Historical Wrongs and Socioeconomic Participation: Evidence from Forced-Coexistence and Voter Turnout Rates in Indigenous America

by

Fabiene Marra
B.Sc., University of British Columbia, 2017

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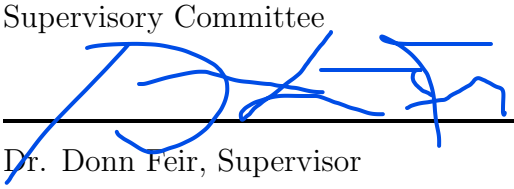
Supervisory Committee



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ABSTRACT

There is a fraught history between the United States federal government and American Indian Nations. Recent literature has argued that Native nations that were historically subject to more interventionist federal policies have worse economic outcomes today. In this paper, I provide evidence that a specific historical intervention that has been shown to impact economic development, specifically the forced political co-existence of distinct American Indian bands on reservations, also impacts voting behavior. I demonstrate that presidential election voter rates in 2012 and 2016 are roughly 2-3 percentage points lower in counties that contain a reservation in which bands were forced to coexist versus counties than contain a reservation that weren't subject to forced coexistence. Marriage rates and more recent Native American incomes are also lower. As a falsification test, I provide evidence that incomes for individuals identifying as white living on these same reservations are not significantly affected. I argue this is consistent with political, social and economic withdrawal and indicative of mistrust of government among a particular identity group due to historical wrongs. I provide evidence as to whether the measures of withdrawal I use can explain worse economic conditions faced by American Indian individuals living on reservations where bands were forced to co-exist.

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To say, that any event is derived from chance, cuts short all farther enquiry concerning it, and leaves the writer in the same state of ignorance with the rest of mankind. But when the event is supposed to proceed from certain and stable causes, he may then display his ingenuity, in assigning these causes; and as a man of any subtilty can never be at a loss in this particular, he has thereby an opportunity of swelling his volumes, and discovering his profound knowledge, in observing what escapes the vulgar and ignorant.

David Hume - Essays, Moral and Political, 1742

DEDICATION

I'd like to dedicate this to my dog, Cedar.
Good girl.

Chapter 1

Introduction

The effects of colonialism on Indigenous peoples should not be downplayed. The negative impacts of European expansion to the New World reach back to the conquistadors' decimation of large Inca societies in the 15th and 16th centuries. More recently, legislative and institutional development of modern governments in Canada and the United States have impacted Native American and First Nations groups over the past few centuries. As the colonial political and institutional structures in North America developed, the associated policies have been shown to have negatively affected these people in a variety of ways (Diamond and Ordunio, 1999; Kuhn and Sweetman, 2002; Dippel, 2014; Feir et al., 2019). [1]

Various studies have investigated how colonialism has impacted Indigenous people in recent decades. For example, some studies in the Canadian context explore the lagged socioeconomic and other outcomes for Indigenous people. Many look deeper into the effects of identity, living on reservations, lags in educational outcomes, and historical factors and events among others on Indigenous socioeconomic outcomes in the past few decades (Pendakur and Pendakur, 2011; Feir, 2013; Barber and Jones, 2021; Feir et al., 2019; Dippel, 2014).

As seen across this literature, investigating the effects of historical conditions with an econometrics toolkit offers a deeper understanding of long-term socioeconomic processes. It has been argued that policy makers should consider historical and institutional factors when crafting policy (Nunn, 2020). The context in which incremental

[1] Institutions may be described as the rules of the proverbial game that set the parameters on interaction within a society, and as such they help determine the incentives that help determine the way in which society develops. These range from formal (e.g. government policies) to informal (e.g. attitudes) parameters that guide the actions of individuals. (North et al., 1990).

policy change occurs is arguably as important for its successful implementation as the parameters of the policy itself. The process by which history influences current realities is at least in part deterministic. Therefore, understanding the implications of historical development may offer insights into important contextual characteristics that may impact the efficacy of the policy intervention now and in the future.

Of focus in this paper are the effects of historical factors on Indigenous groups' participation in broader American social and economic life. Specifically, as a result of historical government action Indigenous individuals in North America have been shown to demonstrate persistently lowered outcomes in various socioeconomic indicators that have been traced back to specific historical wrongs or injustices (Dippel, 2014; Feir et al., 2019). This paper aims to better understand not only the nature of these cases, but the potential mechanisms by which the impacts seem to persist through time by extending and critically evaluating the analysis of a foundational paper in economics on Indigenous economic development in North America, Dippel (2014).

Dippel (2014) explores the effects of historical policies of the United States government on Indigenous people living on reservations. They point to the drawing of boundary lines in the creation of reservations and the subsequent development in the years following reservation creation. "The overwhelming majority of present day reservations had been formed by the 1890s"(Dippel, 2014, p. 6). They explore the trends in socioeconomic development on these reservations in the decades since much of the political authority was delegated to reservation governments. They create a variable to measure whether politically-distinct bands were incorporated onto one reservation in the drawing of Indian reservation borders (which they term forced coexistence). Various factors affected the distribution of forced coexistence, including geographic, demographic, cultural and historical factors. As such, they create another variable to measure whether the multiple bands grouped into one reservation tended historically to act as a centralized whole (which they term historical centralization). They find that on reservations that experienced forced coexistence American Indian per capita income was roughly 30 per cent lower even considering historical centralization and other key demographic, cultural, geographic, and various socioeconomic factors. This result was echoed in other outcome variables like Indigenous employment rates and average salaries, which implies a broader impact to socioeconomic participation and outcomes among these reservation populations. They find that this relationship was significant in 2000, roughly three decades after political autonomy

began being granted to reservations. They also incorporate robustness checks including an IV specification using historical mining activity to predict forced coexistence and OLS results for factors like newspaper coverage and language use to establish the narrative behind these striking results.

Dippel (2014) argues that the variation in economic outcomes among Indigenous individuals on reservations due to forced coexistence operates through increases in political infighting and thus ineffective political action and institution building. The delegation of political powers and autonomy from the administration of the Bureau of Indian Affairs (BIA) began in the 1970s, leading to the formation of local reservation governments. Since historically distinct bands had been forced to coexist on the same reservation, reservation governments were comprised of members of distinct bands whom hypothetically held varying views and cultural norms about political action. In Dippel's argument, this infighting led to lowered economic development, local supports, infrastructure, and institutions (economic, social, and political). This culminated in lower per capita incomes, employment rates, and average salaries for American Indian individuals on those reservations decades after the reservation councils began to get more power over local politics.

Dippel's argument is plausible, especially given some of the empirical evidence pointed to in the paper. However, in this paper I raise some challenges to this mechanism and explore an alternative explanation. For example, it may be the case that the effects of forced coexistence are only prevalent in certain subpopulations on reservations. This would suggest that these reservations do not suffer from political infighting and the associated spin off factors (e.g. lagging infrastructure, political institutions, access to services, etc.), as one would expect all people living on these reservations to experience some effects regardless of identity. I present evidence on whether the socioeconomic impacts experienced by American Indian cohorts on these reservations today are linked to identity and not entirely explained by reservation politics.

The reservation systems and other state imposed structures that created the environments in which Indigenous individuals live today have led to a variety lowered outcomes for these populations. Of course many had significant direct effects, but there have also been shown to be a variety of indirect effects as a result of this fraught history. Importantly, these lowered outcomes have been in part linked to unobservable factors. Interestingly, some have pointed out this uncertainty may be related to closeness to ones Indigenous identity, or "aboriginality" (Pendakur and Pendakur,

2011, p. 62)(Kuhn and Sweetman, 2002).

One's association with a particular identity group may affect that individual's utility function in certain ways, and these ways are inextricably linked to the identity and its associated features and characteristics (Akerlof and Kranton, 2010). These features may include norms and values, as well as attitudes and narratives which are developed in conjunction with the identity group itself. These tend to be adopted by those that identify with that group. For example, US military personnel pay has risen much lower than average wages, and it has been argued that this is linked to shared values including that of public service and valor (Akerlof and Kranton, 2010, p. 45). It has also been shown that those identifying with certain high school cliques may experience lowered educational outcomes as a result of the attitudes towards schooling adopted by those within their associated groups (Akerlof and Kranton, 2010, p. 67). These examples show how tangible economic disparities can exist across dimensions of identity through means of their associated sociocultural behaviours, values and norms. Austen-Smith and Fryer Jr (2005) discusses the persistence of the effects of historical wrongs among the victimized population. They explore some explanations for how the effects of historical traumas are perpetuated among those in the identity group. For example, they point to racial solidarity along both social and regional lines and how these and other factors can lead to various pressures that help instantiate lasting norms, values and narratives. As a result, these effects are perpetually realized among those that associate with that identity group. It follows that the effects of forced coexistence may have endured through association with Native American identity, which carried and perpetuated the downstream effects of historical traumas including certain attitudes towards the state.

The mechanism behind the reverberating impacts of forced coexistence through time is of interest to this paper. As mentioned, certain norms or values among identity groups develop over time and may be influenced by historical wrongs as a result of government action. This may be thought to manifest in behavioural and attitudinal prescriptions of those that identify with that group and thus are closest to this collective trauma. A generalized feeling of dispossession may result in mistrust of government and broader society as a result of the historical wrongs (Williams, 2022). As with the impacts to trust among Black American populations stemming from historical wrongs, there may be similar feelings among American Indian populations associated with the reservation system – specifically, forced coexistence. However, it is unclear precisely what drives those identifying as American Indian generations after

the fact to continue to exhibit these values. Shiller (2017) suggests that the stories shared by a group have a large influence over the actions of individuals associated with that group – a fact often wrongly downplayed by economists. It is suggested that our actions are largely influenced by stories and narratives we construct to understand the world, and that values or attitudes may be passed down through formal stories and parentage within identity groups. Some attitudinal trends or shifts in norms may well have come as a result of historical wrongs by governments and been internalized via stories and narratives. Further, these may have lasting effects that, for example, significantly alter the trust or engagement of certain groups with state through time. More concrete explorations of the mechanisms behind this historical persistence of lowered trust and engagement with the state are discussed later (Williams, 2022; Chen and Yang, 2015).

This is not unlike many other cases in the historical persistence literature, such as some Black American populations' lowered trust in formal medicine as a result of past injustices. There has also been shown an effect of past slavery on modern productivity in those locations, as well as lowered civic engagement in Central America as a result of political repression, for example (Booth and Richard, 1996; Nunn, 2007; Nunn and Wantchekon, 2011). Dynamics in social capital have been widely explored through the lens of development and its relationship with historical contexts. Some examples include institutions, economic, political and social environments, and attitudes. Many others have documented the reverberating impacts of particular historical injustices and wrongs on minority populations that continue to be felt today (Kuhn and Sweetman, 2002; Feir et al., 2019; Albright et al., 2021; Alsan and Wanamaker, 2018).

Therefore, in contrast to the mechanism described in Dippel (2014) by which historical impacts of forced coexistence came to be, the aforementioned reverberations through mistrust and dispossession stemming from the federal government's intervention into American Indian band political life could explain the lower per capita income we see today. This paper explores whether as a result of these historical wrongs, affected individuals pulled away from the state and civic life, and by association the broader American economy and society generally.

Trust in institutions as well as interpersonal trust all play into civic engagement. In addition, satisfaction with democracy and trust in government and politicians have been shown to significantly affect voter turnout rates across Europe (Grönlund and Setälä, 2007; Cox, 2003). As mentioned, as a result of forced coexistence a feeling

of disenfranchisement from the state may have persisted among American Indians on these reservations. This attitude, passed down through generations, may have led to a retraction from the American economy which may explain the results of Dippel (2014). This paper builds on this by measuring whether civic participation, specifically presidential election voting rates in the containing counties, is significantly related to forced coexistence on the reservation therein. If this is the case, it would indicate that as a result of historical injustices and their effects on various metrics of social capital American Indians participate less in civic life. Further, it would suggest that the worsened socioeconomic outcomes for American Indian individuals today found in Dippel (2014) may be in part explained by the mechanism linking them to a broader retraction from the state and its proxies.

The paper is organized as follows. Chapter 2 provides concrete examples to motivate the empirical analysis, as well as a discussion of the mechanism in question by pointing to other similar examples of historical persistence literature – specifically with respect to the effect of institutional frameworks on economic development. Chapters 3 and 4 describe the empirical methodology and the data integration process, respectively. The main results and the associated sensitivity and robustness checks are reported in Chapter 5. Then the mechanism is tested in different ways, specifically by looking at various other explanatory factors and how they align with the retraction mechanism in Chapter 6. In Chapter 7, the general mechanism is discussed vis-a-vis the results along with discussions of various interpretations, limitations, and extensions in the empirical methodology. Chapter 8 concludes.

Chapter 2

Literature Review

2.1 Historical Persistence and the Effects on Development

The persistence of historical events and conditions have been shown to have lasting effects over time. The various pathways through which historical conditions or endowments have affected more recent measures of economic development have been pointed out by many. All these papers in economics show some relationship between historical and contemporary measures and trace the economic mechanism through which certain patterns are seen today. For example, endowments and initial conditions have been pointed to as a fundamental driver of socioeconomic prosperity (Diamond and Ordunio, 1999; Maddison, 1991). Natural resources, geography, local flora and fauna and other features of various environments providing better access to the necessities of life in some way made those beneficiaries better off in the long run. Further, historical political context like characteristics of democratic institutions have been directly linked to current socioeconomic outcomes both in terms of current wealth and previous growth (Putnam et al., 1993; Helliwell, 1994; Tabellini, 2010; Acemoglu et al., 2001; Michalopoulos and Papaioannou, 2013).

Just as historically beneficial features have been shown to be linked to economic prosperity and growth, specific historical events have been shown to damper socioeconomic growth through time in a variety of ways (Albright et al., 2021; Nunn and Wantchekon, 2011; Nunn, 2007). An example may be seen in Peru, where current outcomes including institutional, educational, and public infrastructure can be traced back to historical factors. Specifically, in locations where exploitation of mining labour

occurred over centuries, current inhabitants are by various measures worse off (Dell, 2010). This author tells a story of how lower concentrations of land ownership led to lower consumption and prosperity, leading to lower education, and stunted growth among children. Ultimately, these areas ended up having lower road access as a result of the historical effects on development. The literature linking persistence of historical factors to economic development specifically points to these kinds of causal pathways from historical feature to current context.

Many papers similarly describe avenues through which the effects of historical events can affect the present. Many investigate cases of unusually traumatic or outstanding events. For example, slavery in America is widely understood to have had lasting effects on Black populations, and to have led certain neighborhoods, regions, and peoples to experience lower economic opportunity today. Nunn (2007) points to evidence showing a negative relationship between slavery intensity in 1850 and per capita income in 1994. One clear distinction between the direct and indirect effects of historical events may be seen in the abolition of slavery and the pathways of the lasting effects on Black populations. Newly freed slaves would have little to no resources, and as a result would often be trapped in a lower socioeconomic class. Thus, descendants of these victims and others in future generations would face higher levels of poverty thereby perpetuating the initial inequality. Interestingly, however, it has been shown that these kinds of direct effects of historical wrongs may not explain all, or even the majority of, the lasting socioeconomic effects shown for descendants or those associated with the victims (Albright et al., 2021; Nunn, 2007).

One example distinguishing direct and indirect socioeconomic effects of historical events may be seen in the 1921 Tulsa Race Massacre, in which the authors investigate the lasting socioeconomic implications of one of the "worst incidents of racial violence, murder, and destruction in postbellum U.S. history" (Albright et al., 2021, p. 1). The destruction, looting and havoc in Black communities as a result of race riots led to many being put out of business and their homes, and significantly affected livelihoods of those in the community. Crowds of Tulsans and eventually some police were involved in the burning of predominantly Black homes and looting of businesses. The direct effects shared by many in the community at the time included lowered home ownership and occupational status of individuals. This directly affected subsequent generations and could be measured 80 years later. However, this work also shows that in towns across America where Black Americans may have heard the story in the news, the event was also similarly impactful. That is, there was a significant

spillover effect of newspaper coverage of the event, especially in heavily segregated communities, on outcomes for Black Americans in those towns. Even more, just like the effects in Tulsa these spillover impacts also persisted over the past eight decades. Albright et al. (2021) argues that the exposure of Black Americans to the event may have indirectly affected attitudes – especially towards government. They argue that Black Americans saw that the federal government did not come to the aid of victims of the massacre, and as a result harboured a generalized mistrust of government, leading to lagged home ownership and occupational status seen even as recently as 2000. It is important to note that these impacts were not isolated to the locale of the original event. This reinforces the fact that some indirect effects may be highly linked to the identity group and individuals associating with it seemingly regardless of proximity (Akerlof and Kranton, 2010).

Another example can be seen in the persistent effects post-abolition of slavery in Black communities across the United States. Former slaves immediately were at a disadvantage economically, not to mention the blatant racism and segregation characteristic of the times that limited their economic opportunity. This direct inequality following abolition resulted in communities falling behind, and ultimately the lagged development seen in such communities through time. Nunn (2007) finds empirically that while there is a relationship between current Black economic outcomes and historical slavery, this effect is in fact not mainly due to these initial effects of slavery on economic inequality. They find that the negative impacts of slavery were largely constant regardless of these initial conditions, which "suggests that all forms of slavery were equally detrimental." (Nunn, 2007, p. 35). Nunn shows that no matter the size of the former slavery operation, the mere fact that slavery was involved resulted in similar effects decades on, and that "slavery's effect on initial economic inequality is unable to account for any of the estimated relationship between slavery and economic development" (Nunn, 2007, p. 35). This shows specifically that these effects need not always be directly traceable and may sometimes occur as a result of indirect or unobserved mechanisms. In this case, the effect of slavery on future generations is mostly unrelated to the size of the slavery operation leaving indirect pathways like narratives and attitudes to explain the maintained effects of slavery through time (Shiller, 2017).

Clearly, some pathways are more direct, but historical events have indirect effects that cast a much wider influence on societies and economies more broadly as a result of things like the development of certain institutions, societal attitudes, or social

capital. In the above examples, the effects of historical wrongs reverberated in ways other than through direct pathways, which supports the idea that these more abstract social factors may be also be significant drivers of current outcomes.

An example of the indirect effects of historical wrongs is seen in Russian cities and towns that were occupied during the Holocaust. Comparatively, cities with large Jewish populations were more severely affected by the Nazi Einsatzgruppen occupation. This led to these cities having lower total populations in 1989, and as a result of other socioeconomic forces they also demonstrated lower average wages in 2002. Interestingly, they argue that one effect of the Holocaust was the removal of the middle class in these areas and the effect that had on attitudes. This social and demographic shock led a variety of contemporary effects including higher support for communist leadership (Acemoglu et al., 2011). The results show that a 1 percentage point higher share of Jewish population in 1939 in an occupied city is associated with an 11 percent increase in the vote share for communist candidates, for example. This is indicative of significant dynamics in values in these cities. It follows that historical traumas can result in fundamental social change, which can have reaching dynamics. These indirect pathways are also linked to lower economic outcomes, demonstrating the tangible economic impacts that can be indirectly affected by the past.

This carries through to other examples, such as current day Maori populations having less buy-in for resource management projects supported by the federal governments in New Zealand. As a result of traumas in the past related to involuntary land grabs by the British Crown, Maori populations today are much less likely to engage in voluntary land transfers for the purposes of land management and conservation (Coombes, 2003). Even though the historical injustices did not directly create environments of lowered land management among these populations, the indirect effect of serial mistrust of the federal government morphed through time and "induced the politics of withdrawal amongst [...] [management committees]" (Coombes, 2003, p. 350). This could suggest that historical impacts to trust of authority affects present land management agreements through lowered preference to engage with the federal government generally. In this case, the resulting sub-optimal resource management regimes could be of further detriment to these groups.

Feir et al. (2019) investigates the effect of the extermination of bison across the United States and Canada in the 19th century on Indigenous groups whose livelihoods, cultures, and ways of life were reliant upon the animal. They show that as a result of the slaughter of the bison, reliant tribes were immediately made worse off. The

relinquishment of this vital resource affected food supply as well as access to other necessities of life, including material for shelter and clothing. Coupled with this was the fact that there were few alternatives for economic opportunity and even if there were, the skills, work habits, and general social capital of these groups revolved similarly around this resource. This left many economically stranded. They track the effects as far as incomes in 2000 of previously bison reliant societies, and show they continue to experience roughly 30 percent lower incomes than those in tribes that were historically non-bison reliant historically.

The previous example highlights social capital dynamics as a driver of the impacts historical events. This could be expanded to many aspects of commonly associated social capital. For example, attitudes and cultural traits may be affected by historical events. Nunn (2014) find that historical institutions in cities in Europe – in this case whether they were subsumed by the Habsburg Empire – translate into current cultural or institutional behaviours or traits, such as social trust or trust in government as an arbiter of justice.

Trust in government as a shared attitude has far reaching implications. Approval or respect for government authority underlies much of social and economic life let alone civic life. Engagement and compliance in regulatory environments may be at risk if individuals begin to look more poorly upon government as a result of some intervention. As such, trust in authority is an important factor when understanding indirect socioeconomic effects of historical events that persist through time, particularly when governments are directly involved in the said event (Alsan and Wanamaker, 2018; Nunn, 2020).

One may begin to wonder how it is that the effects of historical events on attitudes and values like trust are perpetuated. Of course, in cases where the source of mistrust is ongoing, it makes sense that the perpetuation of mistrust would be perennial. However, many of the cases above relate to acute events, the effects of which are perpetuated through time via other channels. One such channel comes in the form of word of mouth, leading to changing attitudes and feelings on specific matters, that are perpetuated through generations and therefore affect worldviews of those that subscribe or associate with the affected group through time. Shiller (2017) points out that economists rarely attribute much relevance to the effect of sociological trends, specifically narratives, since they are hard to prove and hold varying degrees of truth. They point out that some related fields in the social sciences do however maintain an appreciation for this, such as in history and various fields in anthropology and

sociology. They argue that these stories have serious economic consequences, in that they "have the ability to produce social norms that partially govern our activities, including our economic actions" (Shiller, 2017, p. 9). "David Hume wrote in 1742 ... when any causes beget a particular inclination or passion, at a certain time and among a certain people, though many individuals may escape the contagion, and be ruled by passions peculiar to themselves; yet the multitude will certainly be seized by the common affection, and be governed by it in all their action" (Shiller, 2017, p. 11). Serial mistrust and other sociological trends may be appropriately viewed as narratives manifesting as social norms and values that get passed down through generations and are therefore maintained among those associated with the affected group. As suggested in the aforementioned examples, this dynamic of persistent mistrust may also shed light on the persistence of socioeconomic effects of historical wrongs.

2.2 Trust, Socioeconomic Participation, and Civic Engagement

Considering the histories and tragic consequences of colonial dealings with various Indigenous peoples across North America, it is clear that some intergenerational impacts to mistrust of government may exist as a result of historical injustices like forced coexistence. Plenty of studies measure the impact of historical government and particularly wrongs associated with colonial history on trust – both of government and of others. (Demaris and Yang, 1994; Feir et al., 2019; Nikolova et al., 2022; Nunn, 2014; Alsan and Wanamaker, 2018; Alesina and La Ferrara, 2002)

The mistrust generated as a result of historical wrongs by government may have indirect impacts to economic well-being. Heavy handed rule under the Habsburgs and the Holy Roman Empire resulted in a citizenry that overall is less engaged civically and more distrusting of the government. Nunn (2014) explains that these effects of historical government attitudes towards the people can be seen in the same effects persisting in parts of Europe today. The imposition of gulags under the Stalin regime generated a mistrust of government that has persisted to this day. Nikolova et al. (2022) find significantly lower trust at distances closer to former gulag locations. They also consistently point out the link to development, in emphasizing that "trust underpins economic exchange and, as such,[...] explains economists' interest in the

historical origins of trust norms" (Nikolova et al., 2022, p. 1). The results shown by Albright et al. (2021) may also be consistent with mistrust both of others and of government. This breakdown of trust may have contributed to the resulting lags in home ownership and occupational outcomes.

As described, social capital of all kinds, and to a large extent trust, may be significantly affected by historical conditions or events (Tolbert et al., 1998; Putnam et al., 1993; Putnam, 2000; Nunn, 2014; Davila and Mora, 2007; Malik and Waglé, 2002; Feir et al., 2019; Nunn, 2007; Booth and Richard, 1996). Trust has been widely associated with economic prosperity, particularly through its reflection of democratic institutions, attitudes conducive to civic participation, and the effect of interpersonal trust on economic participation. As a result, historical impacts to trust may have an associated impact on economic development. Further, if these effects persist through time, the economic outcomes of associated individuals today may be affected by historical impacts to trust within that group. Whether it is historical conditions or events, there is clearly a relationship between trust, civic engagement, and economic development.

The links between aspects of social life, such as trust, have been shown in economics literature as predictors of economic development. Tolbert et al. (1998) explains that earlier views of economic development "tended to view economic life and social life as relatively distinct spheres, [whereas] contemporary approaches focus on the interrelationships between economic and non-economic institutions" (Tolbert et al., 1998, p. 405). Its clear that the linkages between aspects of social life conducive to economic development, or social capital, have been argued since the 1990s. Thus impacts affecting social trust entail some economic impacts, since "historical events can have on the evolution of cultural traits, which are important determinants of contemporary economic development" (Nunn, 2020, p. 3).

The persistent effects of historical events on trust in government is explored in Chen and Yang (2015). They investigate the effects of historical political intervention that resulted in widespread famine in China from 1958-1961. Specifically, it was radical redistributive and centrally planned policies that led to widespread food shortages. Interestingly, state propaganda was used to attempt to quell these feelings, but was shown to be ineffective. The impacts to trust were especially strong when messages were egregiously misleading, such as blaming weather and growing conditions in communities where clearly this was not an issue. As a result, affected populations fostered attitudes of mistrust towards the state, and engaged less in civic life.

From this, the author discussed the mechanisms behind intergenerational transfer of such attitudes. They point out that "traumas caused by political failures persistently shape citizens' political inferences and dampen political trust" (Chen and Yang, 2015, p. 30). It is this transfer of attitudes and narratives even within households that led to "intergenerational transmission of political distrust"(Chen and Yang, 2015, p. 24). This even went as far as the affected individuals having lower marriage rates with government-related partners. Overall, this paints a convincing image of the effects of historical wrongs by the state on trust. It also demonstrates tangible mechanisms that can explain how these effects manifest and are carried through time.

Another example demonstrates the effect that historical impacts to trust can have on contemporary civic engagement as measured by voter turnout rates. Specifically, it has been shown that a result of historical lynchings, Black populations in the United States demonstrate lower voting rates today (Williams, 2022). In areas where lynchings and other violence against the group were more prevalent, contemporary voter registration and voter turn out rates are even lower. The author argues that as a result of these historical wrongs, "cultural voting norms persisted and were transmitted to subsequent generations" (Williams, 2022, p. 9). The author argues that lynchings occurred on the way to and at polling stations, which was a clear message not to vote. In contrast, this paper suggests that historical wrongs like these fostered attitudes of disenfranchisement and retraction from the state and broader American society, which in turn led to impacts to economic development. Nonetheless, this example highlights how historical injustices can affect contemporary civic engagement.

However, the leap from aspects of trust to economic development could take many paths. Much of the literature points towards the effect that trust has on civic participation. Largely, societies in which citizens are more trusting tend to be ones where they are more engaged in civic life. As more trust and cooperation, both with others and the government, result in efficiencies with respect to policy, inequality, and other socioeconomic institutions, environments conducive to healthy civic spheres tend to prosper. Putnam et al. (1993) argued there is a strong relationship between trust – both generalized trust of society and trust of government specifically – and civic engagement. It is clear that, for example, voter participation would be higher in areas where trust of the system, for lack of a better term, is higher. If citizens trust in government and its dealings, they engage more in the development of their society, both of which are facets of social capital (Putnam et al., 1993; Putnam, 2000).

Davila and Mora (2007) found that all else considered, some minority groups have

significantly lower educational attainment, and that that may in fact be tied to civic engagement as measured by community service and/or participation in student government or volunteer work. They find that community service is significantly less prevalent among Native Americans than others, all else considered. They also find more broadly that lowered engagement in civic life is highly related to educational attainment, but find that civically engaged teenagers tend to have higher academic performance later in life. It is shown that this effect is significant controlling for measures of intelligence, socioeconomic background, and a host of other factors. This reinforces the idea that civic engagement drives educational outcomes through fostering attitudes conducive with societal development. This stresses the direction of the effect, namely that civically engaged groups form an environment in which individuals tend to perform better in school and on average spend more time in school.

There are various pathways from civic engagement to economic growth and development, such as the effect of civic engagement on educational attainment. However, civic engagement has been described as a "manifestation of social capital" (Grillo et al., 2010, p. 452), which may suggest a more direct link between civic engagement and socioeconomic participation. Namely, there may be a relationship between civic engagement and economic engagement in that civic life and economic life are just aspects of broader society, and thus both are manifestations of social capital. Individuals that choose to participate in civic life, adding value and contributing to the development of their communities, tend to participate in the economic development; civic engagement and socioeconomic participation go hand in hand. As argued later in this paper, impacts to the trust of certain groups may affect the engagement of those groups in societal structures, which ultimately may result in a general retraction from broader American society and economy.

Clearly civic engagement has an effect on economic outcomes, and civic engagement, and participation in society generally, is linked to trust. Historical impacts to trust may follow this logical pathway to ultimately affect economic outcomes. For example, as already discussed, Nunn (2007) shows the relationship between historical slavery and lower economic outcomes of descendants. They find that current economic inequality and growth in counties is related to former slavery operations and that initial inequalities were sustained over time. They find that the effect is not as much related to scale of historical slave operation, but to the mere fact that it existed as previously mentioned. They suggest the reasons for this persistence is due to worse property rights and/or political inequality. Another possible consideration

could be the lasting effects to trust, which may have resulted in lowered engagement or sympathy with the government and by extension the broader American society and economy. As a result of the historical injustices, attitudes of disengagement may have been passed down between generations. This in turn may have resulted in attitudes of mistrust and alienation leading to lowered civic and economic engagement.

Thus, historical events that affect trust among certain groups could be expected to have some lasting effect on trust within that group. The historical wrongs with respect to forced coexistence and the legacy of government intervention into tribal affairs may have direct economic impacts, but also indirect impacts through influencing subpopulations' trust in external governments, and by association broader American institutions and economic activity. As a result, it may be the case that the effects of forced coexistence of historically separate bands within reservations created a mistrust of government institutions, which resulted in a retraction from civic and economic participation, resulting in lowered socioeconomic outcomes compared to other reservations. This causal pathway, from the institutional mistrust resulting from historical wrongs to lowered engagement and participation in civic life and society broadly, to lowered socioeconomic status is the focus of this paper.

Chapter 3

Empirical Methodology

3.1 OLS Specifications

I look at these mechanisms empirically below. I focus on the effect of forced coexistence on trust in government and willingness to engage in broader U.S. state systems, and the broader mechanisms discussed above. I use voter turnout rates during federal elections as a proxy for this. Further, I investigate the effect of forced coexistence on other factors associated with the hypotheses described.

3.1.1 County-Level Estimates: Presidential Election Voter Turnout Rates

Following Dippel (2014) I estimate the following ordinary least squares equation in order to determine the impact of forced co-existence on my outcome measures of interest:

$$y_{t,i} = \beta_0 + \beta_1 FC_i + \beta_2 HC_i + \beta_3 X_i + \beta_4 T_j + \epsilon_i \tag{3.1}$$

Where y denotes the outcome of interest, t indexes the year the outcome of interest is observed (2012 and 2016 for voter rates), and i indexes the county. My primary dependent variable of interest, FC is an indicator variable for whether a county contains a reservation where nations were forced to co-exist. All models also control for historic political centralization, denoted HC, since, as shown by Dippel (2014) that this is strongly correlated with forced co-existence and it may also independently affect income today. The vector X is a set of control variables that vary at the level of

the county including median household income, civilian unemployment rate, percentage of households in rural areas, percentage of individuals with less than high school education, and with less than college education for each county, as well as the proportion of each county that identifies as non-white. T contains tribe characteristics, as in Dippel (2014), which vary at the level of the tribe of the contained reservation. There are only ever a maximum of one overarching tribe per reservation (forced coexistence is at the band level), but multiple reservations share tribe characteristics that are related to the effects of forced coexistence on American Indian income per capita and potentially with the new outcomes variables of interest. I therefore control for these tribe characteristics in all my models. I will present models both without the controls included in X and subsets of X. Note that all counties are associated with only one reservation but reservations may cover multiple counties. In order to deal with the fact treatment does not uniquely vary by county but by reservation, the standard errors are clustered at the level of the reservation in each table.

My primary outcome of interest is voter rates. Specifically, presidential election voter participation rates, which are only available at the county level for the entire citizen voting age population.[1] In order to assign a particular reservation characteristics (i.e. forced coexistence and historical centralization status) to each county, there must be a maximum of one reservation in each. As such, counties with more than one reservation are not included, leaving 219 counties in the sample (see Section 4 and Table A.1 for more details).

3.1.2 Reservation-Level Estimates: Socioeconomic and Cultural Indicators

In order to reinforce the mechanism of retraction from the broader economy and society, I also investigate several other outcome variables at the level of the reservation. For this, I reuse many of the models and data found in Dippel (2014) to investigate the effects of forced coexistence on other outcome variables, as follows:

$$y_{t,i} = \beta_0 + \beta_1 FC_i + \beta_2 HC_i + \beta_3 X_i + \beta_4 T_j + \epsilon_i \tag{3.2}$$

Where y denotes the outcome of interest, t indexes the year the outcome of interest is observed (2000 or 2019 for income per capita, for example), i indexes the reservation,

[1] County level presidential election voter participation rates calculated using total vote count as a proportion of citizen voting age population in that year

and j indexes tribe. My primary dependent variable of interest remains forced coexistance (FC), FC, and all models also control for historic political centralization (HC), HC. X contains many of the controls used in Dippel (2014), including socioeconomic controls (surrounding county income per capita and employment rates), reservation controls (measures of ruggedness, size, and distance to metropolitan areas), and demographic controls (population, population-squared, adult share of the population). T contains tribe characteristics, as in Dippel (2014), which vary at the level of the tribe.

The outcome variables of interest available at the reservation-level include white income per capita both in 2000 and 2019, proportion of American Indian and Alaska Native (AIAN) households that have been married, and the percentage of AIAN individuals speaking Native American languages at home.[23] I also estimate models with AIAN income per capita both in 2019 as the outcome variable of interest in order to provide evidence I find the same results as Dippel for a more recent year. These factors, unlike presidential election voter rates, are available at the reservation level. These outcome variables were available for around 175 reservations in the sample. This section therefore builds on the discussion of mechanisms in Dippel (2014) by highlighting other important factors significantly related to forced coexistence and how they may have broader socioeconomic interpretations.

The logic for these additional socioeconomic outcome measures I consider is as follows: First, income per capita of individuals identifying as "white" on reservations are regressed against forced coexistence to better understand how the results found by Dippel (2014) stack across identity groups. This is an outcome of interest that is missing from the mechanisms discussions found in Dippel (2014), as the conclusion of political infighting being the driver of socioeconomic impacts over time relies only on AIAN income per capita and ignores socioeconomic outcomes of others living on reservations. If white income per capita on reservations do not follow the same trends as AIAN incomes per capita vis-a-vis forced coexistence, it follows that the mechanism leading to lags is tied more closely to AIAN identity than to political infighting.

[2]In virtually all public American survey data American Indian and Alaska Native are not identified separately. However since I focus on the contiguous 48 states, individuals are more likely to be American Indian.

[3]Proportion of households that have been married includes both married and divorced households as a proportion of the total. This measure is intended to measure overall participation in marriage, and therefore includes all those whom are or have ever been married. It also does not consider non-traditional marriages, with which some Indigenous individuals may identify. Hereafter these are referred to as marriage rates.

Second, social practices among AIAN households – specifically here, marriage rates – are regressed against forced coexistence. If AIAN individuals on reservations affected by forced coexistence demonstrate lower uptake in marriage, it would follow that forced coexistence did have some effect on participation in activities historically associated with government and historical colonial powers. Namely, the association between Judaeo-Christian traditions and the US government may have meant that dispossession from government translated into lower marriage rates. Thus, the lags resulting from forced coexistence may not only manifest as socioeconomic retraction, but also retraction from societal practices. As an extension, 2019 AIAN per capita incomes are then regressed against marriage rates on reservations. These results may help investigate whether lowered prevalence of marriage played into the effect of forced coexistence on lowered socioeconomic outcomes, or whether it has an ulterior effect.

It should be noted that a variety of other underlying factors may interfere with marriage participation. For example, the religious breakdowns of each reservation, the access to necessary services and social environments of reservations may significantly drive marriage beyond my controls. It may also be the case that some reservations tend to prioritize traditional marriages more, which could introduce some heterogeneity. Additionally, the findings of Dippel (2014) suggest forced coexistence may affect marriage through other mechanisms. The findings indicating higher rates of news articles related to violence may be indicative of particular social climates. On reservations where violence may be more prevalent, it may be the case that the general social climate is less conducive to peoples' decisions to get married. Further, the findings are extended to political violence which may support the mechanism in Dippel (2014), in that political infighting may be indicative of these types of social climates. However, as mentioned, this paper uses the effects of forced coexistence on marriage rates as an indicator of uptake of broader American social practices.

Finally, the proportion of AIAN individuals on these reservations that speak a Native American language at home is regressed against forced coexistence. Dippel (2014) finds there is no significant relationship between forced coexistence and the share of AIAN on reservations that primarily speak English as evidence that integration was not a primary driver of persistent impacts. However, it is not shown whether use of traditional languages was significantly affected by forced coexistence. In this way, I investigate whether forced coexistence is related to direct cultural impacts as measured by uptake of cultural activity – in this case, practicing traditional languages. If forced coexistence is positively correlated with Native American lan-

guage use among AIAN individuals, it could suggest that forced coexistence led to AIAN individuals on reserves pulling away in choosing to speak languages other than English at home.

If forced coexistence is negatively correlated with Native American language uptake among AIAN individuals, it could suggest that AIAN individuals on reserves underwent some sort of cultural impact. Though both interpretations could suggest there have been cultural impacts related to forced coexistence, any significant result would further shed light on how the effects of forced coexistence are tied to AIAN identity.[4]

3.1.3 Clustered Standard Errors

The effects of forced coexistence at the county level may include some correlated variation along the lines of particular reservations. Specifically, the error term in the OLS specifications by county would be heavily influenced by the lack of variation in both FC and HC, and other reservation measures, by county for counties that share specific reservations since reservations can cover multiple counties. This could affect the results by leading to incorrect standard errors in the regression results. Therefore since there are at least 1 county(ies) per reservation, it is necessary to view the results through the lens of clustered standard errors by reservation.

3.2 Robustness Checks

3.2.1 Instrumental Variable Analysis

As per Nunn (2020), in order to assign some sort of causality to matters of historical persistence, it is encouraged that instrumental variable (IV) methods are employed. These models attempt to address endogeneous variation from the independent variable of interest – specifically in this case, forced coexistence. The causal mechanisms discussed in the historical persistence context tend to be hard to measure and/or be associated with endogenous variation especially when looking over long time spans.

[4]The NHGIS database was extensively mined for other indicators of cultural value, though traditional language uptake was ostensibly the only available subject. Data was also available for the percentage of AIAN individuals speaking Navajo at home, but uptake of this particular language is largely concentrated in Navajo communities, and thus would not be representative of all reservations. As such, only use of other Native American languages is presented.

Measurement and identification of exogenous variation in history separate from confounding factors is clearly difficult. Therefore, IV specifications can help to curb some of the issues with endogenous variation in independent variables of interest.

I use the historical value of silver and gold mining in a reservations traditional territory for each voter rate IV specification following Dippel (2014). For this IV to be valid, it must be significantly correlated with the likelihood of bands experiencing forced coexistence and not correlated with voter rates other than through its effect on forced coexistence. Dippel (2014) suggests that as a result of historical mining rushes, both for gold and silver, there was generally greater pressure from the state to quickly form reservations and displace Indigenous nations to them. They list many other reasons and rationale for using these instruments. I use their instrument–historical values of gold and silver mining activity in the ancestral homelands of the nations that make up current reservation populations, aggregated to the level of each reservation (which I link to counties) – to examine the effects of the exogenous variation in forced coexistence in civic participation across containing counties.

As such, historical mining in county i is defined as the value of gold and silver mining within the ancestral homeland of the contained reservation of county i, so as to use the historical mining instruments used by Dippel (2014). As above, since historical mining activity is particular to reservations, and the specifications are conducted by county, it is necessary to cluster the standard errors in order for these specifications to be meaningful.

I estimate the effect of forced co-existence under a two-stage least squares framework using the following specifications:

$$FC_i = \gamma_0 + \gamma_1 HistoricalGoldMining_i + \gamma_2 HistoricalSilverMining_i + \gamma_3 HC_i + \gamma_4 X_i + \gamma_5 T_j + \epsilon_i \tag{3.3}$$

$$y_{t,i} = \beta_0 + \beta_1 \hat{FC}_i + \beta_2 HC_i + \beta_3 X_i + \beta_4 T_j + \epsilon_i \tag{3.4}$$

where $\hat{FC}$ are the fitted values of forced co-existence and y are voter rates, my primary outcome of interest for the years t. X includes the same controls as in the OLS specifications, as well as additional controls following Dippel (2014). One of these measures historical mining activity in current day economic environments to ensure the "IV uses only historical mining inside a reservation's ancestral territory that is

far enough away to fall outside its present-day economic environment" (Dippel, 2014, p. 17). The others include the distance from the reservation to the ancestral homeland and a measure of the its ruggedness. As before, i indexes counties (containing maximum 1 reservation), and j indexes tribe.

3.2.2 Mediation Analysis - Regressing Per Capita Income on Voter Rates

Finally, reservation-level AIAN income per capita in 2000 and 2019 are regressed directly on presidential election voter turnout rates in 2012 and 2016 in the containing county. This will estimate the mechanism of social and civic retraction directly by determining whether there is still a significant correlation between forced coexistence and AIAN per capita income on the contained reservation accounting for civic participation in that county. Further, it will show whether there is a significant correlation between county-level civic participation and AIAN per capita income in the contained reservation beyond that captured by forced coexistence.

If there is a significant correlation between per capita income and forced coexistence when accounting for voter rates, it would suggest that the results of Dippel (2014) are robust to controlling for civic participation in containing counties. Further, and more importantly for the present study, if voter rates continue to be significantly correlated with per capita income when accounting for forced coexistence, it may suggest that the effects of forced coexistence on economic outcomes are partly driven by civic participation. Therefore, these models help to reinforce the investigation of the mechanism behind my results and the results in Dippel (2014) by understanding whether forced coexistence indeed affected both socioeconomic and civic participation and whether the mechanism the forced coexistence influences income is through its effect on civic participation alone.

Regressing income per capita in 2019 on 2012 and 2016 voter rates is the preferred model, given the independent variables precede the dependent variable temporally. However, I also regress income per capita in 2000 on these voter rates. Even though it is less temporally logical, I do this because the under-counting of Native incomes in 2015-2019 American Community Survey (ACS) may be worse than in the 2000 Census. If this under-counting is also related to civic participation, it could result in arbitrary correlations between income and civic participation in the ACS data.

The models I estimate take the form of:

$$AIANPCInc_{t,i} = \beta_0 + \beta_1 VoteRate_{y,i} + \beta_2 FC_i + \beta_3 HC_i + \beta_4 X_i + \beta_5 T_j + \epsilon_i \quad (3.5)$$

Where y = 2012, 2016, and i = county (or the only contained reservation). AIANPCInc denotes the per capita income of individuals identifying as AIAN on the contained reservation, and t = 2000, 2019. The variables in X are county characteristics, and the variables in T are described above.

Chapter 4

Data

In order to test my hypothesis outline above, the ideal data would provide Native American measures of trust in U.S. institutions and identity at the reservation and tribal nation level as well as associated outcomes like civic engagement and other economic and social behavior. To my knowledge, those data currently do not exist. Thus I use voter participation rates, marriage rates, and speaking an Indigenous language as proxies for this with voter participation rates being the key variable of interest. I describe my sources of data below and how I generate measures of voter participation and link them to reservations.

4.1 County-Level Voting Behavior

It is important to note that the voter rate must be for non-reservation/non-AIAN elections. Presidential election turn out is used because the federal government could best be seen as the source of forced coexistence. The broader society and economy may also act as a proxy for the state. Thus the mechanism of societal participation/integration discussed here would likely best be reflected in voter participation for presidential elections among others.

While the IPUMS NHGIS database presents data aggregated to various levels, including American Indian/Alaska Native Homeland which aligns well with Dippel's list of reservations (match rate of 175 of 182 for available NHGIS variables), it does not contain any information on civic participation. In fact, I am not aware of any database that offers breakdowns of variables like voting rates, community engagement, etc. at the reservation level nor for AIAN specifically.

Thus, an alternative method was needed to measure civil engagement by AIAN and its relationship with forced coexistence. I first investigated whether the Census Population Survey (CPS) was a plausible data set that could be used to answer my question of interest. The CPS data includes individual-level response data on topics such as voting and civic engagement. The CPS also has county level identifiers which can, even if imperfectly, be matched to reservations. Using the CPS results under the civic engagement and voter supplement data set allowed for a direct link between AIAN identity, civic engagement, and forced coexistence. This data was vast, and contained thousands of responses from AIAN individuals between 2000 and 2020. Filtering down to those partially or wholly identifying as AIAN also offered a chance to investigate how the effects of forced coexistence varied across levels of AIAN identity. The CPS individual-level response data offered a variety of demographic and socioeconomic controls. Questions asked about voter registration in the past election, reasons for participating, as well as other civic engagement questions including community involvement and others. However, once the data was filtered to the level of the county and then linked to reservations, the CPS had sample sizes of Native Americans that made the data was ultimately unusable for this paper.

Thus, I use the next best available data on voter behaviour. This was available for presidential elections at the county-level and not broken down by race. This county-level voter data was obtained from the 2012-2016 ACS, and contained other pertinent variables including demographic and socioeconomic controls. It contains total voting age population and vote counts for various candidates in the 2012 and 2016 US presidential elections. Since this data wasn't available at the reservation level, a method by which to assign reservation characteristics to counties had to be developed.

4.2 Linking Reservations to Counties

As I had a variety of metrics available at the county-level, the reservations and their associated forced coexistence statuses needed to be matched to each county. The Census Bureau's 2010 Crosswalk file was used to directly associate reservations by name and code to containing counties. The file contained a crosswalk between county, including state, census tract code, and FIPS code, and reservation names for 281 counties across the 695 census tracts in the contiguous US, each containing a reservation. These reservation names were then able to be matched to those within the sample

obtained from Dippel (2014) with some cleaning.

There is significant overlap between counties and reservations. Each reservation may overlap one or more counties. The reverse is true also, as each county may overlap one or more reservations, however, this is much less frequent given the system of counties is unbroken, while reservations are usually not directly adjacent. Therefore, there are many cases in which reservation characteristics of interest – specifically forced coexistence and historical centralization – are unable to be directly associated with the containing county in a one-to-one manner. The next step is therefore to determine a way to best link these county and reservation level data accounting for these cases.

A method must be determined to assign a reservation characteristics (forced coexistence and historical centralization) to each county. The percent of county level population of each reservation could be used to construct a weighted average. However arguably the reservation-level variables cannot be assumed to affect outcomes is such a manner. For example, the effects of forced coexistence cannot be assumed to be spread out based on distribution of population. So I determined that this approach should not be used.

Similarly, distribution based on geographic overlap arguably isn't ideal. In the same way, the effects of forced coexistence would not vary based on amount of land covered by distinct counties. Thus I have chosen the arguably cleanest way to deal with the county-reservation linkage and exclude counties that include multiple reservations.

4.3 Data Summary

After the dropping of counties containing more than one reservation, this left 219 counties, representing 99 reservations, in the county-level voter data. As mentioned, the data source also offered a number of other controls crucial to my models. Most importantly, there is significant variation in forced coexistence and historical centralization across counties given the large number of reservations, as shown in Table A.1.

The mean values of voter rates and the associated controls are presented in Table A.2. There are also shown the differences in these variables across forced coexistence status. It seems clear that there are marked differences in county level voter rates both in 2012 and 2016 depending on whether the contained reservation underwent

forced coexistence.

As discussed, this paper also builds on the results in Dippel (2014) by investigating the effect of forced coexistence on other reservation characteristics. These variables were available from the IPUMS NHGIS database both at racial and geographic breakdowns necessary to link with the reservations in Dippel (2014). Of the 182 reservations used in that paper, I was able to match 175 with my new variables.

As seen in Table A.3, there is again a difference between whether the reservation underwent forced coexistence in terms of the mean values of the variables of interest.

Chapter 5

Results

5.1 Voter Rates

In Table A.4 I present the results of estimating various specification of equation (1). Overall, the results show a clear relationship. County voter rates are significantly lower in forced coexistence areas by roughly 3.3 and 2.3 percentage points in 2012 and 2016, respectively. The findings for 2012 and 2016 are both robust to controls. This suggests that forced coexistence is associated with generally lower civic participation outside of the reservation politics space. This statistical significance of the correlation is unaffected by the clustered errors. Clustering standard errors does increase standard error estimates for FC, though still significant at the 5 and 10 percent levels in 2012 and 2016, respectively.

The estimated coefficient of forced coexistence seems to decrease markedly when socioeconomic controls are considered, as in columns (3) and (4) of Table A.4. There is a clear relationship between income and other economic development indicators and voter rates, as expected from the literature. However, the general findings remain the same, and the coefficient point estimates are significant even when clustering standard errors. This may suggest the results are not merely a reflection of the effect of forced coexistence on income, and that the effect of forced coexistence on voter rates is independent of that correlation, as the results in columns (3) and (4) remain significant. This causal story is explored further in a later section. Similarly, the addition of demographic and racial controls further reduce the magnitude of the coefficient estimates for FC, though to a lesser extent, as in columns (5) to (8).

This reinforces the mechanisms discussed above. Namely, the significant relation-

ships between forced coexistence and voter turnout rates suggest that participation in presidential election voting in 2012 and 2016 is lower in counties in which the contained reservation underwent this historical wrong. Further, these results account for the particular experiences of individual reservations by clustering standard errors at the reservation level.

Combining the results in Table A.4 with the findings of Dippel (2014), it is clear that as a result of historical wrongs in the history of the contained reservation, AIAN residents have lowered socioeconomic outcomes, and voter participation tends to be lower for the counties that contain them.

These results may seem consistent with Dippel (2014) mechanism of poor political environments, as lower voter rates would seem consistent with poor political environments. However, these voter rates are specifically related to federal elections, and not reservation politics, which is indicative of broadly lowered engagement in federal civic life. Clearly, there is some significant relationship between forced coexistence and engagement in federal politics, which reinforces the causal pathway discussed above. Specifically, forced coexistence led to lowered trust in the federal government, manifesting itself in lower civic engagement. Regardless, these findings are consistent with a disengagement beyond solely socioeconomic retraction.

Of course a caveat to this is that the measure of civic engagement, presidential election voter rates, is lacking in specificity. These voter rates are measured at the county level, and thus contain more voters than just those on reservations. Also, they are not specific to AIAN as the measures of income per capita and employment rates are, which means the results are not specific to that identity group. However, as discussed in later sections this is the best available data linking civic engagement with historical wrongs done to AIAN individuals in the United States, though clearly this is a limitation.

5.2 Instrumental Variable Analysis

As in Dippel, an IV specification is employed to attempt to treat potential endogeneity associated with forced coexistence across containing counties. The results show that the instruments are relevant, in that the first stage regression results indicate both historical gold and silver mining value are significantly correlated with forced coexistence all other county controls are considered.

The design of these instruments is assumed to be conditionally as good as random,

and to have no correlation with the error term, making them valid (exogenous). This can only be qualitatively assumed, but it does not seem that the independence of historical mining and voter rates would be any less in question than AIAN per capita income. The results for all of the controls can be found in A.15.

Performing a Wald test, which is the test of joint significance of the instruments in the first stage regression, we find that F-statistic is 4.9, with a p-value of 0.09, as in column (6) of Table A.5. This represents the statistic used by Staiger and Stock (1994), which tests the null hypothesis that the coefficient estimates of the instruments are not jointly significantly different from zero. Given the results of the Wald-tests, the null hypothesis would seem to be rejected at the 5 percent significance level. However, Staiger and Stock (1994) insists the value should be greater that 10 as a rule of thumb.

Further, as pointed out by Stock and Yogo (2002), there are issues with poor instruments seeming to be valid, but the rule of 10 is not sufficient. Following their chi squared distribution chart, the F-statistic required for the true Walt test value to be significant at the 25 percent level is 7.25. Therefore, my F-statistics fall just short of these instruments being even arguably not weak. While my instruments are clearly weak, the relevance shown in the first stage regressions and the use of the instruments by Dippel (2014) offer some validation.

There are methods that have been proposed to obtain more meaningful inferences using weak instruments. Particularly, various test statistics and confidence sets can be exploited to invert hypothesis tests to be based on their outcome. Using these, equations may be constructed that are not affected by weak instruments (Andrews et al., 2019).

There is already a proven impact of forced coexistence when instrumented on historical mining, as seen in Dippel (2014). Even given the above instrument validity tests, these are rational instruments for forced coexistence, though clearly weak as seen in the results of the Wald test. The results in Table A.6 show that the endogeneity adjusted forced coexistence measure was associated with roughly 13-20 percentage point lower county level voter rates in 2012, and 7 to 12 percentage point lower county level voter rates in 2016. When clustering standard errors at the reservation level, the results remain significant at the 5 percent level, as per Panel B in Table A.6. Interestingly, when Tribe Characteristics are considered in column (5) the effect of FC on voter rates becomes more negative. Indeed, these findings are consistent with the OLS results above – voter rates do seem to be significantly lower in counties with

reservations that underwent forced coexistence. However, when the additional IV controls are added in column (6), the results become less pronounced. Additionally, the effect is no longer significant for 2016 voter rates, and the estimates for 2012 are less significant. Clearly, the additional IV controls seem to be particularly significant in column (6).

Of note is the difference in magnitude of the coefficient point estimates for FC which are much higher under IV than under OLS. This could be indicative of the difference between the local average treatment effect (LATE) measured under IV and the average treatment effect (ATE) under regular OLS assuming that the OLS estimates do not suffer from any endogeneity. It may be the case that counties containing reservations that have higher nearby historical mining activity may tend to be experience a larger relationship between FC and voter rates. This LATE among counties with higher mining activity nearby their contained reservations may just be higher than the ATE of FC on voter rates across all counties. It would follow that the IV estimates would be larger than the OLS estimates due to this heterogeneity in the population. This is an issue discussed in Card (1993), in that there is heteroskedasticity in the interaction between the instrument and the endogenous variable. Similarly, the much larger IV estimates shown here may just be indicative of heteroskedasticity in the relationship between forced coexistence and historical mining.

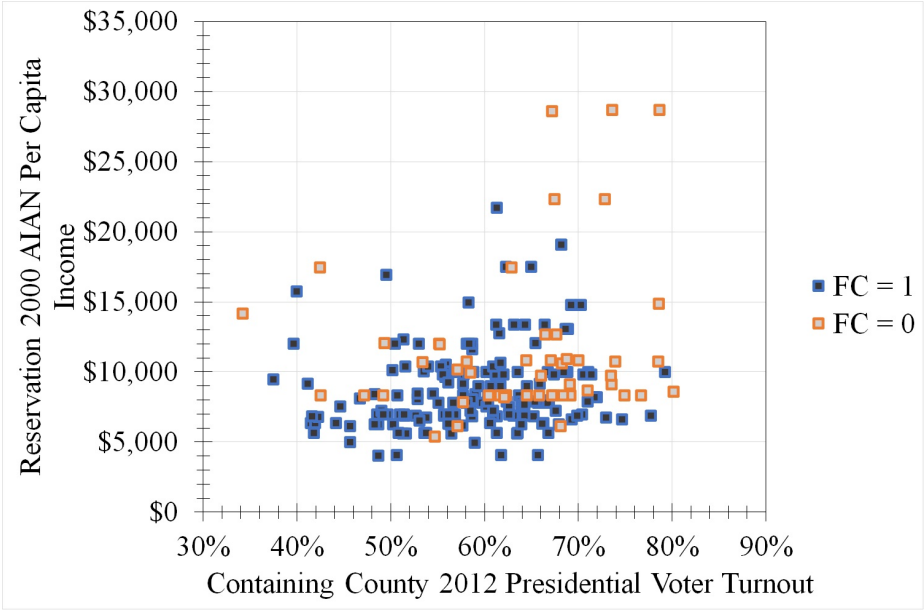
Regardless, these findings reinforce the OLS results. Further, they also lend credence to the causal pathway described earlier, since an endogeneity adjusted forced coexistence still shows a significant relationship with civic participation. That is, the variation in forced coexistence assumed to be exogenous in contained reservations is still significantly negatively correlated with county voter rates in both 2012 and 2016. This causal pathway from forced coexistence to lowered civic as well as socioeconomic participation is explored further in the next section, and in Tables A.7 and A.8.

5.3 Causal Mediation Analysis - Directly Regressing Voter Rates on AIAN Income

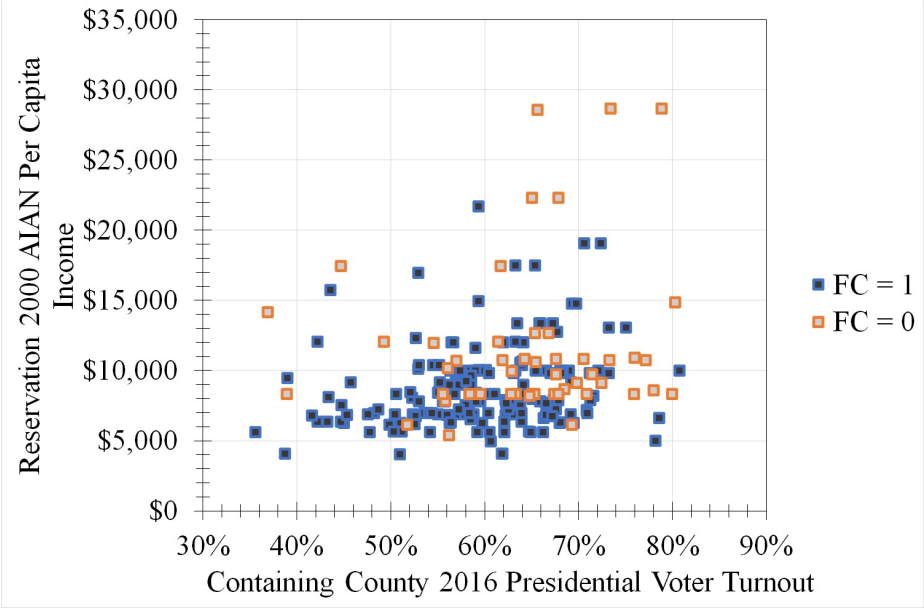
The results shown in the Tables A.4 and A.6 build on the findings of Dippel (2014) by showing lower voter participation in counties associated with reservations that underwent forced coexistence. There may be concern that my results are indicative of some other shared variation besides the causal pathway of the mechanism described

above.

Figure 5.1 seems to demonstrate a positive relationship between AIAN per capita income in both 2000 and 2019 on reservations and the presidential election vote rate of the containing county in 2012 in panel A and 2016 in panel B. This is consistent with the literature showing civic engagement and economic development are related. Consistent with the findings in Dippel (2014) at the reservation level, counties containing reservations that underwent forced coexistence also seem to have lower AIAN income per capita. According to Tables A.4 and A.6 they seem to also have lower voter turnout rates. These results are all seemingly borne out in the figures. They show that not only are voter rates and AIAN income per capita are related, but forced coexistence creates two distinct groups of counties. Those containing reservations that underwent forced coexistence demonstrate both lower voter rates and AIAN income per capita (Figures 5.1 and 5.2).



(a) 2012 Voter Turn Out



(b) 2016 Voter Turn Out

Figure 5.1: 2012 and 2016 county level presidential election voter rates and 2000 AIAN income per capita in the contained reservation.

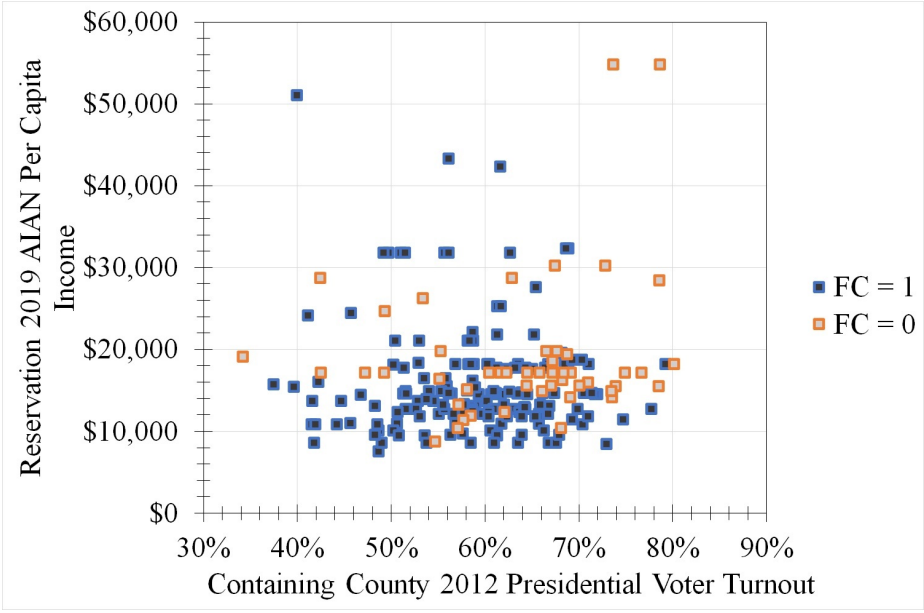
The OLS results, as well as the results with clustered errors are presented for 2000 in Table A.7, and for 2019 in Table A.8. As mentioned, the results of Table A.7 are not as informative, given the regression of incomes per capita in 2000 on voter rates over a decade later. The significance of the correlations shown in these results are therefore of primary focus.

Generally, Table A.7 shows the relationship between AIAN per capita incomes in 2000 and both 2012 and 2016 presidential election voter participation rates for the containing county is significant. This suggests that there is some variation shared among the two factors, which does align with the literature on economic development and civic engagement.

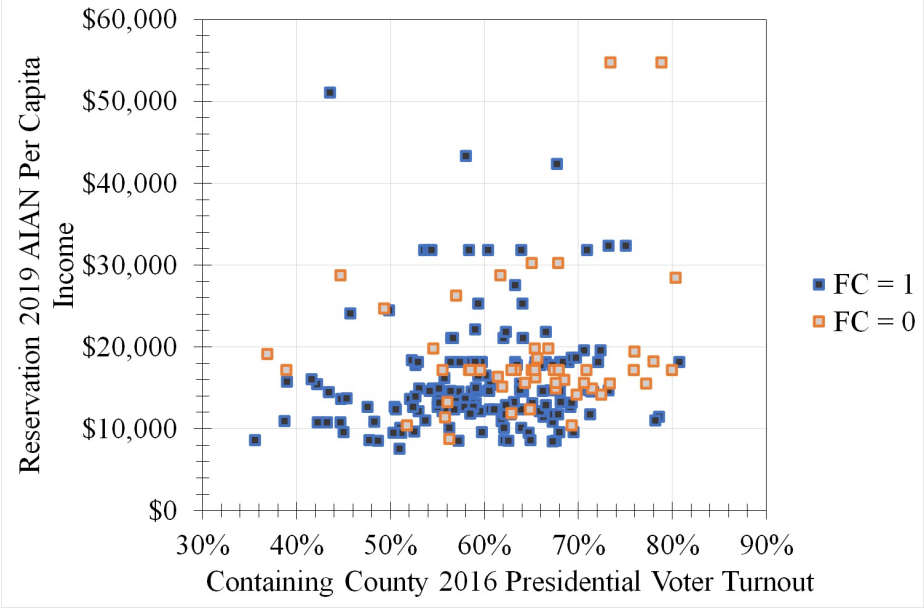
When forced coexistence is included in column (6), it is highly significant, and of similar scale to the findings of Dippel (2014) – forced coexistence is associated with roughly 36 per cent lower income per capita for AIAN individuals when accounting for the containing county voter rate. This finding is robust to clustered standard errors for both 2012 and 2016 voter rates as seen in panel B. This reinforces the findings of Dippel (2014) by accounting for civic engagement of containing counties.

More importantly, the OLS point estimate for voter rates is no longer significant in column (6) of Table A.7 and is about half the size. However, the point estimate is still large. This suggests that the relationship between civic engagement and per capita income is at least in part captured by the effect of forced coexistence. This reinforces my OLS and IV results in that forced coexistence and voter rates are clearly correlated. It also reaffirms that any external correlation between voter rates and income per capita is in part captured by forced coexistence.

When standard errors are clustered, the relationship tends to become insignificant when the percentage of the county that is non-white is considered in column (4). The significant relationship between AIAN income per capita and voter rates is subsumed by the relationship between the racial breakdown of each county and AIAN income per capita. The results suggest that there is a negative relationship between the proportion of the population that is white and AIAN income per capita. However, this may be related to other disadvantages that come with majority minority counties, such as poorer job and infrastructure environments, etc. which more significantly vary with the outcome variable than voter rates. Then, once forced coexistence is considered, the regression is driven by variation in that factor rather than from voter rates. This suggests that the proportion of each county identifying as white may affect the significance of voter rates in the results. It seems that this is due to correlation



(a) 2012 Voter Turn Out



(b) 2016 Voter Turn Out

Figure 5.2: 2012 and 2016 county level presidential election voter rates and 2019 AIAN income per capita in the contained reservation.

unrelated to forced coexistence as it does not wildly affect this coefficient estimate in column (6) of Table A.7.

The results in Table A.7 generally suggest that there is a relationship between FC, voter rates, and AIAN income per capita. Further, a number of these relationships are significant even accounting for many of the factors discussed above. This aligns with the mechanism described in this paper, that historical wrongs ultimately affect engagement in "formal" institutions, manifesting in lower civic engagement and lower participation in the economy. In other words, the lowered socioeconomic outcomes found by Dippel (2014) as well as the lowered civic engagement results found in my OLS and IV analyses are significantly tied to the effects of forced coexistence, but they are not signficantly driving each others' results once forced coexistence is considered. It lends some evidence for the causal mechanism that both lowered income per capita and civic participation share a source in forced coexistence.

Unlike in the results in Table A.7, the relationship between AIAN per capita incomes in 2019 and 2012 are not significant, as shown in columns (1) to (5) of Table A.8. 2016 presidential election voter participation rates for the containing county do show a somewhat significant relationship with per capita incomes until socioeconomic controls are added in column (2). This suggests that there is not much variation shared among the two factors when accounting for historical centralization, which does not align with the literature on economic development and civic engagement. One would expect AIAN per capita incomes to be higher on reservations within counties with higher voter turn out rates. However, it could be explained by the fact that county-level voter rates and reservation per capita incomes are simply too disconnected to show a significant relationship or that there is potentially correlated systematic measurement error that is related to both income reporting and civic participation. It could also be that the expected relationship between civic and economic engagement was itself affected by forced coexistence. Nonetheless, the OLS point estimate for voter rates is dramatically affected by the inclusion of forced coexistence, though it is insignificant, as in column (6) of Table A.8. This suggests that the relationship between civic engagement and per capita income is related to the variation in forced coexistence, albeit weakly in this time period.

In any case, when forced coexistence is included in column (6) it is significantly related to per capita incomes – forced coexistence is associated with roughly 23 to 25 per cent lower income per capita for AIAN individuals even when accounting for the containing county voter rates. This finding is robust to clustered standard errors

for both 2012 and 2016 voter rates, and reinforces the findings of Dippel (2014) by adding civic engagement in containing counties to their list of controls.

While they do not vary significantly together, combining my OLS and IV results with those of Dippel (2014), it seems that voter rates and per capita incomes are both significantly related to forced coexistence. It also seems that my results in Table A.4 are not simply a reflection of an external relationship between voter rates and per capita incomes, given the results of Tables A.7 and A.8. That is to say the source of the effect of forced co-existence on voter rates is potentially the same that is driving its effect on income. These results back my hypothesis that as a result of forced coexistence both civic engagement and socioeconomic participation suffered lasting effects similarly. As such, historical wrongs ultimately affected engagement manifesting in both lower civic engagement and participation in the economy. The lowered socioeconomic outcomes found by Dippel (2014) as well as the lowered civic engagement results found in Tables A.4 and A.6 are both significantly causally driven by the effects of forced coexistence. However, it may not be the case that forced coexistence affects income directly through affecting civic participation.

Chapter 6

Other NHGIS Variables Results

Other socioeconomic and cultural indicators for reservations that may be affected by historical wrongs are regressed against forced coexistence. The results shown here are used to further explore the nuances of the mechanisms discussed earlier. As discussed, the findings and mechanisms discussed in Dippel (2014) lack an investigation of how forced coexistence affected socioeconomic outcomes for other identity groups living on reservations. There is clearly a negative correlation between historical wrongs and economic outcomes for American Indians living on reserves, but the leap to political infighting mistakenly omits the possibility that these effects are uniquely felt within the identity group. Political infighting that effects economic development through its effects on public goods may affect everyone on the reservation and shouldn't just be seen in American Indian incomes but white incomes as well. Further, it fails to look deeply at sub-reservation dynamics, and other potential gradients in the effects of forced coexistence that may be present. The view of political infighting being the main driver of these effects treats reservations as a monolith. More detailed identity based breakdowns of these metrics on reservations would further aid in this investigation, as discussed later.

My results in Table A.9 clearly show, accounting for most of the controls employed by Dippel, that white income per capita on reservations in 2000 is not significantly affected by FC. Surprisingly, after population and age controls are added there seems to be a positive correlation between the two. This finding only appears in the final model iteration, which lowers its credibility as it may be related to the specific combination of other variables in that particular model. However, it is nonetheless striking to see that as a result of forced coexistence directly stemming from the federal government's creation of reservations over the past 100 to 150 years, AIAN income per capita is

30 percent lower while white income per capita is not affected or even made higher. This sheds doubt on the mechanism of internal political strife on reservations being the main driver of lowered outcomes for AIAN, seeing as everyone living on reservation would likely feel these effects, or at least similar effects. However, these two identity groups seem to have experienced different, if not opposite effects of forced coexistence. As mentioned, this fundamentally suggests that AIAN individuals on reservations were uniquely affected by FC in some way related to their identity, and reinforces the mechanisms discussed.

Thus the mechanism behind my results in Tables A.4 and A.6 is reinforced by the significant relationship between forced coexistence and income per capita even when considering vote rate (Table A.7), and the fact that white incomes are not affected (Table A.9). These findings combined suggest that political infighting is not the most accurate description of the mechanism of historical persistence in this case. It seems to be better described as some effect of forced coexistence that specifically affected those identifying as American Indian in such a way that these impacts are only felt within a certain identity group and persist through time. Further, they extend beyond socioeconomic participation to participation in civic life and potential society more broadly.

Dippel (2014) also explores how the effects of forced coexistence on AIAN per capita incomes have changed since political autonomy began to be given back to reservation government. They show that the impacts were not entirely felt until 2000, though the BIA began this process in the 1970s. This could simply be a result of the administrative processes winding down slowly, such that political authority was only practically handed to reservations not long before 2000. It could also be that the manifestation of processes leading to socioeconomic retraction were sticky for other reasons associated with this transition period. It is also plausible that measurement error in the dependent variable has declined over time and thus earlier impacts are merely underestimated. In any case, it follows that impacts shown for 2000 would persist today. Looking at the results using 2019 data in Table A.10, there is reason to believe that the effect has continued, but diminished somewhat. The results show that AIAN per capita incomes on reservations affected by forced coexistence were 17 percent lower in 2019, all else considered. Though almost half the magnitude of the effect in 2000, these results show clearly that there is persistence of these effects almost two decades later. Again it should be noted that these data come from a different source as the 2000 data used in Dippel (2014).

Another significant finding in Table A.10 further reinforces earlier results and discussion of the mechanism behind these effects. White incomes per capita on reservations in 2019 continue to show no significant correlation with forced coexistence. The significant negative correlation between forced coexistence and AIAN per capita income in 2019 combined with no significant correlation with white per capita incomes supports the hypothesis that the effect is heavily based on identity. Coupled with earlier results in Table A.9, it seems that the mechanism of reservation political infighting driving the negative effects of forced coexistence is not fully consistent with the data. Not only are the impacts dependent on identity, but have persisted in this way through time. These results are consistent with the general retraction mechanism argued in this paper.

If the mechanism of broader societal and economic retraction is true, it would follow that uptake of cultural activities and participation in popular social practices may also be affected by forced coexistence. The results seem to imply that forced coexistence created attitudes of retraction from the state and its proxies – the broader American economy and civic life. Therefore, it seems necessary to investigate how participation in other social activities may be affected. It may be the case that AIAN individuals affected by forced coexistence also participate less in state sponsored and normalized activities. In order to look at this, I investigate whether forced coexistence is significantly related to the proportion of households on reservations that have at one point been married.

All else considered FC is associated with lower marriage rates among AIAN households on reservations, as in Table A.11. This effect is significant at the 10 percent level and robust to many controls, suggesting that forced coexistence is associated with a roughly 3 to 4 percentage point lower proportion of AIAN households containing married individuals. This bolsters the case for forced coexistence having the effect of not only pushing AIAN individuals away from the the mainstream economy, but also formal Judaeo-Christian practices associated with and historically supported by the state.

Coupled with earlier results, these findings add the lens of socio-cultural effects of forced coexistence. The negative correlation between forced coexistence and broader American socio-cultural participation is a key piece of evidence in favour of broader effects of forced coexistence to victimized groups. The fact that marriage uptake specifically within AIAN households are significantly affected furthers this argument in terms of its effects within the identity group.

Table A.12 shows that participation in marriage is significantly associated with income per capita. This correlation is robust to forced coexistence, suggesting the effect of marriage rates on per capita incomes acts outside forced coexistence even if it is affected by it. It also seems to be unaffected by the socioeconomic, demographic, and other controls. However, the fact forced coexistence is still significantly correlated with income suggests marriage rates don't fully account for the mechanism that underlies forced coexistence.

Another example of socio-cultural impacts of forced coexistence may be seen in its relationship in uptake of traditional activities. The effect of historical wrongs on the practice of traditional languages at home may offer important findings for language revitalization and activities aimed at cultural promotion. More broadly, a deeper look at the effects of forced coexistence on other direct expressions of AIAN identity may offer a deeper understanding of how the effects of historical wrongs vary based on closeness to identity.

The results show that there is no significant effect on use of other Native American languages. However, this specification lacks credibility for various reasons. First, use of English across all reservations may be so pervasive that uptake of other languages is low, leaving little variation to study. Further, traditional language use at home may not be an informative indicator of cultural impacts when regressed against forced coexistence. Many traditional Native American languages struggle to maintain consistent speaker bases in the modern day for a variety of reasons, and therefore may not be prevalent enough to study. There may be more informative indicators of traditional or cultural activities which may be more popular. Ideally, other variables on traditional or ceremonial activities, like uptake of traditional arts or participation in cultural activities/events specifically would be more useful to investigate how sociocultural life is affected by historical wrongs. I explore this more in the discussion section.

Chapter 7

Discussion

7.1 Interpretations and Possible Extensions

This paper sheds light on an emerging understanding of the contemporary effects of historical wrongs on victimized populations by attempting to measure the effects of historical wrongs on civic participation. In line with the literature, this paper does find that forced coexistence is associated with lower civic participation at the county-level. This paper thus builds on the findings of Dippel (2014) that forced coexistence resulted in lower socioeconomic indicators for those it affected including lower employment rates and per capita incomes. I also propose a new channel to Dippel for how forced coexistence impacts outcomes. Specifically I suggest that populations that experience a historical wrong maybe impacted decades into the future because of its impact on trust and identity.

Much of the literature on historical persistence does point to various mechanisms, institutions, historical contexts, and events. However, when looking at the effects of some of the aforementioned historical wrongs decades on, it seems much of the indirect intergenerational impact is highly linked to the identity of the victims. Thus it is potentially connected with the identity itself. Akerlof and Kranton (2010) discusses just this, in that there is some part of individuals' utility function that is related to their identity, and with others identifying similarly, leading people of similar identity groups to find value in acting in accordance with that group. Insights into the effect of narratives reinforces this idea, by suggesting that the power of the stories we tell ourselves should not be understated when investigating behaviour (Shiller, 2017). This is something pointed out in Williams (2022); Chen and Yang (2015); Austen-

Smith and Fryer Jr (2005), in that impacts seem to be isolated to the historically victimized group. These papers explore potential explanations for this. Overall, it does seem that impacts of this sort are perpetuated within that group because those that associate with the group tend to be more exposed to the stories, norms and values pertaining to the group's history of trauma and victimization. It therefore follows that the effects of historical wrongs, especially when explicitly targeted towards a group, are perpetuated within that group. Following these papers, it does seem that individuals' utility functions are augmented based on the experiences, expectations, values, and norms of the peer group. This suggests that the results shown in this paper with respect to impacts to AIAN but not white populations on reservations can be in part explained by this dynamic of identity and historical trauma.

Clearly then, the historical persistence of the effects of historical wrongs on these populations has to do with the attitudes shared by those within the group. While current data sources do not allow us to measure these narratives or notions of identity directly, this paper has used several proxy measures to provide evidence consistent with this hypothesis.

This paper shows that in that counties in which reservations underwent forced coexistence there are lower presidential election voter turnout rates. This builds on the lower socioeconomic participation shown in Dippel (2014) to add that as a result of historical wrongs, attitudes of those in the victimized group tended to develop and share an attitude of dissociation with the system or institutions responsible or associated with the government and its actions. This manifested in lowered participation in federal electoral system (in the containing county), and consistently lower participation in the economy.

Further, my results are driven by forced coexistence's impact on income. However, voter rates themselves to no seem to impact income directly, but rather forced coexistence impacts both suggesting the effects may operate through a similar channel. This supports my hypothesis that the results are largely a reflection of lowered trust and general disengagement that follow from forced coexistence leading to *both* lower income and civic participation. This phenomena led to those affected participating less in both broader American economic and civic life. The causal mediation analyses show that the same effects of forced coexistence on current socioeconomic participation are those affecting current civic engagement.

As discussed, Dippel (2014) argues that lowered economic outcomes for AIAN individuals on reservations is a result of political infighting stemming from forced

coexistence of bands on reservations. They back this up by pointing to the fact that there is more negative newspaper coverage on these reservations' political affairs. They also point to the fact that English speaking is not affected to suggest that assimilation, broad writ, is not the mechanism behind the impacts. However, given the wide prevalence of English across the US, this may be a noisy indicator. For these reasons and more, this investigation falls short of understanding indirect effects of historical wrongs on things like attitudes of mistrust, and does not consider how the impacts vary across identity lines. I show that forced coexistence does not impact white incomes on the same reservations for example. If political infighting that affects public good provision is the main mechanism of persistence, this should also impact white incomes in the same way as AIAN incomes. Since it does not, it suggests the explanation needs to be identity specific.

My findings suggest a development of certain values among these populations, among other factors, drove these populations to retract from the state and all that is associated with it. Further research, if the data were available, into the effects of forced coexistence on uptake of traditional activities would be useful in reinforcing this mechanism. If found to be significant this would suggest that these historical wrongs had the effect of these people retracting from broader social practices and gravitating towards traditional and cultural society. Another extension could be to look deeper into the mechanism proposed. Specifically, further research into the correlation between forced coexistence and topics such as trust in government or attitudes toward work in the broader American economy would help better understand the mechanisms by which impacts are perpetuated should these data become available.

7.2 Data Limitations

The data used here is the best available to begin to understand this mechanism to my knowledge. Civic engagement and economic development, and their relationship to historical wrongs by the federal government are the main pillars of what this paper argues. However, the specific mechanisms discussed are not optimally represented by the data. This paper argues that as a result of historical wrongs to AIAN populations, an increase to mistrust of government developed. This was propagated through generations and within the confines of those associated with the AIAN identity, specifically, those that were exposed to the stories and narratives that described the historical wrongs. As a result of this, the current outcomes of those within or

associated with that identity group are affected, such as described by Dippel (2014) in the lowered socioecoinomic outcomes for AIAN on reservations affected by forced coexistence and shown in the lowered county level presidential election voter rates in Table A.4.

The variables showing the key nodes to this pathway can not properly address the mechanisms discussed but can only hint at it. Specifically, a largely missing component of this analysis is a targeted investigation into trust of government of AIAN people on reservations and the relationship between this and the historical wrong. Unfortunately, the data for this is unavailable at the time of writing. Another shortcoming of the data used here is the spatial resolution of the presidential election voter turnout rates, which are at the county level. In many cases, these data include individuals living off-reservation. Also, the voter rates used are not specific to those with some association to AIAN identity.

As such, the scale of effect of forced coexistence on voter rates – roughly 2-3 percentage points lower – is not indicative of the contribution of my retraction mechanism hypothesis behind the lowered socioeconomic outcomes we continue to see today. Given my findings potentially include less affected individuals in counties, it stands to reason datasets closer to the affected populations whether spatially or demographically would results in higher coefficient estimates. Specific items that would be a good focus for future research would be breaking down election voter rates by race or identity group so that AIAN civic participation can be measured directly. Some state level datasets do include racial breakdowns, though they usually only include a limited number of years, race or identity breakdowns, and are rarely produced. Another item that would significantly assist in research related to historical wrongs against AIAN populations would be to estimate presidential election voter rates by reservation.

Another useful addition would be to expand the data available on traditional activities on reservations, so that researchers could properly understand the link between things like historical wrongs, uptake of traditional activities, and lowered socioeconomic participation. The data in the Canadian context for example provides survey estimates of participation in informal economies like trade and uptake of cultural activities, which could be explored in contrast to incomes in the mainstream economy.

As mentioned, more work could also be done to isolate the mechanism behind the impacts. For example, voter rates are only a proxy of the true hypothetical drivers of the impacts. Of course, when exploring mechanisms related to social attitudes

and trust, and participation in society, one must remember that these topics can be difficult to measure. One example may be surveys of trust of government and/or feelings on historical wrongs at the reservation level. This data could offer some insights into the nuances behind the intergenerational effects of forced coexistence. Even more directly, measures of trust in federal, local and tribal governments would offer a deeper investigation into the mechanism proposed in this paper. Having access to this data for AIAN individuals, specifically at the reservation level would be invaluable in answering questions of historical persistence of state injustices on these populations.

Another hindrance is the inability to isolate the effects of forced coexistence that I have shown from other deeply entrenched factors that have been shown to drive comparatively lowered outcomes for Indigenous populations. The lack of data to control for the ability and proclivity of individuals to participate in off-reservation life may play into my results of the dynamic between the impacts on white versus American Indian per capita incomes. It may be the case that as a result of deeper gaps in integration, acceptance, and opportunity, socioeconomic and civic participation are expressed differently across the groups. White populations for example could be disproportionately privy to better jobs, pay, or opportunity, which could be affecting the results. Additionally, it may be the case that white populations on reservations are more likely to receive assistance from the government in the form of transfers. This would follow my hypothesis of Indigenous people engaging less with the state. Assuming the thesis in Dippel (2014), it may also be the case that white populations on reservations are less connected to reservation politics. This could mean that any reservation political infighting is less influential among this group. However, these are only partial explanations for how white incomes could be less affected by forced coexistence.

Finally, it has been pointed out that features of historical persistence suffer from various types of noise as a result of myriad factors that may come into play over time. One significant source of noise explored by Kelly (2019) is the effect of spatial autocorrelation on these kinds of results. It makes sense that any number of aspects of historical influences could have maintained legacy effects, and that these could be indirectly affecting results in historical persistence literature, including my results. While my models do control for certain characteristics that may partly capture this, including terrain ruggedness, distance to metropolitan centres, etc. Additionally, in preliminary models I did not find that adding state fixed effects, for example, had

much of an effect on the results. However it remains the case that any number of historical aspects that vary spatially could have lasting effects that influence the mechanisms behind forced coexistence. Nunn (2020) discusses the various critiques of historical persistence of socioeconomic impacts, some with respect to fundamental uncertainties. They argue however it is important to study historical events and contexts in order to better understand the effects of change, inform current policy, and deepen our understanding of economic development.

Chapter 8

Conclusion

I have found that in counties where the containing reservation experienced forced coexistence presidential election voter turnout rates are significantly lower all else considered. This builds on the findings of Dippel (2014) by expanding the effect of historical wrongs to include civic participation in addition to socioeconomic participation. I also argued that the mechanism of political infighting as the causal pathway through which the persistently lowered outcomes for AIAN people manifested may not hit the mark. Specifically, the fact that AIAN outcomes are uniquely affected by FC – and white per capita incomes are not – suggests that the mechanism through which the persistence of these impacts are somehow related to that identity group, and also puts into question the validity of political infighting as an explanation. It has been shown that there were different and potentially opposite trends in AIAN and white incomes on reservations as a result of forced coexistence. If political infighting was the primary driver of the effects of these historical wrongs, then one would expect all those influenced to be affected. Namely, all those living on reservations regardless of identity would demonstrate lower outcomes. The fact that impacts follow along identity lines suggest an alternative interpretation of the mechanism.

The OLS results build on the findings of Dippel (2014) by showing a significant effect of forced coexistence on voter behaviour in containing counties. That is, as a result of the historical wrongs associated with government intervention into American Indian political life, civic engagement tends to be significantly lowered in counties. Additionally, IV results show some evidence of the causal pathway in that the endogeneity adjusted measure of forced coexistence is still significantly correlated with lower voter rates.

All of the findings above reinforce the fact that specifically as a result of force

coexistence, the containing counties have lower voter rates in 2012 and 2016. The causal mediation analysis indeed suggests that the variation in AIAN per capita incomes as a result of forced coexistence is related to variation in county voter rates. County voter rates and AIAN socioeconomic outcomes seem to both be affected by forced coexistence, but any correlation between the two does not significantly enter the results. This further backs the interpretation that as a causal result of forced coexistence *both* civic and socioeconomic participation were reduced as part of a broader retraction related to government mistrust and feelings of disenfranchisement.

Turning to the relationship between forced coexistence and other reservation indicators, further evidence of the broader impacts of forced coexistence is presented. Reservations which underwent forced coexistence tend to have lower marriage uptake among AIAN households. This suggests that not only civic and economic engagement are lowered from forced coexistence, but by proxy practices like marriage that may be associated with or supported by the federal government also show lower uptake. As an additional analysis, it is shown that these results may only be an extension of the correlation between FC and AIAN per capita incomes. Alternatively, or additionally, this could be demonstrative of a mechanism by which socioeconomic impacts have been perpetuated. In this way, lower social participation may have gave way to lower socioeconomic participation. Cultural participation as measured by traditional language use offered no insights. Though insignificant, FC was negatively associated with use of other Native American languages at home, which may warrant further investigation into socio-cultural impacts of historical wrongs.

The broad range of impacts demonstrative of the retraction and dispossession mechanisms discussed in this paper have been shown in aspects of civic (Tables A.4 and A.6), economic (Tables A.7, A.8, and A.10), and social participation (A.11). While the discussion of mechanisms and causal pathways in Dippel (2014) has been challenged, this paper generally builds on those findings to better understand more of the nuanced effects of forced coexistence. It also builds on the approach to understanding the effects of historical wrongs on victimized groups and their historical persistence. This natural experiment of treatment and non-treatment group when it comes to historical government injustices offers a unique opportunity to investigate not only these effects, but how these impacts vary along dimensions of American Indian identity.

Appendix A

Tables and Additional Information

Table A.1: Summary Statistics: Distribution of Reservations and Counties by FC and HC

		FC = 0	FC = 1	Total
Counties	HC = 0	48	91	139
	HC = 1	3	77	80
Total Distinct Count of Counties		51	168	219
Reservations	HC = 0	25	43	68
	HC = 1	2	29	31
Total Distinct Count of Reservations		27	72	99
Distinct Count of Tribes		14	45	53

This table shows the distinct count of counties, as well as the contained reservations and tribes, depending on values of forced coexistence (FC) and historical centralization (HC). Filtered for counties that only contain a maximum of 1 reservation. Measures of HC and FC are specific to each reservation, and taken from Dippel (2014).

Table A.2: Summary Statistics: Means of County-Level Voter Data and Controls by Forced Coexistence

	FC = 0	FC = 1	Difference in Means	Observations
2016 Voter Rate	64%	60%	-5%***	219
2012 Voter Rate	64%	59%	-5%***	219
Citizen Voting Age Population	35,436	55,587	20,151	219
Non-white% of Population	19%	25%	5%*	219
Median Household Income	49,786	46,227	-3,559*	219
Civilian Labour Force Unemployment Rate	6%	7%	1%**	219
% of Population with Less than High School Education	10%	12%	2%***	219
% of Population with Less than College Education	79%	80%	1%	219
Total Distinct Count of Counties	51	168		
Total Distinct Count of Reservations	27	72		
Total Distinct Count of Tribes	14	45		

The table shows the mean values for each indicator depending on the county. The significance stars under the Difference in Means column indicate the result of a t-test where we test the null hypothesis H_0 : the means are equal regardless of FC. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.3: Summary Statistics: Means of Reservation Level NHGIS Controls by FC

	FC = 0	FC = 1	Difference in Means	Observations
Surrounding County Per Capita Income	18,981	18,001	-979 **	175
Surrounding County Unemployment Rate	4%	4%	0%	175
Population	1,017	3,620	2,602 *	175
Adult Share of Population	66%	63%	-3%***	175
White Per Capita Income 2000	14,485	15,470	985	172
White Per Capita Income 2019	22,943	24,402	1,459	173
AIAN Per Capita Income 2019	19,067	15,500	-3,567 ***	175
% AIAN HH Marriage Rate	49%	46%	-3% *	175
% AIAN Speak NA Language	22%	18%	-5%	175
Total Distinct Count of Reservations	66	109		
Total Distinct Count of Tribes	24	57		

The table shows the mean values for each indicator depending on the reservation. The significance stars under the Difference in Means column indicate the result of a t-test where we test the null hypothesis H_0 : the means are equal regardless of FC. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.4: The Effect of Reservation Characteristics on presidential election Voter Rates by Containing County 2012, 2016

	VoteRate2012(1)	VoteRate2016(2)	VoteRate2012(3)	VoteRate2016(4)	VoteRate2012(5)	VoteRate2016(6)	VoteRate2012(7)	VoteRate2016(8)	VoteRate2012(9)	VoteRate2016(10)
Panel A: OLS Estimates										
FC	-0.057***	-0.049***	-0.044***	-0.033**	-0.033***	-0.025**	-0.031***	-0.023**	-0.033***	-0.023**
	(0.015)	(0.015)	(0.013)	(0.013)	(0.012)	(0.012)	(0.011)	(0.012)	(0.011)	(0.011)
HC	0.017	0.006	0.015	0.008	0.023**	0.013	0.014	-0.001	0.019	-0.002
	(0.013)	(0.013)	(0.012)	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)	(0.012)	(0.012)
log(Median HH Inc)			-0.021	0.073**	-0.065**	0.011	0.076**	0.006	-0.083***	-0.006
			(0.031)	(0.031)	(0.032)	(0.000)	(0.031)	(0.029)	(0.031)	(0.030)
Unemployment Rate			-0.94***	-0.764***	-0.572***	-0.437***	-0.316**	-0.046	-0.288*	-0.043
			(0.148)	(0.144)	(0.140)	(0.138)	(0.152)	(0.143)	(0.153)	(0.145)
Rural Rate					0.077***	0.046***	0.080***	0.051***	0.072***	0.050***
					(0.018)	(0.018)	(0.018)	(0.016)	(0.018)	(0.017)
Pct Less than Highschool					-0.439***	-0.485***	-0.112	0.014	-0.068	0.012
					(0.127)	(0.125)	(0.151)	(0.142)	(0.163)	(0.155)
Pct Less than College					-0.403***	-0.365***	-0.533***	-0.563***	-0.550***	-0.559***
					(0.099)	(0.098)	(0.102)	(0.096)	(0.107)	(0.101)
Pct Non-white							-0.137***	-0.209***	-0.148***	-0.210***
							(0.037)	(0.034)	(0.037)	(0.035)
Tribe: Pct Calories from Agriculture									0.027	0.009
									(0.070)	(0.066)
Tribe: Sedentariness									-0.030	-0.010
									(0.071)	(0.067)
Tribe: Complexity of Local Community									-0.008	-0.000
									(0.010)	(0.010)
Tribe: Wealth Distinctions									-0.013	-0.003
									(0.012)	(0.012)
Observations	219	219	219	219	219	219	219	219	219	219
R^2	0.066	0.051	0.248	0.280	0.427	0.437	0.462	0.521	0.473	0.521
Adjusted R^2	0.057	0.042	0.234	0.266	0.408	0.418	0.442	0.502	0.443	0.430
Panel B: OLS Estimates with Standard Errors Clustered on Reservations										
FC	-0.057***	-0.049***	-0.044**	-0.033**	-0.033**	-0.025*	-0.031**	-0.023*	-0.033**	-0.023*
	(0.018)	(0.016)	(0.017)	(0.016)	(0.016)	(0.014)	(0.015)	(0.012)	(0.015)	(0.013)
HC	0.017	0.006	0.015	0.008	0.023	0.013	0.014	-0.001	0.019	-0.002
	(0.016)	(0.016)	(0.014)	(0.012)	(0.014)	(0.011)	(0.014)	(0.011)	(0.016)	(0.013)
Socioeconomic Controls			Y	Y	Y	Y	Y	Y	Y	Y
Demographic Controls					Y	Y	Y	Y	Y	Y
Percentage Non-white Control							Y	Y	Y	Y
Tribe Characteristics									Y	Y
Observations	219	219	219	219	219	219	219	219	219	219
R^2	0.066	0.051	0.248	0.280	0.427	0.437	0.462	0.521	0.473	0.521

Note: County level voter rates, and the associated Forced Coexistence and Historical centralization of the reservation contained therein. Filtered for counties that only contain a maximum of 1 reservation. Socioeconomic Controls contain median household income and unemployment rates. Demographic Controls include the percentage of population in rural areas, and with less than high school and college education. Percentage Non-white controls for the proportion of population identifying as non-white. Tribe Characteristics are identified above. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.5: First Stage and Reduced Form Relationship with Mining Instruments

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: First Stage - Dependent Variable: Forced Coexistence						
Historical Gold Mining	0.023***	0.020**	0.018**	0.019**	0.017**	0.018
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.011)
Historical Silver Mining	0.029 ***	0.031***	0.029***	0.030***	0.023**	0.036***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.010)
Historical Centralization	Y	Y	Y	Y	Y	Y
Socioeconomic Controls		Y	Y	Y	Y	Y
Demographic Controls			Y	Y	Y	Y
Percentage Non-white Control				Y	Y	Y
Tribe Characteristics					Y	Y
Additional IV Controls						Y
F-Statistic	310.1	8.1	6.7	6.6	6.0	4.9
p-value	< 0.01	0.017	0.035	0.037	0.049	0.088
Observations	219	219	219	219	219	219
R^2	0.205	0.222	0.228	0.230	0.260	0.312
Panel B: Reduced Form - Dependent Variable: 2012 Vote Rate						
Historical Gold Mining	-0.006***	-0.004**	-0.002	-0.003*	-0.002	-0.002
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)
Historical Silver Mining	-0.005 **	-0.005***	-0.004**	-0.004***	-0.005***	-0.002
	(0.002)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
Historical Centralization	Y	Y	Y	Y	Y	Y
Socioeconomic Controls		Y	Y	Y	Y	Y
Demographic Controls			Y	Y	Y	Y
Percentage Non-white Control				Y	Y	Y
Tribe Characteristics					Y	Y
Additional IV Controls						Y
Observations	219	219	219	219	219	219
R^2	0.082	0.265	0.432	0.474	0.489	0.529
Panel C: Reduced Form - Dependent Variable: 2016 Vote Rate						
Historical Gold Mining	-0.005***	-0.003*	-0.001	-0.002	-0.002	-0.002
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	0.x**
Historical Silver Mining	-0.001	-0.003	-0.002	-0.002*	-0.002	-0.002
	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)
Historical Centralization	Y	Y	Y	Y	Y	Y
Socioeconomic Controls		Y	Y	Y	Y	Y
Demographic Controls			Y	Y	Y	Y
Percentage Non-white Control				Y	Y	Y
Tribe Characteristics					Y	Y
Additional IV Controls						Y
Observations	219	219	219	219	219	219
R^2	0.043	0.279	0.432	0.522	0.523	0.549

Note: County level voter rates, and the associated Forced Coexistence and Historical centralization of the reservation contained therein. Filtered for counties that only contain a maximum of 1 reservation. The F-statistic reported in panel A represents the results of a Wald test, which tests of joint significance of the instruments in the first stage regression. Socioeconomic Controls contain median household income and unemployment rates. Demographic Controls include the percentage of population in rural areas, and with less than high school and college education. Percentage Non-white controls for the proportion of population identifying as non-white. Tribe Characteristics are identified above. Additional IV controls include homeland ruggedness, distance to homeland, and historical mining in current economic environments. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.6: IV Results - Dependent Variable: Vote Rate

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: IV Results						
Dependent Variable: 2012 Vote Rate						
Forced Coexistence	-0.202***	-0.172***	-0.131 ***	-0.141***	-0.190***	-0.074*
	(0.045)	(0.042)	(0.033)	(0.030)	(0.044)	(0.043)
Observations	219	219	219	219	219	219
R^2	0.077	0.265	0.432	0.474	0.487	0.529
Dependent Variable: 2016 Vote Rate						
Forced Coexistence	-0.121**	-0.104**	-0.071 *	-0.087***	-0.109***	-0.049
	(0.053)	(0.044)	(0.032)	(0.029)	(0.039)	(0.042)
Observations	219	219	219	219	219	219
R^2	0.030	0.277	0.432	0.522	0.523	0.548
Panel B: IV Results with Clustered Standard Errors						
Dependent Variable: 2012 Vote Rate						
Forced Coexistence	-0.202***	-0.169***	-0.131 ***	-0.141***	-0.190***	-0.074**
	(0.048)	(0.041)	(0.043)	(0.041)	(0.052)	(0.034)
Observations	219	219	219	219	219	219
R^2	0.077	0.342	0.432	0.474	0.487	0.529
Dependent Variable: 2016 Vote Rate						
Forced Coexistence	-0.121**	-0.104***	-0.071 *	-0.087**	-0.109**	-0.049
	(0.049)	(0.043)	(0.043)	(0.039)	(0.050)	(0.032)
Observations	219	219	219	219	219	219
R^2	0.030	0.278	0.432	0.522	0.523	0.548
Historical Centralization	Y	Y	Y	Y	Y	Y
Socioeconomic Controls		Y	Y	Y	Y	Y
Demographic Controls			Y	Y	Y	Y
Percentage Non-white Control				Y	Y	Y
Tribe Characteristics					Y	Y
Additional IV Controls						Y

Note: County level voter rates, and the associated Forced Coexistence and Historical centralization of the reservation contained therein. Filtered for counties that only contain a maximum of 1 reservation. Socioeconomic Controls contain median household income and unemployment rates. Demographic Controls include the percentage of population in rural areas, and with less than high school and college education. Percentage Non-white controls for the proportion of population identifying as non-white. Tribe Characteristics are identified above. Additional IV controls include homeland ruggedness, distance to homeland, and historical mining in current economic environments. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.7: Mediation analysis - 2000 AIAN Per Capita Incomes and Voter Rates

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: OLS Results - Dependent Variable: 2000 Log(AIAN Per Capita Income)						
2012 Vote Rate						
2012 County Vote Rate	0.883***	0.926***	0.830 ***	0.596*	0.623**	0.257
	(0.242)	(0.270)	(0.311)	(0.313)	(0.312)	(0.288)
Forced Coexistence						-0.339***
						(0.050)
Observations	219	219	219	219	219	219
R^2	0.145	0.175	0.187	0.219	0.264	0.396
2016 Vote Rate						
2016 County Vote Rate	1.051***	1.042***	0.912 ***	0.571*	0.533	0.246
	(0.241)	(0.278)	(0.316)	(0.338)	(0.333)	(0.304)
Forced Coexistence						-0.342***
						(0.050)
Observations	219	219	219	219	219	219
R^2	0.166	0.184	0.191	0.217	0.259	0.396
Panel B: OLS Results - Dependent Variable: 2000 Log(AIAN Per Capita Income) with Clustered Standard Errors						
2012 Vote Rate						
2012 County Vote Rate	0.883**	0.926**	0.830 *	0.596	0.623	0.257
	(0.349)	(0.394)	(0.498)	(0.542)	(0.505)	(0.401)
Forced Coexistence						-0.339***
						(0.087)
Observations	219	219	219	219	219	219
R^2	0.145	0.175	0.187	0.219	0.264	0.396
2016 Vote Rate						
2016 County Vote Rate	1.051***	1.042***	0.912 **	0.571	0.533	0.246
	(0.340)	(0.370)	(0.437)	(0.497)	(0.484)	(0.375)
Forced Coexistence						-0.342***
						(0.081)
Observations	219	219	219	219	219	219
R^2	0.166	0.184	0.191	0.217	0.259	0.396
Historical Centralization	Y	Y	Y	Y	Y	Y
Socioeconomic Controls		Y	Y	Y	Y	Y
Demographic Controls			Y	Y	Y	Y
Percentage Non-white Control				Y	Y	Y
Tribe Characteristics					Y	Y

Note: County level voter rates, and the associated Forced Coexistence and Historical centralization of the reservation contained therein. Filtered for counties that only contain a maximum of 1 reservation. Socioeconomic Controls contain median household income and unemployment rates. Demographic Controls include the percentage of population in rural areas, and with less than high school and college education. Percentage Non-white controls for the proportion of population identifying as non-white. Tribe Characteristics are include four variables identified earlier. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.8: Mediation analysis - 2019 AIAN Per Capita Incomes and Voter Rates

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: OLS Results - Dependent Variable: 2019 Log(AIAN Per Capita Income)						
			2012 Vote Rate			
2012 County Vote Rate	0.303	0.167	0.112	-0.148	-0.197	-0.459
	(0.275)	(0.296)	(0.339)	(0.346)	(0.346)	(0.339)
Forced Coexistence						-0.245***
						(0.059)
Observations	219	219	219	219	219	219
R^2	0.019	0.115	0.148	0.181	0.206	0.269
			2016 Vote Rate			
2016 County Vote Rate	0.759***	0.493	0.476	0.106	0.050	-0.141
	(0.272)	(0.305)	(0.344)	(0.370)	(0.370)	(0.360)
Forced Coexistence						-0.233***
						(0.050)
Observations	219	219	219	219	219	219
R^2	0.049	0.125	0.156	0.181	0.204	0.262
Panel B: OLS Results - Dependent Variable: 2019 Log(AIAN Per Capita Income) with Clustered Standard Errors						
			2012 Vote Rate			
2012 County Vote Rate	0.303	0.167	0.112	-0.148	-0.197	-0.459
	(0.423)	(0.452)	(0.447)	(0.489)	(0.500)	(0.434)
Forced Coexistence						-0.245***
						(0.083)
Observations	219	219	219	219	219	219
R^2	0.019	0.115	0.148	0.181	0.206	0.269
			2016 Vote Rate			
2016 County Vote Rate	0.759**	0.493	0.476	0.106	0.050	-0.141
	(0.357)	(0.370)	(0.353)	(0.440)	(0.439)	(0.374)
Forced Coexistence						-0.233***
						(0.086)
Observations	219	219	219	219	219	219
R^2	0.049	0.125	0.156	0.181	0.204	0.262
Historical Centralization	Y	Y	Y	Y	Y	Y
Socioeconomic Controls		Y	Y	Y	Y	Y
Demographic Controls			Y	Y	Y	Y
Percentage Non-white Control				Y	Y	Y
Tribe Characteristics					Y	Y

Note: County level voter rates, and the associated Forced Coexistence and Historical centralization of the reservation contained therein. Filtered for counties that only contain a maximum of 1 reservation. Socioeconomic Controls contain median household income and unemployment rates. Demographic Controls include the percentage of population in rural areas, and with less than high school and college education. Percentage Non-white controls for the proportion of population identifying as non-white. Tribe Characteristics contain four variables identified earlier. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.9: Effect of FC on 2000 White Income Per Capita

	(1)	(2)	(3)	(4)	(5)
OLS Results of Forced Coexistence on White Income Per Capita					
Forced Coexistence	0.079	0.083	0.076	0.109	0.129*
	(0.070)	(0.070)	(0.066)	(0.068)	(0.073)
Observations	172	172	172	172	172
R^2	0.001	0.042	0.145	0.226	0.237
Historical Centralization	Y	Y	Y	Y	Y
Socioeconomic Controls		Y	Y	Y	Y
Reservation Controls			Y	Y	Y
Tribe Controls				Y	Y
Demographic Controls					Y

Note: All variables are at the reservation level. Socioeconomic Controls contain surrounding county income per capita and unemployment rates. Reservation Controls include distance to nearest city, a measure of reservation ruggedness, and reservation area (square kilometres). Tribe Controls include four variables identified earlier. Demographic Controls include reservation population, population-squared, and the adult share of the population. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.10: Effect of FC on 2019 White and AIAN Per Capita Incomes

	(1)	(2)	(3)	(4)	(5)
Effect of FC on 2019 Income Per Capita					
AIAN Income Per Capita					
Forced Coexistence	-0.229***	-0.196***	-0.207 ***	-0.211***	-0.169**
	(0.065)	(0.061)	(0.059)	(0.063)	(0.066)
Observations	175	175	175	175	175
R^2	0.068	0.190	0.260	0.289	0.311
Effect of FC on White Income Per Capita					
Forced Coexistence	0.066	0.054	0.063	0.036	0.044
	(0.070)	(0.069)	(0.067)	(0.072)	(0.076)
Observations	173	173	173	173	173
R^2	0.001	0.069	0.129	0.139	0.171
Historical Centralization	Y	Y	Y	Y	Y
Socioeconomic Controls		Y	Y	Y	Y
Reservation Controls			Y	Y	Y
Tribe Controls				Y	Y
Demographic Controls					Y

Note: All variables are at the reservation level. Socioeconomic Controls contain surrounding county income per capita and unemployment rates. Reservation Controls include distance to nearest city, a measure of reservation ruggedness, and reservation area (square kilometres). Tribe Controls include four variables identified earlier. Demographic Controls include reservation population, population-squared, and the adult share of the population. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.11: Effect of FC on Marriage Uptake

	(1)	(2)	(3)	(4)	(5)
Effect of Forced Coexistence on Sociocultural Variables					
Dependent Variable: AIAN Marriage Rate					
Forced Coexistence	-0.038**	-0.035**	-0.038 **	-0.032*	-0.032*
	(0.015)	(0.015)	(0.015)	(0.016)	(0.017)
Observations	175	175	175	175	175
R^2	0.049	0.077	0.118	0.140	0.191
Historical Centralization	Y	Y	Y	Y	Y
Socioeconomic Controls		Y	Y	Y	Y
Reservation Controls			Y	Y	Y
Tribe Controls				Y	Y
Demographic Controls					Y

Note: All variables are at the reservation level. Socioeconomic Controls contain surrounding county income per capita and unemployment rates. Reservation Controls include distance to nearest city, a measure of reservation ruggedness, and reservation area (square kilometres). Tribe Controls include four variables identified earlier. Demographic Controls include reservation population, population-squared, and the adult share of the population. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.12: Followup Analysis - Effect of FC on Marriage and Income

	(1)	(2)	(3)	(4)	(5)
Effect of Forced Coexistence on Per Capita Income Controlling for Marriage Rates					
Dependent Variable: Log (2019 AIAN Per Capita Incomes)					
Forced Coexistence	-0.197***	-0.170***	-0.186 ***	-0.198***	-0.156**
	(0.065)	(0.061)	(0.059)	(0.063)	(0.067)
AIAN Marriage Rate	1.133***	1.066***	0.935 ***	0.957***	0.913***
	(0.316)	(0.301)	(0.300)	(0.300)	(0.310)
Observations	175	175	175	175	175
R^2	0.139	0.250	0.310	0.340	0.357
Historical Centralization	Y	Y	Y	Y	Y
Socioeconomic Controls		Y	Y	Y	Y
Reservation Controls			Y	Y	Y
Tribe Controls				Y	Y
Demographic Controls					Y

Note: All variables are at the reservation level. Socioeconomic Controls contain surrounding county income per capita and unemployment rates. Reservation Controls include distance to nearest city, a measure of reservation ruggedness, and reservation area (square kilometres). Tribe Controls include four variables identified earlier. Demographic Controls include reservation population, population-squared, and the adult share of the population. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.13: Effect of FC on Traditional Language Uptake (other than Navajo)

	(1)	(2)	(3)	(4)	(5)
Effect of Forced Coexistence on Sociocultural Variables					
Dependent Variable: Percent AIAN that Practice North American Languages (except Navajo)					
Forced Coexistence	-0.055	-0.064*	-0.057 *	-0.000	-0.019
	(0.034)	(0.034)	(0.032)	(0.031)	(0.033)
Observations	175	175	175	175	175
R^2	0.016	0.038	0.141	0.308	0.325
Historical Centralization	Y	Y	Y	Y	Y
Socioeconomic Controls		Y	Y	Y	Y
Reservation Controls			Y	Y	Y
Tribe Controls				Y	Y
Demographic Controls					Y

Note: All variables are at the reservation level. Socioeconomic Controls contain surrounding county income per capita and unemployment rates. Reservation Controls include distance to nearest city, a measure of reservation ruggedness, and reservation area (square kilometres). Tribe Controls include four variables identified earlier. Demographic Controls include reservation population, population-squared, and the adult share of the population. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.14: Summary Statistics: Means of Reservation Level NHGIS Controls by FC – Extended Table

	FC = 0	FC = 1	Difference in Means	Observations
Surrounding County Per Capita Income	18,981	18,001	-979 **	175
Surrounding County Unemployment Rate	4%	4%	0%	175
Population	1,017	3,620	2,602 *	175
Adult Share of Population	66%	63%	-3%***	175
White Per Capita Income 2000	14,485	15,470	985	172
White Per Capita Income 2019	22,943	24,402	1,459	173
AIAN Per Capita Income 2019	19,067	15,500	-3,567 ***	175
% AIAN HH Marriage Rate	49%	46%	-3% *	175
% AIAN Speak NA Language	22%	18%	-5%	175
Pct Calories from Agriculture	2.6	1.6	-1.0 **	175
Sedentariness	3.4	3.2	-0.3	175
Complexity of Local Community	2.6	2.7	0.1	175
Wealth Distinctions	1.1	1.3	0.2 **	175
Distance to Nearest City (Population 50K+)	33.9	36.8	2.9	175
Reservation Ruggedness	-1.3	-1.5	-0.1	175
Reservation Size, Km-squared	70.8	84.9	14.2	175
Distance from Homeland	11.7	11.8	0.2	175
1860-1890 Gold Mining in Homeland	0.7	1.5	0.8*	175
1860-1890 Silver Mining in Homeland	0.3	1.2	0.9 ***	175
Homeland Ruggedness	1.1	1.1	0.0	175
1860-1890 Gold Mining in Current Economic Environment	104,245	107,907	3,662	175
1860-1890 Silver Mining in Current Economic Environment	60,860	24,152	-36,708	175
AIAN Per Capita Income 2000	11,492	8,648	-2,844***	175
Total Distinct Count of Reservations	66	109		
Total Distinct Count of Tribes	24	57		

The table shows the mean values for each indicator depending on the reservation. The significance stars under the Difference in Means column indicate the result of a t-test where we test the null hypothesis H_0 : the means are equal regardless of FC. Note, this table shows all controls employed at the reservation level throughout the paper. All variables are taken directly from Dippel (2014) except white income per capita (2000 and 2019), and AIAN income per capita (2019), marriage rate, and use of North American language. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A.15: First Stage and Reduced Form Relationship with Mining Instruments - Extended Table

	(1)	(2)	(3)	(4)	(5)	(6)
IV First Stage - Dependent Variable: Forced Coexistence – extended table						
Historical Gold Mining	0.023***	0.020**	0.018**	0.019**	0.017**	0.018
	(0.007)	(0.008)	(0.008)	(0.008)	(0.008)	(0.011)
Historical Silver Mining	0.029 ***	0.031***	0.029***	0.030***	0.023**	0.036***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.009)	(0.010)
Historical Centralization	0.379***	0.367***	0.345***	0.357***	0.401***	0.362 ***
	(0.055)	(0.056)	(0.058)	(0.061)	(0.067)	(0.067)
log(Median HH Inc)		-0.173	-0.202	-0.190	-0.220	-0.140
		(0.156)	(0.176)	(0.177)	(0.178)	(0.179)
Unemployment Rate		0.662	0.370	0.064	0.082	0.218
		(0.726)	(0.779)	(0.876)	(0.873)	(0.879)
Rural Rate			-0.124	-0.125	-0.121	-0.193*
			(0.102)	(0.102)	(0.105)	(0.105)
Pct Less than Highschool			0.175	-0.214	-0.369	-0.640
			(0.710)	(0.874)	(0.930)	(0.939)
Pct Less than College			0.180	0.332	0.227	-0.650
			(0.551)	(0.586)	(0.606)	(0.614)
Pct Non-white				0.161	0.136	0.177
				(0.211)	(0.211)	(0.216)
Tribe: Pct Calories from Agriculture					-0.465	-0.524
					(0.395)	(0.395)
Tribe: Sedentariness					0.452	0.515
					(0.401)	(0.401)
Tribe: Complexity of Local Community					-0.127**	-0.143**
					(0.060)	(0.062)
Tribe: Wealth Distinctions					0.084	0.055
					(0.072)	(0.080)
1860-1890 Gold Mining in Current Economic Environment						-0.000
						(0.000)
1860-1890 Silver Mining in Current Economic Environment						-0.000 ***
						(0.000)
Homeland Ruggedness						-0.033
						(0.038)
Distance from Homeland						-0.057
						(0.041)
Historical Centralization	Y	Y	Y	Y	Y	Y
Socioeconomic Controls		Y	Y	Y	Y	Y
Demographic Controls			Y	Y	Y	Y
Percentage Non-white Control				Y	Y	Y
Tribe Characteristics					Y	Y
Additional IV Controls						Y
F-Statistic	310.1	8.1	6.7	6.6	6.0	4.9
p-value	< 0.01	0.017	0.035	0.037	0.049	0.088
Observations	219	219	219	219	219	219
R^2	0.205	0.222	0.228	0.230	0.260	0.312

Note: County level voter rates, and the associated Forced Coexistence and Historical centralization of the reservation contained therein. Filtered for counties that only contain a maximum of 1 reservation. The F-statistic reported in panel A represents the results of a Wald test, which tests of joint significance of the instruments in the first stage regression. Socioeconomic Controls contain median household income and unemployment rates. Demographic Controls include the percentage of population in rural areas, and with less than high school and college education. Percentage Non-white controls for the proportion of population identifying as non-white. Tribe Characteristics are identified above. Additional IV controls include homeland ruggedness, distance to homeland, and historical mining in current economic environments. Significance stars: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Bibliography

Acemoglu, D., Hassan, T. A., and Robinson, J. A. (2011). Social structure and development: A legacy of the holocaust in russia. *The Quarterly Journal of Economics*, 126(2):895–946.

Acemoglu, D., Johnson, S., and Robinson, J. A. (2001). The colonial origins of comparative development: An empirical investigation. *American economic review*, 91(5):1369–1401.

Akerlof, G. A. and Kranton, R. E. (2010). Identity economics. In *Identity Economics*. Princeton University Press.

Albright, A., Cook, J. A., Feigenbaum, J. J., Kincaide, L., Long, J., and Nunn, N. (2021). After the burning: the economic effects of the 1921 tulsa race massacre. Technical report, National Bureau of Economic Research.

Alesina, A. and La Ferrara, E. (2002). Who trusts others? *Journal of Public Economics*, 85(2):207–234.

Alsan, M. and Wanamaker, M. (2018). Tuskegee and the health of black men. *The quarterly journal of economics*, 133(1):407–455.

Andrews, I., Stock, J. H., and Sun, L. (2019). Weak instruments in instrumental variables regression: Theory and practice. *Annual Review of Economics*, 11(1).

Austen-Smith, D. and Fryer Jr, R. G. (2005). An economic analysis of "acting white". *The Quarterly Journal of Economics*, 120(2):551–583.

Barber, M. and Jones, M. E. (2021). Inequalities in test scores between indigenous and non-indigenous youth in canada. *Economics of Education Review*, 83:102139.

Booth, J. A. and Richard, P. B. (1996). Repression, participation and democratic norms in urban central america. *American Journal of Political Science*, pages 1205–1232.

Card, D. (1993). Using geographic variation in college proximity to estimate the return to schooling.

Chen, Y. and Yang, D. (2015). Historical traumas and the roots of political distrust: Political inference from the great chinese famine. *Available at SSRN 2652587*.

Coombes, B. (2003). The historicity of institutional trust and the alienation of maori land for catchment control at mangatu, new zealand. *Environment and History*, 9(3):333–359.

Cox, M. (2003). When trust matters: Explaining differences in voter turnout. *J. Common Mkt. Stud.*, 41:757.

Davila, A. and Mora, M. T. (2007). Civic engagement and high school academic progress: An analysis using nels data,[part i of an assessment of civic engagement and academic progress. In *University of Maryland*. Citeseer.

Dell, M. (2010). The persistent effects of peru's mining mita. *Econometrica*, 78(6):1863–1903.

Demaris, A. and Yang, R. (1994). Race, alienation, and interpersonal mistrust. *Sociological Spectrum*, 14(4):327–349.

Diamond, J. M. and Ordunio, D. (1999). *Guns, germs, and steel*, volume 521. Books on Tape.

Dippel, C. (2014). Forced coexistence and economic development: evidence from native american reservations. *Econometrica*, 82(6):2131–2165.

Feir, D. (2013). Size, structure, and change: Exploring the sources of aboriginal earnings gaps in 1995 and 2005. *Canadian Public Policy*, 39(2):309–334.

Feir, D., Gillezeau, R., Jones, M., et al. (2019). The slaughter of the bison and reversal of fortunes on the great plains. *Center for Indian Country Development*, pages 2019–01.

Grillo, M. C., Teixeira, M. A., and Wilson, D. C. (2010). Residential satisfaction and civic engagement: Understanding the causes of community participation. *Social Indicators Research*, 97(3):451–466.

Grönlund, K. and Setälä, M. (2007). Political trust, satisfaction and voter turnout. *Comparative European Politics*, 5(4):400–422.

Helliwell, J. F. (1994). Empirical linkages between democracy and economic growth. *British journal of political science*, 24(2):225–248.

Kelly, M. (2019). The standard errors of persistence.

Kuhn, P. and Sweetman, A. (2002). Aboriginals as unwilling immigrants: Contact, assimilation and labour market outcomes. *Journal of Population Economics*, 15(2):331–355.

Maddison, A. (1991). *Dynamic forces in capitalist development: A long-run comparative view*. Oxford University Press, USA.

Malik, K. and Waglé, S. (2002). Civic engagement and development: Introducing the issues. *Capacity for development: New solutions to old problems*, pages 85–100.

Michalopoulos, S. and Papaioannou, E. (2013). Pre-colonial ethnic institutions and contemporary african development. *Econometrica*, 81(1):113–152.

Nikolova, M., Popova, O., and Otrachshenko, V. (2022). Stalin and the origins of mistrust. *Journal of Public Economics*, 208:104629.

North, D. C. et al. (1990). *Institutions, institutional change and economic performance*. Cambridge university press.

Nunn, N. (2007). Slavery, inequality, and economic development in the americas: An examination of the engerman-sokoloff hypothesis.

Nunn, N. (2014). Historical development. *Handbook of economic growth*, 2:347–402.

Nunn, N. (2020). The historical roots of economic development. *Science*, 367(6485):eaaz9986.

Nunn, N. and Wantchekon, L. (2011). The slave trade and the origins of mistrust in africa. *American Economic Review*, 101(7):3221–52.

Pendakur, K. and Pendakur, R. (2011). Aboriginal incomes in canada 1995–2005. *Canadian Public Policy*, 37(1):61–83.

Putnam, R. D. (2000). Bowling alone: America's declining social capital. In *Culture and politics*, pages 223–234. Springer.

Putnam, R. D., Leonardi, Robert, ., and Nanetti, R. (1993). *Making democracy work: civic traditions in modern Italy*. Princeton University Press.

Shiller, R. J. (2017). Narrative economics. *American economic review*, 107(4):967–1004.

Staiger, D. O. and Stock, J. H. (1994). Instrumental variables regression with weak instruments.

Stock, J. H. and Yogo, M. (2002). Testing for weak instruments in linear iv regression.

Tabellini, G. (2010). Culture and institutions: economic development in the regions of europe. *Journal of the European Economic association*, 8(4):677–716.

Tolbert, C. M., Lyson, T. A., and Irwin, M. D. (1998). Local capitalism, civic engagement, and socioeconomic well-being. *Social Forces*, 77(2):401–427.

Williams, J. (2022). Historical lynchings and the contemporary voting behavior of blacks. *American Economic Journal: Applied Economics*, 14(3):224–53.