

A History of Violence: The Culture of Honor and Homicide in the US South

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Abstract

According to the culture of honor hypothesis, the high prevalence of homicides in the South of the United States originates from the settlement by herders from the fringes of Britain in the 18th century. This paper confirms that historical Scot or Scots-Irish presence is associated with higher contemporary homicide, particularly by white offenders, and that the culture of honor was transmitted to subsequent generations; but only in the South and, more generally, where historical institutional quality was low. The interpretation is that the culture of honor prevailed and persisted as an adaptive behavior to weak institutions. The influence of the culture of honor is also found to be fading over time. The results are robust to controlling for a large number of historical and contemporary factors and state fixed effects as well as to the use of instrumental variables for historical settlements and for the quality of historical formal institutions. The results are also specific to a particular type of homicide and background of settlers.

Keywords: Cultural Persistence, Homicide, Institutions, Scots-Irish, US South

JEL codes: K42, N31, O15, Z13

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1. Introduction

Historical events have a lasting influence on economic outcomes and behavior (see Nunn 2009 for a review). The hysteresis of formal institutions has been the first and foremost explanatory factor behind such persistence (Engerman and Sokoloff 1997, Acemoglu, Johnson and Robinson 2001, Dell 2011). Recently, an emerging body of evidence has pointed to culture as another channel of persistence.¹ However, culture is a pervasive concept and still little is known on what outcomes are influenced, how culture changes and how formal institutions and culture interact. This paper examines the origins of cultural factors underpinning interpersonal violence and the institutional conditions under which they have persisted.

The average homicide rate in the Deep South of the United States at the beginning of the 21st century stands at 8.59 per 100,000 people, nearly three times as high as in Northern states.² This southern homicide specificity is, furthermore, a white offender phenomenon,³ which this paper traces back to past cultural and institutional conditions in the US South. The 18th century US saw a large influx of settlers from Ulster - the so-called Scots-Irish- and from the Scottish Highlands, two traditionally pastoral and lawless areas that were among the most violent of Europe (O'Donnell 2005, Roth 2009). Cultures of honor, which rely heavily on aggression and male honor, are common adaptations among populations living in stateless regions and that depend upon easily stolen herds. In the absence of third party law enforcement, aggression and a willingness to kill can be essential to build a reputation for toughness and deter animal theft.⁴ In a famous and debated hypothesis, Nisbett and Cohen (1996) argues that the Southern culture of honor finds its root in the settlement of the backcountry by Scots or Scots-Irish herders.

Combining contemporary homicide data with historical Census data, I find that Scot or Scots-Irish historical presence contributes to higher homicide and aggravated assaults today. Consistent with a culture of honor, the effect is specific to white offenders and to a type of homicide that aims at the defense of one's reputation: between acquaintances and

¹ Culture has been found to influence norms and beliefs such as trust (Guiso, Sapienza and Zingales 2008, Tabellini 2008a and 2008b, Algan and Cahuc 2010, Nunn and Wantchekon 2011) and behavior such as fertility (Fernandez and Fogli 2007), firm management practices (Bloom, Sadun and Van Reenen forth.) or inter-ethnic violence (Jha 2008, Voigtländer and Voth forth).

² Source: UCR. See Table 1.

³ Between 1980 and 2007, white offender rates in the Deep South were 2.8 times those in Northern states. Black offender rates were 'only' 1.4 times higher, a difference that is no longer significant since the end of the 1980s.

⁴ Edgerton (1992) describes natural experiments where two tribes living in the same region of East Africa but differing in their economic occupations display different tendency for violence and warfare. Pigliaru (1959) describes the codes of honor and the reliance on interpersonal violence among Sardinian herdsmen. Braudel (1949) recounts the reputation for violence of the mountainous herding people of the Mediterranean rim.

perpetrated with a handgun, pistol or, in an even more demonstrative way, a blunt object, such as hammer or club. However, the relationship between historical Scots-Irish presence and contemporary interpersonal violence is observed in the South only.

The question that arises is why this culture of violence survived in the South only. Wyatt-Brown (2001) depicts how in the North, formal and impersonal institutions quickly became the cement of social and political order in the 19th century. By contrast, in the lawless frontier South, the Scots-Irish culture of honor, as a private justice system, may have provided the best adaptive response and become the prevailing norm. Empirical results confirm that the historical presence of Scot or Scots-Irish herders is associated with higher homicide only in areas where institutional quality was low. These are counties with low fiscal capacity and low newspaper circulation, as early as can be measured, in the mid 19th century. The choice of institutional quality measures is restricted by data availability at an early and disaggregated level. To reduce the scope for idiosyncratic judgment, I rely on the first principal component of these two measures. A more important limitation is that cultural norms may have contributed to inefficient institutions. To address this problem, I rely the use of instrumental variables. The quality of formal institutions at the time of original settlement by the Scots and Scots-Irish is instrumented by the time elapsed since county incorporation, or whether the area was incorporated at all in 1790. The Scots and the Scots-Irish, being traditionally pastoral and a relatively late and impoverished migrant group, sought marginal land. Their historical presence is thus instrumented by terrain roughness characteristics and the distance to a major crossroad on the way to the backcountry. The results are robust and confirm that the culture of honor has persisted where formal institutions were weak. The results are also robust to the use of state fixed effects, which remove any state-level variation that could be correlated with the timing of incorporation, historical settlements or contemporary homicide.

The rest of the paper is devoted to investigating what underlies cultural transmission, in order to explain why settlements 200 years ago are still associated with homicide today. One mechanism is that the descendants of the original settlers have internalized cultural traits consistent with a culture of honor. Homicide is more prevalent today in counties with high contemporary proportions of Americans of Scots-Irish ancestry, but only in the South and, more generally, where institutional quality was low. The results are robust to controlling for historical Scot or Scot-Irish presence and to instrumenting historical institutional quality. The interpretation is that cultural traits pertaining to the use of lethal violence were transmitted to subsequent generations only where such traits paid off, due to the weakness of formal

institutions. Given that the quality of institutions has improved in the South over the last 200 years, the influence of Scots-Irish cultural norms should also have waned. The statistical influence of Scots-Irish settlements on homicide rates was, indeed, much bigger at the beginning of the 20th century and has been decreasing steadily since the beginning of the 1980s'. Attitudinal data confirm that Southerners of Scots-Irish ancestry display cultural values that are consistent with a culture of honor, and that such values are more strongly held by older cohorts.

Several strategies are pursued in order to establish that the relationship between Scot or Scots-Irish settlements and homicide is causal. Firstly, the results are robust to controlling for a large number of contemporary determinants of crime, such as poverty, inequality, racial composition, ethnic fractionalization, police numbers and budgets as well as the prevalence of other crime and offenses. The results are also robust to controlling for terrain characteristics, historical land use and agricultural output. Secondly, several falsification tests are performed. The positive relationship between contemporary homicide in the South and early settlers is specific to the Scots or Scots-Irish, and it is confined to violence related to a self-protection ethic, as opposed to crime or violence in general. This invalidates an interpretation according to which the result could be due entirely to the systematic migration of only the most violent settlers to specific areas. Thirdly, the results are robust to the instrumental variable estimation described above. Last, the influence of unobservable factors would need to be about three times higher than observable factors to explain away the presence of Scots-Irish settlements in the South.

Recent studies have established the role of culture as a channel through which historical events affect present-day outcomes.⁵ The influence of historical and cultural factors on violence has been explored in the context of inter-ethnic hostility, between Hindus and Muslims in India (Jha 2008) and against Jews in Germany (Voigtländer and Voth forth.). This paper deals instead with interpersonal violence. Its main contribution is to suggest not only that violent cultural norms are inheritable but, more importantly, that persistence vanishes in the presence of strong formal institutions. This is explained by the fact that the development of formal institutions, by providing alternative means of dispute adjudication and property rights' security, lowers the returns to interpersonal violence and increases its cost, as the monopolization of violence by the state goes hand in hand with the penalization

⁵ Among others, Guiso, Sapienza and Zingales (2008) and Tabellini (2008a) link current trust to the experience of free city states in Italy. Grosjean (2011a, 2011b) and Becker et al. (2011) relate current trust, banking practices and corruption to Ottoman and Habsburg rule in Europe. Nunn and Wantchekon (2011) roots low contemporary trust in Africa in the slave trade history.

of interpersonal violence (Weber 1958, Elias 1994). Voigtländer and Voth (forth.) also finds that cultural persistence is conditional: anti-Semitic attitudes disappeared in the most active trading regions where the cost of discriminating against outsiders was high. Others have shown that cultural norms only play a role when formal institutions are weak or lack impartiality. In a study on parking violations committed by UN diplomats, Fisman and Miguel (2007) finds that cultural origins cease to matter once external enforcement is imposed. Cassar et al. (2012) shows, in an experimental setting, that regional origins influence cheating only in the absence of impartial institutions.

A secondary contribution of this paper is to the literature on crime. In the face of the difficulty of reconciling the Southern –white offender- homicide specificity with traditional determinants such as income, institutions or drug prevalence,⁶ the role of cultural values has attracted much attention in sociology, history and psychology.⁷ The current paper finds that the Scots-Irish culture persisted only where formal institutions were weak. The conditionality of this result may explain the shortcoming of previous literature on the Nisbett-Cohen hypothesis, which has struggled to establish a robust link between, on the one hand, ecological conditions, specific groups of people or social organization⁸ taken in isolation of one another and, on the other hand, homicide. The result in this paper is, however, in accordance with the literature on the secular decline in interpersonal violence in the face of institutional development and the “civilizing process” (Elias 1994, Pinker 2011).

Section 2 provides the historical and conceptual background. Section 3 presents the data. Section 4 discusses the empirical relationship between historical settlements and contemporary violence. Section 5 analyzes the determinants of the survival of the culture of honor in the South. Section 6 investigates cultural transmission. Section 7 concludes.

2. Historical background and Conceptual Framework

2.1. The Scots-Irish and Migration to America

Nisbett and Cohen (1996) roots the culture of honor in the settlement of the frontier South by “herdsmen from the fringes of Britain” (p. xv). Chief among them were Highland Scots, who had been driven away by the defeat of Charles Edward Stuart in 1745, and the Scots-Irish.

⁶ None of the factors discussed in Levitt (2004) and Levitt and Miles (2006) - number of police, prison population, abortion and the crack epidemics- seems to apply more obviously to the North rather than the South. Moreover, their analysis is mostly focused on explaining the sharp decline of homicide rates in the 1990s, which was confined to black offender rates.

⁷ See Gastil (1971), Wyatt-Brown (1982) and (2001), Cohen and Nisbett (1994), Nisbett and Cohen (1996).

⁸ See Lee et al. (2007), Rivera, Chu and Loftin (2002) and Loftin and McDowall (2003). Chu, Rivera and Loftin (2000) question the empirical validity of the link between herding and homicide discussed in Reaves (1992).

The term Scots-Irish was coined in the US in the 19th century to differentiate the Protestant – mainly Presbyterian- people from the northern Irish province of Ulster, from the Catholic Irish. These people originated in the Anglo-Scot borderlands⁹ and were resettled to Ulster when the English and Scottish crowns were united under James I in 1603. Economic difficulties and restrictive English trade laws, namely prohibiting export of cattle and wool from Ulster ports¹⁰, as well as religious discrimination, particularly severe after the 1704 Test Act enacted by Queen Anne, spurred mass migration of the Scots-Irish to the United States. It is estimated that over 200,000 Scots-Irish migrated to the Americas between 1717 and 1775, in what has been described as the first mass migration to the US (Fischer 1989). As a late and impoverished group, they found land in the coastal areas already owned or too expensive and left for the backcountry on the “Great Philadelphia Wagon Road”, along the Appalachian Mountains southward to the Carolinas.

Although Protestants were only one-third of the population of Ireland, they represented three-quarters of all emigrants leaving Ireland between 1700 and 1776 (Adamson 1982). Things radically changed at the end of the 18th century. By then, economic and political conditions had improved in Ulster and the ensuing mass emigration from Ireland, particularly after the 1840 Potato Famine, consisted primarily of Irish Catholics, whose cultural and historical background was very different. This changing pattern of Irish emigration at the beginning of the 19th century justifies the selection of the 1790 Census as the main source of identification of Scots-Irish settlers, as detailed in Section 3.

2.2. Conceptual Framework: Lawlessness and Interpersonal Violence

The premise of this paper lies in the relationship between lawlessness, economic vulnerability and interpersonal violence. Violence plays an essential role for the defense and enforcement of property rights in the absence of third party enforcement.¹¹ Evolutionary anthropologists argue that rules of dispute resolution belong to the set of culturally transmitted norms of behavior, that is to say pre-set behaviors that save on the cost of developing new responses to changing environments (Paciotti and Richerson 2002, Richerson and Boyd 2005). The absence of formal law enforcement entails the prevalence self-help justice, which is sustained by specific cultural traits –the culture of honor being a particular example. Elias’ (1994) idea

⁹ The borderlands extended from the River Cree to the North Sea on the Scottish side and from the coast of Cumberland to the coast of Northumberland on the English side.

¹⁰ The 1660 Navigation Act had prohibited all exports from Ireland to the colonies and the export of Irish cattle to England. In 1699, the English parliament prohibited wool or woollen goods exports from any Irish ports except Drogheda, Dublin, Waterford, Youghal, Cork and Kinsale, none of which is in Ulster.

¹¹ Bates, Greif and Singh (2002) and Gonzales (2010), for example, model the state as but one agent specialized in the protection of property rights.

of the “civilizing process” consists in this very idea that cultural norms reflect the social structure. As the state develops and monopolizes violence, violent instincts and the inclination to solve disputes with fists, sticks, blades or guns are gradually placed under an increasingly strong social control. Pinker (2011) provides abundant historical evidence consistent with this view.

This theory explains why 18th century Scots-Irish and Scottish Highlanders were more prone to interpersonal violence than other Western European settlers, as they originated from areas that were lagging behind in the “civilizing process”. Lawlessness, lack of political centralization and violence had characterized the Anglo-Scot borderlands for much of the 250 years during which Scotland and England were in open conflict with one another (roughly from 1296 to 1551). Ulster, the last Irish province to come under English domination, had been particularly ravaged by the Nine Years War and left in a power vacuum by the Flight of The Earls in 1607. In the borderlands, as in Ulster, the concept of state administered punishment for crime was foreign (O’ Donnell 2005).¹² As Fischer (1989) writes: “Borderers placed little trust in legal institutions. They formed the custom of settling their own disputes by the *lex talionis* of feud violence and blood money” (p. lx). Homicide rates in Ulster in the 1730s were around 10 per 100,000 (Roth 2009) and rates of killings in Ireland were twice as high as in England until well into the 20th century (O’ Donnell 2005). Fischer (1989) adds: “This border culture was carried across the Irish Sea to Ulster by the settlers who would be called Scots-Irish and Anglo-Irish [...] In Ireland they found another environment of endemic violence” (p. lx).

This paper deals with the extent to which this ‘border culture’ was also carried across the Atlantic, and to what extent it thrived in the environment found there. State controllers, such as courts and sheriffs, were weak in the Antebellum South (Wyatt-Brown 2001), leaving little opportunity for individuals to resolve dispute through third-party adjudication. Besley, Persson and Sturm (2010) identifies conditions in the pre-Civil War South, which were conducive to restricted political competition and lower quality of political institutions. Berkowitz and Clay (2006, 2011) documents lower court quality in states that were colonized or settled by a country with a civil law system and in states that were members of the Confederacy during the Civil War. The Scots-Irish culture of honor, which had emerged as, precisely, a response to lawlessness and economic vulnerability, may have provided the best

¹² Early Irish law, the Brehon Law, which was a civil rather than a criminal law, had persisted in Ireland until the Norman invasions in the 12th century and in Ulster until the Tudor conquest in the 17th century. Under the Brehon law, as under customary law in the Anglo-Scot borderland, offenders in case of physical injury only had to respond to the victim or her representative.

adaptive response to this environment of weak formal institutions. As such, it could become the prevailing cultural norm.¹³ Along these lines, Fischer (1989) writes: “These emigrants from North Britain established in the southern highlands [of the US] a cultural hegemony that was even greater than their proportion on the population. An explanation of this fact may be found in the character of this American environment, which proved to be exceptionally well matched to the culture of the British borderlands” (p. lxi). Testable predictions are that the culture of honor should prevail where institutions were weak.

Anecdotal evidence on the ruthlessness and violence of the 18th century Scot and Scots-Irish settlers in the United States abound. Roth (2009) writes that the Scots and the Scots-Irish immigrants “brought their homicidal tendencies with them to North America [...] [In New England], the Scots-Irish [...] were more than twice as likely to be murdered or to commit murder as other colonists. [...] In Virginia, [...] the Scots-Irish had a reputation for extraordinary violence” (p. 83, 84). The Irish represented less than 4% of the population but 13% of homicide assailants in New England and Virginia between 1676 and 1800. The Scots were nearly as violent: they represented 12% of the population but 20% to 26% of homicide assailants in New England and Virginia, respectively (Roth, 2009). Wyatt-Brown (2001, p. 73) writes that: “The Scots-Irish were more prone to personal violence and more conscious of honor than any other group then settled in the country”.¹⁴ St John de Crevecoeur described in 1782 how: “The Irish [...] love to drink and to quarrel; they are litigious, and soon take to the gun” (St. John de Crevecoeur 1782, Letter 2). However, the frontier conditions that led to the prevalence of interpersonal violence have now disappeared. Why, then, should such a culture of violence have persisted?

One explanation is that such events are rather recent from the point of view of cultural evolution, i.e. that the original settlers’ culture has not yet fully dissipated despite changes in economic and political conditions. Cultural evolutionary models account for significant time lags between environmental and cultural changes because of hysteresis in parental transmission of values (Bisin and Verdier 2001).¹⁵ A testable hypothesis is that Americans of Scots-Irish descent should, even today, display higher levels of aggressions and a higher

¹³ Paciotti and Richerson (2002) provides other examples, where the culture of certain groups, like the Chinese in the San Francisco vice industry or the Italian mafia, were the best adaptive norms and came to dominate environments where state institutions are weak.

¹⁴ The author refers to the time period around President Jackson’s childhood. Jackson was born in 1767, two years after his parents emigrated from county Antrim, Ulster.

¹⁵ Empirical evidence on the persistent effects on culture of the African slave trade (Nunn and Wantchekon 2011), Ottoman domination (Grosjean 2011a, 2011b) or climatic conditions several centuries ago (Durante 2011) illustrates that indeed, cultural change is slow.

inclination towards self-help justice rather than centrally administered justice. However, cultural transmission is more than cultural reproduction. In models à la Bisin and Verdier (2001), parental decisions to transmit cultural norms are determined by the payoff to alternative cultural norms in different environments. Where formal institutions are strong and provide alternative sources of dispute adjudication and property rights' security, the returns to interpersonal violence are low and the risks high, because of the threat of imprisonment. The culture of honor may thus have been transmitted to subsequent generations only where formal institutions were weak.

3. Data

3.1. Crime

Crime data is from the Uniform Crime Reporting (UCR) Program Data by the United States Department of Justice and Federal Bureau of Investigation. UCR data provide information on 43 offenses and the monthly count of arrests by age, sex, and race for each offense in more than 17,000 reporting agencies. The main offense retained to test the culture of honor hypothesis is "Murder and non-negligent manslaughter" but data on aggravated assaults and other types of violent crime or offenses is also used. Homicide by white offenders, defined as the number of homicides for which a white offender has been arrested as a proportion of the white population, is of particular relevance. More precise information on the type of homicide is available from the Supplementary Homicide Reports (SHR) of the UCR, which provide information on the relationship between offenders and victims. Most homicides involve acquaintances (26.5%) or close family members (21.5%) and are committed with a gun (34%). More than 6% of homicides are perpetrated with a blunt weapon, such as a hammer or a club.¹⁶

Data collection by the UCR started in the 1960s but data at the county level is only available since 1980 and the number of reporting agencies has been increasing over the years. For this reason, the analysis relies mostly on more recent and complete data, between 2000 and 2007. Data since 1980 is used for robustness and to explore how the influence of Scots-Irish settlements has evolved over time. A source of historical crime data is the 1904 Special Report to the Bureau of the Census of Prisoners and Juvenile Delinquents in Institutions, which records the number of inmates held for homicide, a proxy for homicide, but only at the state level.

¹⁶ Percentages of homicides for which information on the relationship between offender and victim or weapon used is provided.

UCR data is merged with the 2000 Census to obtain crime rates per 100,000 people. The average yearly crime rate per 100,000 people between 2000 and 2007 is 5.8. States with the highest crime rate are North and South Carolina and the lowest are Maine and New Hampshire.¹⁷ Descriptive statistics are in Tables 1 and 2. The US-wide average yearly homicide rate by white offenders is 2.5 per 100,000, more than twice the average *total recorded* homicide rate in the EU-12.¹⁸ Other contemporary determinants of crime, such as demographic, racial and socio-economic county characteristics are from the 2000 US Census. The 2000 Census of State and Local Law Enforcement Agencies (US Dept. of Justice 2000) provides information on the number of police officers and police budget per capita, at the county level.

3.2. Historical Settlements

Data on historical settlements is taken from the US Census (National Historical and Geographical Information System and IPUMS by Ruggles et al. 2010). A Census was first taken in 1790 and then every ten years after that. However, not all Censi contain information on countries of origin and the first Census to contain such information after 1790 is in 1870. As described in Section 2, Scots-Irish settlement in the US was roughly completed by 1775. The ensuing massive emigration from Ireland, particularly after the 1840s Potato famine consisted of culturally very different people: Catholics from the South of Ireland. The Scots-Irish are hardly identifiable from the Welsh, the Scots or the English by their last names (Berthoff, 1986). For these two reasons, in order to identify the Scots-Irish, the analysis has to rely on the only pre-1840 Census that contains information on countries of origin: the 1790 Census. Settlers' age, family sizes and slaveholding are recorded in 286 counties. Information on the country of origin¹⁹ is available in 150 counties in 11 states according to 1790 states' boundaries, 13 according to modern ones.²⁰ The main group of interest is the Scots grouped together with the Ulster Scots, which represents 7% of the total 1790 population (see Table 2 for the regional distribution). Middlesex, New Jersey and Mifflin, Pennsylvania are the counties with the highest proportion of Scots or Scots-Irish in 1790. Census data is matched

¹⁷ Alaska and Hawaii are excluded.

¹⁸ This is a lower-bound estimate of the difference since unsolved crime is not considered in the US number but is in the EU-12 number. The source of data on EU crime rate is UNODC (2010).

¹⁹ The 1790 Census records as countries of origin of settlers: "England and Wales", "Ireland", "Scotland", "France", "Holland", "Hebrew" and "All other nationalities".

²⁰ Connecticut, Maryland, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia and West Virginia. Some counties were carved out of Massachusetts and Virginia and reallocated to, respectively, Maine and West Virginia in the 19th century.

to crime data and a match is obtained for 150 counties. The most violent counties are in South Carolina: Marlboro for overall homicide and Orangeburg for homicides by whites.

The 2000 Census contains data on ancestry. Vertical cultural transmission from parents to children implies that Americans of Scots-Irish ancestry are more likely to share cultural traits with the original Scots-Irish settlers. People reporting Scots-Irish as first or second ancestry in the 2000 Census are considered as being of Scots-Irish ancestry. Americans of Scots-Irish ancestry are generally concentrated in the mountain South and the Ohio River valley, with additional pockets of concentration in Montana, Texas, Colorado and Nebraska (see Table 2 for the regional distribution).

3.3. Institutional Quality

A challenge to investigating the interaction between the culture of honor and formal institutions consists in finding early and disaggregated enough measures of formal institutional quality. Two measures fulfill these criteria. The first consists in fiscal capacity, measured by the level of non-national taxation per capita at the county level, taken from the Wealth, Debt, and Taxation Volume of the 1870 Census. The ability to raise tax revenue reflects state capacity (Besley and Persson 2009, 2010) and simply made more resources available for law enforcement, particularly in the context of the 19th century US when law enforcement was highly decentralized and reliant on local finances. Sheriffs and constables appeared at the start of the 19th century and spread throughout the first half of the 19th century. Local city and county authorities had entire hiring and financial control over them (Lane 1992), making county fiscal capacity a good indicator of the development of local formal law enforcement. Until the role was transferred to sheriffs and constables, enforcement of criminal law was largely the responsibility of the individual victim or the local community.

The second measure consists in the number of newspapers per capita, which was first recorded in the 1840 Census. The role of the media in enhancing institutional quality has been the focus of a substantial theoretical and empirical literature. Newspaper entry promotes political participation (Gentzkow, Shapiro and Sinkinson 2011) and lower concentration of both media ownership and readership has been associated with increased political accountability (Besley and Burgess 2002) as well as lower corruption (Besley and Prat 2006), namely in the 19th century US (Gentzkow, Glaeser and Goldin 2006). The average number of daily, weekly, or tri-weekly newspapers per capita in 1840 in the counties included in the 1790 Census is: 10.64 in Northern States, 8.94 in the Border South and 3.80 in the Deep South.

The choice of these institutional quality measures is driven by data availability at an early and disaggregated enough level. A potential drawback is that they each measure a different dimension of institutional quality. To reduce the scope for idiosyncratic judgment and summarize different dimensions of institutional quality in a single measure, I extracted the first principal component of the two measures: *PC Inst. Qual.*. Higher local fiscal capacity and higher newspaper circulation, and thus a higher value of their first principal component, are taken as indicators of better institutional quality. Among counties included in the 1790 Census, *PC Inst. Qual.* takes value 0.42 in Northern States, 0.98 in the Border South and -1.33 in the Deep South. It is lowest in South Carolina and highest in New York State. The correlation coefficient between *PC Inst. Qual.* and individual measures of institutional quality is more than 0.72. Descriptive statistics for the 1840 population are in Table 1.

An important obstacle to the identification of the effect of institutional quality on cultural persistence is that institutional quality may be influenced by the cultural values of settlers. What would be particularly problematic is if the Scots or Scots-Irish were particularly influential in the design and performance of local institutions. Dealing with this problem requires finding an instrumental variable that predicts the quality of institutions that the Scots and Scots-Irish faced when they settled in the 18th century, but is not directly determined by them and exert no influence on contemporary violence. A good candidate is the time elapsed since incorporation, or whether the area was incorporated at all, at the time of settlement by the Scots and Scots-Irish. County formation took place rather smoothly between 1634 (Isle of Wight and Northumberland in Virginia) and the end of the 18th century, before accelerating during the first three quarters of the 19th century, when the majority of incorporation occurred. County age, measured by the time elapsed between 1790 and the date of county formation is used as an instrumental variable for the quality of historical institutions. Dates of county formation are taken from the National Association of Counties.²¹ It may be important to distinguish whether a county was formed from previously unincorporated territory or from redistricting. Therefore, I also coded whether a given county is an original county or pre-existed, either as part of another county or in another State. The nature of institutions transposed in a county depends not only on the date of incorporation but also on the ideology of those who established – and named – it (Zelinsky 1989). I coded a dummy variable taking value one if the county was named after a British place, statesman, or colonial administrator. This is the case of 66% of counties in the 1790 Census. The highest

²¹ <http://www.naco.org/Pages/default.aspx>.

proportion is in New Hampshire, the lowest in Maryland. British names are, naturally, positively correlated with county age (0.22 in the 1790 Census), but negatively with *PC Inst. Qual.* (-0.16), while county age and *PC Inst. Qual.* are positively correlated (0.14). To deal with the possibility that county age or the British-ness of county name may have been influenced by Scot or Scots-Irish historical presence, I will check that all the results are also robust to instrumenting the latter as well as institutional quality.

4. Historical Scot and Scots-Irish Settlements and Contemporary Homicide

4.1. Estimating Equations

The analysis starts by considering the relationship between contemporary homicide rates and the proportion of Scot or Scots-Irish settlers in 1790, controlling for historical and contemporary socio-economic and demographic controls and for regional dummies. An interaction term between settlers and regional dummies is then included to investigate whether this relationship varies across regions. The estimated equations are:

$$m_c = \beta_0 + \beta_1 SI_c + \beta_2 region_c + \beta_3 X_c + u_c \quad (1)$$

$$m_c = \gamma_0 + \gamma_1 SI_c + \gamma_2 region_c + \gamma_3 region_c * SI_c + \gamma_4 X_c + u_c \quad (2)$$

where m_c is the average annual homicide rate per 100,000 people between 2000 and 2007 at the county level, overall and by ethnicity of offender. SI_c is the proportion of settlers from Scotland or Ireland in the total county population in the 1790 Census. Additional specifications consider the number of settlers, instead of the proportion, as well as linear log specifications, with either the log of the number or of the proportion of settlers. $region_c$ is a vector of regional dummies for Northern states, Border South and Deep South. In 1790, the Deep South consists of Virginia and the Carolinas; and the Border South of Delaware, Maryland and West Virginia. The vector X_c includes historical controls, such as number of slaves and population density in 1790, which could be correlated with Scots or Scots-Irish settlement, and contemporary socio-economic and demographic county level characteristics, which could be correlated with homicide, such as: log of aggregate earnings, urbanization, income Gini, racial composition and ethnic fragmentation. In robustness specifications, the numbers of police officers and the log of the police budget per capita in 2000, variables reflecting education level for blacks and whites, as well as county geographic characteristics are included as controls. In all specifications, standard errors are robust to heteroskedasticity.

4.2. OLS Baseline Estimates

Table 3 reports OLS estimates for the overall homicide rate (Columns 1 to 4) and homicide rates by offenders of different ethnicities: white (Columns 5 to 8) and black (Columns 9 to 12). The specifications in (1) and (2) are estimated for each dependent variable, first without controls and then with the full set of contemporary and historical controls. The estimates show that the proportion of Scot or Scots-Irish settlers in 1790 is only weakly associated with contemporary homicide rates. However, this hides substantial regional heterogeneity. Within the South, and most particularly in the Deep South, Scots or Scots-Irish settlements are strongly and positively associated with homicide, particularly by whites. The interaction between the proportion of Scots or Scots-Irish settlers and the Deep South is statistically significant at the 5% level for overall homicide and at the 1% level for white offender rates. The result is robust to the inclusion of all contemporary and historical controls. For white offender rates, the interaction with Border South is also positive and statistically significant at the 5% level when controls are included.

The culture of honor was brought along by the Scots and Scots-Irish and should not have permeated black culture, given their limited involvement in slavery and the segregation of whites and blacks at the time of their settlement.²² Accordingly, Scot or Scots-Irish settlements have no statistical relationship with homicide by black offenders.

The coefficient estimates of the interaction between southern regional dummies and Scot or Scots-Irish settlements are not only statistically significant but also quantitatively meaningful. To illustrate this, Columns 1 and 2 of Table 4 report standardized beta coefficients. An increase in one standard deviation of the proportion of Scot or Scots-Irish settlers (about 0.062) is associated with an increase in homicide rates by 7.7 standard deviations and by 2.7 standard deviations for white offender rates in the Deep South. In the Border South, an increase by one standard deviation of the proportion of Scot or Scots-Irish settlers is associated with an increase in white offender rates by 1.4 standard deviations.²³

The goodness of fit of the full specification of the baseline equation is satisfactory. Information on settlers' regional distribution and current socio-economic and demographic characteristics explains about 50% of the variation of homicide rates across counties.

²² The correlation between Scots or Scots-Irish settlements and slave numbers at the county level is negative and significant at the 10% level (-0.12).

²³ It may be surprising that the reported coefficients are much bigger when the dependent variable includes all homicide compared with the case where the dependent variable is the white offender rate only, given that Scots-Irish presence has no influence on black offender homicide rates. The proportion of unresolved homicide may account for this. Although the average homicide rate is 4.35 per 100,000 in the sample, the sum of white and black offender rates, when computed over the whole population, only amounts to 2.63 (1.06 for whites, 1.57 for blacks, other ethnicities are a minority of offenders).

Table 4 reports the results of alternative specifications of the main independent variable of interest. Specifications in columns 3 and 4 use the logged value of the proportion of Scots or Scots-Irish settlers at the county level. Specifications in columns 5 and 6 use the number of Scots or Scots-Irish settlers and, in Columns 7 and 8, the logged value of that number, controlling for the county 1790 population. The main result is robust to the use of all alternative specifications: Scots or Scots-Irish settlers are positively and significantly associated with homicide rates in the Deep South, particularly by white offenders. The proportion of Scot or Scots-Irish settlers in the county population is used as the main variable of interest in the rest of the analysis.

To sum up, the results so far indicate that, in slight contrast with the Nisbett-Cohen hypothesis, differences in the presence of Scot or Scots-Irish settlers do not contribute to explain the North-South differences in homicide rates, but they are a strong determinant of homicide patterns in the South, particularly by white offenders. Before turning to the reasons underlying this result, the next section establish the causal nature of the relationship.

4.3. Robustness and Instrumental Variable Estimation

The relationship between homicide in the Deep South and Scot or Irish settlers in 1790 is robust to including additional controls, namely police number and budget per capita, education (by race), terrain characteristics, such as mean elevation, differences in elevation and total area, historical land use and agricultural output as well as mining discoveries. It is also robust to controlling for interactions between regional dummies and to clustering standard errors at the state level. Table A1 in Appendix presents the results of some of these additional specifications.

An explanation for the positive association between Scot or Scots-Irish settlers and homicide is that areas where they settled experience more crime in general; what, in turn, leads to more homicide. For example, homicide may be higher because of more frequent robberies or differences in propensities to carry weapons or drink. If that was the case, the relationship between Scot or Scots-Irish settlements and homicide rates should not be robust to additional controls for contemporary crime. Rates of weapon carry, drunkenness offenses and robberies are included as additional controls, first individually, then together. Results are in Appendix Table A2. For homicides by white offenders, only offenses committed by whites are considered. Homicide rates are positively and significantly associated with the prevalence of all these offenses, and particularly with robbery. However, the effect of Scot or Scots-Irish settlements on homicide rates in the Deep South is robust to the inclusion of other offenses as

controls, even when all considered together and interacted with regional dummies, in Columns 5 and 10.

Even though the relationship proves very robust to controlling for a large number of observable characteristics, one might still be worried that the presence of unobservable characteristics drives both historical Scot or Scots-Irish presence and contemporary homicide. To address this problem, I first check that the results are robust to controlling for state fixed effects in Columns 1 and 2 of Table A1. Even though state fixed effects absorb a lot of the variation, the results hold. To rule out further that selection on unobservable underlie the main result of this paper, I rely on an instrumental variable estimation strategy.

The large majority of the Scots and Scots-Irish made their entry to America through Philadelphia, Chester or New Castle and continued their way on the Great Philadelphia Wagon Road. A good candidate for an instrumental variable for Scots-Irish settlements is the distance to one of the main crossroads on this road: Shallow Ford, a shallow point of crossing on the Yadkin River. In contrast with ports of entry, which are still important today, Shallow Ford today is an undeveloped area. There is thus little reason to believe that its location should influence contemporary crime in other ways than through its influence on historical migration patterns. Distance to Shallow Ford may have driven settlements by other groups, but several characteristic features of the Scots and Scots-Irish provide the source for additional instruments. Pastoralist by tradition and a late and relatively impoverished group of migrants, the Scots and Scots-Irish were driven to marginal lands. Distance to Shallow Ford, a measure of terrain roughness (mean elevation) and their interaction term are thus used as instrumental variables for Scot or Scots-Irish settlements. First stage regression results are in Column 1 of Table A5. The proportion of Scot or Scots-Irish is, as expected, positively associated with mean elevation, albeit weakly, (t-stat of 1.47) but strongly and negatively associated with distance to Shallow Ford (t stat of 5.06) and with the interaction term (t-stat of 1.81). The excluded instruments are strong predictors of Scot or Scots-Irish settlements, with a F-stat of 17.52. Regression results of the second stage are displayed in Columns 9 to 12 of Table 4. The main results are robust to the instrumentation strategy. Scot or Scot-Irish historical presence in the Deep South is positively and strongly associated with contemporary homicide. The effect is robust to using the interaction term as the sole instrument, while controlling for the main effects of elevation and distance to Shallow Ford in both stages in Columns 10 and 12. When instrumented by the full set of instrumental variable, historical Scots-Irish presence is also associated with homicide in the North, but this effect is less

robust and disappears when the main effects of elevation and distance to Shallow Ford are controlled for in the second stage equation.

An additional way to rule out that the results are solely driven by selection on unobservables is to gauge how much greater the influence of unobservable factors would need to be, relative to observable factors, to explain away the full positive relationship between Scot or Scots-Irish settlers and homicide. This is based on a comparison of the coefficients obtained from two regressions, one with a restricted set of controls and the other with the full set of controls (Altonji, Elder, and Taber 2005). The full set of controls includes all 2000 socio-economic determinants and police numbers as well as all the 1790 controls. The restricted set includes either no controls or 1790 controls only. Explaining away the full positive relationship between the Scots or Scots-Irish and contemporary homicide rates by whites in the Deep South would require unobservable factors to be about three times greater than observable factors. In the Border South the ratio is actually negative, implying that adding controls actually makes the influence of Scot or Scots-Irish settlers more salient.²⁴

The robustness of the results to controlling for a large number of contemporary and historical determinants of crime and to instrumental variable estimation suggests that the relationship between Scot or Scots-Irish settlements and contemporary homicide is causal. The next subsection performs a number of falsification tests and investigates in more details the characteristics of homicide associated with historical Scots-Irish presence.

4.4. Type of Crime

The culture of honor is a private justice system and a self-protection ethic, whose purpose is the defense of a reputation. It should predict homicide, as established above, as well as aggravated assaults, which is confirmed in Columns 1 and 2 of Table 5, as opposed to indiscriminate violence and lawlessness. Regression results in Appendix Table A3 show that none of the other crime and offenses considered in Table A2 (robberies, weapon-carry and drunkenness offenses) is systematically higher in counties settled by the Scots or Scots-Irish.²⁵ In other words, the legacy of the Scots-Irish is not lawlessness in general but, rather, a specific kind of lethal violence, which is investigated further in Table 5. The Supplementary Homicide Report gives information on the nature of the relationship between offender and victim and the weapon used, which reveals information on the motivation of homicide.

²⁴ The ratios are obtained from the coefficients obtained in Table 3 and additional regressions not displayed here. In Table 3, the ratios are obtained from the comparison of ‘restricted’ coefficients obtained in Columns 3 and 7 for total and white offender rates respectively with the ‘full’ coefficients obtained in Columns 4 and 8, which control for all available controls.

²⁵ With the exception of drunkenness in Northern states.

Homicides perpetrated in defense of one's reputation are more likely to involve people who, although not directly related, know one another. Accordingly, homicides that are more likely in Southern counties with a high proportion of Scots or Scots-Irish in 1790 involve acquaintances (Columns 3 and 4) and are perpetrated with a handgun or pistol or, in a rather demonstrative way of one's virility, with a blunt object, such as a hammer or a club.

Cultures of honor should also deter violent sexual crime against women, since male honor extends to the family and the fear of retaliation by male relatives should act as a strong deterrent. Because reported rape is noisy and may be endogenous to the quality of policing, Columns 7 and 8 consider the rate of homicide perpetrated in the context of rape and sex offenses as the dependent variable. The proportion of Scot or Scots-Irish settlers is negatively associated with rape and with sex homicides and the relationship is statistically significant at the 10% level in the Deep South.

The relationship between homicide and historical settlements in the South is also specific to the Scots or Scots-Irish. Table A4 in Appendix presents the results of specification (2) that considers settlers from England and Wales as well as settlers from France, Germany or Holland, instead of the Scots or Scots-Irish. Their presence in the Border or Deep South is never significantly associated with homicide rates.

Both the fact that crime and violence other than specific violence directed at the protection of male honor and the fact that the relationship holds only for the Scots or the Scots-Irish make it difficult to believe that the relationship between historical settlements and contemporary homicide in the South is entirely driven by systematic migration of only the most violent settlers to crime-ridden counties. Indeed, it is hard to fathom why migration would have been selective only for the Scots and Scots-Irish and not for other European settlers and, if it were true that only the most violent and anti-social Scots and Scots-Irish migrated, why other crime and general disorder are not also higher. This, in addition to instrumental variable results, indicates that the relationship between historical Scot or Scots-Irish settlements and homicide in the South is likely causal. The next section investigates what is specific to the South that explains why the relationship is observed there only.

5. Institutional Quality and the Culture of Honor

Section 2 discusses the relationship between interpersonal violence and the weakness of formal institutions. Even though Roth (2009) reports high homicide assailant rates by the Scots and Scots-Irish in the 19th century not only in Virginia but also in New England, the findings here indicate that the Scots-Irish culture of honor has persisted in the South only.

Historical accounts suggest that the early institutional environment of the US strongly influenced the survival of the culture of honor. Wyatt-Brown (2001) depicts how in the North, formal and impersonal institutions quickly substituted for the ethic of honor as the cement of social and political order in the 19th century, but not in the South. The proposition here is that the culture of honor, a private justice system, persisted as a substitute for public law and order. One should thus expect the culture of honor to persist only where formal institutions were weak, particularly around the mid 19th century, the are identified by Roth (2009) as the time of divergence of Southern homicide patterns and, incidentally, when some areas of the US started to rely on formal law enforcement by sheriffs and constables.

5.1. Estimating Equation

As discussed in Section 2, cultures of honor are common adaptations among populations that live in regions where the state is weak.²⁶ To investigate to what extent heterogenous institutional quality in the late 18th and 19th century US explain whether and where the Scots-Irish culture of honor has persisted, the estimating equation interacts Scot or Scots-Irish settlements with a measure of institutional quality in the following way:

$$m_c = \phi_0 + \phi_1 SI_c + \phi_2 PCInstQual_c + \phi_3 SI_c * PCInstQual_c + \phi_4 region_c + \phi_5 X_c + u_c \quad (3)$$

$Q_{c,s}$ is the first principal component of two measures of institutional quality in county c described in Section 2.3. Separate results for each individual measures are in Appendix. Other variables in (3) are similar to (1) and (2). Section 5.4. presents the result of an instrumental variable estimation, in which both institutional quality and historical settlements are instrumented. In all specifications, standard errors are robust to heteroskedasticity.

5.2. OLS results

Regressions in Columns 1 and 5 of Table 6 investigate the relationship between institutional quality, Scots-Irish settlements and homicide, overall and by white offenders. Better institutional quality is reflected in a higher value of the first principal component of

²⁶ The prevalence of cultures of honor is also explained by economic vulnerability. In a previous version of the paper, I investigate the role played by herding in the persistence of the culture of honor in the US. I include in equation (3), instead of *PC Inst. Qual.* a measure of livestock per capita in county c , from the 1840 Census. The analysis focuses on sheep and hogs, which were the main animals herded by the Scots and Scots-Irish. The historical prevalence of herding, in itself or even in combination with Scots or Scots-Irish presence, is not found to be statistically associated with violence. The coefficient associated with the interaction between livestock per capita and Scot or Scots-Irish settlements is not significantly different from zero in the entire population. However, it is positive and significant when only Southern counties are considered. Hence, even though the influence of Scot or Scots-Irish settlements on homicide is more pronounced in Southern counties where herding was more prevalent, the survival of the culture of honor cannot be accounted for by economic occupations or settlers' cultural background alone. For this reason, this version of the paper focuses on the role played by institutional quality.

county level per-capita taxation in 1870 and newspapers circulation in 1840. The main variable of interest is the interaction between this term and the proportion of Scots-Irish settlers in the county in 1790. When this term is included, the main effect of Scots-Irish settlements becomes statistically significant (and positive), while the coefficient on the interaction term is negative and statistically significant. In other words, historical presence of Scots or Scots-Irish settlers anywhere in the US is positively associated with contemporary homicide rates, but not in counties that benefitted from better institutional quality.

For robustness, I check that the same result holds when relying on each measure of institutional quality separately. Results for county per capita taxation are displayed in Columns 1 and 2 of Appendix Table A6. Historical Scot or Scots-Irish presence is associated with higher homicide today, but only in counties in which local state capacity was historically weak and few resources were available for enforcement of the formal rule of law. Regressions in Columns 5 and 6 of Table A6 present the results for the second proxy of institutional quality, newspaper circulation. Results are similar and particularly robust for white offender rates. Areas with larger proportions of Scots or Scots-Irish settlers at the end of the 18th century are more violent today, but not those that benefitted higher newspapers circulation, a proxy for the quality of political institutions. All these results also hold within the South only, as displayed in Table A7, and are robust to including extra contemporary controls such as police budget and number of police officers per capita and historical controls such as population density or land use.

Taken together, these results point to institutional quality as the driver of the survival and persistence of the culture of honor. Heterogeneity in institutional quality and lower institutional quality in the South explain in turn that the culture of honor has persisted there only. An important obstacle to identification, however, is that cultural norms and Scot or Scots-Irish presence may have contributed to the presence of inefficient and weak institutions. The next subsection shows that the results are robust to instrumental variable estimation.

5.3. Instrumental Variable Estimation

The first step in dealing with potential endogeneity consists in instrumenting Scot or Scots-Irish presence in a similar fashion as in Section 4.3. This is done in Columns 2 and 7 of Table 6. Results of the first stage, the details of which can be found in Column 1 of Table A6, are satisfactory, with a F-stat on excluded instruments of 17.84. Results for the second stage are not only robust but, in the case of white offender rates, improve, as the coefficient on the interaction term between the proportion of Scot or Scots-Irish settlers and institutional quality

is significant at the 1% level. This instrumentation strategy circumvents the possibility that the results are entirely driven by the self-selection of the Scots and Scots-Irish to the counties with weaker institutions. However, it does not address the problem that they may have influenced the quality of early institutions.

In order to address this problem, Columns 3 and 8 presents the results of an instrumental variable estimation strategy, in which the quality of the formal institutions is instrumented. As discussed in Section 3.3., a potential instrument for the quality of institutions is the time elapsed between 1790 and the county incorporation date. This variable: *County age*, and its squared value are used as instruments for the quality of formal institutions but they are rather weak in the 1790 population. Therefore, I also rely on a dummy variable indicating whether the county was named after a British place, statesman, or colonial administrator as an additional instrument, as well as an interaction between this variable and county age, in order to take into account the fact that counties that were formed earlier tended to have British names. Results of the first stage regression of the first principal component of institutional quality measures are displayed in Column 2 of Table A5. As expected, institutional quality increases in ‘older’ counties, although at a decreasing rate. Institutional quality tends to be lower in counties named after British places or statesmen, but less so in older counties, probably because giving British names at very early dates reflected a lack of alternatives rather than ideology of founders. All excluded instruments are significant at the 5% to 10% level. Results of the second stage, in which *PC Inst. Qual.* is instrumented, are displayed in Columns 3 and 8 of Table 6. The results discussed in Section 5.2. are robust to this instrumentation strategy are not only robust but the statistical power of the coefficient associated with the interaction term between institutional quality and historical settlement increases. A reason for this may be that un-instrumented measures of taxation and newspaper circulation may be measured with some noise in the 1870 and 1840 Censuses, leading to an attenuation bias.

While it is reasonable to assume that the name characteristics of a county, or the time elapsed between 1790 and its incorporation date have little influence on contemporary homicide, they may have been influenced by the number and the origins of settlers, which would be a challenge for identification. The Scots and Scots-Irish arrived relatively late in the US, they were relatively poor and they represented a minority, all of which limited their potential influence on the precise incorporation date and naming choice of a county. Nevertheless, it is necessary to check that the results are robust to instrumenting their historical presence as well as institutional quality. Columns 4 and 9 of Table 6 present the

results of a two-stage least squares specification, in which both the proportion of Scot or Scots-Irish settlers in 1790 and the first principal component of institutional quality measures are instrumented. All exogenous instruments are used in each respective first stage, the results of which are displayed in Columns 3 and 5 of Table A6. The results hold. Historical Scot or Scot-Irish presence still influences homicide today but this effect has vanished in areas where formal institutions were more developed historically. Results also hold with individual institutional quality measures, as displayed in Columns 3, 4, 7 and 8 of Table A5, and when controlling for state fixed effects, which remove any potential state level variation in contemporary violence and in county incorporation patterns or historical settlement. Results of the second stage regressions with state fixed effects are displayed in Columns 5 and 10 of Table 6. Results of the second stage are in Columns 3 and 6 of Table A5.

6. Cultural persistence

This section investigates cultural transmission mechanisms, which may explain how Scots-Irish settlements 200 years ago are still associated with homicide today. It provides evidence that vertical cultural transmission from parents to children played a role, but that it only occurred where such cultural traits paid off, that is to say in areas with weak formal institutions. It is also found that, consistently with the premise that institutional quality between North and South has converged over the period considered (Berkowitz and Clay 2011), the influence of the culture of honor is waning over time.

6.1. Cultural Transmission

One possibility why we still observe a significant influence of Scots-Irish settlements in 1790 is that the descendants of these settlers are still present in these areas and have internalized Scots-Irish cultural norms. The presence of Americans of Scots-Irish decent in 2000 is indeed strongly correlated with Scot or Scots-Irish settlements in 1790, and actually much more so than for other nationalities. The presence of one Scot or Scots-Irish settler in 1790 in a given county is associated with, on average, 16 individuals of self-declared Scots-Irish decent in 2000. By contrast, only 2 individuals report English ancestry for each 1790 English settler and 8 for Germans. The socio-psychological literature and the cultural transmission models à la Bisin and Verdier (2001) explain cultural persistence by the hysteresis of cultural norms that are transmitted from one generation to the next. The main idea of this literature is that the backward looking behavior of parents, who transmit their own values to their children, explains the slow adaptation of cultural values to new economic environments.

Vertical cultural transmission from parents to children implies that agents internalize cultural norms within families so that even today, Americans of Scots-Irish ancestry should display cultural traits that are consistent with a culture of honor. To test this, contemporary homicide rates are regressed on the proportion of Americans who report Scots-Irish as first or second ancestry in the 2000 Census.²⁷ Estimating equations (1) and (2) are performed, using the proportions of people of Scots-Irish ancestry at the county level in the 2000 Census, instead of the historical proportion of Scots-Irish settlers, controlling for a wide number of contemporary county characteristics and determinants of crime. Regressions are performed in the entire continental US population for which crime data is available (2845 counties).²⁸ A concern is that not controlling for Scot or Scots-Irish historical presence may lead to an omitted variable bias since it may have contributed both to the presence of individuals of this ancestry and to homicide rates, through other cultural transmission channels. For robustness, this is included as a control, with the drawback that the sample size is reduced to the 1790 Census population.

Results are reported in Table 7. Homicide rates are higher in counties with higher proportions of Americans of Scots-Irish ancestry (Column 1) but, again, the effect is entirely driven by the Southern states (Column 2). For overall homicide, the coefficients on the interaction between Scots-Irish ancestry and Border and Deep South are positive and statistically significant at the 10% and 5% level, respectively. The effect is only robust in the Border South for white offender rates in the 2000 population, but is robust in the 1790 subpopulation, even when controlling for historical Scot or Scots-Irish presence.

These broad regional divisions, however, may hide substantial variation in institutional quality. In order to test the hypothesis that violent cultural norms were transmitted only in areas where they paid off, that is to say where formal institutions were all but absent at the time of Scot or Scot-Irish original settlement and persistently weak thereafter²⁹, a preferred specification is to interact directly the presence of Americans of Scots-Irish ancestry and the quality of historical institutions. The proportion of Americans of Scots-Irish ancestry in 2000 is thus used instead of historical settlements in equation (3).

²⁷ To address possible doubts as to the reliability of self-reported ancestry information in the Census, in additional specifications whose results are not reported here, the proportion of individuals of self-declared Scot or Scots-Irish ancestry is instrumented by the proportion of white native Presbyterians in the 1900 Census. The instrument has a strong predictive power and the coefficient on the instrumented variable remains significant and positive at the 5% level in explaining murder rates by white offenders in the Deep South.

²⁸ All descriptive statistics for the 2000 Census population are in Table 1.

²⁹ Berkowitz and Clay (2006) namely documents enduring lower judicial quality in Southern states in the early 21st century.

Table 8 presents the results with institutional quality measured by the first principal component of county taxation and newspaper circulation, Table A8 with each measure of institutional quality separately. Results all point in the same direction and are much more consistent than the results relying on regional divisions. Americans of Scots-Irish ancestry today are associated with higher homicide rates, including by white offenders, precisely in areas where formal institutions were weak in the early or mid 19th century. The interaction between institutional and presence of Americans of Scots-Irish ancestry in 2000 is consistently negative and statistically significant.

An obstacle to identification, again, consists in the fact that institutional quality may be endogenous to cultural norms. This justifies relying on early rather than recent measures of institutional quality, which may be influenced by the contemporaneous ancestry makeup of different regions. However, this may not be enough, since institutional quality, even as early as the mid 19th century, may have been influenced by historical Scot or Scot-Irish presence, which also influences the presence of individuals of the same ancestry today. To circumvent this problem, institutional quality is instrumented in the fashion described in Section 3.3. In this larger population, county age since incorporation provides a sufficiently strong instrument for *PC Inst. Qual.*, with a F-stat near 18, without having to rely additionally on county naming patterns. Results of the second stage are displayed in Columns 2 and 4 of Table 8. The results are robust and change little. The interaction between *PC Inst. Qual.* instrumented by county age and the proportion of Americans of Scots-Irish ancestry in 2000 is negatively and statistically associated with homicide rate, overall and by white offenders, at the 1% and 10% level, respectively. This holds even when institutional quality measures are considered individually. Columns 3 and 4, and 7 and 8, of Table A8 present, respectively, the results of a similar instrumentation of county fiscal capacity in 1870 and newspaper circulation in 1840.

These results point to complementarities in institutional and cultural persistence. Scots-Irish cultural traits persisted, and were transmitted to subsequent generations, only where such traits were adaptive: in areas with low institutional quality.

6.2. Evidence from Attitudinal Data

It is argued here that if a culture of violence survived as a system of private justice in response to lawlessness, it was precisely the Scots-Irish culture that was the most adequate. It is not suggested that these cultural norms were designed specifically as a response to the circumstances of the Southern United States but rather that they were preexisting among the

Scots and Scots-Irish. The Scots and Scots-Irish were historically defiant of centralized institutions (Leeson 2009). Specifications in Table 9 explore whether Southerners of Scots-Irish ancestry, beyond being associated with more lethal violence, also display a value system that is consistent with the reliance on private justice. Attitudinal data and self-reported ancestry are taken from the *General Social Survey (GSS)*. Individual attitudes towards self-reliance and centralized institutions are regressed on Scots-Irish ancestry. The results confirm that Americans of Scots-Irish ancestry have a higher propensity to have a weapon at home (rifle or pistol) and to be less trusting of the federal government and of formal law enforcement (the Supreme Court), but only those who live in the Deep South. They are less likely to own a weapon and to be distrustful of the Federal Government in areas with better institutional quality, as measured by the principal complement of county level taxation and newspaper circulation in the 19th century.³⁰ Since Scots-Irish are also more likely to declare their ancestry as “American only”, I check that all results hold when this group is considered together with Scots-Irish ancestry. By contrast, no consistent pattern is found in falsification tests that consider the relationship between homicide rates or cultural attitudes and other ancestries, such as Italian, or English. Results are in Appendix (Tables A9 and A10).

6.3. Cultural Decay

The Scots-Irish culture of honor still explains the prevalence of homicide, but, if culture is adaptive, its effect should slowly disappear over time and in the face of economic and institutional convergence between the South and North of the US. Accordingly, evidence from the *GSS* indicates that the relationship between, on the one hand, Scots-Irish ancestry and, on the other, handgun or rifle ownership, lack of confidence in the Federal government and in the US Supreme Court, is stronger for older cohorts. Columns 3, 4, 7, 8 and 11 and 12 of Table 9 present separate results for cohorts born before and after 1953, the median of the distribution of birth years across the different *GSS* waves.³¹ The coefficient on the interaction between the Deep South dummy and Scots-Irish ancestry is, on average, more than four times as large in magnitude for the cohort born before 1953 than for the younger cohort, as well as consistently statistically significant.

Turning back to homicide, county level data is available since the beginning of the 1980s from UCR, although earlier data suffers from missing observations. To study how the

³⁰ The results are not displayed for economy of space but are available upon request. The coefficient on the interaction between Scots-Irish ancestry and *PC Inst. Qual.* is -0.01 (robust standard error clustered at state level: 0.0056) for *Weapon at Home* as the dependent variable and 0.02 (robust standard error clustered at state level: 0.008) for *Confidence in the Executive Branch of the Federal Government*.

³¹ All regressions control for age.

variation in homicide that is explained by Scots-Irish settlements has evolved since 1980, yearly homicide rates are regressed on the proportion of Scots or Scots-Irish settlers in 1790 interacted with regional dummies, for every available year from 1980 to 2007.³² Obtained coefficients are in Appendix Table A11. Coefficients on the interaction between the proportion of Scot or Scots-Irish settlers in 1790 and regional dummies are slowly decreasing over time. The average ‘depreciation rate’ of the culture of honor over the period is about 3.4% yearly in the South and 2.6% in the North (taking a four years beginning and end of period averages), where the coefficient is not significantly different from zero, apart from the first 3 years. Applying this depreciation rate and extrapolating to the beginning of the 20th century implies that the coefficient on the proportion of Scots-Irish settlers should be 629 in the North and 1944 in the Deep South. An early source of crime statistics is the 1904 Special Report to the Bureau of the Census on Prisoners and Juvenile Delinquents in Institutions, which counts the number of inmates held for homicide, a proxy for actual homicide, at the state level. Regressing the number of inmates held for homicide in 1904 on the proportion of Scots-Irish settlers in 1790 gives a coefficient of 1404 in the North and 2205 in the Deep South (Table A11, Column 27). These figures are in ballpark of the extrapolated coefficients.

7. Conclusion

This paper examines the economic and cultural underpinnings of lethal interpersonal violence. A popular hypothesis is that the Southern taste for violence is inherited from the Scot and Scots-Irish herders that settled the region in the 18th century. The results illustrate something broadly consistent with this but slightly different. Scot or Scots-Irish presence explains high homicide rates, particularly by white offenders but only within the South. The Scots-Irish culture of interpersonal violence, shaped by a history of lawlessness in the Anglo-Scot borderlands, Ulster and the Scottish Highlands has thrived only in areas where the institutional environment was weak. The interpretation is that such cultural norms have persisted as a private justice system, which substituted for formal law enforcement. Associated with such a culture of honor as a private justice system violence, Southerners of Scots-Irish ancestry in the Deep South display attitudes that stress self-reliance and are defiant of formal and centralized institutions.

The relationship between Scots and Scots-Irish settlers and homicide is likely causal. The results are robust to the inclusion of a wide array of geographic, historical, and

³² 1984 and 1989 are missing.

contemporary socio-economic and demographic determinants of violence. The positive relationship between settlers and homicides does not hold for other countries of origin. Consistently with an ethic based on kinship and the defense of a reputation, Scot or Scots-Irish settlements in the South do not explain violence or disorder in general but a specific type of homicide, and are actually associated with less violent sexual crime against women. The results are also robust to the use of instrumental variables both for the historical proportion of Scots-Irish settlers and for the quality of formal institutions.

This paper contributes to the literature on long-term persistence by highlighting the persistence of cultural norms related to interpersonal violence. The main message is that cultural persistence is not unconditional. Culture is adaptive: the culture of honor thrived, and was transmitted, only in areas with weak formal institutions. This suggests that cultural and institutional persistence are complements: specific cultural traits have survived as a substitute for formal law enforcement because institutional quality was low, and have persisted for that very reason. Consistently with such adaptability, the influence of Scots-Irish cultural norms is waning, in the face of economic and institutional convergence between North and South.

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TABLES

Table 1: Descriptive Statistics: Main variables

Variable	Obs	Mean	Std. dev.	Min	Max
<i>A: 1790 Census or 1790 overlap</i>					
Homicide rate (i)	147	4.38	4.36	0	23.86
White offender homicide rate (i) (ii)	147	1.43	1.41	0	8.83
Proportion Scots or Irish 1790	147	0.07	0.06	0	0.33
Proportion Scots-Irish ancestry 2000 Census	145	0.03	0.01	0	0.09
Population density 1790	147	1.96	3.74	0.05	36.35
Number of slaves 1790, in 1000s	147	2.48	4.92	0	50.63
Log aggregate earnings 2000	147	21.48	1.55	18.26	24.71
Prop. Pop. urban 2000	147	0.61	0.31	0	1
Prop. Pop black 2000	147	0.13	0.15	0.01	0.64
Ethnic fragmentation index 2000	147	0.29	0.18	0.03	0.78
Income Gini 2000	147	0.43	0.04	0.34	0.59
Aggravated assault, white offender (i) (ii)	147	72.35	56.23	0	333.74
Homicide rate – victim and offender acquaintances (i)	138	1.02	1.64	0	14.23
Homicide rate – blunt object or handgun/pistol (i)	138	1.88	3.15	0	21.84
Homicide rate – context rape and sex offenses (i)	138	0.03	0.08	0	0.8
Weapon carry offenses, white offender (i) (ii)	147	19.3	14.67	0	114.41
Drunkenness offenses, white offender (i) (ii)	147	64.48	84.79	0	352.34
Robbery, white offender (i) (ii)	147	9.33	8.8	0	49.34
Distance to Shallow Ford (in 1000 km)	147	0.56	0.19	0.11	0.96
Elevation (in 1000 m)	147	0.14	0.14	0.001	0.52
County tax per capita 1870 (log)	147	0.72	0.49	0	2.22
Newspapers per capita 1840	147	8.55	3.18	2.86	14.7
County age in 1790, in decades	147	57.5	50.31	-6.2	15.5
County named after UK place or statesman	147	0.66	0.47	0	1
<i>B: 2000 Census or, when indicated, GSS</i>					
Homicide rate (i)	2,845	5.09	6.22	0	120.77
White offender homicide rate (i) (ii)	2,845	2.25	4.61	0	187.27
Proportion Scots-Irish ancestry 2000	2,845	0.03	0.02	0	0.17
Log aggregate earnings 2000	2,845	19.68	1.56	13.92	25.80
Prop. pop. urban 2000	2,845	0.39	0.3	0	1
Prop. pop black 2000	2,845	0.14	0.06	0.02	0.56
Ethnic fragmentation index 2000	2,845	0.25	0.19	0	0.78
Income Gini 2000	2,845	0.43	0.04	0.33	0.60
County tax per capita 1870 (log)	1,905	0.91	0.61	0	7.2
Newspapers per capita 1840	1,556	8.15	3.97	2.86	19.39
County age in 1870, in decades	2,734	2.82	4.70	-11.3	23.6
Weapon at home (GSS)	37,464	0.24	0.42	0	1
Confidence Exec. Branch Fed. Gov. (GSS)	21,447	0.84	0.68	0	2
Confidence US Supreme Court (GSS)	21,166	1.19	0.66	0	2

Notes: (i) All crime and offenses rates are averages for 2000-2007, per 100,000 people. (ii) “White offender” is defined as the number of the relevant offense or crime for which a white offender has been arrested, over the white population.

Source: 1790 and 2000 US Censi, 2000 Census of State and Local Law enforcement agencies, UCR, SHR, National Association of Counties.

Table 2: Descriptive Statistics: Homicide, Scots-Irish Settlers (1790 Census) and Scots-Irish Ancestry (2000 Census), by Region

Region	Homicide rate		White offender homicide rate		Proportion Scots or Irish 1790 (A) or Scots-Irish ancestry in 2000 (B)		Observations
	Mean	Std. dev.	Mean	Std. dev.	Mean	Std. dev.	
<i>A: 1790 Census</i>							
North	2.93	2.83	1.11	1.09	8.04	7.37	90
Border South	5.87	4.13	2.01	1.35	6.36	2.95	20
Deep South	7.10	5.85	1.91	1.86	3.34	1.57	39
<i>B: 2000 Census</i>							
North	3.10	2.53	1.29	1.07	2.97	1.48	219
Border South	4.14	4.37	1.90	2.79	3.13	1.39	374
Deep South	8.59	8.05	3.36	7.05	3.37	1.86	1016
West	4.94	5.41	3.04	3.60	3.57	1.60	413
Midwest	2.51	3.44	1.17	1.88	2.33	1.12	1051

Notes: North: **CT, MA, ME, NH, NJ, NY, PA, RI, VT**; Border South: DC, **DE, KY, MD, OK, WV**; Deep South: AL, AR, FL, GA, LA, MS, **NC, SC, TX, VA**; West: CA, OR, WA, ID, MT, WY, AZ, NM, CO, NV, UT; Midwest: IL, IN, KS, MI, MN, MO, NE, ND, SD, OH, WI. States indicated in bold are included in the 1790 Census. Proportion Scots or Irish 1790 and Scots-Irish ancestry in 2000 are expressed as percentages of the total county population.

Source: 1790 and 2000 US Censi, UCR.

Table 3: Homicide and Scot or Scots-Irish Settlers in 1790

	1	2	3	4	5	6	7	8	9	10	11	12
	Homicide rate			White offender				Black offender				
Border South	3.07***	0.70	4.09**	-0.69	0.94***	0.35	0.14	-0.94	3.19	4.18	0.93	1.59
	[0.96]	[1.19]	[2.01]	[2.07]	[0.32]	[0.37]	[0.58]	[0.59]	[5.03]	[6.39]	[6.89]	[8.39]
Deep South	4.51***	-0.39	-1.20	-4.97**	0.92***	-0.19	-1.12*	-1.91***	-3.33	-1.28	-6.09	-1.47
	[1.05]	[1.16]	[2.12]	[2.19]	[0.35]	[0.41]	[0.65]	[0.69]	[2.29]	[4.53]	[3.86]	[6.53]
Prop. SI 1790	7.20*	6.44*	4.70	4.38	2.38	1.37	0.91	0.30	28.14	24.80	25.56	23.72
	[4.20]	[3.38]	[3.68]	[3.14]	[1.58]	[1.57]	[1.41]	[1.45]	[23.27]	[23.54]	[24.63]	[24.54]
Border South*Prop. SI 1790			-16.70	18.22			12.12	18.41**			34.84	38.51
			[21.98]	[20.62]			[9.27]	[8.92]			[67.63]	[63.35]
Deep South*Prop. SI 1790			167.45***	124.06**			58.93***	43.99***			79.18	-3.05
			[63.15]	[56.43]			[20.31]	[16.47]			[72.72]	[98.03]
1790 controls	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes
2000 controls	no	yes	no	yes	no	yes	no	yes	no	yes	no	yes
Observations	147	147	147	147	147	147	147	147	147	147	147	147
R-squared	0.19	0.46	0.29	0.51	0.09	0.31	0.21	0.38	0.04	0.08	0.04	0.08

Notes: The table reports OLS estimates. The unit of observation is a county. All regressions are with a constant. Robust standard errors are reported in brackets. *** significantly different from 0 at the 1% level, ** significantly different from 0 at the 5% level, * significantly different from 0 at the 10% level. All homicide rates are yearly averages for 2000-2007, per 100,000 people. “White (resp. black) offender” is defined as the number of homicides for which a white (resp. black) offender has been arrested, over the white (resp. black) population. “Prop. SI 1790” denotes the proportion of Scots or Irish settlers in the 1790 county population. “2000 controls”: log of aggregate earnings, proportion of the population residing in urban areas, proportion of the population black, ethnic fragmentation, income Gini coefficient. “1790 controls”: number of slaves and population density in 1790. The excluded regional category is North.

Source: 1790 and 2000 US Censi, UCR.

Table 4: Homicide and Scot or Scots-Irish Settlers in 1790: Standardized Coefficients and Robustness

	1	2	3	4	5	6	7	8	9	10	11	12
	Homicide rate	White offender	Homicide rate	White offender	Homicide rate	White offender	Homicide rate	White offender	Homicide rate White offender			
Dep. Variable:	Prop SI 1790: standardized coefficient		Log (Prop SI 1790)		Number of SI in 1790		Log (number SI)		Prop. SI 1790 instrumented			
Main effect	0.27 [0.19]	0.02 [0.09]	5.24 [3.65]	0.38 [1.68]	0.23 [0.18]	0.03 [0.10]	0.44 [0.30]	0.03 [0.10]	19.44*** [5.18]	-82.42 [50.20]	5.62** [2.43]	-29.07 [17.79]
Inter. Border South	1.13 [1.28]	1.14** [0.55]	18.89 [22.67]	19.79** [9.68]	1.41 [2.25]	-0.36 [0.63]	0.31 [2.01]	-0.54 [0.61]	-3.20 [44.68]	8.07 [46.23]	20.30 [12.49]	23.52* [13.16]
Inter. Deep South	7.69** [3.50]	2.73*** [1.02]	127.16** [58.84]	45.33*** [17.23]	7.88** [3.04]	3.61*** [0.90]	2.53** [1.00]	1.00** [0.39]	67.97* [34.61]	78.87** [34.78]	25.79*** [9.82]	28.72*** [10.51]
Regional dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
1790 controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
2000 controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Total pop 1790	no	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes
Dist. to Shallow Ford	no	no	no	no	no	no	no	no	no	yes	no	yes
Elevation	no	no	no	no	no	no	no	no	no	yes	no	yes
Observations	147	147	147	147	147	147	147	147	147	147	147	147
R-squared	0.51	0.38	0.51	0.38	0.53	0.43	0.53	0.40	0.27	0.14	0.1	0.12
Estimation	OLS								2SLS			
F-stat excl. instruments									17.52	3.26	17.52	3.26
P-val Hansen J stat									0.11	na	0.11	na

Notes: The table reports OLS or 2SLS estimates. The unit of observation is a county. All regressions are with a constant. Robust standard errors are reported in brackets. *** significantly different from 0 at the 1% level, ** significantly different from 0 at the 5% level, * significantly different from 0 at the 10% level. All homicide rates are yearly averages for 2000-2007, per 100,000 people. “White (resp. black) offender” is defined as the number of homicides for which a white (resp. black) offender has been arrested, over the white (resp. black) population. “SI” stands for Scots or Scots-Irish settlers. “2000 controls and “1790 controls”: as in Table 3. The excluded regional category is North. Columns 9 to 12: first stage coefficients and robust standard error (in parenthesis): Distance to Shallow Ford: -0.28 (0.05), elevation: 0.14 (0.095), interaction term: -0.23 (0.13). In Columns 9 and 11: excluded instruments are: Distance to Shallow Ford, elevation, and interaction term. In Columns 10 and 12: the excluded instrument is the interaction term.

Source: 1790 and 2000 US Censi, UCR

Table 5: Type of Crime and Scot or Scots-Irish Settlers in 1790

	1	2	3	4	5	6	7	8
	Aggravated assault, white offender		Victim and offender acquaintances		Homicide by blunt object or handgun/pistol		Homicide context rape and sex offenses	
Prop. SI 1790	48.87	23.63	1.72	0.36	3.26	1.50	-0.01	-0.01
	[58.90]	[56.07]	[1.21]	[0.52]	[2.68]	[2.43]	[0.12]	[0.12]
Border South*Prop. SI 1790		481.75		16.71*		2.79		0.75
		[490.10]		[9.15]		[16.69]		[0.66]
Deep South*Prop SI 1790		915.77**		70.22+		109.54**		-1.61*
		[441.84]		[48.37]		[54.33]		[0.96]
Regional dummies	yes	yes	yes	yes	yes	yes	yes	yes
1790 controls	yes	yes	yes	yes	yes	yes	yes	yes
2000 controls	yes	yes	yes	yes	yes	yes	yes	yes
Source:	UCR		SHR		SHR		SHR	
Observations	147	147	138	138	138	138	138	138
R-squared	0.34	0.36	0.40	0.50	0.61	0.67	0.03	0.06

Notes: The table reports OLS estimates. The unit of observation is a county. All regressions are with a constant. Robust standard errors are reported in brackets. *** significantly different from 0 at the 1% level, ** significantly different from 0 at the 5% level, * significantly different from 0 at the 10% level, + significantly different from 0 at the 15% level. All reported dependent variables are yearly average rates for 2000-2007, per 100,000 people. “White offender rate” is the number of relevant offenses for which a white offender has been arrested, over the white population. “Prop. SI 1790”, “2000 controls” and “1790 controls”: as in Table 3.

Source: 1790 and 2000 US Censi, Supplementary Homicide Report (SHR), UCR.

Table 6: Institutional Quality and Persistence of the Culture of Honor

	1	2	3	4	5	6	7	8	9	10
	Homicide rate					White offender				
Prop. SI 1790	27.99**	45.41***	22.16**	54.32***	43.30+	11.19***	17.47***	7.38**	12.49***	1.44
	[12.88]	[10.29]	[9.36]	[19.16]	[28.65]	[4.19]	[3.20]	[2.98]	[3.90]	[6.66]
PC Inst. Qual.	0.42	0.14	1.12	1.02	0.39	0.24	0.30	0.95*	0.98**	0.61
	[0.93]	[1.11]	[1.84]	[1.82]	[3.09]	[0.30]	[0.32]	[0.54]	[0.44]	[0.61]
Prop SI 1790*PC Inst. Qual.	-22.44*	-24.61*	-35.82*	-33.31**	-22.37+	-10.49**	-13.52***	-14.14**	-11.77***	-9.56**
	[13.04]	[13.44]	[19.00]	[14.37]	[13.75]	[4.27]	[3.80]	[5.94]	[4.22]	[4.50]
Regional dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
1790 controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
2000 controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
State FE	no	no	no	no	yes	no	no	no	no	yes
Observations	146	144	147	147	147	147	144	147	147	147
R-squared	0.48	0.55	0.48	0.53	0.58	0.34	0.42	0.34	0.38	0.50
Estimation	OLS	2SLS			OLS			2SLS		
Prop SI instrumented	no	yes	no	yes	yes	no	yes	no	yes	yes
PC Inst. Qual. instrumented	no	no	yes	yes	yes	no	no	yes	yes	yes
F-stat excl. instruments for <i>Prop SI 1790</i>	na	17.84	na	17.80	3.12	na	17.84	na	17.80	3.12
P-val Hansen J stat. for <i>Prop SI 1790</i>	na	0.30	na	0.25	0.38	na	0.30	na	0.25	0.38
F-stat excl. instruments for <i>PC Inst. Qual.</i>	na	na	6.76	8.80	4.00	na	na	6.76	8.80	4.00
P-val Hansen J stat. for <i>PC Inst. Qual.</i>	na	na	0.80	0.21	0.11	na	na	0.80	0.21	0.11

Notes: The table reports OLS or 2SLS estimates. The unit of observation is a county. All regressions with a constant. Robust standard errors reported in brackets. ***, **, *: usual significance levels “Homicide rate”, “White offender”, “Prop. SI 1790”, “1790 controls” and “2000 controls”: as in Table 3. “PC Inst. Qual.” is the first principal component of non-national taxation per capita in 1870 and number of newspapers per capita in 1840: 0.41 in North, 0.98 in Border South and -1.33 in Deep South. Instruments for “Prop SI 1790”: see Table 4. Instruments for “PC Inst. Qual.”: county age (time elapsed between 1790 and county formation), county age squared, dummy variable indicating whether the county is named after a place or a statesman in the UK, and an interaction between this dummy and county age. Results of this first stage in Table A6. When two variables are instrumented, first stage regressions for each potentially endogenous variable controls for the full set of exogenous variables.

Source: 1790, 1840, 1870 and 2000 US Censi, UCR, National Association of Counties.

Table 7: Homicide and Americans of Scots-Irish ancestry in 2000 Census

	1	2	3	4	5	6	7	8
	Homicide rate				White offender			
Prop SI 2000	21.93*** [7.80]	0.37 [12.78]	5.30 [30.56]	-26.11 [19.67]	-3.59 [6.93]	-4.82 [6.61]	-6.87 [8.81]	-26.71*** [8.80]
Border South*Prop SI 2000		41.60* [24.40]		66.10 [132.08]		32.05* [18.63]		64.99* [36.77]
Deep South*Prop SI 2000		38.07** [17.11]		96.16 [80.91]		-0.83 [10.37]		55.70** [22.47]
West*Prop SI 2000		-14.20 [19.54]				-22.89 [14.12]		
Midwest*Prop SI 2000		4.58 [15.69]				7.98 [7.73]		
Regional dummies	yes	yes	yes	yes	yes	yes	yes	yes
2000 controls	yes	yes	yes	yes	yes	yes	yes	yes
Prop SI 1790	no	no	yes	yes	no	no	yes	yes
1790 controls	no	no	yes	yes	no	no	yes	yes
Population	2000 Census		1790 counties		2000 Census		1790 counties	
Observations	2,845	2,845	145	145	2,845	2,845	145	145
R-squared	0.26	0.26	0.49	0.50	0.06	0.06	0.34	0.38

Notes: The table reports OLS estimates. The unit of observation is a county. All regressions are with a constant. Robust standard errors are reported in brackets. . ***, **, *: usual significance levels “Homicide rate”, “White offender”, “Prop. SI 1790”, “1790 controls” and “2000 controls”: as in Table 3. “Prop. SI 2000” denotes the proportion of Americans of first or second Scots-Irish ancestry in the 2000 Census, as a proportion of the 2000 county population. The excluded regional category is North. Border South: DC, DE, KY, MD, OK, WV. Deep South: AL, AR, FL, GA, LA, MS, NC, SC, TX, VA. West: CA, OR, WA, ID, MT, WY, AZ, NM, CO, NV, UT. Midwest: IL, IN, KS, MI, MN, MO, NE, ND, SD, OH, WI.

Source: 1790 and 2000 US Censi, 2000 Census of State and Local Law enforcement agencies, UCR.

Table 8: Historical Institutional Quality and Transmission of the Culture of Honor

	1	2	3	4
	Homicide rate		White offender	
Prop SI 2000	19.63**	19.31**	3.57	-5.44
	[8.49]	[7.99]	[4.65]	[7.57]
PC Inst. Qual.	0.32	1.16*	0.08	0.69*
	[0.26]	[0.68]	[0.13]	[0.37]
Prop SI 2000*PC Inst. Qual.	-24.63***	-22.59***	-8.96***	-8.30*
	[7.02]	[7.34]	[3.07]	[4.92]
Regional dummies	yes	yes	yes	yes
2000 controls	yes	yes	yes	yes
Observations	1,415	2,733	1,415	2,733
R-squared	0.37	0.26	0.13	0.07
Estimation	OLS	2SLS	OLS	2SLS
F-stat excl. instrument (exactly identified)	na	17.88	na	17.88

Notes: The table reports OLS or 2SLS estimates. The unit of observation is a county. All regressions with a constant. Robust standard errors reported in brackets. ***, **, *: usual significance levels. “Homicide rate”, “White offender”, and “2000 controls” as in Table 3. “PC Inst. Qual.” is the first principal component of non-national taxation per capita in 1870 and number of newspapers per capita in 1840: 0.19 in Northern States, -0.84 in Border South, -0.71 in Deep South and 0.87 in Midwest. Instrument for “PC Inst. Qual.”: county age in 1870 (time elapsed between 1870 and county formation), in decades. In the first stage regression of “PC Inst. Qual.”: coefficient and robust standard error (in parenthesis) of excluded instrument: -0.05 (0.006). Source: 1840, 1870 and 2000 Censi, UCR, National Association of Counties.

Table 9: Cultural Attitudes of Americans of Scots-Irish Ancestry

	1	2	3	4	5	6	7	8	9	10	11	12
	Weapon at home			Confidence Exec. Branch Fed. Gov.				Confidence US Supreme Court				
Sample	All	Born before 1953	Born after 1953	All	Born before 1953	Born after 1953	All	Born before 1953	Born after 1953			
Scot or Scots-Irish ancestry	0.01 [0.011]	-0.02** [0.007]	-0.02 [0.017]	0.01 [0.009]	-0.00 [0.016]	0.01 [0.015]	0.03*** [0.011]	-0.01 [0.028]	0.00 [0.013]	0.04** [0.018]	0.04*** [0.007]	0.04 [0.035]
BS*Scot or Scots-Irish		0.01 [0.008]	0.01 [0.021]	-0.04*** [0.012]		-0.00 [0.024]	0.01 [0.031]	-0.01 [0.032]		-0.05** [0.021]	-0.05* [0.031]	-0.04 [0.045]
DS*Scot or Scots-Irish		0.06*** [0.007]	0.07*** [0.018]	0.02+ [0.013]		-0.06** [0.026]	-0.08*** [0.022]	-0.02 [0.071]		-0.06+ [0.039]	-0.09*** [0.014]	-0.02 [0.076]
W*Scot or Scots-Irish		0.02 [0.026]	0.02 [0.042]	-0.02 [0.013]		0.02 [0.045]	-0.00 [0.028]	0.06 [0.066]		-0.02 [0.025]	-0.02* [0.012]	-0.02 [0.043]
MW*Scot or Scots-Irish		0.01 [0.009]	0.02 [0.021]	-0.02 [0.020]		0.00 [0.038]	-0.02 [0.023]	0.03 [0.060]		-0.03+ [0.023]	-0.05*** [0.013]	-0.02 [0.046]
Individual controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Regional dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
GSS year dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	32,427	32,427	16,044	16,383	19,424	19,424	9,781	9,643	19,201	19,201	9,601	9,600
R-squared	0.13	0.13	0.14	0.10	0.04	0.04	0.04	0.05	0.02	0.02	0.02	0.02
Value dependent variable	0.24	0.28	0.29	0.84	0.84	0.84	1.19	1.16	1.22			

Notes: The table reports OLS estimates. The unit of observation is an individual. All regressions are with a constant and year and region dummies. Robust standard errors clustered at the state level reported in brackets (46 clusters). *** significantly different from 0 at the 1% level, ** significantly different from 0 at the 5% level, * significantly different from 0 at the 10% level, + significantly different from 0 at the 15% level. Weapon at home: takes value 1 if the respondent owns a pistol, rifle or shotgun. The GSS asks: “Would you say you have a great deal of confidence (coded 2), only some confidence (coded 1), or hardly any confidence at all (coded 0) in [these institutions]?” “Confidence Exec. Branch Fed. Gov”, respectively “Confidence US Sup. Court”, is the answer to this question about the executive branch of the federal government, respectively the U.S. Supreme Court. “Scot or Scots-Irish ancestry” or “Scot or Scots-Irish” takes value one if respondent reports Scot or Scots-Irish ancestry in the GSS. “Individual controls” are: age, income, working status, self-employed, sex, race, born in US, size of place of residence.

Source: US General Social Survey (GSS) 1972-2008 Cumulative dataset.