066***	-0.064***	-0.068***	-0.061***	-0.058***
	(0.019)	(0.019)	(0.018)	(0.019)	(0.020)	(0.021)
R-squared	0.038	0.038	0.056	0.135	0.160	0.184
Observations	4666	4666	4666	4665	4665	4664
Clusters	208	208	208	208	208	208
	All leagues					
Mounties presence	-0.045***	-0.049***	-0.048***	-0.043***	-0.034**	-0.032**
	(0.013)	(0.013)	(0.012)	(0.013)	(0.015)	(0.016)
R-squared	0.029	0.069	0.118	0.162	0.186	0.202
Observations	10980	10980	10980	10977	10977	10968
Clusters	208	208	208	208	208	208
Covariates:						
Province and season effects	✓	✓	✓	✓	✓	✓
League fixed effects		✓				
Team fixed effects			✓	✓	✓	✓
Cohort and experience				✓	✓	✓
Position dummies					✓	✓
Height and weight						✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement in a player's county of birth on his penalty minutes. The dependent variable is the log of penalty minutes per game. The unit of observation is each player/season, and I use the subsample specified in each panel. In all specifications I control for a full set of province and season fixed effects. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county of birth level are in parentheses.

local communities. These alternative interpretation emphasizes external social influences rather than internally held codes of behavior. I find this explanation unlikely, especially for professional players skating in important teams. It seems more reasonable that these players would cater to the team's audience, which is common to all their teammates and taken into account by the team fixed effects in my regressions.

My paper, as do other papers in the literature, faces an issue of differential selection into becoming a hockey player. For instance, in once-lawless areas the more aggressive individuals could self-select into becoming ice hockey players. There is no clear reason as for why this would be the case, but I cannot discard the possibility. However, additional evidence suggest it is unlikely. For instance, I do not find any effect of community background on points per game and other measures of performance, which suggests that I am not capturing the selection of players with different skating styles from different areas. The differences across players born in different regions appear only when I look at their penalization minutes.

To establish the robustness of my findings, Table 6 presents estimates that exclude northern communities or that control directly for latitude and longitude. My preferred results

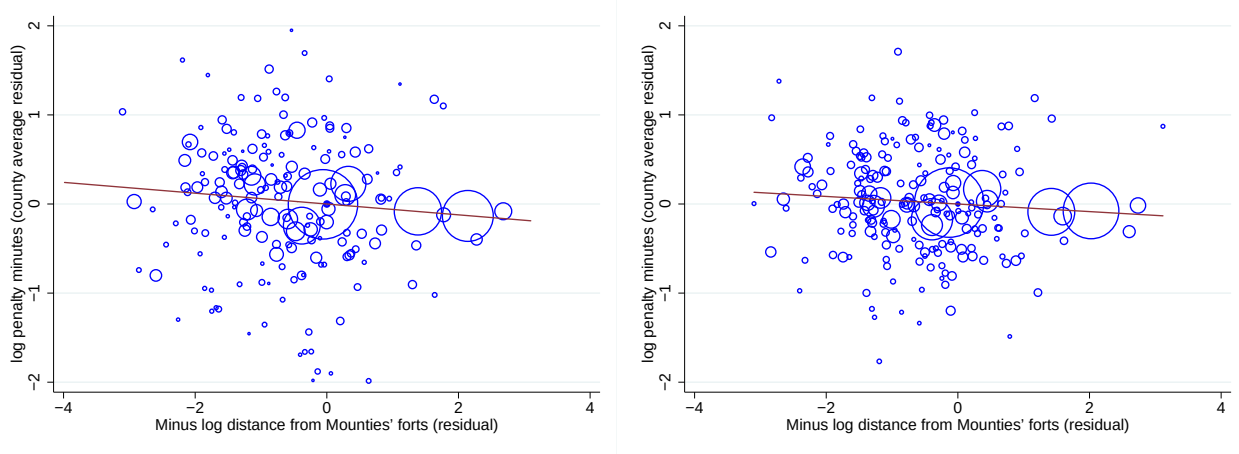

Figure 4: Partial correlation between Mounties' early presence and penalty minutes in all leagues (left panel) and the NHL (right panel). In both figures, I partialled out the team, season, year and province of birth, and NHL cohort effects. I aggregated observations at the county level and represent the number of observations per county by the size of the circle.

using the more uniform sample of NHL seasons are robust to the inclusion of latitude and longitude as controls, though the estimates are closer to zero. My results hold in both samples if I exclude players born in the 5%, 10% or 25% most northern communities from my sample.

I conduct several additional exercises in the appendix to explore the robustness of my results. I show that adding historical census controls and population (at the county level) does not affect my conclusion. Estimates are more negative and less precise, but still significant at conventional levels in most specifications. I also explored weighting my regressions by the inverse of the number of players from each county. This is equivalent to estimating county fixed effects in equation (3) and regressing them on the proxy for Mounties' presence, which is a common approach followed in the literature. I obtain more negative but less precise estimates. Finally, I estimated alternative models that are less sensitive to the presence of outliers and found similar results.

One open question in the literature is whether cultural traits persist or vanish over time in individuals who have left their native communities. To investigate this I focus on the sub-sample of NHL seasons and allow the effect of the proximity to Mountie forts to vary with years of experience in the NHL. The left panel in Figure 5 presents my results. The figure shows that a violent community background affects the behavior of rookie and inexperienced players (from 0 to 5 years of experience). However, among more experienced players there is no effect. The estimates suggest that as players become more experienced, their cultural background or origin has less effect on their behavior. Though the figure suggests a convergence in behavior, it is hard to tell if players from remote areas with a culture of honor converge to a rule of more sportsmanship, or whether players from areas in which the Mounties guaranteed peace converge to a rule of violence predominant in Ice hockey. The recent general decline of violence in Ice Hockey stacks the evidence in favor of

Table 6: Effect of Mounties' presence during the settlement in a player's county of birth on his penalty minutes per game, controlling for differences between north and south.

	Controls for lat. and long.			*Excludes 5% northern*			*Excludes 10% northern*			*Excludes 25% northern*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Estimation sample: all leagues.											
Mounties presence	-0.022	-0.018	-0.019	-0.041***	-0.032**	-0.029*	-0.039***	-0.031**	-0.030*	-0.042***	-0.032**	-0.030**
	(0.018)	(0.019)	(0.020)	(0.014)	(0.015)	(0.015)	(0.014)	(0.015)	(0.016)	(0.013)	(0.014)	(0.013)
R-squared	0.165	0.188	0.204	0.163	0.187	0.204	0.164	0.188	0.204	0.163	0.189	0.201
Observations	10977	10977	10968	10864	10864	10855	10757	10757	10748	10066	10066	10057
Clusters	208	208	208	203	203	203	198	198	198	174	174	174
	Estimation sample: only NHL seasons.											
Mounties presence	-0.048**	-0.047*	-0.047*	-0.064***	-0.056***	-0.054**	-0.067***	-0.061***	-0.060***	-0.070***	-0.063***	-0.061***
	(0.024)	(0.024)	(0.026)	(0.020)	(0.020)	(0.021)	(0.020)	(0.021)	(0.021)	(0.018)	(0.018)	(0.019)
R-squared	0.137	0.162	0.185	0.136	0.162	0.185	0.137	0.163	0.185	0.134	0.164	0.182
Observations	4665	4665	4664	4608	4608	4607	4555	4555	4554	4233	4233	4232
Clusters	208	208	208	203	203	203	198	198	198	174	174	174

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement in a player's county of birth on his penalty minutes. The dependent variable is the log of penalty minutes per game. The unit of observation is each player/season, and I use the subsample specified in each panel. In all specifications I control for a full set of province, season, team, year of birth and NHL cohort fixed effects. Standard errors robust against heteroskedasticity and serial correlation at the county of birth level are in parentheses.

the former interpretation.[13]

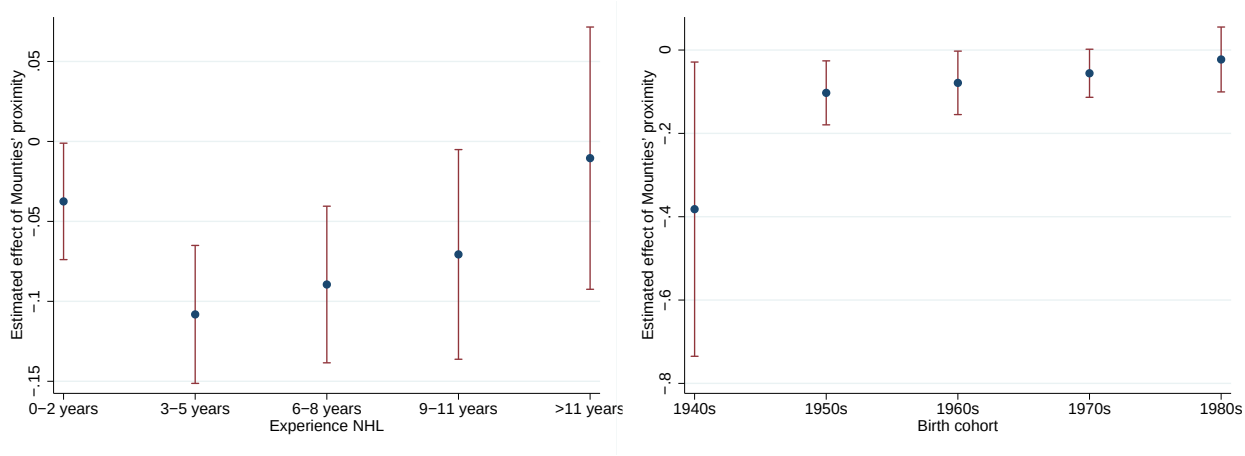

Figure 5: Estimates of the effect of proximity to early Mounties' forts in players behavior conditional on experience (left panel) and birth cohort (right panel). Point estimates are surrounded by bars depicting 95% confidence intervals.

The right panel in Figure 5 presents a similar exercise in which I estimate the effect of Mounties' proximity during the settlement on different cohorts. My results suggest that older cohorts are more influenced by their cultural background but the effects seem to be fading for younger cohorts. There are a couple of interpretations for this result. First, culture is changing in once-lawless areas, as the Mounties expanded and gradually loosen up local cultures of violence. Second, the preferences of the Hockey audience and players are also subject to other common trends that may be becoming more important. These include a rise of empathy and reason that permeate culture in modern times.

7 Persistence through institutions

So far, I have emphasized the role of cultures of honor in explaining persistence and I have argued that this cultural background continues to influence the behavior of Hockey players on the ice rink. Why did these cultural traits persisted despite the gradual consolidation of the Canadian state after the settlement in once-lawless areas?

As explained in the introduction, politics may explain part of the persistence. In once-lawless areas, individuals may have seen the arrival of the Mounties as illegitimate. By that time, individuals already had developed political views that favored self-justice over the expansion of state authority.

In this section, I investigate this channel by estimating the effect of Mounties' proximity during the settlement on present-day political preferences. I use data on vote shares for the 2004 parliamentary elections. Unfortunately, I only have data for 56 electoral districts, each containing several communities, so there is less variation for this exercise. During each

[13]See `http://fw.to/2BzaIZF` for a press coverage of the decline of violence in Hockey during recent seasons.

election, there are several candidates in every district, each from a different party. I use the vote share of conservative candidates as a proxy for political views that revolve around the right of self-justice. Indeed, conservatives were the main opponents to laws restricting gun ownership. .[14] The conservative party also supports traditional family and religious values, which are a cornerstone of societies based on honor (see Pinker, 2011).

Figure 6 illustrates the correlation between my proxy for Mounties' presence during the settlement and the share of conservative votes among electoral districts in the 2004 parliamentary elections. The figure shows a strong negative relationship as anticipated. A 10% increase in proximity to the Mounties early forts decrease the conservative vote share by 0.38% (standard error=0.17%).

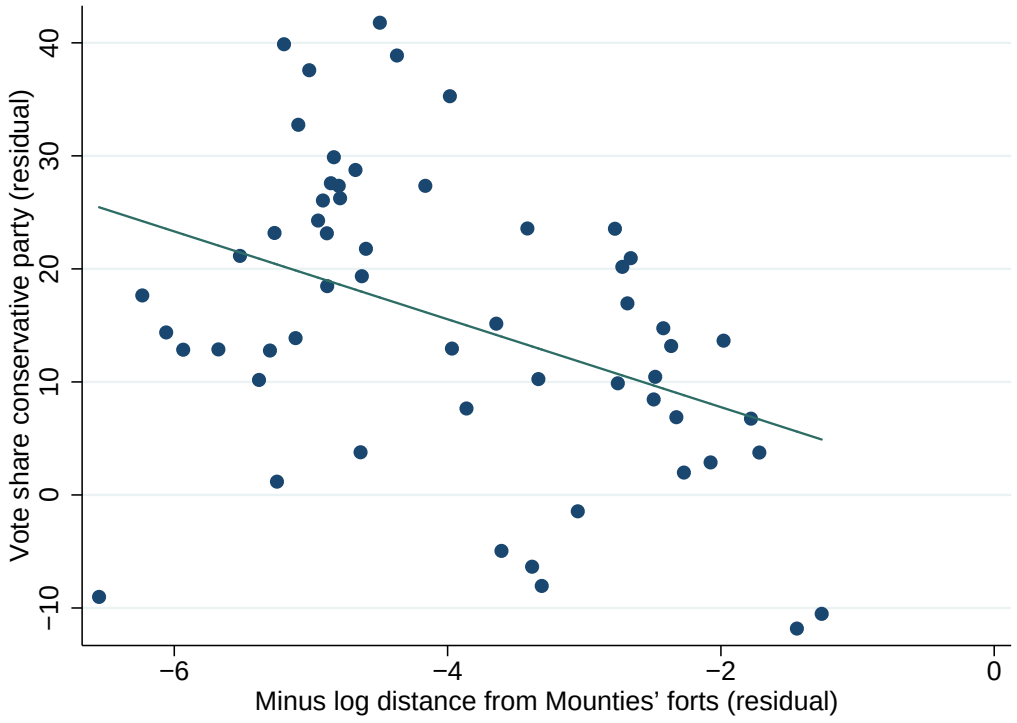

Figure 6: Partial correlation between Mounties' early presence and vote share of the conservative party in 2004 elections. State fixed effects are partialled out.

The evidence in this section shows that political support is biased towards the conservative party in areas that were outside the Mounties' scope during the settlement. This is likely to translate into differences in local institutions that provide counter veiling forces to the consolidation of the monopoly of force throughout the territory.

[14]Canadians have on average 30.8 guns per 100 residents, making it the 13th country with more guns per capita. The conservative party represented the majority of votes opposing bills introduced in parliament to restrict gun ownership. Restrictions on gun ownership were approved through bills C150 of 1969, C151 of 1977, C17 of 199 and C68 of 1995. Bill C68 was only opposed by members of the conservative party.

8 Interaction with pre-existing cultural traits

In this section I explore whether the Mountie authority managed to crowd out violent cultures of honor brought by settlers, or if these norms flourished in Canada despite the presence of the Mounties during the settlement. By 1921, 14% of the Prairies settlers were Scots, 11% were Irish, 27% British, 26% from continental Europe, 11% from eastern Europe and the rest from other parts of the world.

As mentioned in the introduction, I focus on cultural traits brought by Scot and Irish settlers. My primary interest is on the Scots settlers, who were mostly herders from the lawless borderlands of Britain. These areas were among the most violent of Europe by the time of their migration (O'Donnell, 2005). The Scots that came to Canada are similar to the group of Scots and Ulster Scots—the Scots-Irish—that arrived to the American South. Previous literature suggests the Scots brought their culture of honor across the Atlantic (Nisbett and Cohen, 1996 and Grosjean, 2013).

On the other hand, the Irish that came to Canada were very different in culture and socio-economic conditions from the Irish that arrived to the U.S. in the late 18th century. The later were mostly Protestant herders from Ulster, while the former were deeply catholic farming communities (see Fischer, 1989 and Grosjean, 2013). I study the role of this group as well, which presumably were more peaceful given that their economy was based on agriculture instead of herding.

Figure 7 indicates the share of Scots and Irish settlers by 1921 in the Prairies for all communities in my sample.

To analyze the role of the culture of honor brought by Scots, and the more peaceful culture of the Canadian-Irish, I estimate all the previous equations (equations (1), (2) and (3) but include the log of the share of Scot and Irish settlers by 1921 in each settlement, and their interaction with early Mounties' presence as explanatory variables. In all models, I control for historical census covariates potentially correlated with Scots and Irish presence (religious composition and population in 1921).

Table 7 presents my results. As anticipated, the main effects in columns 1, 3 and 5 suggest that settlements with more Scots and less Irish were more violent during 1911 (assuming the widows to widowers ratio identifies violence), and are still more violent today.[15] For example, the estimates in column 1 suggest that a 1% increase in the share of Scot settlers increases the contemporary homicide rate by 0.89% (standard error=0.22%); while a 1% increase in the share of Irish settlers reduces it by 0.73% (standard error=0.195%). These estimates represent the effect of having more Scots or more Irish settlers as opposed to having more British or European settlers, which is the omitted category. Though weaker, my estimates in columns 7 and 9 indicate that players born in communities with more Scots and less Irish settlers receive more penalty minutes.

In the even columns I analyze how the share of Scot and Irish settlers interacts with the proximity to Mountie' forts during the settlement. I report the main effects for the share of Scot and Irish settlers evaluated at the 25% percentile of proximity to the Mounties, so they are not comparable to the estimates in odd columns. The estimated interactions suggest

[15] Unfortunately, my measure of the share of Irish and Scot settlers does not precede my measure of the widow to widowers ratio, which complicates the interpretation of the estimates in columns 1 and 2.

Table 7: Effect of Mounties' presence during the settlement on several outcomes and its interaction with pre-existing cultural traits.

	Contemporary homicide		*Contemporary violent crimes*		*Homicide proxy 1911*		*PIM per game NHL*		*PIM per game all leagues*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Mounties early presence	-0.193***	-0.168**	-0.253***	-0.181***	-0.084***	-0.050**	-0.098***	-0.085***	-0.057***	-0.044**
	(0.068)	(0.066)	(0.075)	(0.062)	(0.028)	(0.022)	(0.030)	(0.028)	(0.021)	(0.021)
Share of Scots settlers 1921	0.893***	0.315	0.862***	-0.557	0.605***	-0.195	0.186	-0.108	0.295**	0.049
	(0.218)	(0.390)	(0.195)	(0.372)	(0.083)	(0.152)	(0.158)	(0.229)	(0.127)	(0.177)
Share of Irish settlers 1921	-0.727***	0.460	-0.917***	0.893**	-0.434***	0.503***	-0.316**	-0.016	-0.340***	-0.117
	(0.195)	(0.373)	(0.178)	(0.365)	(0.078)	(0.137)	(0.157)	(0.362)	(0.121)	(0.261)
Mounties' presence × Scots		-0.170		-0.656***		-0.384***		-0.189*		-0.166**
		(0.226)		(0.205)		(0.083)		(0.098)		(0.072)
Mounties' presence × Irish		0.575***		0.898***		0.467***		0.169		0.133
		(0.187)		(0.180)		(0.061)		(0.167)		(0.116)
R-squared	0.118	0.138	0.149	0.189	0.335	0.435	0.144	0.146	0.171	0.172
Observations	541	541	532	532	348	348	4665	4665	10977	10977
Clusters	362	362	358	358	348	348	208	208	208	208

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement and the share of Scots and Irish settlers on different outcomes. The main effects in the even columns are evaluated at communities located at the 25th percentile of distance from the early forts. The dependent variable in columns 1 and 2 is the log of the homicide rate between 2008-2012. The dependent variable in columns 3 and 4 is the log of the homicide rate between 2008-2012. The unit of observation in columns 1 to 4 is the reporting station. The dependent variable in columns 5 and 6 is the log of the widow to widower rate in 1911. The unit of observation in these columns is the county. The dependent variable in columns 7 to 10 is the log of penalty minutes per game. The unit of observation in these columns is each player/season, the explanatory variable is the distance to the early forts from their county of birth, and I use the subsample specified in each panel. In all specifications I control for a full set of province and season fixed effects and a set of historical census controls, including population and religious composition in 1921. Additionally, I control for team, season, year of birth and NHL cohort effects in columns 7 to 10. Standard errors robust against heteroskedasticity and serial correlation at the county (or county of birth)level are in parentheses.

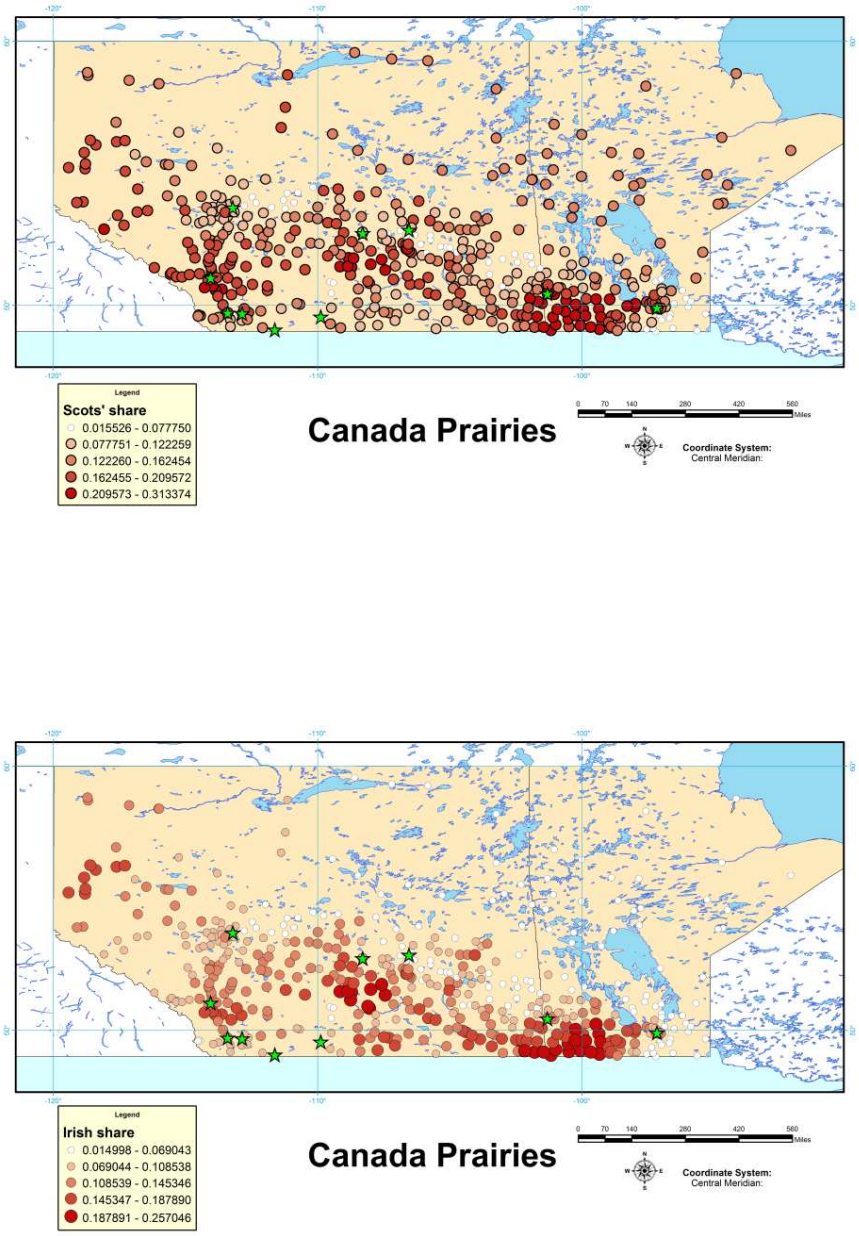

Figure 7: Location of Mounties' forts (green stars) during their early deployment and presence of Scots (top panel) and Irish (bottom panel) settlers by 1921. The red-color-scale represents the share of settlers from these origins during 1921 in each county.

that the Mounties crowd out the culture of honor brought by the Scots. Their culture only thrived in places far from the Mounties' reach; while its effects faded in areas with strong

Mountie presence. In particular, the share of Scots and their culture of honor do not have any effect on contemporary or past violence in communities close to early forts, as the main effects indicate.

The results involving the Irish have a similar interpretation (though the results on Hockey players' behavior are not precise in this case). The more peaceful culture brought by the Irish had a crucial effect in lawless areas, where they provided a reliable substitute to centralized authority. But in areas where the Mounties were able to exercise authority having more peaceful Irish settlers did not make a difference.

9 Conclusions

My evidence comes from a particular context, but the similarities between the Canadian Prairies and other borderlands suggests that the insights provided in this paper might apply to other areas, too. As Graybill (2007) argues, "the Great Plains [the Prairies and the American Southwest] belong in any discussion of the borderlands, which for many decades has served as a sort of shorthand referring exclusively to the American Southwest."

My results indicate that the lack of a consolidated monopoly of violence is at the root of the origins of violence in borderlands, not only during their settlement in the past but also through to the present day.

When all the evidence is put together, it provides a consistent picture that supports the idea that the monopoly of violence matters. And it matters in part because it fosters the evolution of different cultural traits. Where the state creates a legitimate monopoly of violence, cultures of honor give way to centralized authority, and people replace their violent codes of behavior with new rules that emphasize empathy and self-control.

Many pieces of evidence are indirect and are only meant to be suggestive. We need to understand if the results for Hockey players generalize to other situations or not. We also need to explain why cultures of violence persist.

Finally, we need to understand why the expansion of the state has a mollifying effect in some cases and why it is met with resistance in others . The interplay of local culture, political views and politics no doubt affects whether the state authority is recognized as legitimate or as a threat. This question deserves a more detailed study of the dynamics of local politics in locations that lie outside the authority of the state, of how local politics respond when the state attempts to incorporate these areas, and if existing political views and culture shape this response.

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Appendix:

Appendix A: Robustness to outliers.

In this appendix I explore the robustness of my main results to outliers. I focus on my preferred specifications in column 1 of Table 1, column 1 of Table 4 and column 4 of Table 5. For each of these estimates I produce two alternative ones removing potential outliers and presented in Table A1. In the odd columns I remove observations with a standardized residual above 1.96 or below -1.96. In even columns I remove observations with a Cook's distance above the rule of thumb of 4 over the number of observations. The results imply my main estimates are not affected by the presence of potential outliers. I also estimated robust regression models. However, these did not converge when using homicide rates between 2008-2012 as dependent variable. In all other cases, the robust regression results were similar to the ones reported in the main text.

Table A1: Effect of Mounties' presence during the settlement. Robustness to outliers.

Violence measure:	*Homicides 2008-2012*		*Violent crimes 2008-2012*		*Widow to Widowers*		*Penalties in NHL*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mounties early presence	-0.160***	-0.230***	-0.279***	-0.377***	-0.129***	-0.198***	-0.042**	-0.065***
	(0.046)	(0.045)	(0.054)	(0.050)	(0.026)	(0.025)	(0.017)	(0.017)
R-squared	0.043	0.058	0.083	0.104	0.131	0.182	0.282	0.254
Observations	509	509	504	502	333	333	4254	4269
Clusters	343	346	335	337	333	333	192	188

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on contemporary violence. The dependent variable in columns 1 and 2 is the log of the homicide rate between 2008-2012. The dependent variable in columns 3 and 4 is the log of the violent crimes rate between 2008-2012. The dependent variable in columns 5 and 6 is the log of the widow to widower ratio in 1911. The dependent variable in columns 7 and 8 is the log of the penalty minutes per game for players in the NHL seasons. In odd columns I remove observations with a standardized residual above 1.96 or below -1.96. In even columns I remove observations with a Cook's distance above the rule of thumb of 4 over the number of observations. The unit of observation is the reporting station or the county in columns 1 to 6 and the player/season in columns 7 and 8. In all specifications I control for a full set of province effects and a dummy for rural stations in columns 1 to 4. In columns 7 and 8 I control for team, season, year of birth and NHL cohort fixed effects. Standard errors robust against heteroskedasticity and serial correlation at the county level (or county of birth level) are in parentheses.

Appendix B: Map of variation exploited in different estimates.

The following figures present heat maps of the variation exploited in different estimates and sub-samples. The more red and small a community is, the lower the distance to the early Mounties' forts. Colors and sizes are chosen to reflect distinct quintiles of the distribution of residual distance in each sample. Figure A1 depicts variation in distance after partialling out province fixed effects. Figure A2 depicts variation in distance after excluding the 5% more northern communities. Figure A3 depicts variation in distance after excluding the 10% more northern communities. Figure A4 depicts variation in distance after excluding the 25% more northern communities. Figure A5 depicts variation in distance after partialling out latitude and longitude.

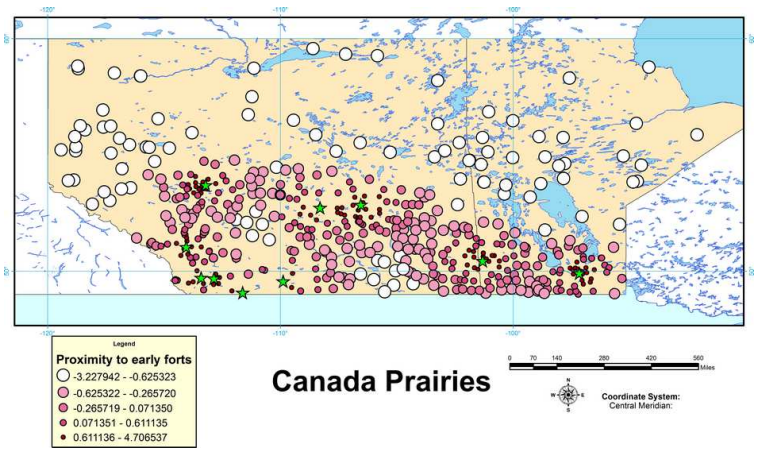

Figure A1: Location of Mounties' forts (green stars) during their early deployment and centroids of Canadian communities in my sample. The red-color scale indicates proximity to the forts after partialling out state fixed effects.

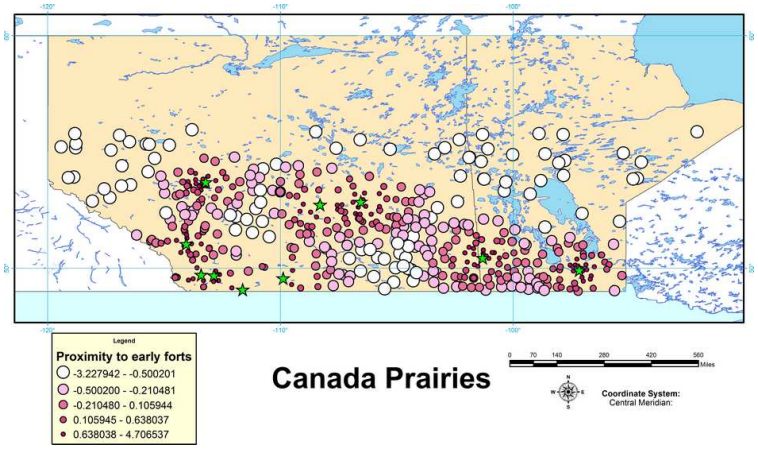

Figure A2: Location of Mounties' forts (green stars) during their early deployment and centroids of Canadian communities in my sample. The red-color scale indicates proximity to the forts after excluding the 5% more northern communities and partialling out state fixed effects.

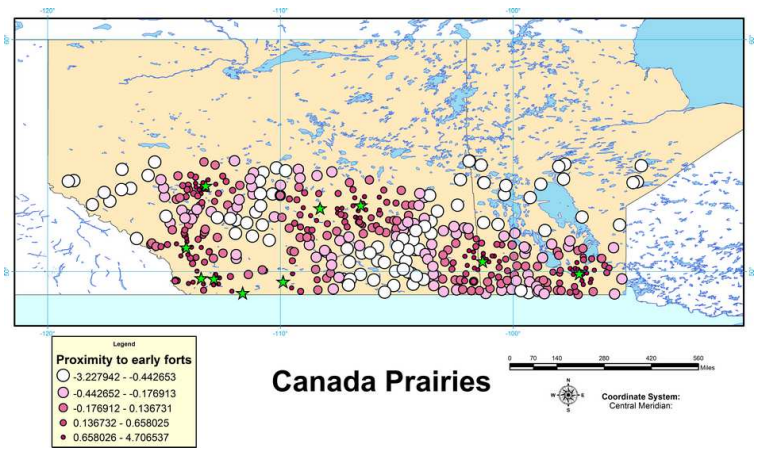

Figure A3: Location of Mounties' forts (green stars) during their early deployment and centroids of Canadian communities in my sample. The red-color scale indicates proximity to the forts after excluding the 10% more northern communities and partialling out state fixed effects.

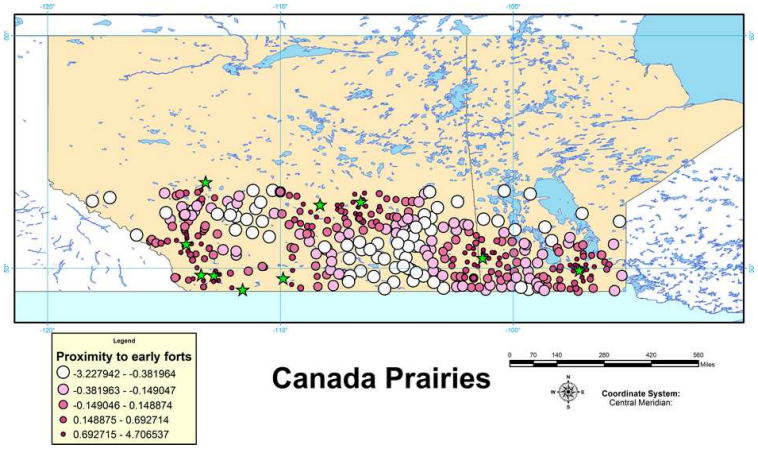

Figure A4: Location of Mounties' forts (green stars) during their early deployment and centroids of Canadian communities in my sample. The red-color scale indicates proximity to the forts after excluding the 25% more northern communities and partialling out state fixed effects.

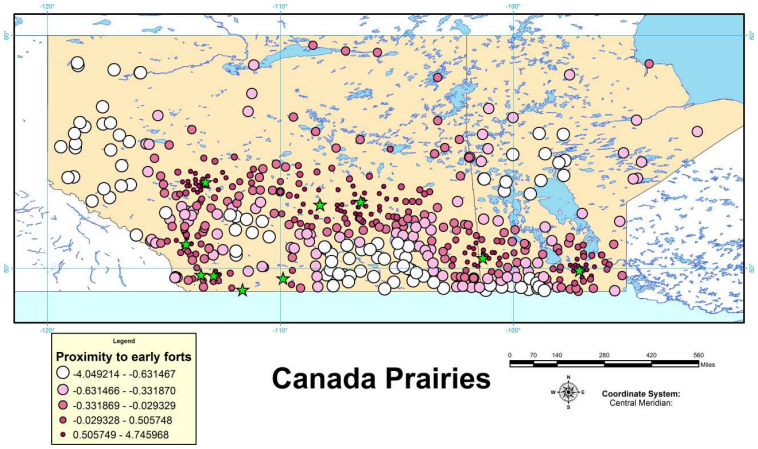

Figure A5: Location of Mounties' forts (green stars) during their early deployment and centroids of Canadian communities in my sample. The red-color scale indicates proximity to the forts after partialling out state fixed effects, latitude and longitude.

Appendix C: Additional results for hockey players and robustness.

Tables A2, A3 and A4 present alternative versions of Table 5 exploring additional results. Table A2 adds several covariates including a polynomial in population in 2011 and 1921, and composition of settlements from the 1921 census. Table A3 weights the regression by the inverse of the number of observations corresponding to players in one county. This is equivalent to computing county of birth fixed effects and regressing them on my proxy for Mounties' presence during the settlement, which corresponds to a secondary approach follow in some papers in the literature. Finally, in Table A4, I show there are no effects on performance, measured by points per game.

Table A2: Effect of Mounties' presence during the settlement in a player's county of birth on his penalty minutes per game. Robustness to adding county level covariates.

	(1)	(2)	(3)	(4)	(5)	(6)
	Only NHL seasons.					
Mounties presence	-0.105***	-0.105***	-0.104***	-0.101***	-0.096***	-0.086***
	(0.034)	(0.034)	(0.032)	(0.035)	(0.034)	(0.033)
R-squared	0.054	0.054	0.073	0.146	0.174	0.195
Observations	4666	4666	4666	4665	4665	4664
Clusters	208	208	208	208	208	208
	All leagues					
Mounties presence	-0.056**	-0.068**	-0.072***	-0.062***	-0.058**	-0.052**
	(0.024)	(0.026)	(0.027)	(0.023)	(0.023)	(0.022)
R-squared	0.039	0.080	0.129	0.171	0.197	0.211
Observations	10980	10980	10980	10977	10977	10968
Clusters	208	208	208	208	208	208
Covariates:						
Province and season effects	✓	✓	✓	✓	✓	✓
League fixed effects		✓				
Team fixed effects			✓	✓	✓	✓
Cohort and experience				✓	✓	✓
Position dummies					✓	✓
Height and weight						✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on hockey players' penalty minutes. The dependent variable is the log of penalty minutes per game. The unit of observation is each player/season, and I use the subsample specified in each panel. In all specifications I control for a full set of province and season fixed effects. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county of birth level are in parentheses.

Table A3: Effect of Mounties' presence during the settlement in a player's county of birth on his penalty minutes per game. Robustness to weighting by the inverse of number of players per county.

	(1)	(2)	(3)	(4)	(5)	(6)
	Only NHL seasons.					
Mounties presence	-0.153*	-0.153*	-0.171**	-0.102*	-0.094	-0.084
	(0.086)	(0.086)	(0.081)	(0.062)	(0.061)	(0.059)
R-squared	0.073	0.073	0.160	0.360	0.375	0.401
Observations	4666	4666	4666	4665	4665	4664
Clusters	208	208	208	208	208	208
	All leagues					
Mounties presence	-0.047	-0.056	-0.079**	-0.071**	-0.058*	-0.052*
	(0.036)	(0.037)	(0.032)	(0.031)	(0.030)	(0.030)
R-squared	0.038	0.077	0.195	0.275	0.294	0.308
Observations	10980	10980	10980	10977	10977	10968
Clusters	208	208	208	208	208	208
Covariates:						
Province and season effects	✓	✓	✓	✓	✓	✓
League fixed effects		✓				
Team fixed effects			✓	✓	✓	✓
Cohort and experience				✓	✓	✓
Position dummies					✓	✓
Height and weight						✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on hockey players' penalty minutes. The dependent variable is the log of penalty minutes per game. The unit of observation is each player/season, and I use the subsample specified in each panel. In all specifications I control for a full set of province and season fixed effects. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county of birth level are in parentheses.

Table A4: Effect of Mounties' presence during the settlement in a player's county of birth on his performance, measured by points per game.

	(1)	(2)	(3)	(4)	(5)	(6)
	Only NHL seasons.					
Mounties presence	-0.037	-0.037	-0.039	-0.032	-0.034	-0.035
	(0.038)	(0.038)	(0.035)	(0.032)	(0.031)	(0.031)
R-squared	0.036	0.036	0.054	0.198	0.220	0.222
Observations	4666	4666	4666	4665	4665	4664
Clusters	208	208	208	208	208	208
	All leagues					
Mounties presence	0.017	0.009	0.005	0.004	-0.001	-0.003
	(0.013)	(0.017)	(0.018)	(0.017)	(0.017)	(0.017)
R-squared	0.023	0.154	0.192	0.271	0.303	0.317
Observations	10980	10980	10980	10977	10977	10968
Clusters	208	208	208	208	208	208
Covariates:						
Province and season effects	✓	✓	✓	✓	✓	✓
League fixed effects		✓				
Team fixed effects			✓	✓	✓	✓
Cohort and experience				✓	✓	✓
Position dummies					✓	✓
Height and weight						✓

Notes: The table presents estimates of the effect of Mounties' proximity during the settlement on hockey players' penalty minutes. The dependent variable is the log of points per game. The unit of observation is each player/season, and I use the subsample specified in each panel. In all specifications I control for a full set of province and season fixed effects. Additionally, I control for the covariates specified in the bottom rows. Standard errors robust against heteroskedasticity and serial correlation at the county of birth level are in parentheses.

Appendix D: Infractions resulting in penalty minutes.

- Abuse of officials: Arguing with, insulting, using obscene gestures or language directed at or in reference to, or deliberately making violent contact with any on or off-ice official.
- Aggressor penalty: Assessed to the player involved in a fight who was the more aggressive during the fight. This is independent of the instigator penalty, but both are usually not assessed to the same player (in that case the player's penalty for fighting is usually escalated to deliberate injury of opponents, which carries a match penalty).
- Attempt to injure: Deliberately trying to harm an opponent.
- Boarding: Pushing an opponent violently into the boards while the player is facing the boards.
- Butt-ending: Jabbing an opponent with the end of the shaft of the stick. It carries an automatic misconduct.
- Charging: Taking more than three strides or jumping before hitting an opponent.
- Checking from behind: Hitting an opponent from behind. It carries an automatic minor penalty and misconduct, or a major penalty and game misconduct if it results in injury. Illegal check to the head: Lateral or blind side hit to an opponent, where the player's head is targeted and/or the principal point of contact
- Clipping: Delivering a check below the knees of an opponent. If injury results, a major penalty and a game misconduct will result.
- Cross-checking: Hitting an opponent with the stick when it is held with two hands and no part of the stick is on the ice. Delay of game: Stalling the game.
- Diving: Falling to the ice in an attempt to draw a penalty.
- Elbowing: Hitting an opponent with the elbow.
- Fighting: Engaging in a physical altercation with an opposing player, usually involving the throwing of punches with gloves removed or worse.
- Goaltender Interference: Physically impeding or checking the goalie.
- Head-butting: Hitting an opponent with the head. A match penalty is called for doing so.
- High-sticking: Touching an opponent with the stick above shoulder level. A minor penalty is assessed to the player. If blood is drawn, a double-minor is usually called. Referees may use their discretion to assess only a minor penalty even though blood was drawn. They may also assess a double-minor when blood is not drawn, but he believes that the player was sufficiently injured or that the offending player used excessively reckless action with his stick.

- Holding: Grabbing the body, equipment, or clothing of opponent with hands or stick.
- Holding the stick: Grabbing and holding an opponent's stick, also called when a player deliberately wrenches a stick from the hands of an opposing player or forces the opponent to drop it by any means that is not any other penalty such as Slashing.
- Hooking: Using a stick as a hook to slow an opponent, no contact is required.
- Instigator penalty: Being the obvious instigator in a fight. Called in addition to the five minute major for fighting.
- Interference: Impeding an opponent who does not have the puck, or impeding any player from the bench.
- Joining a fight: Also called the "3rd man in" rule, the first person who was not part of a fight when it broke out but participates in said fight once it has started for any reason (even to pull the players apart) is charged with an automatic game misconduct in addition to any other penalties they receive for fighting.
- Kicking: Kicking an opponent with the skate or skate blade. Kicking carries a match penalty if done with intent to injure, but otherwise carries a major penalty and a game misconduct.
- Kneeing: Hitting an opponent with the knee.
- Roughing: Pushing and shoving after the whistle has been blown or checking an opponent with the hands in his face.
- Slashing: Swinging a stick at an opponent, no contact is required.
- Slew Footing: Tripping an opponent by using your feet.
- Spearing: Stabbing an opponent with the stick blade.
- Starting the wrong lineup: When offending team fails to put the starting lineup on the ice at the beginning of each period.
- Substitution infraction: When a substitution or addition is attempted during a stoppage of play after the linesmen have signaled no more substitutions or if a team pulls its goalie and then attempts to have the goalie re-enter play at any time other than during a stoppage of play.
- Too many men on the ice: Having more than six players (including the goalie) on the ice involved in the play at any given time.
- Tripping: Using a stick or one's body to trip an opponent.
- Unsportsmanlike conduct Arguing with a referee; using slurs against an opponent or teammate; playing with illegal equipment; making obscene gestures or abusing an official.