Why did America introduce compulsory schooling laws at a time when financial investments in education and voluntary school attendance were high? We provide qualitative and quantitative evidence that states adopted compulsory schooling laws as a *nation-building* tool to instill civic values to the culturally diverse migrants during the 'Age of Mass Migration' between 1850 and 1914. We show the adoption of compulsory schooling laws occurred significantly earlier in states that hosted European migrants with lower exposure to civic values in their home countries. Using cross-county data, we show that these migrants had significantly lower demand for American schooling pre-compulsion.

Nation-Building Through Compulsory Schooling During the Age of Mass Migration[1]

Oriana Bandiera, Myra Mohnen, Imran Rasul, Martina Viarengo

By the mid-19th century Americans were the most educated population in the world: financial investments into education were substantial and voluntary attendance was high (Landes and Solomon, 1972; Black and Sokoloff, 2006; Goldin and Katz, 2008). Figure 1 illustrates this point with newly assembled panel data on enrolment rates for 5-14 year olds from 1830 through 1890 for the US and similarly developed nations. The figure shows that US enrolment rates were above 50%, trending upwards, and diverging from other countries from 1850 onwards. At the same point in time, US states began introducing compulsory schooling laws. This is puzzling because the laws could not have been binding for the average American child, nor were they binding for the

marginal child and thus the driving force behind 'the educated American' (Goldin and Katz, 2003, 2008).[2] Nor were they targeting blacks, as legislative caveats often effectively excluded them from schools even post-compulsion (Black and Sokoloff, 2006; Collins and Margo, 2006).

This paper tests the hypothesis that compulsory schooling laws were introduced to teach the children of migrants who moved to America during the 'Age of Mass Migration' the same civic values, or discipline, taught to American-born children, who were voluntarily attending American common schools in large numbers. Two observations underpin our hypothesis. First, that civic values are at the core of state building as they underpin democratic institutions (Glaeser *et al.*, 2007) in part because they can discipline the young and so help deal with potential unrest or instability, reduce the costs of social interaction, coordination or information exchange (Bowles and Gintis, 1976; Gradstein and Justmann, 2002; Helliwell and Putnam, 2007) and make individuals more likely to take actions to improve the common welfare of their community (Alesina and Reich, 2015). Second, the idea that schools shape civic values is well established in the social sciences (Almond and Verba, 1963; Kamens, 1988; Brady *et al.*, 1995). As detailed by Glaeser *et al.* (2007), educationalists themselves often list socialisation as a pillar of curriculum design (Dewey, 1944; Bourdieu and Paserron, 1970; Bowles and Gintis, 1976; Gordon and Browne, 2004; Driscoll and Nagel, 2005). Indeed, a body of evidence in economics now supports the idea that schools affect individual values via the content of curricula (Algan *et al.*, 2013; Clots-Figueras and Masella, 2013; Cantoni *et al.*, 2015), and that those exposed to compulsory schooling are causally more likely to be registered to vote, to vote, to engage in political discussion with others, to follow political campaigns and attend political meetings, as well as having higher rates of participation in community affairs and trust in government (Dee, 2004; Milligan *et al.*, 2004). All these traits and behaviors might be viewed as those relating to disciplining individuals and weakening the likelihood of social unrest.[3]

Our research design exploits variation in civic values among European migrants from different

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[2]A body of work has emphasised Americans became educated because of fiscal decentralisation, public funding, public provision, separation of church and state, and gender neutrality (Goldin and Katz, 2008). Goldin and Katz (2003) document that compulsion accounts for at most 5% of the increase in high school enrolment over the period 1910-40, when such laws were being fully enforced.

[3]DiPasquale and Glaeser (1999), Glaeser *et al.* (2007) and Glaeser and Sacerdote (2008) document, using evidence from the US and elsewhere, a robust correlation between education and civic and political participation.

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countries as a proxy for the need to nation-build. Intuitively, the benefit of introducing compulsory schooling laws to teach civic values or discipline youth is higher where there is a larger population that lacks such values. While we obviously cannot measure the civic values or discipline of the migrants directly, we can exploit the fact that European schooling systems themselves developed to instill civic values (Weber, 1976; Holmes, 1979; Ramirez and Boli, 1987; Alesina and Reich, 2015), and thus migrants from European countries that had compulsory schooling laws were more likely to have been taught civil values than those from countries without such law. We thus examine how differences in the composition of the European origins of the migrant population, holding constant state characteristics that attract all migrants regardless of the compulsory schooling laws in their country of origin, impact the timing of compulsory schooling laws across US states.[4]

Our analysis proceeds in three stages. The first stage presents *qualitative* evidence to underpin the hypothesis that American society used compulsory schooling as the key policy tool to nation-build in response to mass migration. We show this was driven by the view that exposure to American public schools would instill the desired civic values among migrants, and a recognition that such values could be transmitted from children to their parents.

The second part of the analysis uses a newly assembled data-set on the timing of compulsory schooling laws across European countries and US Census data on state population's by country of origin. Given the multidisciplinary body of work documenting the nation-building motives for the development of compulsory state education systems in Europe (Weber, 1976; Holmes, 1979; Ramirez and Boli, 1987; Aghion *et al.*, 2012; Alesina and Reich, 2015), we treat Europeans' exposure to such laws as the best available proxy of the civic values or discipline held by Europeans. Of course, the exact way in which compulsory state schooling operated would likely differ between each European country, and we lack direct evidence on the precise curricula of each country. What we emphasise here is the notion that most state education systems generally instill more values that underpin democratic institutions, such as discipline, say, relative to the counterfactual of a non-state provided compulsory education system: in nineteenth century Europe this would have

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[4]This logical chain requires two further conditions to hold. The first is that migrants transport their values with them, a hypothesis that has much empirical support (Guinnane *et al.*, 2006; Fernandez, 2013; Fernandez and Fogli, 2009). The second is that parents transmit civic values, and other preferences, to their children. Again, this condition is also underpinned by a body of empirical work (Bisin and Verdier, 2000; Dohmen *et al.*, 2012).

amounted to either attending a private school, a religious school, or not attending school altogether. We then use survival analysis to estimate whether the cross-state timing of compulsory schooling laws is associated with the composition of migrants in the state.

Our central finding is that American-born median voters pass compulsory schooling laws significantly earlier in time in US states with a larger share of migrants from European countries without historic exposure to compulsory state schooling in their country of origin: a one standard deviation in the share of these migrants doubles the hazard of compulsory schooling laws being passed in a decade between census years. Naturally, migrants from different countries differ along many dimensions other than civic values. These, however, do not drive our result which is robust to controlling for literacy rates among adult migrants, attendance rates of migrant children to some form of school, religion, and English language proficiency. The central result also holds across US regions, including in Southern and Western states.

The nation-building interpretation hinges on the comparison of the differential impact Europeans with and without historic exposure to compulsory state schooling in their home country have on the timing of such legislation in US states. Unobserved state factors that make a location equally attractive to both migrant groups do not bias this comparison. The chief econometric concern is that the process driving the location choices of migrants differ between these groups of European migrants. To address the endogenous location choices of migrants we present IV estimates using a control function approach in the non-linear survival model, based on a Bartik-Card instrumentation strategy: these further show our main result to be robust to accounting for the endogenous location choices of migrants.

Finally, we set up a horse-race between the nation-building hypothesis and other mechanisms driving compulsory schooling, such as redistributive motives, or due to a complementarity between capital and skilled labour. We find some evidence for these alternatives, so there is no doubt that economic factors also determined the expansion of compulsory schooling. However none of these channels mutes the additional nation-building channel.

The third part of the analysis provides direct evidence on migrants' demand for American public schooling that underpins the nation-building efforts of American-borns. During the study

period, many migrant groups faced a choice between sending their children to parochial schools (so based on religion), or to attend an American common school. Only if migrants' demand for American common schools was sufficiently low would compulsory schooling bind and be required to change migrants' civic values or discipline. We develop and estimate a probabilistic voting model over schooling provision that allows us to map from the equilibrium provision of common schooling back to the relative demands for such American common schools among various migrant groups, using cross-county data from 1890 on schooling provision and attendance.

The revealed demands for American common schooling across migrant groups match up closely with the cross-state analysis. We find that within European migrants, those from countries without long exposure to compulsory state schooling in their country of origin have significantly lower demand for American common schools relative to European migrants from countries with compulsory schooling. Furthermore, there is a significant convergence in demand for common schools between natives and both groups of European migrants when compulsory schooling laws are introduced. Hence compulsory schooling did lead European migrants to be more exposed to the civic values being taught to American-borns in common schools, and this was especially so for Europeans from countries without historic exposure to compulsory state schooling in their country of origin. This cross-county analysis links tightly with the state-level analysis by establishing the counterfactual of what would have been migrants' exposure to the kinds of civic values instilled through American common schools absent compulsory schooling laws.

Our paper provides quantitative evidence on the hypothesis, put forward by historians, that compulsory schooling was introduced in America to state build (Cubberley, 1947; Meyer *et al.*, 1979; Engerman and Sokoloff, 2005; Brockliss and Sheldon, 2012). It complements work on the economic and cultural assimilation of migrants during the Age of Mass Migration (Abramitzky *et al.*, 2014, 2016; Biavaschi *et al.*, 2017). During this historic period a wider set of educational policies collectively known as the *Americanisation Movement*, encompassing language requirements in schools and ultimately citizenship classes targeted towards adult migrants and conducted by the US Bureau of Naturalization (Cubberley, 1947; Carter, 2009), were introduced to assimilate migrants. While other disciplines have recognised periods of American history where the school-

ing system has been used to inculcate values among the foreign-born (Tyack, 1976),[5] our analysis contributes to the literature by showing nation-building motives drove the passage of compulsory schooling laws from the 1850s onwards, the first pillar of the *Americanisation Movement*, and the legislative bedrock on which later developments of the American education system have been built.

Most broadly, we contribute to the literature linking the national origins of migrants and institutional change. The seminal work of Acemoglu *et al.* (2001) illustrates how colonial settlers from Europe established institutions that had long lasting impacts on economic development. Our analysis can be seen as 'Acemoglu *et al.* in reverse' as we analyse how the American-born population, from whom the median voter determines state-level policies such as compulsory schooling, best responded in public policy to large migrant flows from a set of culturally diverse countries.

The paper is organised as follows. Section 2 presents qualitative evidence on the use of compulsory schooling as a nation-building tool during the Age of Mass Migration. Section 3 develops a conceptual framework describing how compulsory schooling can be used to nation-build by homogenising civic values between its native and immigrant members. Section 4 describes the state level data and newly assembled database of compulsory state education laws by European country. Section 5 presents evidence linking the composition of migrant groups and the cross-state passage of compulsory schooling. Section 6 develops and tests a model of schooling provision to estimate the relative demand for American common schools across migrant groups using county data. Section 7 concludes. The Appendix provides proofs, data sources and robustness checks.

1   Qualitative Evidence

That American society used compulsory schooling as a tool to nation-build during the Age of Mass Migration has been recognised in leading accounts of the development of the American schooling system written by educationalists (Cubberley, 1947), sociologists (Meyer *et al.*, 1979) and economic

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[5]For example: (i) Native American children being sent to boarding schools in the early nineteenth century; (ii) the dispatch of American teachers to Puerto Rico and the Philippines after the Spanish-American war; (iii) attempts to democratise Germany and Japan after World War II. In more recent times, Arlington (1991) describes how English became the required language of instruction in Southern US states in 1980s, in response to mass migration from Latin American.

historians (Engerman and Sokoloff, 2005; Brockliss and Sheldon, 2012). We highlight those pieces of qualitative evidence that inform our research design.

We review how long-standing concerns over migrants' assimilation informed political debate, and how the education system was viewed as the key policy tool to address such concerns. This was driven by the view that exposure to American common schools would instill the desired civic values and discipline among migrants, and a recognition that such values could then be transmitted from children to parents. We then provide evidence that nation-building motives informed the architects of the common school movement, both as a general principle to instill civic values among American-born children and to foster the discipline and assimilation of migrant children. We conclude by providing evidence of curricula in common schools, as this relates directly to the inculcation of civic values.

1.1   *Migrants and Compulsory Schooling in the Political Debate*

American society's anxieties over immigrant assimilation have been well documented for each wave of large-scale migration. These concerns became politically salient from the 1850s onwards, most famously in 1855 when the *Native American Party* (also referred to as the 'Know Nothing Party') elected six governors and a number of Congressional representatives. The party's core philosophy was one of 'Americanism', consistently communicating the fear of the 'unAmericanness' of immigrants (Higham, 1988).

The concerns of American-borns over migrants' assimilation are crystallised in the Dillingham Report, widely regarded as the most comprehensive legislative study on immigration ever conducted. The Report was drafted over 1907-11 by a Commission of senators, members of the House of Representatives and Presidential appointees. The Commission was established in response to concerns over the assimilation of migrants from Southern and Eastern Europe, and produced a 41-volume report, including a number of volumes solely dedicated to the role of the education system in the assimilation process. The Commission repeatedly highlighted the importance of *Americanising* immigrants. Moreover, the Commission explicitly recognised the role that children played in the wider long run process of inculcating values in the entire migrant population:[6] *'The most*

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[6]This view also matches with historic evidence on the inter-generational transmission of human capital, especially

potent influence in promoting the assimilation of the family is the children, who, through contact with American life in the schools, almost invariably act as the unconscious agents in the uplift of their parents. Moreover, as the children grow older and become wage earners, they usually enter some higher occupation than that of their fathers, and in such cases the Americanising influence upon their parents continues until frequently the whole family is gradually led away from the old surroundings and old standards into those more nearly American. This influence of the children is potent among immigrants in the great cities, as well as in the smaller industrial centers'. [p.42, Volume 29].

1.2 *Nation Building and the American Common School Movement*

The key individuals driving the American common school movement were Horace Mann (1796-1859), Henry Barnard (1811-1900) and Calvin Stowe (1806-1882). While each of them certainly discussed the economic benefits of schooling, they were also united in a belief that schooling was the instrument, '*by which the particularities of localism and religious tradition and of national origin would be integrated into a single sustaining identity*' and could foster '*goals of equity, social harmony, and national unity*' (Glenn, 2002, p.9, p.39).

Horace Mann is widely regarded as the most prominent figure of the common school movement, becoming the first secretary of the Massachusetts Board of Education in 1837 (the earliest adopter of compulsory schooling). He believed common schools would, '*promote moral education*' and '*unite the country by teaching common values*' (Jeynes, 2007, p147, p150). Like many advocates for the common school movement, he recurrently emphasised the link between education and the civic virtues necessary for effective participation in a democracy.

Henry Barnard was the secretary of the Connecticut Board of Education, and was very much influenced by what he had seen of the European education system, in its drive to instill civic values among European populations. His motives for building the public school system have been described as follows: '*Despite the challenges that Barnard faced, he, like Mann, was tenacious in maintaining the view that the common school cause was for the good of the country. He believed that*

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language skills, from children to parents (Ferrie and Kuziemko, 2015).

democracy and education went together in the cause of truth, justice, liberty, patriotism, religion.' (Jeynes, 2007, p154).

Finally, Calvin Stowe was a key driver of the common school movement in the Midwest. Stowe, like Mann, believed moral education was the most important aspect of schooling and was also heavily influenced by what he saw of European education practices, and compulsory schooling being used to inculcate civic values.[7]

It has been argued that all these central figures ultimately saw schools as the *key tool* for social control and assimilation in America. Certainly, advocates of common schools came to emphasise their role as an alternative to families to foster the assimilation of immigrant children. As Tyack (1976, p363) argues, '*Advocates of compulsory schooling often argued that families–or at least some families–like those of the poor or foreign-born–were failing to carry out their traditional functions of moral and vocational training...reformers used the powers of the state to intervene in families to create alternative institutions of socialisation*'.

One of the most noted advocates for common schools in Philadelphia was E.C.Wines. He perhaps best articulated the link between compulsory schooling, immigration and nation-building: '*We refer to that overflowing tide of immigration, which disgorges our shores its annual tens of thousands of Europe's most degraded population–men without knowledge, without virtue, without patriotism, and with nothing to lose in any election..Are these persons fit depositaries of political power? The only practicable antidote to this, the only effectual safe-guard against the other, the only sure palladium of our liberties, is so thorough an education of all our citizens, native and foreign, as shall nullify the dangerous element in immigration*'. (Wines, 1851, p742-3).

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[7]When Calvin Stowe reported back to American education leaders about European practices, he emphasised that '*public education in Europe was having a civilising effect on that continent because it was bringing Christianity and the teachings of democracy to the most remote parts, where despotism often ruled*' (Jeynes, 2007). Glenn (2002, p100) writes, '*The influence of foreign models, especially that of Protestant states of the Continent, Prussia and the Netherlands, was of critical importance in shaping the goals and the arguments of he education reformers. It was through the nation-building role of popular schooling in those countries that key ideas of the Enlightenment and the French Revolution of 1789 became central elements of what was virtually a consensus program along elites in the United States throughout the century and a quarter beginning around 1830*', and, '*that the alternative model offered by England, where education remained essentially in the hands of private, ecclesiastical, and charitable enterprise until the 20th century, did not have more appeal suggests how strongly Enlightenment concerns for national unity and uniformity dominated the thinking of the leaders in the common school movement.*'

1.3 *Compulsory Schooling and Civic Values*

American educators wanted their schooling system to place relatively more emphasis on the role of schooling in shaping the character, values and loyalties or discipline of students as future participants in political and social life. This philosophy is what would have driven the civic values instilled into American-born children voluntarily attending schools in such high numbers (Figure 1) and would drive some of the legislative acts that introduced compulsory schooling, to also make explicit references to civic values. For example, in Connecticut the law states the curriculum must cover 'US history and citizenship', and in Colorado it states that instruction 'must cover the constitution'.[8] In detailing how compulsory schooling laws were actually implemented, it is important to note that American school districts have always had a high degree of autonomy. This has led to considerable heterogeneity in practices, making it almost impossible to track curriculum changes over time by district (Goldin, 1999a). Subject to this caveat, we highlight the following.

First, the alternative source of education to common schools were parochial and private schools. According to Lindert (2004), 12% of all pupils were enrolled in such schools in 1880.[9] Migrant specific shares are not available but were presumably higher given that the language of instruction in these schools was not necessarily English (and the figure aligns closely with the overall share of migrants in the population). In some cases, compulsory schooling laws required children to be taught in some public school.[10] In other cases, states regulated parochial and private schools by specifying standards they had to comply with to meet compulsory state schooling requirements. For instance, the standards set in Illinois and Wisconsin aroused fierce opposition because of their provisions that private schools teach in the English language and that they be approved by boards of public education (Tyack, 1976).

Second, states differed as to whether English should be the main language of instruction. Some

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[8]Glaeser *et al.* (2007) note that even today, a 'content standard' listed by California's Department of Education advocates that students, 'understand the obligations of civic-mindedness, including voting, being informed on civic issue, volunteering and performing public service, and serving in the military or alternative service'.

[9]Pritchett and Viarengo (2015) develop a model of why governments typically produce schooling (rather than the private sector). The key idea is the lack of verifiability of socialisation and instruction of beliefs, which makes third party contracting for socialisation problematic.

[10]For example, the Massachusetts law of 1952 states that, *'Every person who shall have any child under his control between the ages of eight and fourteen years, shall send such child to some public school within the town or city in which he resides…'*

states imposed clear English language requirements early on, while in others bilingualism was first accepted and then banned from public schools.[11] Eventually the *Americanisation Movement* led to further legislative iterations making language and instruction requirements more explicit (Lleras-Muney and Shertzer, 2015). This was ultimately followed by the introduction of citizenship classes targeted to foreign-born *adults* from 1915-16 onwards, that were in part conducted by the US Bureau of Naturalization (Cubberley, 1947). These classes were designed to, '*imbue the immigrant with American ideals of living...and preparing them for citizenship*' (Carter, 2009, p23-4). In short, it is not that nation-building efforts ignored adult immigrants. Rather, as recognised by the Dillingham Report, policies to target immigrant children were prioritised and attempted earlier.

2 Conceptual Framework

To bridge the qualitative and quantitative evidence, we present a framework to make precise the idea of how a society made up of native and migrant groups, with heterogeneity in values across groups, can use compulsory schooling to nation-build. The framework is closely based on Alesina and Reich (2015). Consider a state comprised of: (i) American-borns, normalised to mass 1; (ii) newly arrived immigrants of mass $\gamma \leq 1$. Individuals have heterogeneous civic values represented by a point on the real line. Let $f(j)$ be the density of American-borns with values $j \in \mathbb{R}$, and $g(j)$ be the corresponding density among immigrants. Denote by d_{ij} the 'distance' between values i and j, $d_{ij} = |i - j|$, and let c denote private consumption. An American-born individual with

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[11]For example, a 1919 law in Minnesota reads: '*A school, to satisfy the requirements of compulsory attendance, must be one in which all the common branches are taught in the English language, from textbooks written in the English language and taught by teachers qualified to teach in the English language. A foreign language may be taught when such language is an elective or a prescribed subject of the curriculum, not to exceed one hour each day.*' [Minnesota, Laws 1919, Ch. 320, amending Gen. Stat. 1914, sec. 2979 as described in Ruppenthal 1920]. Daniels (1990, pp.159-60) discusses the variation across states: '*Beginning in 1839 a number of states, starting with Pennsylvania and Ohio, passed laws enabling (or in some cases requiring) instruction in German in the public schools when a number of parents, often but not always 50 percent, requested it, and these laws were copied, with inevitable variations, in most states with large blocs of German settlers. The Ohio law authorised the setting up of exclusively German-language schools. In Cincinnati this option was exercised so fully that there were, in effect, two systems, one English, one German, and, in the 1850s, the school board recognised the right of pupils to receive instruction in either German or English. In Saint Louis, on the other hand, the use of bilingualism was a device to attract German American children to the public schools. In 1860 it is estimated that four of five German American children there went to non-public schools; two decades later the proportions had been reversed. In Saint Louis all advanced subjects were taught in English. So successful was the integration that even before the anti-German hysteria of World War I, German instruction as opposed to instruction in the German language was discontinued.*'

values $i \in \mathbb{R}$ is assumed to have utility:

$$u_i = c - \int_{j \in \mathbb{R}} f(j) d_{ij} dj - \int_{j \in \mathbb{R}} g(j) d_{ij} dj. \tag{1}$$

The second term on the RHS of (1) measures the difference between her values and those of other American-borns; the third term measures the difference between her values and those of immigrants. American-borns thus prefer to live in a more homogeneous society in which individuals share values. This is an *intrinsic* preference held by natives: homogenising the population might have other *indirect* benefits, but the underlying nation-building motive of natives is that they prefer to live with others that share their values.

To see how schooling might affect the homogeneity of values in society, assume first that a voluntary schooling system is in place, attended by American-borns (as described in Figure 1). We assume the school curriculum matches the values of the median American, i_m. Attending school shifts individual values towards i_m by degree λ. Schooling can impact a variety of specific values (Lott, 1999; Glaeser *et al.*, 2007; Alesina and Reich, 2015), and contemporary evidence suggests the content of school *curricula* do indeed influence beliefs and values held later in life (Dee, 2004; Milligan *et al.*, 2004; Algan *et al.*, 2013; Clots-Figueras and Masella, 2013; Cantoni *et al.*, 2015). The population decides by majority rule whether to make this schooling system compulsory.

In line with our empirical setting, γ is sufficiently small so the median voter is an American-born.[12] As American-borns already attend school, the direct effect of implementing compulsory schooling is on the migrant population who are homogenised towards the values of the median American, i_m. Assuming a fixed cost of implementing (and enforcing) compulsory schooling, the policy increases the tax burden for all by an amount T. Hence the utility of an American with

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[12]Figure A1 uses IPUMS 1880 census data (a 100% sample) to show that while migrants account for a sizeable share of each state's population, they remain a minority in each state. This fact also holds on subsamples that better reflect those eligible to vote, such as the share of men, those in the labour force, and those residing in urban areas. Hence, even if migrants themselves demanded compulsory schooling, they were not pivotal at the state level in determining the passage of such legislation.

median values, i^m, if compulsory schooling were to be introduced is,

$$u_{i^m} = c - \int_{j\in\mathbb{R}} f(j)d_{i^m j}dj - \int_{j\in\mathbb{R}} g(j)(1-\lambda)d_{i^m j}dj - T. \tag{2}$$

PROPOSITION 1 *Suppose all immigrants have values $j > i^m$ to the left of the median American, then a majority of Americans vote for compulsory schooling if and only if,*

$$\int_{j\in\mathbb{R}} g(j)d_{i^m j}dj \geq T/\lambda. \tag{3}$$

The Proof is in the Appendix.[13]

The framework makes precise that whether a state votes for compulsory schooling depends on: (i) how different the migrant population is from the median American, $d_{i^m j}$; (ii) the size of the migrant group, $g(j)$; (iii) the effectiveness of schooling in shifting preferences, λ; (iv) the fiscal cost of making schooling compulsory (and its enforcement), T.[14]

Section 4 details how we proxy the key measure, $d_{i^m j}$: pre-held civic values among migrants using their historic exposure to compulsory state schooling in Europe. Section 5 takes this to the data to explain the cross-state timing of compulsory schooling in US states. A necessary condition for natives to prefer to make schooling compulsory is because it binds on immigrants and so exposes them to American civic values. This is at the heart of the analysis in Section 6 that estimates the relative demand for American common schooling among immigrants and natives.

3 Data and Method

The top half of Figure 2 shows the variation we need to explain: the timing of compulsory schooling laws by US state, as coded in Landes and Solomon (1972). This coding is our preferred source

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[13]The assumption $j > i^m$ simplifies the algebra and best describes our setting. Allowing for overlapping preferences of Americans and migrants implies that if compulsion is introduced, this moves the values of some immigrant *further* from the preferences of some Americans. The condition under which the majority of Americans then vote for compulsory schooling depends on the entire distribution of preferences among them.

[14]The costs of compulsory schooling laws can also be interpreted more broadly. For example, with compulsion, immigrant children would have had to reallocate time away from potentially more productive labour market work, to be exposed to the civic values only the state schooling system could provide *en masse*. Second, and related to the evidence in Section 6, there would be greater class sizes as a result for all children including American-borns.

because it covers all states from the 1850s. A prominent alternative coding is that provided by Goldin and Katz (2003) (who extend the coding of Lleras-Muney (2002)). The Goldin and Katz (2003) data only covers the period from 1900 onwards, and so does not provide information on the 33 states that introduced compulsory schooling before 1900. For the 15 states covered by both the Landes and Solomon (1972) and Goldin and Katz (2003) codings, we find the year of passage for compulsory schooling is identical for 13 states, and the differences are minor in the other two cases (Louisiana: 1912 vs. 1910; Tennessee: 1906 vs. 1905). We focus on determining what drove the *adoption* of compulsory schooling across states. It is well understood that such laws were initially imperfectly enforced, but became more effective over time (Clay *et al.*, 2012). The existing literature has focused on measuring the *impacts* of this legislation on various outcomes: a question for which the enforcement of compulsory schooling is more first order.[15]

To operationalise the conceptual framework, we need to identify the key source of *within-migrant* diversity in values to match $d_{i^m j}$, the difference in civic values between Americans and migrants. Obviously, no data set is ever likely to contain information on the actual values held by American-borns and migrants, by country of origin. We therefore seek an empirical proxy for the values held by migrants. Given the multi-disciplinary body of work documenting nation-building motives for the development of compulsory state education systems in Europe (Weber, 1976; Holmes, 1979; Ramirez and Boli, 1987; Aghion *et al.*, 2012; Alesina and Reich, 2015), we treat Europeans' exposure to a compulsory state education system in their country of origin as the best available proxy of the civic values held by Europeans.

Our approach thus provides a natural distinction between two types of European migrant: Europeans from countries that had compulsory state schooling laws in place before the first US state (Massachusetts in 1852) and were thus more likely to be exposed to such civic values in their country of origin, and European migrants from countries that introduced compulsory state

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[15]Clay *et al.* (2012) describe how there were gradual extensions in how compulsory schooling laws operated to cover: (i) the period of compulsory schooling each year; (ii) precise age and poverty requirements for children to attend; (iii) the application of schooling laws to private/parochial schools; (iv) increased requirements of cooperation from schools in enforcement; (v) the appointment of attendance officers, and then the institution of state supervision of local enforcement; (vi) the connection of school-attendance enforcement with the child-labour legislation of States through a system of working permits and state inspection of mills, stores, and factories. Table A1 shows further details on the passage of key child related legislation by state. There is variation across states in the ages for which compulsory school laws were binding: we do not exploit such variation for our analysis.

schooling after 1850 and were thus less likely to have been inculcated in civic values or discipline, that might have been held and valued in American society at the time.

To reiterate, the exact way in which compulsory state schooling operated would likely differ between each European country. We do not have data on the content of school curricula in Europe, so are unable to exploit any such variation. We leave for future research any attempt to code the specific civic values promoted under each schooling system, but what we want to emphasise here is that, relative to a church- or family-based schooling, state education systems generally instill values or discipline more in line with: (i) underpinning democratic institutions (Glaeser *et al.*, 2007) in part because they can discipline the young and so help deal with potential unrest or instability, or because they reduce the costs of social interaction, coordination or information exchange (Bowles and Gintis, 1976; Gradstein and Justmann, 2002; Helliwell and Putnam, 2007); (ii) making individuals more likely to take actions to improve the common welfare of their community (Alesina and Reich, 2015); (iii) shaping the acceptability of welfare transfers (Lott, 1999).

For this purpose of this paper, we have constructed a novel data-set on the timing of compulsory state schooling laws by European country, shown in the bottom half of Figure 2. The Appendix details the data sources underlying this coding. Figure 2 shows the European countries defined to have compulsory schooling in place by 1850 are Austria-Hungary, Denmark, Germany, Greece, Norway, Portugal and Sweden. The adoption of compulsory schooling in Europe is not perfectly predicted by geography, language or religion. In particular, within each group of European countries that adopted compulsory schooling pre and post 1850, there are countries in Northern, Southern and Eastern Europe, and countries where the main religion is Catholicism or Protestantism. This variation enables us to separately identify the impact on the cross-state passage of compulsory schooling of within-migrant diversity in civic values from differences along other dimensions, such as European region of origin, language and religion.[16]

Table A2A also provides the earliest and latest dates by which compulsory schooling might

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[16]This variation also ensures that individuals from both sets of countries arrive in each wave of mass migration to the US (starting with the first waves of migration from Northern Europe, followed by later waves of migration from Southern and Eastern Europe (Bandiera *et al.*, 2013). We also note that European countries without compulsory schooling have higher GDP per capita than those with compulsion, consistent with nation-building rather than economic development driving compulsion in Europe (Ramirez and Boli, 1987). The ratio of GDP per capita between the two types of European country remains almost fixed over the entire period.

reasonably be argued to have been passed in any country, given the sources cited and ambiguities/regional variations within a country (Table A2B discusses the coding for countries in which there is within-country variation in compulsory schooling). For our main analysis we focus on the dates shown in Figure 2. We later provide robustness checks on our results using these lower and upper bound dates of compulsory schooling.[17]

Finally, Table A3 probes the link between compulsory schooling laws and school enrolment rates *in Europe*, exploiting five secondary data sources. These data also make clear that even in European countries with compulsion, enrolment rates remained below 100% on average (as with US states). Nevertheless, in each data set, we compare: (i) enrolment rates between countries with and without compulsion in 1850, in years prior to and including 1850 (Columns 1 and 2); (ii) for all countries, enrolment rates in a 30 year window pre- and post-adoption (Columns 3 and 4). Despite these sources differing in their coverage of countries, years, and enrolment measures, we see a consistent pattern of results from both comparisons that show: (i) European countries with compulsion in place in 1850 have higher enrolment rates than countries without compulsion; (ii) the adoption of compulsory schooling laws is associated with higher enrolment rates.

These secondary data sources support the hypothesis that migrants from countries with compulsory state-provided education are more likely to have been instilled with the kinds of civic values related to democracy or social stability, than children from countries where education would have been provided by non-state actors: private schools, religious schools or households themselves. Whether these differences in values then translate to differences in values held by Europeans that migrated to the US depends on the nature of migrant selection. The evidence on the selection of migrants based on their human capital, during the Age of Mass Migration, has produced mixed findings on how selection differs across country or origin, and over time.

For example, Abramitzky *et al.* (2012) show that Norwegian immigrants entering the US between 1865 and 1900 were negatively selected: poorer individuals were more likely to migrate and younger brothers in rural areas were more likely to migrate due to primogeniture system

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[17]We define countries using pre-1914 borders, that can be matched into US census place of birth codes. Except for Canada and Japan, we were unable to find detailed sources for all non-European countries to accurately divide them into those with and without historic experience of compulsion.

in rural areas. Abramitzky *et al.* (2014) study convergence in earnings gaps between migrants from a wide range of countries over the Age of Mass Migration, and the nature of selection of European return migrants. In relation to the differential selection of migrants into the US, they report large differences earnings gaps between countries. For example, Norwegian migrants had among the most negative earnings gap at the time of arrival (in line with Abramitzky *et al.* (2012)). Negative earnings gaps are also found for migrants from Portugal, Belgium, Denmark and Sweden. Positive earnings gaps at time of arrival are documented for British migrants, and those from France and Russia. Earnings gaps differences were close to zero for migrants from Italy and Germany. Wegge (2002) presents estimates for Germany. Comparing migration rates across occupation groups for over 10000 individuals who migrated mostly to the US between 1852 and 1857. She finds that members of the richest and poorest occupations were least likely to migrate, while workers in the mid-skill range, such as machinists, metal workers and brewers, were most likely to do so, that is in line with results reported above of Abramitzky *et al.* (2014).[18]

Our central idea is that European migrants are selected in terms of their civic values or discipline. As these are instilled by state education systems, if migrants are positively selected, the American median voter should target compulsory schooling in US states towards Europeans from countries without exposure to compulsory schooling at home, as we have emphasised throughout. Of course, if European migrants are negatively selected in terms of their civic values, then American voters should instead target compulsory schooling laws towards those with exposure to compulsory schooling at home. Hence the nature of migrant selection remains an entirely empirical question that we determine below.

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[18]For the period prior to our study period, Abramitzky and Braggion (2006) study selection on human capital among indentured servant migrants to the United States in the seventeenth and eighteenth centuries. They find evidence of such migrants to the United States being positively selected. In contemporary data, Dustmann and Glitz (2011) compare the educational attainment of migrants for the 11 largest sending countries within OECD countries to those from their home country. They generally find evidence of migrants being positively selected. However, this is not the case when they consider lower income sending countries, such as Mexico or Turkey, whose migrants tend to come more from the middle of the distribution of educational attainment. Indeed, this view of the changing nature of migrant selection is well summarised in Abramitzky and Boustan (2016). They review the evidence on migrant selection in the US and conclude that while historically, migrant selection patterns were mixed, with some migrants positively selected and others negatively selected from their home countries on the basis of skill, migrants today are primarily positively selected, at least on observable characteristics.

3.1 *Descriptives*

We combine US Census data on state population by country of birth with our coding on the timing of compulsory schooling law by European country to compute for each US state-year, the respective population shares of migrants from European countries with and without compulsory schooling before 1850. Data limitations prevent us from dividing non-European migrants between those with and without compulsory schooling at home: they are grouped in one category throughout.

Figure A2 shows the share of the state population in each group (Europeans with and without compulsory state schooling in their country of origin, and non-Europeans), averaged across census years before the passage of compulsory schooling laws in each state. There is considerable variation in the size of the groups across states: the share of Europeans with compulsory schooling ranges from 0.05% to 18%, the share of Europeans without compulsory schooling from 0.3% to 29%, the share of non-Europeans from 0.03% to 32%. Most importantly, the correlation between the migrant shares are positive but not high, allowing us to separately identify the public policy response of American-born median voters to the presence of each group.

Table 1 compares the characteristics of the different migrant groups and Americans in state-census years before compulsory schooling is introduced. The first row describes the relative population share of each group and again highlights the considerable variation in these shares across US states in a given year, and the variation in shares within a state over time. The next two rows in Panel A highlight differences in human capital across groups. Among adults, the share of illiterates is significantly higher among Europeans from countries without compulsory schooling than among European-born adults from countries with compulsory schooling.[19] These differences are significant even conditioning on state fixed effects (Column 6). This is in line with the 'first stage' evidence provided in Table A3 comparing enrolment rates in Europe among countries with and without compulsory schooling. The next row in Table 1 shows that comparing enrolment rates in any type of school *in the US* (public or parochial) for children aged 8-14 in each group

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[19]Illiteracy rates among American-born adults are higher than for any of the migrant groups because migrants are much younger on average. This fact combined with the strong upward time trend over the 19th century in the educational attainment of Americans shown in Figure 1, means that their adult illiteracy rates of natives are higher than for migrants because older cohorts of American-borns are included.

(the cohort for whom compulsory schooling was typically related to), these are significantly *higher* among migrants groups from European countries *without* compulsory schooling than for children from European countries with compulsory schooling in place by 1850. As expected, in terms of enrolment levels in the US, both migrant groups trail behind the enrolment rates of American-borns, and enrolment rates of non-Europeans lie somewhere between the levels of the two European groups.

This suggests compulsory schooling laws might have been passed by US states to raise the skills of migrant children, rather than to instill civic values (that could only be acquired through compulsion to attend a common school or requiring other schools to teach elements of the same curriculum). We disentangle these explanations by exploiting variation in enrolment rates within each European group, to see if enrolment rates *per se* drive the passage of compulsion, that would follow from the skills-based rather than values-based nation-building explanation.

The remaining rows of Panel A highlight that the two groups of European migrants do not significantly differ from each other on other characteristics including the share of young people in the group (aged 15 or less), labour force participation rates, the share of the group residing on a farm, and an overall measure of the groups economic standing in the US as proxied by an occupational index score available across US census years.[20]

3.2   *Empirical Method*

We use survival analysis to estimate the cross-state timing of the passage of compulsory schooling. We estimate the hazard rate, $h(t)$, namely, the probability of compulsory schooling law being passed in a time interval from census year t until census year $t + 10$, conditional on compulsory schooling not having been passed in that state up until census year t. This approach allows for duration dependence in the passage of legislation by states (so that history matters), and corrects for censoring bias without introducing selection bias. The unit of observation is the state-census year where we use census years from 1850 to 1930. In the survival analysis set-up, 'failure'

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[20]The score is based on the OCCSCORE constructed variable in IPUMS census samples. This assigns each occupation in all years a value representing the median total income (in hundreds of $1950) of all persons with that particular occupation in 1950.

corresponds to the year of passage of compulsory schooling (an absorbing state). We first estimate the following Cox proportional hazard model:

$$h_s(t|\mathbf{x}_{st}) = h_0(t) \exp\left(\sum_j \beta_j N_{st}^j + \sum_j \gamma_j X_{st}^j + \lambda X_{st}\right), \tag{4}$$

where the baseline hazard $h_0(t)$ is unparameterised, and t corresponds to census year. This model scales the baseline hazard by a function of state covariates. In particular, we consider how the composition of various migrant groups j in the state correlate to the passage of compulsory schooling. The division of population groups j we consider is between European migrants in the state from countries with and without historic exposure to compulsory state-provided education systems, as well as non-European migrants. N_{st}^j is the share of the state population that is in group j in year t: this is our key variable of interest; X_{st}^j includes the same group characteristics shown in Table 1. X_{st} includes the total population of the state, and the state's occupational index score, a proxy for the state's economic development.

The coefficient of interest is how changes in the composition of the state population group j affect the hazard of passing compulsory schooling laws, $\widehat{\beta}_j$. As population sizes across groups j differ, we convert all population shares N_{st}^j into effect sizes (calculated from pre-adoption state-census years). $\widehat{\beta}_j$ then corresponds to the impact of a one standard increase in the share of group j in the state on the hazard of passing compulsory schooling law. We test the null that β_j is equal to one, so that a hazard significantly greater (less) that one corresponds to the law being passed significantly earlier (later) in time, all else equal.

The nation-building interpretation is based on a comparison of $\widehat{\beta}_j$ between Europeans with and without historic exposure to compulsory state-provided education systems. The maintained hypothesis is that this only picks up differential selection of migrants based on their civic values. We address two broad classes of econometric concern that the measure picks up alternative selection of migrants. In the first, we use multiple strategies to address the issue that the process driving the endogenous location choices of migrants differs between groups (Section 5.4). In the second we address the concern this measure relates to other migrant characteristics by testing whether other forms of within-migrant diversity (such as language and religion) correlate to the passage of

compulsory school laws (Section 5.5).

4   Results

4.1   *Baseline Findings*

Table 2 presents our baseline results. The first specification pools foreign-borns into one group: we find that a one standard deviation increase in the share of the population that is foreign-born significantly increases the hazard rate of compulsory schooling being passed between two Census dates by 24%. Column 2 splits the foreign-born into European and non-Europeans, and the result suggests the presence of European migrants is significantly associated with the passage of compulsory schooling.

While similar results have been noted in the earlier literature studying the passage of compulsory schooling laws, Column 3 splits European migrants along the key margin relevant for the nation-building hypothesis. We find the presence of European migrants from countries that do *not* have historic experience of compulsory state schooling at home significantly brings *forward* in time the passage of compulsory schooling in US states: a one standard deviation increase in the population share of such Europeans is associated with a 64% higher hazard rate. In contrast, the presence of Europeans with a long history of compulsory schooling at home does not influence when compulsory schooling is passed by states. The effect sizes across these types of European migrant are significantly different to each other, as shown at the foot of the Table [p-value=.005].

Column 4 estimates (4) in full, so X_{st}^j further includes the enrolment rates of 8-14 year olds for American and the three migrant groups j (the age group for whom compulsory schooling in US states was most relevant for), and we present the impacts of these human capital related controls (in effect sizes) in addition to the coefficients of interest, $\widehat{\beta}_j$. Two key results emerge. First, the distinction between the types of European migrant is robust to controlling for other dimensions along which they differ [p-value=.004]. The magnitude of the effect remains large: a one standard deviation increase in the population share of Europeans without compulsory state schooling at home doubles the hazard of a US state passing compulsory schooling. Second, enrolment rates of migrants' children in the US have weak impacts on whether American-born voters introduce

compulsory schooling. We note that higher enrolment rates among the children of natives speed up the adoption of the laws, as shown first by Landes and Solomon (1972). This might reflect the natural complementarity between American enrolment rates, namely, the extent to which American children are instilled in certain civic values in school will inevitably increase the returns to also instill the same values in migrant children using the same common schools.

To further document the link between compulsory schooling and the human capital of adult migrants, Table A4 reports the full set of human capital related coefficients from the full specification in Column 4 of Table 2, where all covariates are measured in effect sizes. This highlights that higher illiteracy rates among adults in each group are not associated with the earlier passage of compulsory schooling. Indeed, states with less literate adult populations of American-borns and Europeans with exposure to state compulsory state education systems in their country of origin, adopt compulsory schooling significantly *later* in time, all else equal. This runs counter to the idea that the cross-state passage of compulsory schooling was driven predominantly by a desire by American-borns to skill the migrant population.

The nation-building explanation thus remains first order: the conceptual framework highlighted that American-borns have a desire to homogenise those migrants that are more distant from them in values or discipline, and the empirical evidence suggests it is the civic values held by migrants, as proxied by their historic exposure to compulsory state-provided education systems at home, rather than migrants' investment in the human capital of their children in the US, or the skills among adults, that largely drives the cross-state passage of compulsory schooling.

Of course, the American median voter *could* have targeted those with compulsory schooling in their country of origin because either: (i) state education systems inculcate country-specific identities that are not transportable across locations, and so those individuals are most in need of being re-indoctrinated with American values, or; (ii) migrants are negatively selected so that those with civic values most similar to Americans are those that migrate from European countries without compulsory schooling in 1850. This is strongly rejected by the data. Rather, we find American-borns target those Europeans without historic experience of compulsory schooling in their country of origin (as well as towards non-Europeans who are also unlikely to have compulsory

schooling back home). This is consistent with compulsory schooling being a nation-building tool because of its impact on civic values that were *common and transportable* across Europe and America in the nineteenth century.

4.2   *Robustness Checks*

We assess the robustness of our core finding along multiple dimensions, as described in more detail in the Appendix. Specification (4) proxies migrants' civic values held by exploiting cross-country differences in whether migrants' country of origin had compulsory state schooling laws in place in 1850 or not. The first robustness check explores an alternative specification that exploits *within-country* variation over time in exposure to compulsory state schooling. We do so by considering a rolling window of Europeans' exposure to compulsory schooling to examine whether the American median-voter is differentially sensitive to the presence of European migrants that have passed compulsory schooling at least 30 years ago, versus the presence of Europeans from countries that have either never passed compulsory schooling or passed it less than a generation ago. This highlights how American voters react differently over time to migrants from the same country, as that country becomes exposed to compulsory schooling at home. This helps further pin down that when passing compulsory schooling laws, American-born median voters across states are responding to the civic values held by European migrants, rather than some time invariant characteristic of European countries that had compulsion in place in 1850.

The result, in Column 1 of Table A5, demonstrates that with this definition, the sharp contrast between how American-borns react to different types of European migrant becomes even more pronounced: a one standard deviation increase in the population share of European migrants from countries that do *not* have more than a generation of exposure to compulsory schooling at home significantly increases the hazard by 2.31. In contrast, the presence of Europeans with compulsory schooling at home for at least one generation significantly reduces the hazard rate below one. These results highlight how American-born voters appear to react differentially over time to the *same* country of origin as that country's population accumulates experience of compulsory schooling, with their civic values being shaped as a result.

Table A5 then shows the robustness of our main finding to additionally controlling for three classes of variable. First, we control for the passage of other legislation in US states, that might be complementary to, or pre-requisites for, compulsory schooling law. For example, child labour laws and the establishment of a birth registration system have been argued to be interlinked with compulsory schooling (Lleras-Muney, 2002; Goldin and Katz, 2003). Second, we show the main result survives controlling for proxies for the states' progressivity. Third, we control for additional types of legislation passed in European countries: in particular we show our main result is robust to controlling for the presence of European migrants from countries with and without child labour laws in 1850, to rule out that such policy preferences drive migrants to sort into locations with like-minded Americans, rather than compulsory schooling being introduced as a nation-building tool by American-borns.

Table A6 shows our main result continues to hold using: (i) alternative econometric specifications, including imposing parametric structure on the underlying hazard, $h_0(t)$; (ii) alternative classifications of European countries with and without compulsory schooling, using the lower and upper bound limits of when compulsory schooling could have been introduced, shown in Table A2.

4.3 *Spatial Variation*

Figure 2 highlighted a clear spatial pattern across the US in the adoption of compulsory schooling, with Southern and Western states trailing other regions. We next address whether there could be a very different process driving compulsory schooling law in those regions.

Many Western states were admitted to the Union towards the end of the 19th Century, and passed compulsory schooling laws just before gaining entrance. Such states might have introduced compulsory schooling laws in order to enter the Union, rather than because of nation-building motives. On the other hand, the requirements for entering the Union in the US Constitution (Article IV, Section 3) make no explicit reference to any degree of modernisation or institutional complexity that candidate states must have reached, and some educationalists have been explicit that the nation-building hypothesis is as relevant in Western states as others (Meyer *et al.*, 1979).

In Southern states there was huge resistance to educating black children (before the Civil War

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it was illegal in many Southern states to teach slaves to read or write) (Margo, 1990). At the same time, caveats were often included in compulsory schooling laws to ensure blacks did not benefit from compulsion, such as exemptions due to poverty or distance from the nearest public school (Lleras-Muney, 2002; Black and Sokoloff, 2006; Collins and Margo, 2006). A related concern however arises because during our study period, the Great Migration of Blacks occurred from Southern to urban Northern states (hence more closely matching the spatial patterns in Figure 2). However, this is unlikely to be related to the passage of compulsion because the migration of blacks occurred mostly between 1916 and 1930, well after compulsory schooling laws began to be introduced: pre-1910 the net migration of blacks was only 0.5mn [Collins 1997].[21]

Taking these concerns to data, Column 1 of Table 3 estimates the baseline specification *excluding* Western states: we continue to find the presence of European migrants from countries without a history of compulsory schooling to be significantly related to the cross-state timing of compulsion across states, and there to be a differential impact from Europeans with historic exposure to compulsory schooling at home [p-value=0.000]. Estimating the baseline specification excluding Southern states leads to the removal of 17 states and the sample falls to 133. The result in Column 2 shows that the pattern of point estimates on the $\widehat{\beta}_j$'s to be in line with the baseline results, although the estimates are more imprecise in this smaller sample. Nevertheless, we continue to find a significantly differential impact from Europeans with and without historic exposure to compulsory schooling at home [p-value=0.024].

To maintain an adequate sample size, Column 3 estimates (4) using only Western and Southern states: even in this subsample the nation-building explanation holds. Even if other factors drove compulsion on those areas – such as the desire to enter the Union or the desire not to educate blacks – it remains the case that in both sets of states, the cross-state timing of compulsion relates to the composition of European migrants present in the same.

Finally, we limit attention to states that are observed in all census years from 1850 to 1930. These comprise long established states in which the desire to nation-build might be stronger than

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[21]Chay and Munshi (2013) document that an important pull factor for black migration to start in 1916 was the shutting down of European migration, that left labour supply shortages in Northern states. Prior to 1916 there is little evidence that European and black migration to states was interlinked.

in states that joined the Union more recently. The result, in Column 4 suggests that in long established states, American-born voters remain sensitive to the presence of European migrants from countries without a history of compulsory state schooling.

4.4   *Endogenous Location Choices of Migrants*

As migrants sort into locations, a natural econometric concern is that this process might be driven by unobserved factors that also drive the passage of compulsory schooling laws. Such endogenous location choices can only drive the core result if European migrants without long exposure to compulsory state schooling at home are attracted by unobservable state characteristics correlated with the adoption of schooling laws, while European migrants with long exposure to compulsory schooling at home are not attracted by these same characteristics.

We address the issue instrumenting for the share of the population of group j in state s in census year t using a Bartik-Card strategy, where we use the two-stage residual inclusion (2SRI) method for instrumenting in a non-linear model: as detailed in the Appendix, this method assumes unobservables (V_{st}) enter additively in the proportional hazard model and these correlate with the endogenous covariates, N_{st}^j. The instrument has been much utilised in the immigration literature and is based on the intuition that migrants tend to locate where there are already members of the same group. To construct the instrument for N_{st}^j we first calculate the nationwide share of migrant group j (so N_{st}^j summed across states s at time t) in states that have not adopted, weighted by state s's share of that migrant group j in the previous census period in states that have not adopted compulsory schooling. We measure population shares in effect sizes and so denote the effect size of migrant group j in state s in census year t by $N_{s,t}^{j,E}$. The instrument is then defined as follows:

$$W_{st}^j = \frac{N_{s,t-1}^{j,E}}{\sum_{l \in R(t-1)} N_{l,t-1}^{j,E}} \sum_{k \in R(t)} N_{kt}^{j,E}, \tag{5}$$

where $R(t)$ is the set of states that remain at risk of adopting compulsory schooling law in census period t, K is the cardinality of $R(t)$ and L is the cardinality of $R(t-1)$. This instrument can be calculated for all census years except the first.

Table A7 reports the first stage results: for each group j, the instruments correlate with

migration shares $N_{st}^{j,E}$: all coefficients lie in the range $0.69 - 0.90$ and all are statistically significant at the 1% level. Column 1 in Table 4 shows the second stage results using the 2SRI method, that controls directly for any endogenous component of migrant population shares not predicted by the instrument, by including the first stage residuals. The point estimates for the $\widehat{\beta}_j$'s remain stable, although each is slightly more imprecise. However, it remains the case that the presence of European migrants from countries that do *not* have historic experience of compulsory state schooling at home significantly brings *forward* in time the passage of compulsory schooling: a one standard deviation increase in the population share of such Europeans is associated with a 65% higher hazard rate. In contrast, the presence of Europeans with a long history of compulsory schooling at home does not influence when compulsory schooling is passed by US states, although the 2SRI estimates are imprecise so we cannot reject the null that these hazards are equal.

To improve precision, Column 2 presents 2SRI estimates assuming the underlying hazard follows a Log logistic distribution. In this specification the coefficients of interest $\widehat{\beta}_j$ are presented in a time ratio format (rather than a hazard). A time ratio *less* than one has the same interpretation as a hazard greater than one, indicating the covariate is associated with the passage of compulsory schooling *earlier* in time. The second stage results closely align with the baseline findings: the presence of European migrants from countries without historic experience of compulsory schooling at home significantly brings *forward* in time the passage of compulsory schooling. In contrast, the presence of Europeans with a long history of compulsory schooling at home does not influence the timing of compulsory schooling law, and these effect sizes across European migrants are significantly different to each other [p-value=0.056].

There is no particular reason to think the first stage relationship between N_{st}^{j} and W_{st}^{j} is linear. We therefore consider a non-parametric first stage for N_{st}^{j}, $N_{st}^{j} = m(W_{st}^{j}, Z_{st}^{j}) + e_{st}^{j}$, with $m(.)$ unknown.[22] Column 3 shows the result from this more flexible first stage: the passage of compulsory schooling in a state occurs significantly earlier in time in the presence of more European migrants from countries without historic experience of compulsory schooling, and the impacts of the two groups of European migrant are significantly different to each other [p-value=0.013].

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[22]A consistent estimate of $\hat{e}_{st}^{j}$ is then obtained as the difference between $\hat{m}(W_{st}^{j}, Z_{st}^{j})$ and N_{st}^{j}, using local linear regression with Epanechnikov Kernel weights to first obtain $\hat{m}(.)$.

Finally, Column 4 presents 2SRI estimates from the full model that includes the exogenous variables $Z_{st}^{j} = (X_{st}^{j}, X_{st})$. In the first stage, Columns 4-6 in Table A7 show the instrument continues to be highly significantly associated with all three migrant share groups. In the second stage, Column 4 in Table 4 shows a pattern of impacts very similar to the baseline estimates from the full model: the findings provide strong support for the nation-building hypothesis. The presence of European migrants without historic exposure to compulsory schooling at home significantly brings forward in time the passage of compulsory schooling law; the presence of European migrants with historic exposure to compulsory schooling has no impact on the timing of compulsory schooling law, and these impacts significantly differ from each other [p-value=0.011].

The Appendix presents additional evidence on endogenous location choices related to: (i) the internal migration of American-borns, to address the concern the passage of compulsory schooling was used by states to attract Americans (or they took ideas over compulsory schooling with them as they migrated across states); (ii) the internal migration of the foreign-born, to check if migrants chose to endogenously locate into states after compulsory schooling laws were in place (we find no evidence of trend breaks in migrant population shares in states pre- and post-compulsion).

4.5 Other Forms of Migrant Diversity

The nation-building explanation implies the key source of within-migrant diversity is in their civic values, as proxied by migrants' historic exposure to compulsory state schooling in their origin country. However, American-born voters might actually be sensitive to other correlated sources of within-migrant diversity. We next establish whether the form of diversity within European migrants we have focused on so far proxies for another dimension of migrant heterogeneity.

The first dimension we consider is religion: during the study period the Catholic church remained the most significant rival to governments in the provision of education (Glenn, 2002). We consider the US as a majority Protestant country, and use the Barro and McCleary (1985) data to group European countries into whether their majority religion is Protestant or Catholic/Other. Column 1 of Table 5 shows the result, where the following points are key: (i) among European migrants from countries that do not have compulsory state education by 1850, the estimated hazards

are above one for both religions, although the hazard for migrants from Catholic/Other countries is significantly higher than for migrants from Protestant countries [p-value=0.013]; (ii) for Europeans with a long history of compulsory state schooling the hazard rate remains below one again for both groups of migrant by religion, and these hazards are not significantly different from each other [p-value=0.289]; (iii) within European migrants from Protestant countries, there remain significant differences in the hazard between those with and without long exposure to compulsory schooling in their country of origin [p-value=0.052]; (iv) within European migrants from Catholic/Other countries, exactly the same source of diversity remains significant [p-value=0.000]. In short, while there are important differences in how American voters respond to the presence of European migrants of different religions, being especially sensitive to Europeans from Catholic/Other countries, within religion, historic exposure to compulsory state-provided schooling among European migrants in a state remains a key predictor of the timing when such legislation is passed across states.

The Dillingham Report highlighted the divide between 'old' (from Northern Europe and Scandinavia) and 'new' (from Southern and Eastern Europe) immigrants with respect to their skills, economic conditions at arrival and migratory horizon. Hence the second source of within-migrant diversity we consider is European region of origin. We subdivide European migrants with and without historic exposure to compulsory schooling between these from old and new Europe, so defined. Column 2 shows the result: (i) among European migrants from countries without compulsory schooling by 1850, the hazards are above one for both subsets of Europeans; (ii) these hazards are not significantly different from each other [p-value=0.269]; (iii) for Europeans with a long established history of compulsory schooling the hazard rates remain below one for both groups of European by region of origin, and again these hazards are not significantly different from each other [p-value=0.348]; (iv) within European migrants from Northern Europe/Scandinavia, there remain significant differences in the hazard between those with and without long exposure to compulsory state schooling in their country of origin [p-value=0.066]; (v) within European migrants from Southern/Eastern Europe, exactly the same source of diversity remains significant in explaining the cross-state passage of compulsory schooling [p-value=0.003]. In short, while American-born voters are sensitive to the region of origin of European migrants, the over-riding source of within-

migrant diversity predicting the timing of compulsory schooling laws across states is differences in migrant values as proxied by their exposure to compulsory state education at home.[23]

We next consider English language as the key source of within-migrant diversity that American-borns might be responding to when passing compulsory schooling laws. All European migrants from countries with compulsory schooling already in place by 1850 originate from non-English speaking countries. Hence only a three-way division of European migrants is possible when considering English language as the additional source of within-migrant diversity over and above differences in values.

Column 3 shows the result, where the following points are of note: (i) among European migrants from countries that do not have compulsory state schooling in place by 1850, the estimated hazards are above one for both subsets of Europeans; (ii) these hazards are not significantly different from each other [p-value=0.555]; (iii) for Europeans with a long established history of compulsory state schooling the hazard rate remains below one; (iv) within European migrants from non-English speaking countries, there remain significant differences in the hazard rate for compulsory schooling between those with and without long exposure to compulsory schooling in their country of origin [p-value=0.057]. In short, American-born median voters appear more sensitive to diversity in values among European migrants than diversity in their English speaking abilities. Indeed, the evidence suggests a one standard deviation increase in the population share of English speaking migrants (i.e. British and Irish migrants) significantly increases the hazard of compulsory schooling by 66%, all else equal. As highlighted earlier, this result is most likely picking up the fact that Irish migrants were Catholics, and this was an important divide in values with the median American.

The evidence above, on dimensions of within-migrant diversity such as European region of

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[23]This result reinforces the earlier finding that the human capital or enrolment rates of migrants were not an important factor driving the cross-state adoption of compulsion, as migrants from Southern/Eastern Europe would have had the lowest levels of human capital accumulation. The differences in migrant characteristics between these European regions of origin might capture a host of other factors including: (i) differential propensities to out-migrate (Abramitzky *et al.*, 2012; Bandiera *et al.*, 2013); (ii) ties to second generation immigrants in the US (who are then American-born but with foreign born parents). On the first point, we have also taken implied out-migration rates of nationalities from Bandiera *et al.* (2013) and then created a four way classification of European migrants by their historic exposure to compulsory schooling, and whether they have above/below median out-migration rates. The results confirm that within-migrant diversity in values as captured by historic exposure to compulsion remains the key source of variation across migrants. On the second point, in the Appendix we discuss the robustness of our core result to splitting the American-born population between second generation immigrants and those whose parents are both American-born.

origin and language, further reinforce the earlier findings that the passage of compulsory schooling laws by American-borns was not simply driven by the desire to skill the migrant population. Rather, all the findings point to the specific targeting of compulsory schooling laws in the US towards European migrants that did not have a set of civic values inculcated to them through a compulsory state education system in their country of origin.

4.6   *Alternative Mechanisms*

Nation-building motives are not the only reason why governments might provide education *en masse*. Normative and positive arguments can be used to justify state provision of education based on efficiency or redistributive concerns, human capital externalities, or complementarity between capital and skilled labour during industrialisation. While none of these necessarily require *compulsory* schooling, we now assess whether our core finding is robust to additionally accounting for the basic predictions of some of these alternative mechanisms.

To examine if redistributive motives drive the passage of compulsory schooling, we estimate (4) and additionally control for the standard deviation in the state occupational income score (the mean occupational income score is already in X_{st}). This proxies the redistributive pressures the state faces. Column 1 of Table 6 shows that although there is a positive correlation between inequality so measured and the hazard of passing legislation, the coefficient is not significantly different from one. The point estimates on the population shares of interest remain almost unchanged from the baseline specification, suggesting the presence of migrant groups and economic inequality in a state are uncorrelated.

Column 2 examines the industrialisation hypothesis by controlling for the share of workers in the state's labour force working in different occupations: professions, craft and operative. We find that as a greater share of workers are engaged in the middle-skilled craft occupations, the hazard of introducing compulsory schooling significantly increases (the point estimate on the hazard is below one for the least-skilled operative occupations). Hence there is evidence on compulsory schooling being related to industrialisation, but this additional mechanism operates over and above the nation-building motives identified in our core result.[24]

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[24]This is in line with the evidence presented in Galor and Moav (2006) from England, on how members of

Galor *et al.* (2009) make precise how the industrialisation process interacts with land inequality in determining the level of state provision of education. They argue there exists a conflict between the entrenched landed elite (who have little incentive to invest in mass schooling) and the emerging capitalist elite, who do have such incentives given the complementarity between capital and skilled labour. To proxy the relative balance of power in this conflict they propose a measure of land inequality, that is the share of land held by the top 20% of all land holdings. In Column 3 of Table 6 we additionally control for this same measure in (4). The result shows that the effect goes in the expected direction but the ratio is not significantly below one. The coefficients relevant for the nation-building hypothesis remain stable, further suggesting the composition of the migrant population is not related to land inequality.[25]

The remaining Columns focus on the explanation that political parties were key to compulsory schooling. Indeed, much has been written about the Republican-Democrat divide over compulsory schooling, with the policy often being seen to be driven by a faction of the Republican party (Provasnik, 2006). In line with this we find that a one standard deviation increase in the vote share for Republicans in Congressional elections significantly increases the hazard rate. Given that significant third parties existed for much of the 19th century, Column 5 repeats the analysis controlling for Democrat party vote shares: as implied by the qualitative evidence, a greater vote share for Democrats does indeed significantly reduce the hazard of passing compulsory schooling law. However, controlling for Republican or Democrat vote shares do not alter the migrant population share coefficients, that remain stable throughout.

5   Migrants' Demand for American Common Schooling

The extent to which compulsory schooling exposes migrant children to the civic values that were being taught to American-born children, depends on migrant's underlying demand for American

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Parliament voted for the Balfour Act of 1902, the proposed education reform that created a public secondary schooling system. They find Parliamentarians were more likely to vote for the legislation if they represented more skill intensive constituencies (even accounting for their party affiliation). For the US, Goldin and Katz (2001) argue that over 1890-1999 the contribution of human capital accumulation to the US growth process nearly doubled, and Goldin (1999b) describes how the changing industrial structure of the US economy drove changes in the content of what was needing to be taught in secondary schools.

[25]This land inequality measure is available for 1880, 1900 and 1920: we linearly interpolate it for other state-census years. Galor *et al.* (2009) show that state schooling expenditures are significantly correlated to land inequality.

common schooling. Only if their demand for common schooling was sufficiently low would compulsory schooling actually change the kinds of instruction they were exposed to. We now exploit detailed information on locally-financed provision of American common schools in the cross-section of counties in 1890 to pin down the relative demands for American common schools of the different migrant groups.

5.1 *Conceptual Framework*

As migrants can form a significant share of the population in jurisdictions that determine the public provision of common schools, we use a textbook probabilistic voting model (Persson and Tabellini, 2000) to derive an empirical specification that allows us to map from the equilibrium provision of common schooling back to the relative demands for such schools among migrant groups.[26] A jurisdiction comprises a continuum of citizens. An individual i belongs to group j, where groups are of size N^j, $\sum_j N^j = N$. Within a group, individuals have the same income, y^j. Individual preferences are quasi-linear,

$$u^j(g) = c^j + \alpha^j(.)H(g), \tag{6}$$

where c^j is the private consumption of a member of group j, $H(g)$ is concave in the public good, g (common schools), and is assumed twice-differentiable with $H(0) = 0$. The group valuation for American common schools is $\alpha^j(\theta^j, 1(HCSL^j))$: θ^j captures factors that influence the group's demand for common schools (such as the share of young people in the group), and $1(HCSL^j)$ is an indicator for the historic entrenchment of compulsory schooling law (HCSL) in the country of origin for those in migrant group j. In line with our context, the local jurisdiction finances common schools by a local income tax rate τ so individuals face a budget constraint, $c^j = (1-\tau)y^j$, and no group can be excluded. The schooling supply side is thus not explicitly modelled: it is assumed

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[26]This is in contrast to the earlier conceptual framework in Section 3, where we utilised a median voter model to understand the passage of compulsory schooling law at the state level. The justification is that: (i) at the state level, migrants never form close to the majority of the electorate (as Figure A1 shows) and so the median voter is American-born; (ii) the outcome studies was a discrete choice of whether to introduce compulsory schooling law or not. In contrast, at the county level, migrant shares are larger, and we study a continuous outcome (common school provision) so the probabilistic voting model is more appropriate.

whatever is financed is supplied. It is because of this local financing that we can map between observed equilibrium provision of common schools and the underlying demand for those schools.

The probabilistic voting model specifies the following political process determining the equilibrium provision of common schooling: there are two political parties (A, B), whose only motivation is to hold office. The source of within group heterogeneity is a political bias parameter $\sigma^{ij} \sim U[-\frac{1}{2\phi^j}, \frac{1}{2\phi^j}]$: a positive value of σ^{ij} implies that voter i has a bias in favour of party B while voters with $\sigma^{ij} = 0$ are politically neutral. Hence ϕ^j measures the political homogeneity of a group j. Voter i in group j thus prefers candidate A if $u^j(g_A) > u^j(g_B) + \sigma^{ij}$.

The timing of events is as follows. First, parties A and B simultaneously and non-cooperatively announce electoral platforms: g_A, g_B. At this stage, they know the distribution from which σ^{ij} is drawn, but not realised values across voters. Second, elections are held where citizens vote sincerely for a single party. Voters and parties look no further than the next election. Third, the elected party implements her announced policy platform.

PROPOSITION 2 *The political equilibrium is $g^* = g_A = g_B$ where g^* is implicitly defined as,*

$$H_g(g^*) = \frac{\theta \sum_j W^j y^j}{\bar{y} \sum_j W^j \alpha^j(\theta^j, \mathbf{1}(HCSL^j))}. \tag{7}$$

$W^j = N^j \phi^j$ *is group j's 'political weight', and $\theta = \frac{\sum_j \theta^j N^j}{N}$ is the share of young in the population.* The Proof is in the Appendix.

The group's political weight captures how influential the group is by virtue of its size and how many swing voters are in group j. A key feature of the probabilistic voting model is that all groups have some weight in determining the equilibrium provision of common schools g^*. The key comparative static we consider is how this provision changes in group-j's size:

$$\frac{\partial H_g(g^*)}{\partial N^j} = \frac{1}{\phi^j} \frac{\partial H_g(g^*)}{\partial W^j} = \frac{\theta y^j}{\phi^j \bar{y} \left(\sum_j W^j \alpha^j(\theta^j, \mathbf{1}(HCSL^j)) \right)^2} \left[\sum_{k \neq j} W^k y^k [\alpha^k - \alpha^j] \right] \tag{8}$$

Hence the larger is α^j relative to other group α^k's, the more likely is it that $\frac{\partial g^*}{\partial N^j} > 0$. The sign of $\frac{\partial g^*}{\partial N^j}$ can then be informative of $sign(\alpha^j$ relative to $\alpha^k)$. We use this intuition to rank the underlying

relative demands for common schools, $\alpha^j(.)$, across the j groups. This dovetails with the earlier analysis of what drove the cross-state timing of adoption of compulsory schooling: our earlier results showed American-born voters were sensitive to the in-state presence of European migrants from countries without historic exposure to compulsory state schooling. Hence they behaved as if,

$$\alpha^j(\theta^j, \mathbf{1}(HCSL^j) = 1) > \alpha^j(\theta^j, \mathbf{1}(HCSL^j) = 0), \tag{9}$$

so that absent compulsory schooling in the US, this specific group of European migrants would have demanded less common schooling, and as a result, those migrant children would have been less exposed to the kinds of instruction shaping the civic values of American-born children. We now recover estimates of this relative ranking to understand whether these beliefs were justified. Unlike the earlier cross-state analysis, here it is important that groups have endogenously sorted into counties and so we can recover the equilibrium provision of American common schools in each jurisdiction, and then back out each group's relative demand for such schools.

5.2 Empirical Method

We estimate the model using cross-county data from 1890 that were collected as part of the population census, but were the result of a separate report in which the Census Bureau contacted the superintendents of public education in each state. Superintendents were asked to report the race and sex of teachers and enrolled pupils in each county. The data, documented in Haines [2010], details investments into common schools in over 2400 counties in 45 states. We proxy the equilibrium provision of common schooling, g^*, using the number of common school teachers in the county. These are locally financed and likely comprise the most significant investment into public schooling. As IPUMS 1890 census data is unavailable, we build control variables using 1880 values based on the 100% census sample.[27] The groups considered replicate those in the earlier analysis: the American-born, European migrants from countries with compulsory schooling, European migrants from countries without compulsory schooling and non-European

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[27]While Haines [2010] does provide county level data on populations, this does not allow us to construct the migrant group-level characteristics X_{cs}^j described for our main specification.

migrants. We then estimate the following OLS specification for county c in state s,

$$\ln(teachers)_{cs} = \sum_j \alpha^j N_{cs}^j + \sum_j \gamma_j X_{cs}^j + \lambda X_c + \delta_s + u_{cs}, \tag{10}$$

where N_{cs}^j is the total population size of group j (again measured as an effect size), and X_{cs}^j includes other characteristics of group j (the share aged 0-15, the labour force participation rate, the share residing on a farm, and the average occupational income score).[28]

X_c includes the (log) total population of the county aged below 15, and the county's occupational index score. δ_s is a state fixed effect so the coefficients of interest, α^j, are identified from variation in the composition of migrant populations across counties in the same state. Figure A4 illustrates the cross-county variation in migrant group sizes for four states (one from each census region). Panel B of Table 1 provides descriptive evidence on the shares of county populations from each group j and documents the considerable within state variation in these shares. Robust standard errors are reported, and we weight observations by 1880 county population so our coefficients of interest map to the average demand of an individual from group j. Mapping the model to the empirical specification makes clear the relative ranking of $\alpha^j(.)$'s across groups (not their levels) can be identified from the ranking of $\widehat{\alpha}^j$'s estimated from (10). As we do not control for the total county population, this allows us to control for the population size and characteristics for *all four* groups j and so measure demands relative to those of the American-born. Importantly, the ranking of $\widehat{\alpha}^j$'s is thus informative of the relative demand for American schooling among the various migrant groups, holding constant the demand among American-borns.[29]

5.3 *Results*

Table 7 presents the results. Column 1 estimates (10) only controlling for the populations of each group j. At the foot of the table we report p-values on the equality of these coefficients

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[28]The County Yearbook provides information on public education for black and white populations separately. For our analysis, all schooling related variables (teachers and attending pupils) correspond to whites. However, in some states there is expected to be some small bias here as teachers of all races were pooled together. Moreover, there is an imperfect match between true school jurisdictions and counties, and this attenuates our coefficients of interest, α_j.

[29]It is well recognised that compulsory schooling laws necessitated no supply side response, so that the supply of teachers would not have been directly impacted (Margo and Finegan, 1996).

to establish the ranking of relative demands for common schooling. The results highlight again that a key source of diversity within European migrants in their demand for American common schools is whether they have historic exposure to compulsory state schooling in their country of origin: (i) a one standard deviation increase in the county population of European migrants with long exposure to compulsory state schooling in their country of origin significantly increases the provision of common school teachers by 5.8%; (ii) a one standard deviation increase in the county population of European migrants without exposure to compulsory schooling in their country of origin significantly decreases the provision of common school teachers by 18%; (iii) these impacts across European migrant groups significantly differ from each other [p-value =.000]; (iv) the presence of non-European migrants is associated with significantly higher investments into common school teachers. This ranking of $\widehat{\alpha}^j$'s is robust to including state fixed effects (Column 2), and group and county controls (X_{cs}^j, X_c) (Column 3).

Mapping the marginal impacts from the specification in Column 3 back to the model then implies the following ranking of quasi-linear demand parameters from (6):

$$\alpha_{\mathbf{1}(HCSL^j)=1}^{Euro} = \alpha^{Am-born} > \alpha^{NonEuro} > \alpha_{\mathbf{1}(HCSL^j)=0}^{Euro}. \tag{11}$$

This links directly to the earlier analysis on how the composition of migrants drove the cross-state timing of compulsory schooling: there we found the American-born median voter was especially sensitive to the presence of migrants from European countries without historic exposure to compulsory schooling. The implied ranking of $\widehat{\alpha}^j$'s across European migrant groups closely matches up across the two sets of analysis, despite them using entirely different data sources, econometric methods and identification strategies. Fundamentally, it suggests European migrants from countries without historic exposure to compulsory schooling would have invested less in American common schools ($\alpha_{\mathbf{1}(HCSL^j)=1}^{Euro} > \alpha_{\mathbf{1}(HCSL^j)=0}^{Euro}$). As such, the American-born median voter held correct beliefs in bringing forward in time compulsory schooling laws in those states where such migrants were more numerous.[30]

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[30]One disconnect between the cross-state and cross-county evidence relates to non-Europeans. This might stem from American-borns being less informed about the preferences and civic values of non-European migrants. This is plausible given the long history of anti-Chinese discrimination in the US, culminating in the Chinese Exclusion

Given the provision of common schooling is measured in the cross-section of counties in 1890, half of all states have passed compulsory schooling. We thus estimate a modified version of (10) that allows the demand for common schools to vary within a migrant group depending on whether or not they reside in a state with compulsory schooling. This allows us to establish whether compulsory schooling laws had the intended effect of increasing migrants' exposure to American civic values in common schools. Defining a dummy D_s equal to one if state s has passed compulsory schooling in 1890, we estimate the following specification:

$$\ln(teachers)_{cs} = \sum_j \alpha^{j0} N_{cs}^j + \sum_j \alpha^{j1} \left[D_s \times N_{cs}^j \right] + \sum_j \gamma_j X_{cs}^j + \delta_s + u_{cs}, \qquad (12)$$

where $\widehat{\alpha}^{j0}$ and $(\widehat{\alpha}^{j0} + \widehat{\alpha}^{j1})$ map to the relative demand for common schools pre and post-compulsory schooling respectively, for the same migrant group j. The corresponding estimates are shown in Figure 3. We focus first on Panel A: the left hand side shows the $\widehat{\alpha}^{j0}$'s for each group j (and their corresponding 95% confidence interval): the y-axis shows the magnitude of each estimate, but as only relative demands for common schools are identified from (12), we centre the point estimates on the value for American-borns. This shows that pre-compulsory schooling, a key source of diversity in values for common schools was between European migrants with and without historic exposure to compulsory state schooling in their country of origin. Indeed, pre-compulsory schooling, European-born migrants from countries with compulsory schooling already in place by 1850 have significantly higher demands for common schooling than other European migrants and the American-born.

The right hand side of Panel A in Figure 3 shows the change in demand for common schooling for each group j: these $\widehat{\alpha}^{j1}$ estimates show there is a significant convergence in demands for common schooling with compulsory schooling. The increase in demand for common schools is significantly greater among Europeans without historic exposure to compulsory schooling than among Europeans with such exposure to compulsory state schooling. Hence the introduction of compulsory schooling did lead European migrants to be significantly more exposed to the American common schooling system. Moreover, this was especially so for Europeans from countries without

Act of 1882, that banned all immigration of Chinese labourers.

historic exposure to compulsory schooling in their country of origin and hence most distant in terms of their civic values from those being instilled into American-born children.

The data compiled by Superintendents also allows us to re-estimate (12) but considering pupil attendance as a county level outcome, as an alternative proxy for the equilibrium provision of common schools, g^*. We thus assess how pupil attendance various with migrant shares in the county, and how this relationship alters under compulsory schooling. The evidence is in Panel B of Figure 3. We see that: (i) pre-compulsory schooling, counties with more migrants from European countries without historic exposure to compulsory schooling in their country of origin, had lower attendance in American common schools; (ii) compulsory schooling led to a significant degree of convergence in demands for American common schools between migrant groups and American-borns; (iii) these impacts on demand were greater among European migrants without historic exposure to compulsory schooling at home.

In line with this set of evidence, Lleras-Muney and Shertzer (2015) show how compulsory schooling laws significantly increased enrolment rates of migrant children by 5%, with smaller impacts on American-born children. Ultimately, this will have impacted the instruction migrant children were exposed to (relative to the counterfactual absent compulsory schooling) and so shaped the civic values that were instilled into them. Our evidence links closely to the findings of Milligan *et al.* (2004), who show using NES and CPS data, that those exposed to compulsory schooling are later in life, significantly more likely to be registered to vote, to vote, to engage in political discussion with others, to follow political campaigns and attend political meetings, as well as having higher rates of participation in community affairs and trust in government. These are precisely the kinds of changes in civic value emphasised in Glaeser *et al.* (2007) as being inculcated through compulsory schooling. Indeed, our findings and these related papers all suggest that the original architects of the common school system such as Horace Mann, as discussed in Section 2, all of whom linked education with inculcating the civic values necessary for effective participation in American democracy, ultimately achieved their aim.[31]

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[31]Recent evidence also highlights cases in which assimilation policies lead to a backlash among migrants: Fouka (2014) presents evidence showing that Germans that faced restrictions on the use of the German language in primary schools (introduced over the period 1917-23) are less likely to volunteer during the Second World War, more likely to marry within their ethnic group, and be more likely to give German sounding names to their children.

6 Discussion

Many great figures in political and economic history, including Napoleon and Adam Smith, have emphasised the central role of a state's education system in nation-building. In this paper we have examined the hypothesis that nation-building efforts, through compulsory schooling, were part of the policy response of American voters to the large and diverse waves of migrant inflows during the Age of Mass Migration. While other disciplines have recognised periods of American history where the schooling system has been used to inculcate values among the foreign-born (Tyack, 1976), our analysis builds on this by showing nation-building motives drove the passage of compulsory schooling laws from the 1850s onwards, the first pillar of the *Americanisation Movement*, and the legislative bedrock on which developments of the American education system have been built.

We base our contribution on a combination of qualitative and quantitative evidence. The body of qualitative evidence assembled shows American legislators and educators viewed compulsory schooling as the key policy tool to nation-build in response to mass migration. We show this was driven by the view that exposure to American public schools would instill the desired civic values among migrants, and a recognition that such values could be transmitted from children to their parents. The quantitative evidence base we build utilises different data sources, research designs and conceptual frameworks. The central measurement challenge we face is that the actual civic values held by migrants and American-borns are not observed. We tackle this by appealing to the multi-disciplinary body of work arguing that European schooling systems developed in order to instill desired civic values and discipline into their citizens (Weber, 1976; Holmes, 1979; Ramirez and Boli, 1987; Alesina and Reich, 2015). We thus use migrants' historic exposure to a compulsory state education system in their country of origin to proxy their civic values.

Our central finding is that American-born median voters pass compulsory schooling laws significantly earlier in time in US states with a larger share of migrants from European countries without historic exposure to compulsory state schooling in their country of origin. These are the migrants most in need of having their civic values shaped towards what was being taught to American-born children in common schools at the time. We show our core result to be robust to confounding

factors: such as compulsory schooling laws being introduced to skill the migrant population, or in response to other forms of migrant diversity (such as language or religion), the endogenous location choices of migrants, and alternative mechanisms driving compulsion, such as redistributive motives, or due to a complementarity between capital and skilled labour. We complement this evidence with cross-county data on the provision of common schools to infer the relative demand for such American schooling among migrant groups. Consistent with the state level analysis, this shows that within European migrants, those from countries without long exposure to compulsory state schooling in their country of origin have significantly lower demand for American common schools relative to European migrants from countries with compulsory schooling. Furthermore, there is a significant convergence in demand for, and pupil attendance at, common schools between natives and both groups of European migrants when compulsory schooling laws are introduced. Hence compulsory schooling did lead European migrants to be more exposed to the civic values being taught in American common schools, and this was especially so for Europeans from countries without historic exposure to compulsory state schooling in their country of origin.

There is existing evidence for schools affecting individual values via the content of curricula (Algan *et al.*, 2013; Clots-Figueras and Masella, 2013; Cantoni *et al.*, 2015), and that those exposed to compulsory schooling are causally more likely to be politically and civically engaged (Dee, 2004; Milligan *et al.*, 2004). Our findings thus come full circle back to the qualitative evidence presented, to suggest the original architects of the common school system, all of whom linked education with inculcating the civic values and discipline necessary for effective participation in American democracy, ultimately achieved their aim.

Our work adds to the literature emphasising the national origins of migrants matters (La Porta *et al.*, 1998; Acemoglu *et al.*, 2001). We show the importance of national origins for long run outcomes through a new mechanism: the policy response of natives. By studying the link between mass migration and the endogenous policy responses of American-born voters in receiving states, our analysis provides new micro-foundations for compulsory schooling laws. Our findings thus have important implications for the large literature examining the impacts of compulsion on the human capital of American-borns. As summarised in Stephens and Yang (2014), this literature

has found rather mixed evidence. Our results suggests this is partly because American-borns were not the intended marginal beneficiary, and that the core purpose of compulsion was to instill civic values among migrant children. Indeed, our findings build on and complement Lleras-Muney and Shertzer (2015) who show that compulsory schooling laws had significant impacts on the enrolment rates of migrant children, with smaller impacts on native children.

We conclude by highlighting two further directions for research. First, a wide set of public policies might have been impacted by large and diverse inflows during the Age of Mass Migration. The most natural policy dimension to study next would be cross-jurisdiction variations in tax rates used to finance local public goods, but variations observed in the regulation and operation of financial and legal markets, say, might also originate from differences in patterns of mass migration into those states during the 19th century (Burchardi *et al.*, 2016; Fulford *et al.*, 2015).[32] It also remains important to understand other policies specifically targeted towards immigrants during the study period. For example, during the early 20th century some states introduced citizenship requirements for foreigners to be able to vote.[33] Such policies presumably held back immigrant assimilation and sustained greater heterogeneity in values among the population. Hence there remains a need to understand the political economy trade-offs involved that led to the simultaneous use of both nation-building efforts towards foreigners as well as their political exclusion. A second direction for future research is to combine the ideas underpinning this analysis with earlier work that documented high rates of out-migration from the US by Europeans during the Age of Mass Migration (Bandiera *et al.*, 2013). This opens up an agenda examining whether returning Europeans drove institutional and legal change in their home country after having been exposed to American society.

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[32] This emerging body of work indeed suggests that migration during the Age of Mass migration is causally linked to: (i) FDI sent and received by firms across US counties (Burchardi *et al.*, 2016); (ii) the evolution of county level income for a century later (Fulford *et al.*, 2015).

[33] Naidu (2012) documents that between 1870 and 1910, eleven Southern states passed legal restrictions on voting, such as poll taxes and literacy tests, which were aimed at lowering black electoral participation, but also affected poor whites. The details of disenfranchisement varied state to state, with it being enacted by statute in some states, while in others it was enacted via constitutional amendment.

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Additional Supporting Information may be found in the online version of this article:

Appendix

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