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Abstract

The cultural assimilation of immigrants into the host society is often equated with prospects for economic success, with religion seen as a potential barrier. We investigate the role of ethnic enclaves and churches for the assimilation of Danish Americans using a difference-in-differences setting. Following the ordination of a divisive religious figure in 1883, this otherwise small and homogeneous group split into rival Lutheran revivalist camps - so-called "Happy" and "Holy" Danes. The former sought the preservation of Danish culture and tradition, while the latter encouraged assimilation. We use data from the US census and Danish American church and newspaper archives, and find that Danish Americans living in a county with a "Happy" church chose more Danish names for their children. Newspapers read by "Holy Danes" saw a more rapid Anglicization of the language used. Religious beliefs thus facilitated assimilation. Divergence in behaviour only emerged following the religious division.

JEL Codes: F22, J61, N31, N32
Keywords: Assimilation, Danish Americans, enclaves, immigration, religion

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1 Introduction

It is our clear conviction that we are the best American citizens when we remain Danes.

- Invitation to founding of *Dansk Folkesamfund*, 1887 [Happy Danes]

. . . to keep children, who are born in this country, from coming into contact with its language and life is a violation of nature which will be avenged in the long run.

- P.S. Vig, United Danish Evangelical Lutheran Church, 1888 [Holy Danes]

[Both cited by Simonsen, 1990, p. 54.]

Cultural assimilation is the process by which "immigrant groups are encouraged, through social and cultural practices and/or political machinations, to adopt the culture, values, and social behaviors of the host nation." This is sometimes contrasted with multiculturalism, which favors diversity (Holohan and Holohan, 2012). Proponents of both desire the best possible outcomes, as the quotes above make clear, although assimilation is frequently promoted by politicians as a means to support the economic success of migrants, allowing them to assimilate into society and integrate into the local labor market. It is often also considered a means to allay concerns from native populations regarding contact with cultures and religions they might consider alien. There is, however, a lack of convincing evidence on the impact of religion on assimilation.[1]

As is well known, European migrants to the United States founded ethnic enclaves based around language, church, and schools during the Age of Mass Migration before the First World War. This was also the case for Danish Americans, who, although negatively selected from the home population, being drawn largely from poor agricultural workers (Boberg-Fazlic et al., 2023), were quick to assimilate (Jeppesen, 2016). Moreover, they played an important role for the introduction of industrialized agriculture following rapid development in Denmark (Boberg-Fazlic et al., 2023). Despite being an otherwise homogeneous group, we exploit a particular and perhaps unique feature of the Danish American experience. A disagreement within the state Lutheran church in Denmark regarding certain aspects of religion spilled over to Danish America from the 1880s, and polarized around one question in particular: should maintaining the Danish language and culture be a goal of the church? The "Holy Danes," so called by contemporary Americans because they disapproved of drinking and dancing, believed not. The "Happy Danes," who followed the teaching of the mainstream Danish church and the important Danish priest NFS Grundtvig, were convinced otherwise. The initial similarity of the two communities, coming from a small, homogeneous country, makes this point of contention a vehicle

[1] In the following, we differentiate between assimilation, which we define as the cultural integration of a migrant into society so that they effectively converge with native born in terms of behavior, culture, etc., and more general integration, which implies contributing to and being part of society for example through work, which is of course possible without assimilation. The quotes imply that, following these definition, both types of Danes desired integration, but only Holy Danes wanted assimilation.

for testing the importance of beliefs regarding cultural assimilation. Did Holy Danes assimilate to a greater degree than their Happy counterparts? And what difference did this have on labor market outcomes?

We take data from the US individual-level censuses of 1910 and 1920 and Danish American church and newspaper archives. We classify each Danish American, first and second generation, based on whether they lived in a county with a Happy or Holy church, or both, and consider them relative to Danish Americans who had no Danish church. Unlike previous studies, we are thus able to compare like with like - Danes with other Danes, rather than Danes with e.g. native borns, who might differ in many other respects. We consider this relative to the importance of the size of the enclave, measured as Danish Americans by population, and as a dummy for counties with a greater Danish American population than the mean (of those counties with at least one Danish American). We control for obvious confounders such as the county population, and include relevant fixed effects. For identification, we make use of the fact that the division between the two churches only began in the 1880s, with the ordination in 1883 in Wisconsin of the son of the aforementioned Grundtvig, Frederik Lange, and the subsequent establishment of *Dansk Folkesamfund* (Danish People's Society, DF) with the explicit aim of promoting the preservation of Danish culture. We measure assimilation by the Danishness of the names given to second generation Danish Americans, using 1883 as the cutoff in OLS and difference-in-differences settings. The latter provides a "cleaner" test of the difference between Happy and Holy communities by conditioning on the presence of a church, while in the former we also consider Danish Americans living in areas without a church. We also perform a textual analysis of the Danish American press, investigating whether the newspaper supporting the Holy community Anglicized more rapidly. Finally, we consider the impact of assimilation on labor market outcomes, based on occupational scores (a proxy for income) and on whether different individuals were more likely to follow certain occupations.

We find evidence that beliefs mattered for assimilation and that assimilation did not matter much for labor market outcomes. To establish this, we must first be certain that individuals living in Happy and Holy communities were similar to those without a Danish church, both before and after 1883, based on a number of observables. Unsurprisingly, communities with a Danish church were more likely to be larger settlements with more Danish Americans, but we find no other significant differences. We thus turn to the assimilation channel based on the names chosen for second generation Danish Americans. Danes living in a county with a Happy church were more likely to choose more Danish (and less American) names after 1883, accounting for the size of the enclave (which turns out to be insignificant). We demonstrate this using OLS and standard difference-in-differences and event study strategies, exploiting the different birth cohorts in the 1910 census and the location of the two types of Danish churches. In robustness checks, we control for the presence of a Norwegian church (which many Danes initially joined) and initial enclave size interacted with time.

We next consider an alternative measure of assimilation, the Anglicization of the Danish language press in the United States. Danish Americans, in common with other non-English speaking communities, incorporated more and more English into their everyday language as they assimilated into

American society. Two newspapers in particular are interesting for our purposes: *Danskeren* was based mostly among Holy Danes, whereas *Dannevirke* was mostly read by Happy Danes. Did the former incorporate English more rapidly than the latter? We investigate this using an algorithm which calculates the probability of text being Danish, English, or any other language, and find tentative evidence that the newspaper supporting the Holy community Anglicized faster. Finally, we consider alternative standard measures of assimilation: ability to speak English and intermarriage rates. Here, we find little difference between the Danish American communities. Almost all Danes spoke English and they were (unsurprisingly) more likely to marry other Danes in larger Danish enclaves. However, since there is no difference between individuals living in Happy and Holy communities, we take this as evidence that there is an impact of the deliberate emphasis on assimilation beyond that of living in an enclave.

We contribute to the existing literature in a variety of ways. Abramitzky and Boustan (2017) provide a useful overview of the work on historical and contemporary migrant flows to the United States, including that on the assimilation of immigrants. They note earnings convergence with the native-born population, although this process is slow. For the Age of Mass Migration, early studies gave mixed results. The average immigrant earned much less than the average native-born worker (Higgs, 1971; McGouldrick and Tannen, 1977; Blau, 1980), but the speed with which this difference was eliminated is debated (Eichengreen and Gemery, 1986; Hanes, 1996; Hatton, 1997; Hatton and Williamson, 1998). Minns (2000), using the 1900 and 1910 censuses, finds that immigrants saw more rapid gains in occupational status than natives, with the exception of those in farming. A factor that might aid integration is learning English (Bleakley and Chin, 2004, 2010), although this was less the case historically (Ward, 2020) and is less important today for more manual occupations (Chiswick and Miller, 2010). Closely related to our work, Abramitzky et al. (2016) find that as immigrants lived in the US for longer, they chose less foreign names for their children, intermarried more, and learned English. This process of assimilation was faster among immigrants who were more culturally distant from natives. They also find that parents who chose more foreign names for their children passed on a negative impact on their education and earnings, and made it more likely that they would marry spouses from abroad. We identify a novel determinant of assimilation: religious beliefs.

Recently, a couple of studies have examined the role of churches for assimilation in particular. Ambrosini et al. (2021) document that Catholic and Protestant migrant churches in Milan, Italy play an important role as a hub providing social, welfare, and spiritual services, ultimately aiding the integration process. By contrast, Gagliarducci and Tabellini (2022) consider immigrants in the US between 1900 and 1920 and the number of years each was exposed to the presence of an Italian Catholic church in their county of residence. They find that children in these areas are more likely to be named after Catholic saints but not more likely to have a specifically Italian name, that the presence of churches increased labor force participation but reduced occupational standing, and that churches reduced assimilation more in larger communities.[2] In short, they argue that religious organizations perpetuate ethnic norms and slow integration. Likewise, Eriksson (2020) considers ethnic enclaves

[2]Based on measures of intermarriage, residential integration, naturalization rates, ability to speak English, naming, labor force participation, occupational income score, and type of occupation.

of Norwegians in 1910 and 1920, finding that those living in larger enclaves had lower occupational earnings, were more likely to be in farming occupations, and were less likely to be in white-collar occupations, with this partly passed on to the second generation. Again, by comparing Danes with Danes, we avoid concerns that particular ethnic groups might differ in ways beyond the church they belong to. Indeed, we find evidence that religion need not be a barrier to assimilation. Ethnic and religious enclaves are thus not always a barrier to assimilation or economic success. Moreover, in our case, we find little evidence that those seeking to preserve their Danishness were disadvantaged - in fact, perhaps this even helped when transfering knowledge from Denmark.

Regarding labor market outcomes, it has been found that emigrant enclaves can be beneficial for employment opportunities if new arrivals can benefit from the networks and knowledge of those already there (Munshi, 2003), but might also delay the spread of information about the wider labor market. The empirical evidence is mixed, see Collins and Margo (2000); Edin et al. (2003); Damm (2009); Cutler et al. (2008). Unlike these studies, we compare like with like, and find that the desire to assimilate or not seems to have played little role for the labor market outcomes of Danish Americans.

More broadly, we relate to a growing literature that examines the impact of religion on outcomes. For a recent summary of the impact of religion on economic growth, see Becker et al. (2023). As a result of its' multidimensional nature, religion may have both positive and negative effects on the economy. For instance, religious doctrines may encourage "good" economic behavior (Guiso et al., 2003), but at the same time may discourage innovative activity (Bénabou et al., 2022; Squicciarini, 2020). Thus, the aggregate impact is an empirical matter. By restricting analysis to Christianity and to one very homogeneous ethnic group, we can shut down various confounding factors.

The following section provides the historical background necessary to understand the context within which the Happy and Holy Danish rivalry emerged in the United States. Section 3 describes our data and methodology, Section 4 presents our findings on assimilation, and Section 5 our findings on labor market outcomes. Section 6 concludes.

2 Historical background

Around 30 million migrants arrived in the United States during the Age of Mass Migration between ca. 1850 and 1913. As the share of foreign-born in the labor force exceeded one in 5 by the First World War and migrants increasingly arrived from poorer southern and eastern European countries, concerns were expressed about poverty and lack of assimilation in migrant neighborhoods. These ultimately resulted in a series of restrictions culminating in the Immigration Act of 1924 which set national quotas (Abramitzky et al., 2014). What policymakers at the time did not seem to be aware of, however, is that previous waves of migrants had arrived from situations of poverty, war, or persecution, and were not dissimilar to subsequent waves. One such group was the Scandinavians, including Danes.

Denmark following the Napoleonic Wars entered a period of profound political and socio-economic crisis, and the history of Danish migration and religious movements must be understood in this context. Society was rift with divisions between Scandinavian and German parts of the realm (Boberg-Fazlic and Sharp, 2024). Copenhagen was largely destroyed by the British in 1807, which led to the United Kingdoms of Denmark and Norway siding with Napoleon. The cost of fighting the war and the loss of customs revenues led to the state bankruptcy of 1813, which was followed by the forced separation of Norway from Denmark in 1814 after centuries of political union, shifting the balance of power dramatically in favor of the German-speakers. Attempts at reform under a relatively liberal constitution in 1849, which guaranteed the freedoms which allowed the religious disagreements we exploit here to be openly voiced, led to dissent in the largely German-speaking duchies of Schleswig and Holstein and civil war. This was only finally resolved by the intervention of Austria and Prussia in the Second Schleswig War of 1864. The duchies were lost, and a much diminished Denmark had to resign itself to being a small country on the European stage, and one which felt itself on the edge of existential crisis.

At times of crisis, people have a tendency to turn to religion for answers (Pargament, 2001; Bentzen, 2019, 2021). New political and religious movements emerged, including two revivalist movements within the state Lutheran church. The Grundtvigian movement, inspired by NFS Grundtvig (1783-1872), an educator, clergyman, and writer who is a central figure in modern Danish history (Boberg-Fazlic et al., 2023), came to dominate in Denmark. His philosophy became associated with the liberal farmers' movement and promoted democracy, education, and individual freedom and responsibility. At the same time, another smaller revivalist movement, the Inner (or Home) Mission (IM), which came to dominate Danish Americans, emerged. Followers sought repentance and were against alcohol and dancing, and contrasted greatly with the Grundtvigian ideas of life as a gift to be enjoyed. In the US the followers of IM became known as "Holy Danes" with the Grundtvigians known as "Happy Danes." Both remained within the established church, with the Grundtvigians dominating until today, although disagreements occasionally flared up for example in relation to the Sunday operation of creameries, which IM believed was incompatible with God's Third Commandment (Bjørn, 1982; Haue, 1978; Rasmussen, 1982; Bentzen et al., 2023).

A detailed survey of the history of the Danish church in America is provided by Simonsen (1990), see also Mortensen (1967). Hvidt (1971, 1975) provides a history of Danish migration to the United States. The following draws on their work. Very few Danes migrated before the late 1860s, just 14,000 between 1820 and 1866. Many were Baptists or Mormons, but some were also radical religious and political leaders, looking to escape from a Denmark in crisis. Indeed, many of those who ended up migrating were the losers from earlier agrarian reforms, looking for land in America (see Boberg-Fazlic et al., 2022, 2023). The established Danish church knew little and cared little about these early emigrants. Simonsen (1990) explains that it was more or less random which church or sect Danish immigrants joined on arrival, since it simply depended on which priest was in the area they migrated to. Many joined Norwegian churches. Norwegian migration was much larger and earlier than the Danish migration and, shortly after political separation in 1814, Danish and Norwegian were still considered one language, Danes and Norwegians often traveled together to America, and the Norwegian churches

proved a natural home for the early Danish migrants.

Danish emigration increased following 1868, with around 158,000 leaving for the US between 1868 and around 1900 (Hvidt, 1971). As emigration expanded, the revivalist movements within the Danish church began to take note. Simonsen (1990) dates the beginnings of the "America mission" to a local Danish movement where a teacher, N.M. Hansen, wrote in the IM newspaper, *Indre Missions Tidende*, in May 1867 that emigrants needed a church, and argued that this was clearly a job for IM. Another important figure was C.L. Clausen, a leading Danish priest in the Norwegian synod, who was selected by Iowa's governor to represent the state at the World Exhibition in Paris in 1867 and used this as an opportunity to go to Denmark and talk about the situation of Danish Americans in church meetings.

Initially, the collaboration with the Norwegian church went well, and was organized through "the Conference"[3], which coordinated the Danish-Norwegian congregations. Tensions soon emerged, however, as the established Danish church in Denmark became increasingly dominated by the Grundtvigians and their liberal but at the same time national romantic beliefs, putting it at odds with traditional Lutheran teaching, as well as the Conference itself. In June 1874 the church in Denmark formed *Den danske lutheranske Kirke i Amerika* (the Danish Lutheran Church in America, DDK). It was determined that all priests should be appointed via the Grundtvigian high school in Askov, Minnesota. This created yet more divisions with IM, who increasingly started independent missionizing, and the seeds of two rival Danish synods in America were sown, although for now both Happy and Holy remained together.

Danish emigration began to pick up from the 1880s as higher wages in Denmark combined with lower costs of transportation meant that more could afford to emigrate, and as information flows and advertising expanded. It was following the arrival in the United States of NFS Grundtvig's son, Frederik Lange Grundtvig, that the division of the Danish church in the US became institutionalized. He tried to leave behind the shadow of his late father by moving to Wisconsin in 1881, but soon became involved in the DDK and was ordained as priest in 1883. Those who were against Grundtvig looked in vain for clear backing from IM in Denmark, and finally between September 11-14, 1884 in Argo, Nebraska, the Danish Evangelical Lutheran Church Association in America ("Danish Association" or "Blair Church") was founded. Matters of deeply held belief began to be debated, in Denmark as well as in the US. The final straw came with the invitation published in the Grundtvigian newspaper *Dannevirke* on April 18, 1887 to found the *Dansk Folkesamfund* (Danish People's Society, DF) to bring in more Danes from Denmark, and to encourage more Danishness (see also Ibsen, 2018). The mid-1880s thus marked the defining shift in the creation of the Happy (Grundtvigian)/Holy (IM) dichotomy.

Regarding the Danish press, this was divided between rival newspapers representing the "Happy" and "Holy" factions: *Dannevirke* and *Danskeren*, respectively. The most prominent newspaper was

[3]The Conference of the Norwegian-Danish Evangelical Lutheran Church of America.

actually the radical and anti-religious *Den Danske Pioneer*[4], but there were also newspapers explicitly catering to Danish believers. *Dannevirke* was established in 1880 in Elk Horn, Iowa, in conjunction with a "Happy" Grundtvigian folk high school and its pastor, O.L. Kirkeberg. It aimed to serve as a platform for sharing religious thoughts and prayers. Although formal ties were severed in 1883, the paper maintained a close association with the church. However, when the church formally split in the 1890s, the "Holy" faction lacked an outlet. Consequently, *Danskeren* ("The Dane") was swiftly established with "Holy" pastor J. M. Jersild as editor. Both newspapers received significant financial support from the church, to the extent that they relied on very few advertisements. The "Happy" *Dannevirke*[5] stood out for its emphasis on promoting Danish identity and language as part of religious belief (Marzolf, 1976; Brøndal, 2020).

Simonsen (1990) explains that this schism must be seen in the context of the immense political divisions which defined American society in general at that time, but also asks why Grundtvigians and IM ended up splitting in America, unlike in Denmark where they remained part of the same church. First, there were the basic differences of belief. Grundtvigians argued that the Bible was not an absolute authority, and did not divide people into believers and unbelievers. Man was created in God's image, so humanity and society is in principle good. So there is no division between Christian and human, church and society. He emphasizes that this belief, while mainstream in Denmark, was unique in America, and perhaps this isolation led them to stay closer to the Danish church. Their openness to alcohol set them apart from much mainstream thought in the United States, which was moving towards the enactment of prohibition in 1920. More important, however, and at the core of the debate, was the connection between belief and nationality. Grundtvig argued for a Danish society based on language and history. His focus on the mother tongue and "*folkelighed*" (folkliness) were interpreted identically to in Denmark, and imported directly into American society where they met an obvious obstacle. In Denmark there was little choice but to be Danish, but in America one could decide to embrace being an American.

This was to be the defining point of the division in the US. Grundtvigians placed great weight on the "popular work" (*folkelige arbejde*), whereas IM cared mainly about converting people to belief in Jesus Christ and did not regard Danishness as part of missionizing. The formal divorce came in 1894 following a debate about a new constitution. DDK became a "Happy" minority, losing two-thirds of its congregations, with many parts of Danish America against it, and the increasing threat of Americanization. The groups supporting IM formally merged in 1896 to form the "Holy" United Danish Evangelical Lutheran Church (United Church, DfK). The Happy church began focusing on connections with Denmark, at the same time as doubts about the relevance of "popular work" caused divisions. The Holy church focused mostly on missionizing and paid no attention to Danishness, except in as much as they saw Grundtvigian attempts to preserve it as a diversion from the true work.

[4]Based in Omaha, Nebraska, it was from 1885 edited by the charismatic typographer and dairyman Sophus F. Neble (1862-1931). It was radical, anti-religious, critical of the monarchy, and was for some years censored by the authorities in Denmark. In the United States it garnered a wide readership among Danish Americans across the political spectrum. By 1900, its readership reached 25,135, around half that of the Sunday edition of the New York Times at the time.

[5]Its title itself a reference to a prehistoric defensive works in the Danish-German border region and potent symbol of Danish nationalism.

Danish was just a tool for preaching, and as it became less spoken, the importance of a Danish church declined. Frederik Lange Grundtvig returned to Denmark in 1900 a disappointed man, and by 1902, following a motion to dispand, a hard core of believers took over and focused on their colonies, where that in Askov, Minnesota enjoyed some success.[6]

To summarize briefly the points important for our empirical analysis below, Danish migration to the US took off from around 1870 in the context of divisions following defeat in war. Rival religious factions argued about points of belief, but also about the importance of preserving Danish identity. In America, this led to rival Danish American communities following the arrival of an important figurehead, Frederik Lange Grundtvig in 1883, and the establishment of an associated movement, DF, to promote Danishness. At the same time, IM favored a focus on missionizing. From that point on, rival communities were either for or against assimilation. Since the churches formally divided into rival synods in the US, we can also capture whether a community was Happy or Holy by the type of church (DDK or DfK) recorded in membership records from the early twentieth century. Figure 1 summarizes the conceptual framework graphically.

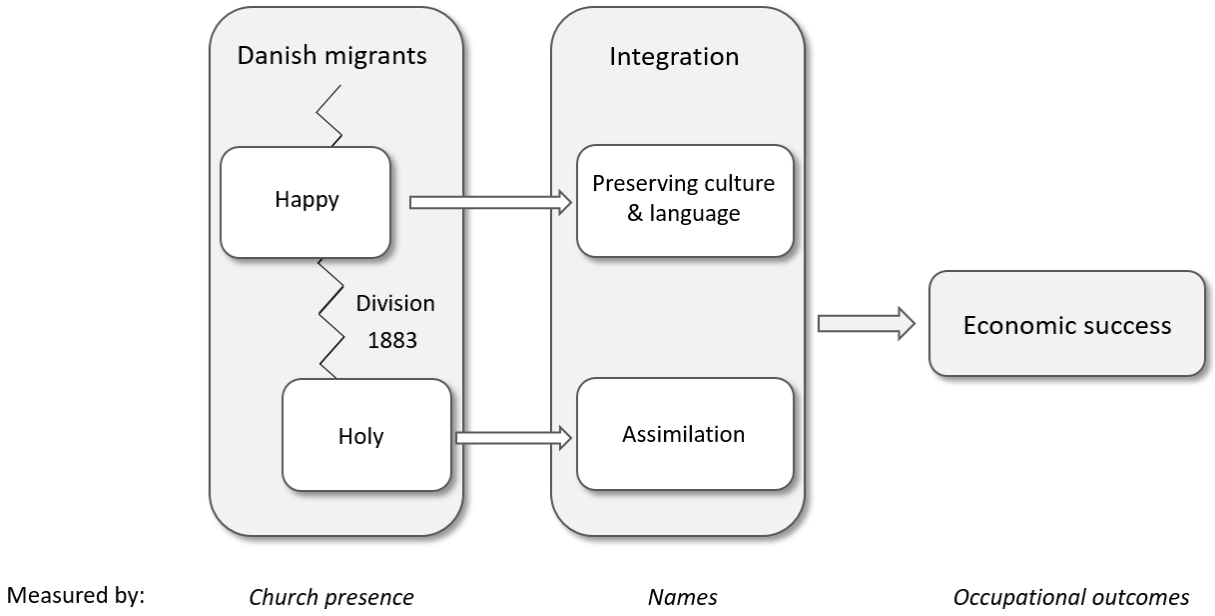


Figure 1: Conceptual framework

Notes: The figure provides a graphical overview of the conceptual framework and how the different concepts are measured empirically.

[6]In 1947 the "Happy" DDK dropped the word "Danish" from its official name, and in 1960 it merged into the American Lutheran Church. Their formerly bitter rivals, by that point known as the American Evangelical Lutheran Church, joined them in 1962. The division of Happy and Holy Danes was still discernible generations later Anderson (2020); Christensen (2016, 2019); Kühl (2020).

3 Data and methods

Our main source of data is the full count US census for the years 1910 and 1920, provided by IPUMS (Ruggles et al., 2021a,b). From this we take the individuals born in Denmark and their children (second generation Danish Americans), and for their name, age, sex, literacy status, whether they can speak English, their occupation score (a proxy for wage) and occupational titles to classify into manual/non-manual or farmers, as well as their county of residence. We have data on all variables for a total of 59,687 first generation Danes in 1,749 counties and 276,545 second generation Danes in 1,821 counties. This data is also used to calculate the size of the first generation Danish community in each county. The total population of the county is taken from Haines (2010).

Table 1: Summary statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Panel A: first generation Danes (immigration date <= 1883), 1910 census					
Holy	56,075	0.180	0.384	0	1
Happy	56,075	0.132	0.338	0	1
Both	56,075	0.231	0.411	0	1
No church	56,075	0.458	0.498	0	1
SpeaksEnglish	56,075	0.960	0.196	0	1
Female	56,075	0.393	0.488	0	1
Age	56,075	53.71	11.91	20	107
Literate	56,075	0.984	0.124	0	1
Occupational variables (men only)					
In labor force	27,468	0.997	0.052	0	1
ln(occscore)	27,468	2.956	0.415	1.10	4.38
Nonmanual	27,468	0.182	0.386	0	1
Farmer	27,468	0.493	0.493	0	1
Panel B: second generation Danes, 1910 census					
Holy	276,545	0.158	0.365	0	1
Happy	276,545	0.125	0.331	0	1
Both	276,545	0.205	0.404	0	1
No church	276,545	0.512	0.500	0	1
YearsWithHoly	276,545	7.72	13.74	0	59
MembersHoly	97	201.55	220.55	19	1,344
YearsWithHappy	276,545	7.95	13.53	0	41
MembersHappy	276,545	159.66	391.18	0	1,689
SpeaksEnglish	190,070	0.998	0.044	0	1
Age	276,545	16.46	11.46	0	98
Female	276,545	0.496	0.5	0	1
MotherDanish	276,545	0.682	0.466	0	1
BothParentsDanish	276,545	0.525	0.499	0	1
Variables based on first names					
DK	276,545	0.03	0.112	0	1
DK (phon.)	276,545	0.105	0.261	0	1
Top10US	276,545	0.184	0.388	0	1
Top10DK	276,545	0.062	0.241	0	1
Panel C: second generation Danes (men only), 1920 census					
In labor force	50,045	0.999	0.029	0	1
ln(occscore)	50,045	2.893	0.576	1.1	4.38
Nonmanual	50,045	0.263	0.44	0	1
Farmer	50,045	0.268	0.443	0	1
Panel D: county level variables					
1st gen. Danes, 1910	2,224	80.29	359	0	1,2031
1st gen. Danes / pop	2,224	0.003	0.008	0	0.133
Total population	2,224	36,057	108,120	390	2,762,522

Notes: Summary statistics for the main variables used. Split by first and second generation Danes. Panels A and B are based on data from the US census of 1910 (Ruggles et al., 2021a), panel C of 1920 (Ruggles et al., 2021b). Occupational variables are shown for men only. The number of first generation Danes in panel D is based on data from the US census of 1910 (Ruggles et al., 2021a) and total county population from Haines (2010).

The reports DDK (1910) and DfK (1910) provide lists of Happy and Holy Danish churches, respectively. The Danish American Archive and Library, Blair, Nebraska generously supplied scans of these reports from 1910, covering all member churches, the year of establishment, and the size of the congregation. Based on this, we create dummies for each county for whether it had a Happy, Holy or both churches. In total, we have 119 Happy churches and 176 Holy churches, but some counties have more than one church. Thus, 61 counties have only a Happy church, 73 counties only a Holy church, and 34 counties have both types of churches. We also calculate intensity measures: years since foundation and size of the congregation. For each Dane, we compute whether they live in a county with a Holy, Happy, both or none of these churches. Table 1 provides summary statistics for the main variables[7] and Figure 2 shows the location of the Danish churches as well as the size of the Danish community relative to the total population in 1910. There are more Danes of both first and second generation who live in a county with a "Holy" church than those with a "Happy" church, but most live in a county with both churches, or none. First generation Danes are more likely to be male, but the gender ratio is almost balanced for the second generation. Both generations have very few that cannot speak English. Finally, second generation Danes in 1920 are almost all in the labor force, with just over 26 percent in non-manual occupations, and a similar proportion working as farmers, although this represents a substantial decrease relative to first generation Danes, almost half of whom worked as farmers.

[7]We show summary statistics for the first generation only for those who immigrated before 1883, i.e. before the division of the churches.

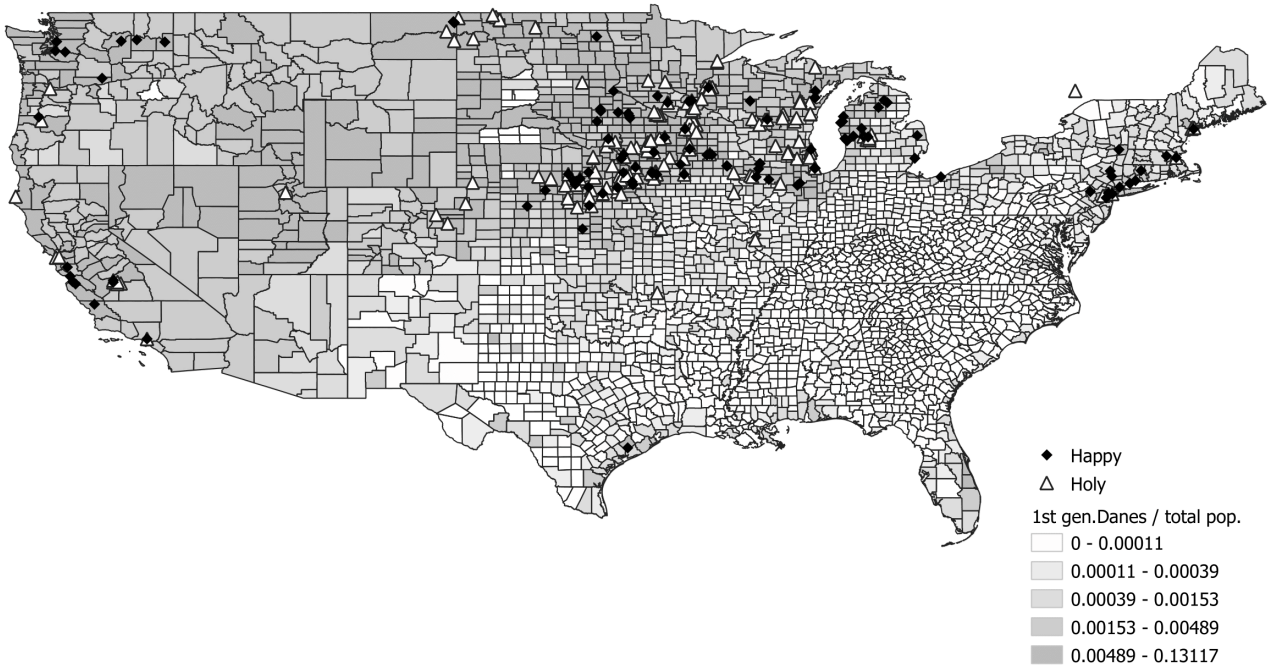


Figure 2: Locations of Happy and Holy churches.

Notes: The figure shows the location of Happy and Holy churches in the US. The shading of the counties indicates the size of the first generation Danish community in 1910 relative to the total population of the county. Size of Danish population from Ruggles et al. (2021a) and total population from Haines (2010).

We supplement this with information from the Danish-language press in the US to measure the use of English in Danish American publications. We were kindly supplied with complete scans of *Danskeren* [Holy] and *Dannevirke* [Happy] by the Museum of Danish America, Elk Horn, Iowa. Exactly which data this includes and how we use it is described in section 4.2.

We conduct the analysis in two steps. First, we establish that Danes living in Happy communities indeed assimilated less to American culture than Danes in Holy communities. Here, it is important to note that we only expect a difference after 1883, when Frederik Lange Grundtvig came to the US bringing the division in his wake. We start with a simple OLS, and present the difference-in-differences results below. The OLS specification clearly shows the different effects before and after the division, as well as the comparison with individuals not in a county with a Danish church.[8] We therefore estimate the following equation for cohorts born before and after 1883 separately:

[8]We also show results for the interacted model comparing Happy and Holy communities over the whole time period in columns (5) and (6) of table **??**.

$$Y_{itcs} = \beta_0 + \beta_1 Holy_c + \beta_2 Happy_c + \beta_3 Both_c + X'_{itcs}\gamma + \mu_t + \delta_s + \varepsilon_{itcs} \quad (1)$$

for individual i born in year t in county c and state s. Y is our measure of assimilation using the "Danishness" or "Americanization" of the first name of individual i. *Holy*, *Happy*, and *Both* are dummy variables for whether there is a Holy, Happy, or both churches in county c. The assumption here that Danes living in county c, live in or close to this community, or at least that they will be influenced by the churches present in the county. The reference group is Danes living in a county without a Danish church (141,637 individuals). X'_{ic} is a vector of individual and/or county level control variables. In all specifications this includes the size of the Danish community in the county as well as the log of total population. In some specifications this includes individual controls for whether one or both parents are Danish. μ_t represents birth year fixed effects and δ_s state fixed effects. ε_{itcs} is the error term. We use standard errors clustered on the county level.

To measure assimilation, we first measure the "Danishness" of the first name of second-generation individual i. Here, we follow Biavaschi et al. (2017) and calculate the normalized frequency of a given name relative to the general Danish population in 1880:

$$DK_i = \frac{N_i}{max(N^1, ..., N^k)} \quad (2)$$

Here, DK is the "Danishness" of a given first name of individual i. N_i^k is the frequency of this first name in the general Danish population. To calculate this, we use the full-count Danish census from 1880 (Rigsarkivet, 1880).[9] $max(N^1, ..., N^k)$ is the frequency of the most frequent name in Denmark. DK is therefore measured on a scale from 0 - 1, where individuals with a name which no-one has in the 1880 Danish census will receive a score of zero and an individual with the most common Danish name in 1880 (*Jens* for men and *Ane* for women) will receive a score of one. We apply this measure to the literal spelling in the US census as well as to the phonetic spelling of names. For the phonetic spelling, we use the NYSIIS phonetic algorithm described by Taft (1970) by applying the Stata procedure from Sayers (2014). The advantage of the phonetic spelling is that we avoid measuring a low frequency or Danishness of the name just because of a spelling mistake or misrecording. The disadvantage is, however, that we will not capture deliberate spelling differences, which may reflect the Danishness versus the Americanization of the name, as in *Ane* vs. *Anna*, for example. We therefore report results using both measures.

As an alternative, we measure the Danishness of a name with a dummy variable, which takes the value one if an individual has one of the top 10 first names recorded in the 1880 Danish census. In a similar fashion, we use a dummy variable for a top 10 American name among births during the

[9] We use 1880 as this reflects Denmark the emigrants knew when they left their home country. We could also compare to specific birth cohorts in the Danish population. Top 20 names among different birth cohorts are surprisingly constant, however, and we therefore rely on this simpler version of the measure.

1900s, as reported by the *Social Security Administration*.[10] Table A1 in the appendix reports the top names for men and women in the US and in Denmark. Some names are similar, especially for girls, but the majority of names are very different. We report the most frequent names among emigrants using Danish emigration lists (Det Danske Udvandrerarkiv, 2018). There is little difference between the most common names in the general Danish population and among emigrants. Naming behavior for boys and girls is potentially different. Parents tend to be more creative with girls' names and may be more concerned about labor market effects of boys' names (see Abramitzky et al., 2020). In the following, we therefore always split the analysis by men and women.

As the religious division emerged first with the arrival of Frederik Lange Grundtvig in 1883, we now estimate equation 1 in a difference-in-differences setting, where the assumption is that there should be no difference in assimilation prior to the "treatment" of the Happy churches by Grundtvig. Here, we concentrate on the differences between Happy and Holy Danes:

$$Y_{itc} = \beta_0 + \beta_1 Happy_c \times Post1883_t + \mu_t + \delta_c + \varepsilon_{itc} \tag{3}$$

where $Post1883_t$ is a dummy variable, which is equal to 1 if the birth year of individual i is after 1883. The rest is as defined above, but note that we only include individuals living in a county with at least one type of Danish church in this specification, thus ignoring those with no Danish church. The reference group is thus Danes with a Holy church in the county. In contrast to equation 1, this specification includes county fixed effects and we therefore do not include community controls.

In the following, we present balance tests for differences in the first generation of Danish migrants who arrived before the division, i.e. before 1883. We argue that Danes were similar when they arrived and only after the division emerged chose either the Happy or the Holy side, which in turn might have affected their assimilation. Table A2 in the appendix shows differences in the first generation who immigrated before 1883 living in counties which were to receive a Holy, Happy, or both churches. There are no significant differences in whether migrants are able to speak English or in occupational outcomes. Migrants in counties with any church are more likely to be female, probably reflecting families living in these more settled areas, whereas single men migrate to more unsettled / frontier areas. We therefore split by gender in the main results, and control for being female in the first generation in Table A2.[11] Migrants to counties that were later to receive a Happy church have a significant but only slightly higher probability of being literate before 1883. The main significant differences appear in columns (7) and (8), which examine community characteristics, rather than individual migrant characteristics. Migrants who were later to receive a Danish church in the county are located in more densely populated areas and in larger Danish communities. Again, this reflects that migrants without a Danish church in the county live in more unsettled / frontier areas and is

[10] See: https://www.ssa.gov/oact/babynames/decades/names1900s.html

[11] Table A3 shows the same table for first generation Danes living in a county with at least one type of church only. Differences in the ability to speak English are significant here. Note however, that 96 percent of the first generation were able to speak English (see Table 1) and thus the size of this difference is therefore only minor.

not surprising. In principle, however, living in a tighter Danish community should make migrants less likely to assimilate. For the size of the total population the impact on assimilation is less clear. It could be easier to integrate and there might be more opportunities in a larger population but it could also be more difficult to connect to others. In any case, we control for the size of the Danish community in a county and the total population in all specifications.[12]

4 Assimilation

4.1 First names

Did Holy Danes assimilate more? To answer this question, we examine the naming behavior of parents close to a Happy church vs. parents close to a Holy church. As described above, we measure the Danishness / Americanization of first names given to second generation Danes, who were born in the US. We begin with a simple OLS estimation, where we distinguish between individuals born before or in 1883, and those born after 1883. Table 2 presents the results for estimating equation 1 using different outcome variables, all concerning the first name of the individual. All specifications include community controls, i.e. the percentage of first generation Danes as a share of total county population (the size of the enclave), and the natural logarithm of the total county population. The percentage of Danish population is included as a measure of enclave size and total population accounts for the general level of settlement / development of the county. Tables A5 in the appendix shows these results without controls, including individual-level control variables for having only one or both parents Danish, and for the interacted model on the full sample. The results are unchanged in these alternative specifications.

Columns (1) and (4) show that cohorts born before 1883 received more Danish names in counties that were later to receive either a Holy or Happy church compared to communities without a Danish church. In columns (2) and (3) we find no differences. After 1883, however, when the disagreement regarding cultural assimilation broke out, only Happy Danes focusing on the preservation of Danish culture gave more Danish names than Holy Danes and those living in counties without a church. The coefficient of column (5) implies that a second generation Danish man living in a county with a Happy church was 0.016 units more Danish measured on the relative frequency scale from 0 to 1. This implies a 53 percent increase above the mean Danishness of second generation names or an increase of 14 percent of one standard deviation, compared to Danes living in counties without any type of Danish church. Holy communities did not behave differently compared to Danes living in counties without a Danish church. They were less likely to give top 10 American names (column (7)), but were relatively more likely to do so than Happy Danes. The coefficient on Holy Danes is only around half of that of Happy Danes. Moreover, Holy Danes stopped giving more Danish names than Danes without a Danish church after 1883 (columns (5), (6), and (8)). For counties with both types of churches present, we observe around half of the effect, which is reassuring as we would expect part of

[12] We also show results without these controls.

the Danish population in those counties to behave like Holy Danes and part like Happy Danes.

For girls the results are similar after 1883. We observe the same tendency that Happy Danes gave more Danish names, whereas Holy Danes do not behave significantly different from Danes without a Danish church in the county. In the case of girls, however, we find no significant differences before 1883. On the one hand, the naming of girls may be less strategic than naming of boys in terms of the labor market outcomes aspired to. On the other hand, considering Table A1, there may be more similarities between Danish and American girls' names making it potentially easier to find a name which is suitable to both cultures.

The reference group in Table 2 is Danes living in counties without a Danish church. This includes Danes in sparsely populated areas, with very few other Danes in the county but at the same time includes larger Danish communities, which did not establish a Danish church. Figure A1 shows the distribution of enclave sizes across counties with and without a Danish church. The largest outliers in counties without a church lie in Utah, which received many early Danish migrants following the church of Jesus Christ of Latter-day Saints.[13] Previous research shows that immigrants living in enclaves assimilate less (Abramitzky et al., 2020) and more so in larger enclaves (Eriksson, 2020), much in line with the results we find for the relative size of the first generation Danish population. In Table A4 we investigate in more detail the role of living in an enclave vs. living close to a church. Here, we define a dummy variable for an enclave if the size of the Danish community in the county is above the mean value of all Danish communities to be able to compare enclave vs. church where both have a binary definition. As an alternative, we use a continuous measure of churches by using the number of members of the congregation in 1910. Again, the analysis is split by birth cohorts before and after 1883. Before 1883, we find the same result as the previous literature, i.e. that Danes living in larger enclaves assimilate less. After 1883, however, this effect is entirely due to Happy churches. Thus, controlling for the size of the enclave, beliefs are by far the most important determinant of assimilating behavior, with the size of the enclave playing a minor role.

[13] All results hold when excluding the state of Utah.

Table 2: Effects on names, OLS estimation

	Birth year<=1883				Birth year>1883			
	(1) Danish	(2) Danish (phon.)	(3) top10US	(4) top10DK	(5) Danish	(6) Danish (phon.)	(7) top10US	(8) top10DK
Panel A: Boys								
Holy	0.009*	0.010	-0.011	0.014*	0.003	0.000	-0.011**	0.005
	(0.005)	(0.008)	(0.013)	(0.008)	(0.003)	(0.004)	(0.005)	(0.003)
Happy	0.009**	0.006	-0.019	0.018**	0.016***	0.017***	-0.028***	0.022***
	(0.005)	(0.009)	(0.014)	(0.008)	(0.003)	(0.004)	(0.006)	(0.004)
Both	0.008	0.000	-0.012	0.009	0.008***	0.007	-0.017**	0.008*
	(0.005)	(0.008)	(0.014)	(0.009)	(0.003)	(0.005)	(0.007)	(0.004)
1st gen.Danes/pop	0.261***	0.495***	-0.243	0.364***	0.220**	0.115	-0.449***	0.326***
	(0.052)	(0.094)	(0.155)	(0.089)	(0.087)	(0.103)	(0.112)	(0.109)
ln(population)	-0.004***	-0.006***	0.004	-0.007***	-0.004***	-0.004***	0.012***	-0.005***
	(0.001)	(0.002)	(0.004)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)
Constant	0.079***	0.243***	0.272***	0.139***	0.069***	0.157***	0.058***	0.085***
	(0.010)	(0.024)	(0.034)	(0.018)	(0.008)	(0.013)	(0.019)	(0.011)
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birthyear FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,047	23,047	23,047	23,047	114,022	114,022	114,022	114,022
Counties	1,337	1,337	1,337	1,337	1,803	1,803	1,803	1,803
Mean (dep.var.)	0.030	0.105	0.184	0.062	0.037	0.117	0.174	0.047
Panel B: girls								
Holy	0.001	-0.001	-0.000	0.002	0.000	0.002	-0.001	0.000
	(0.002)	(0.008)	(0.011)	(0.008)	(0.001)	(0.003)	(0.005)	(0.003)
Happy	-0.000	-0.010	-0.014	-0.009	0.005***	0.016***	0.001	0.018***
	(0.003)	(0.008)	(0.013)	(0.009)	(0.001)	(0.004)	(0.006)	(0.004)
Both	0.005**	0.010	0.005	0.014*	0.003**	0.007**	-0.001	0.007*
	(0.002)	(0.008)	(0.011)	(0.008)	(0.001)	(0.003)	(0.006)	(0.004)
1st gen.Danes/pop	0.024	0.112*	0.016	0.092	0.033	0.048	-0.106	0.093
	(0.019)	(0.061)	(0.081)	(0.071)	(0.027)	(0.056)	(0.089)	(0.082)
ln(population)	-0.000	-0.002	-0.002	-0.001	-0.000	-0.004***	0.005***	-0.002*
	(0.001)	(0.002)	(0.003)	(0.002)	(0.000)	(0.001)	(0.002)	(0.001)
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Birthyear FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	22,028	22,028	22,028	22,028	113,075	113,075	113,075	113,075
Counties	1,335	1,335	1,335	1,335	1,821	1,821	1,821	1,821
Mean (dep.var.)	0.029	0.120	0.215	0.100	0.020	0.070	0.162	0.065

Notes: Effects on names for second generation Danes, boys (Panel A) and girls (Panel B). Results: Before 1883, both Holy and Happy communities give more Danish names, after 1883 only Happy communities continue to do so. Data: 1910 census (Ruggles et al., 2021a). Community controls included throughout include the share of first generation Danes in county population and the natural logarithm of total county population. Standard errors in parentheses, clustered at the county level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

To eliminate concerns about differences between counties with/without a Danish church, we now turn to the difference-in-differences specification. As the results for boys and girls are similar and we ultimately aim to investigate labor market outcomes, we focus on boys in the following. Table 3 reports the results. The assimilation measures are the same as above using the first names of the individuals. Here, however, we also consider "treatment intensity" by not only including a dummy variable for whether a church is present in the county or not (Panel A), but also for how many years the church has been present in the county in 1910 (panel B) and how many members the church counted in 1910 (panel C).[14] The results in panel A reflect our earlier results. Panel B shows no effect from the length of the treatment. This is unsurprising given that it is a very imperfect proxy for this. As can be seen in Table 1, the oldest Happy church is 41 years old in 1910 and the oldest Holy church 59 years. Being established in 1869 and 1851 means that these dates lie well before the emergence of the division. The establishment year thus records when the first Danish church was established in the county (before the division of the churches) and does not reflect the length of time a county has been the focus of the Danishness promoted by the Happy Church. After 1883 the church would then choose sides, which would be the relevant date for our analysis. This information, however, is unfortunately unavailable.[15] Panel C indicates the same sign of effects although smaller in size. We therefore conclude that it was whether or not a church was present which was important, or put differently whether a community believed in assimilation or not, rather than any (measurable) intensity of this measure.

[14]This additional information (year of establishment and number of members) is not available all churches. For 29 out of 119 Happy churches and 47 out of 176 Holy churches we do not know the year of establishment. The number of members is missing for 29 Happy churches and 19 Holy churches.

[15]This notion is supported by the fact that the results resemble those of panel A when taking the logarithm of *YearsWithHappy*.

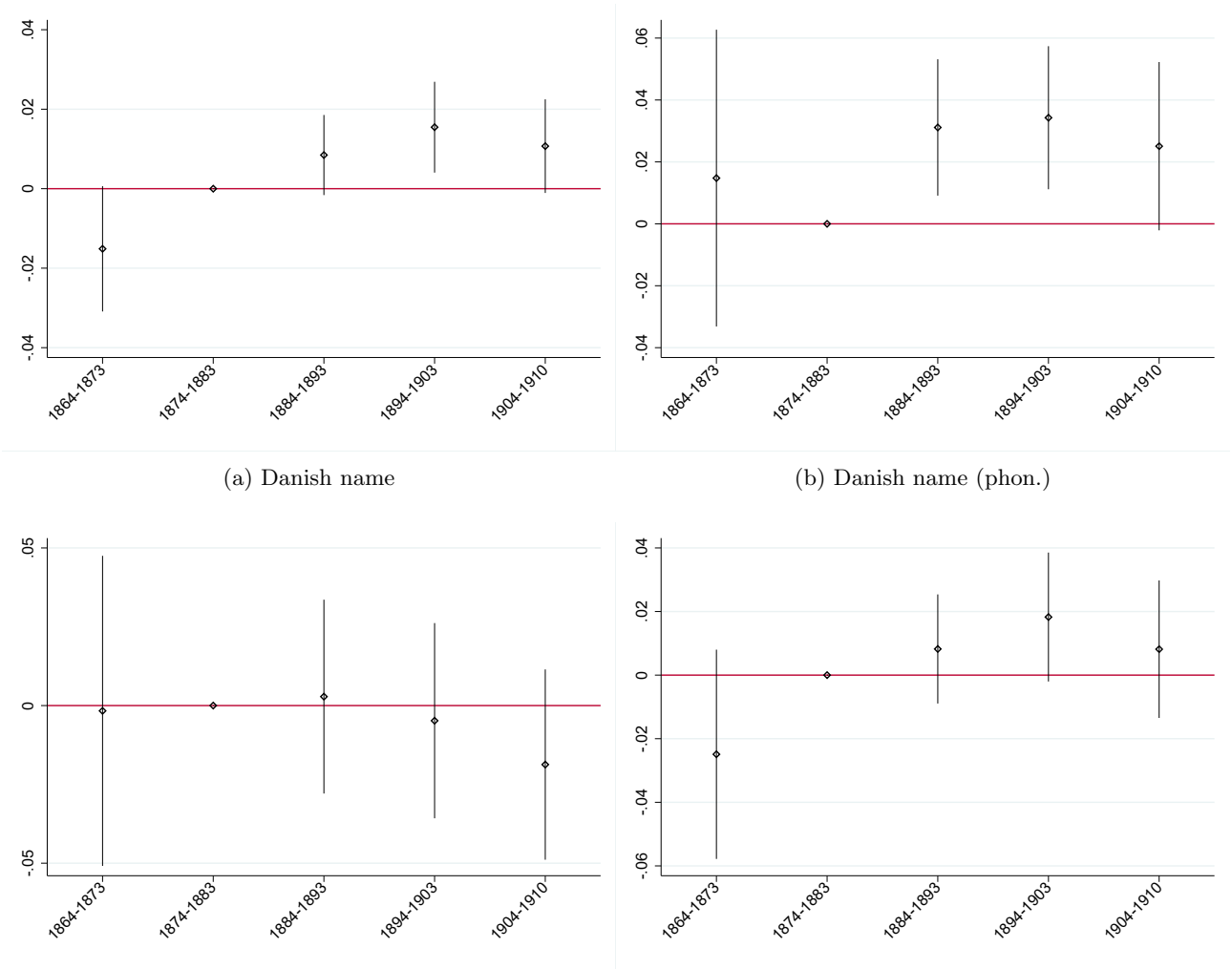
Table 3: Effects on names, difference-in-differences estimation

	(1) DK	(2) DK(phon.)	(3) top10US	(4) top10DK
Panel A				
Happy	0.015***	0.029**	-0.006	0.019**
× post1883	(0.005)	(0.013)	(0.015)	(0.009)
Constant	0.042***	0.125***	0.187***	0.056***
	(0.001)	(0.003)	(0.003)	(0.002)
Panel B				
Years With Happy	0.000	0.001	0.001*	0.000
×post1883	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.043***	0.124***	0.177***	0.059***
	(0.002)	(0.005)	(0.005)	(0.003)
Panel B				
ln(members Happy)	0.002**	0.004**	0.002	0.002*
×post1883	(0.001)	(0.002)	(0.002)	(0.001)
County FE	Yes	Yes	Yes	Yes
Birthyear FE	Yes	Yes	Yes	Yes
Observations	67,313	67,313	67,313	67,313
Counties	168	168	168	168
Mean (dep.var.)	0.045	0.131	0.186	0.060

Notes: Names, second generation boys, counties with at least one church, data: 1910 census, result: It is whether or not a church was present that matters, instead of the intensity. Standard errors in parentheses, clustered at the county level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

Figure 3 presents a graphical representation of equation 3 estimated for 5-year birth cohort intervals. This allows us to examine the effect over time and to identify possible pre-trends. Here we focus again on boys and on the difference between Danes with a Holy church and Danes with a Happy church in the county. We start the analysis with the birth cohort from 1864 - 1873, before which there were very few Danish immigrants. Note that the omitted birth interval is 1874 - 1883. Panels (a) and (d) might indicate a slight negative pre-trend, such that Happy Danes might choose less Danish names before the division than Holy Danes. These estimates are borderline significant and not present for the phonetic spelling of Danish names (panel (b)).[16] After the emergence of the division, from the beginning of the 1880s, Danes in counties with a Happy church choose more Danish names for their children. The event study is indicative of a decreasing effect towards 1910 when the dispute became less prominent and Frederik Lange Grundtvig left the US to return to Denmark.

[16]We are aware of potential power problems in the testing of pre-trends (Roth, 2022)



(a) Danish name

(b) Danish name (phon.)

(c) Top 10 US name

(d) Top 10 DK name

Figure 3: Event study for 5-year birth cohort intervals.

Notes: Event study plot of equation 3 showing the effect of Happy churches on naming outcomes for 5-year birth cohorts of second generation boys born 1865 - 1910. The reference category is the cohort born just before the emergence of the division, 1874 - 1883. The dependent variable is under the figure. Estimation includes second generation boys in counties with at least one type of church. County FE and birth year FE are included in all specifications. Results: The figures indicate more Danish first names in Happy communities after 1883 and (insignificantly) fewer top US first names. The effect on Danish names is potentially decreasing towards 1910. Source: 1910 census (Ruggles et al., 2021a)

Tables A5 and A6 provide robustness checks including additional control variables. Table A5 includes parental controls measuring whether only one or both parents are Danish. These are potentially endogenous controls, as followers of the Happy / Holy church might be more or less likely to marry a Dane.[17] We therefore do not include these variables in the main results. They do seem to matter for naming, such that couples with two Danish parents tend to give more Danish names to their children. However, the inclusion of these controls does not impact the main result.

[17]Table 4 test this and finds no evidence for differential marriage patterns.

Table 4: Marriage patterns

	All counties		Counties with church	
Birth cohort	<=1883	>1883	<=1883	>1883
Dependent variable:	*BothParentsDanish*			
Holy	0.069***	0.050***		
	(0.018)	(0.015)		
Happy	0.087***	0.083***	-0.032	-0.001
	(0.022)	(0.018)	(0.027)	(0.019)
Both	0.116***	0.076***		
	(0.017)	(0.024)		
Community controls	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Birthyear FE	Yes	Yes	Yes	Yes
Observations	23,047	114,022	9,748	57,262
Counties	1,337	1,803	153	168
Mean (dep.var)	0.610	0.507	0.672	0.576

Notes: This table investigates whether the type of church affects the likelihood of second generation Danes to have both parents Danish (as compared to only one Danish parent). The reference group in columns (1) and (2) is Danes without a church in the county. In columns (3) and (4) the reference group is Danes with a Holy or with both churches in the county. Data: 1910 census (Ruggles et al., 2021a). Danes with a church in the county are more likely to have both parents Danish. Happy Danes slightly more so than Holy Danes. This difference is not significant and there is no change in this pattern before and after 1883, however. Community controls include the share of first generation Danes in county population and the natural logarithm of total county population. Standard errors in parentheses, clustered at the county level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

As a second robustness check, we include a dummy variable for whether there was a Norwegian church in the county based on information from United States Bureau of the Census (1980), see Table A6. As explained in section 2, often a Norwegian church was present before a Danish church was formed. Consistent with this, the presence of a Norwegian church mainly played a role for naming before 1883. Again, the effect of the presence of a Happy church after 1883 is unchanged.

Table A7 accounts for potential additional spatial correlation in the standard errors. Columns (1)-(3) show OLS and differences-in-differences specifications when restricting the sample to counties in the Midwest, where most Danes located. The OLS results are unaffected. The differences-in-differences specification, however, now yields insignificant results. One should note however, that the sample is here further restricted to include only counties with at least one type of church. This specification thus only includes 129 counties, of which 39 have a Happy church, 63 Have a Hope church, and 27 have a Happy and a Holy church (included in the reference group). It is thus not surprising that we lack power in this specification and we take the positive sign of the coefficient as reassuring evidence. Columns (4)-(6) of Table A7 show the same specifications for the whole country, i.e. columns (2) and (6) from Table 2 and column (2) from Table 3, with Conley standard errors. Here, a cutoff of 50km

is used. Cutoffs of 100km and 150km yield the same results (not shown).

We estimate the placebo effect by simulating church distributions, enabling us to calculate our interest coefficients in a no-effect scenario. This approach generates a baseline distribution of null results for comparison with actual findings. Our simulation uses two methods to mimic church allocation based on historical patterns. Method 1 involves randomly selecting counties for "Holy" churches and then for "Happy" churches, with the latter given a higher probability in counties already selected for a "Holy" church, reflecting their co-occurrence. Method 2 simulates settler patterns through chain migration by starting with four random counties and then allocating "Happy" and "Holy" churches based on proximity, using inverse distance for weighting. We repeat this simulation 1000 times for each method and re-estimate the regression specified in column (6) of 2.The t-values of the corresponding estimates are shown in Figures A2 and A3 in the appendix.

4.2 Anglicization of Danish American newspapers

Another way in which we can test differential assimilation behavior is by examining the language used in Danish American newspapers. Kühl (2020) shows how Danish migrant communities gradually adopted more and more English vocabulary and grammar before they eventually shifted into only speaking English (often, of course, with a new generation). The two newspapers, *Danskeren* and *Dannevirke*, were sponsored by the Holy and Happy Danes respectively (Marzolf, 1976), and thereby might be expected to have diverged over time in terms of the language used. Indeed, the former was explicitly intended as a newspaper for the first generation, whereas the latter had a stated goal of keeping the Danish language alive for the second generation.

The newspapers were scanned and archived by the Museum of Danish America, who kindly shared their data with us. Using this, we ran the tesseract OCR engine (Ooms, 2023) on a random subsample of 683 issues of these two newspapers.[18] Each paper typically has 8 pages with minor deviations. This yields a total of 4,632 pages of writing, which is used in our analysis.[19] In doing so, we use the appropriate Danish fraktur engine for publications published with this typeface and the standard Danish engine for the rest.[20] The quality of the OCR is not particularly high, but for each newspaper, we get several legible sentences, where someone proficient in both languages can tell whether they are in English or Danish, as, in fact, can a machine. Thus, to automate the process, we use a pretrained language detection model, trained on all of Wikipedia (Joulin et al., 2016).[21] This model takes a piece of text as input and outputs a vector of the probability of each of 176 languages. We limit our focus

[18] Of these 658 are from before 1931 and used in the regression below, 411 from *Dannevirke* and 247 from *Danskeren*. The distribution of pages can be found in Figure A4 in the Appendix. Since the newspapers are a random subsample it reflects the distribution of each issue of all the newspapers in the archive. The number of issues is relatively stable over time.

[19] The OCR procedure is time consuming. We were able to extract this amount of data after letting the OCR engine run on random subsamples for 3 weeks (April 18 to May 10, 2023). In the first three days we sampled all issues, and then switched to sampling only issues from before 1931.

[20] *Fraktur* was a traditional typeface used in publications, which is substantially different from modern-day typefaces.

[21] See https://fasttext.cc/docs/en/language-identification.html for the specific pre-trained model used

to Danish and English, and sum the remaining languages as "other".

One example of the gradual change is the word "farmer", which was used in the English form by Danish Americans (rather than the Danish "*bonde*"). This serves as an illustrative example. Here are three Danish sentences:

1. "Han er *farmer*. Han dyrker *wheat*."
2. "Han er *farmer*. Han dyrker hvede."
3. "Han er bonde. Han dyrker hvede."

The meaning of all of the sentences is the same (He is a farmer. He grows wheat). But for the first sentence "farmer" and "wheat" use the English word. In the second sentence only "farmer" is replaced. And the last sentence is fully Danish. Figure A5 in the appendix illustrates the language probabilities detected from these sentences. All the versions of the sentence are detected to be Danish with the highest probability. This at the same time implies that the estimated coefficient is likely to be small and we are therefore more interested in the direction rather than the magnitude of change. But the sentences with more English words are detected as having a small probability of being English, which is even larger for the sentence with two English words.

We generalise this idea to the full set of newspapers. For each page of each publication we ask for a language detection, and then study the probability of English as an outcome, which measures the Anglicization of the newspaper. Figure 4 shows all language probabilities for all time for all newspapers. This serves as a proof of concept. However, we are specifically interested in Anglicization. This is shown in Figure 5.

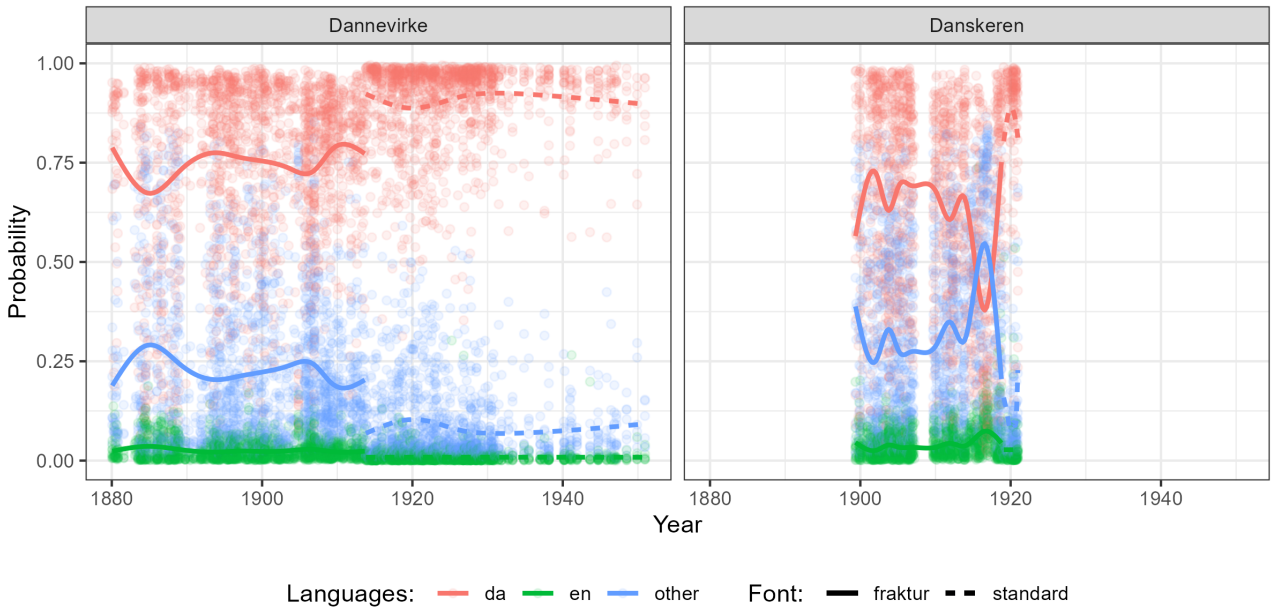


Figure 4: Language probabilities for all newspapers over time.

Notes: Probability that the language of a page of Dannevirke or Danskeren is either English, Danish or another language. From this figure, it can also be noted that the transition from the fraktur typeface to the standard typeface is associated with improved OCR quality and hence the lower predicted probability of other languages.

Next, we estimate how much the detection of English can be attested to OCR error (represented by the probability of "other")[22]:

$$en_{it} = other_t \times newspaper_i \beta_{it} + \varepsilon_{it} \tag{4}$$

The regression itself is not of interest, but the residuals are. They represent the development of English in the newspapers which cannot (on average) be attributed to OCR error. Figure 5 illustrates this.[23] If you were to bet on which language the newspaper is written in, the probability suggests the odds that you should find acceptable. The probabilities for English are rather small in the first place, and this yields numerically small effect sizes. But the chance of success when betting on English in *Danskeren* dramatically increases. The "Holy" *Danskeren* became gradually more English, while the "Happy" *Dannevirke* remained at a similar level of English probability throughout the period. This suggests that the Holy Danes gradually used more English, while their Happy Dane counterparts kept the same level of Danish content.[24]

[22]Since we know that only Danish and English influence is present in the newspapers, this measures the level of noise

[23]Figure A6 in the appendix shows the same plot with each observation plotted.

[24]We have also checked results using the secular *Den Danske Pioneer* (not included here). The result is similar to "Holy" *Danskeren*, indicating that the outlier is the "Happy" *Dannevirke* which aimed at reinforcing Danish culture.

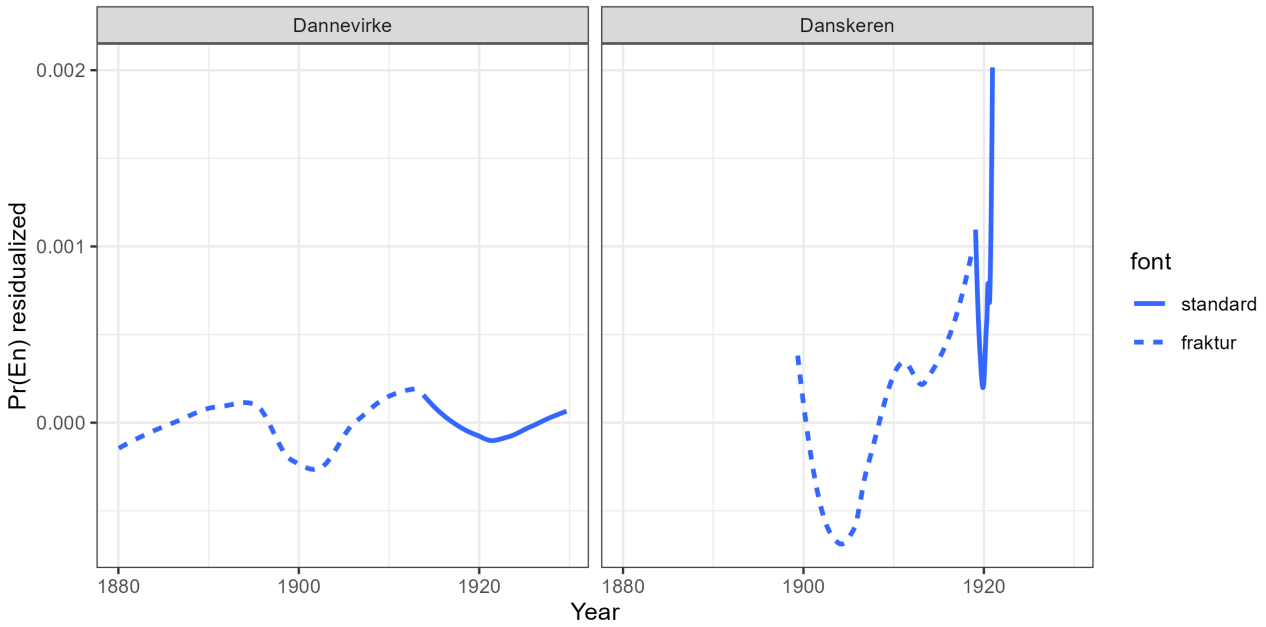


Figure 5: Residualized probabilities of English

Notes: Probability of English residualized by the probability of other languages than Danish. The dashed line shows results from the period when the newspaper used the fraktur typeface, and the solid line shows results from a modern typeface. The same figure but with individual data points is shown in Figure A6. The large drop in 1920 Danskeren is likely due to the switch from fraktur to standard typeface.

This can be demonstrated in regression form. Table 5 shows results from the following regression

$$Pr(Lang. = English)_{it} = \beta_0 + t\beta_1 + Danskeren_i\beta_2 + Danskeren_i \times t\beta_3 + \mathbf{z'_{it}}\gamma + \varepsilon_{it}. \quad (5)$$

Here the probability is explained by a parameter for *Danskeren*, β_2, and a trend, β_3. Since the data only contain the two newspapers, this is all in reference to *Dannevirke* captured by β_0 and β_1. $\mathbf{z'_{it}}$ includes the controls. We control for the probability of other languages interacted with each newspaper and the typeface used in the newspaper. Comparatively, *Danskeren* became more English over time, which corresponds to the result in Figure 5.

Table 5: Time trends in newspaper language probabilities.

	(1)	(2)
	All pages	Best quality pages
	$P(Lang. = English)$	
Year	-9.92×10^{-5}**	6.86×10^{-6}
	(4.58×10^{-5})	(8.12×10^{-6})
Danskeren	0.0448***	0.0042**
	(0.0085)	(0.0020)
Year × Danskeren	0.0008***	7.88×10^{-5}**
	(0.0001)	(3.42×10^{-5})
Observations	6,168	740
R^2	0.80597	0.94286
Adjusted R^2	0.80582	0.94247

Notes: Time trends in newspaper language probabilities. *Source: Own calculations based on Danish American newspapers.* Column (1) includes all pages of each newspaper. Column (2) only shows the highest quality page for each issue of each paper. Heteroskedasticity-robust standard-errors in parentheses. In the highest quality pages the probabilities for English are mechanically smaller. The effect sizes reflects this. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

4.3 Other measures of assimilation

We have demonstrated that Happy Danes gave more Danish names and that the newspaper affiliated with their communities was more reluctant to use English. This did not mean, however, that followers of the Happy church did not learn English. In fact, before and after 1883, 99.8 percent of second generation men report that they speak English. In the first generation, 102,478 men report English as their language, while 4,143 men report Danish. In the second generation, 117,627 men report English while only 143 report Danish. Thus, assimilation should be seen as the preservation of cultural identity, but certainly not a barrier to learning English.[25]

Finally, one might imagine that the rate of assimilation, especially in terms of first names given to children, is determined by intermarriage rates. Table 4 reports differences in the likelihood of the second generation having two (first generation) Danish parents, as compared to having only one. Both Happy and Holy Danes are more likely to have two Danish parents, as compared to second generation Danes without a Danish church in the county. These differences exist before and after 1883, with no significant changes over time. This is maybe not surprising, as both Happy and Holy Danes live in Danish enclaves, where the probability of finding (or arriving with) a Danish spouse is higher. In Holy communities, although Danes marry each other, we nevertheless demonstrated differences in the

[25]We might note here that Danish and English are Germanic languages, with similar grammatical structures, so the challenge would have been greater for other language groups.

naming of children, implying that assimilation is driven by explicit cultural beliefs.

5 Effects of assimilation: Economic outcomes

We have demonstrated that Danes living in counties with Happy churches exhibited less assimilating behavior during the time of the division, whereas Holy communities assimilated more. What impact did this have for the economic outcomes of the second generation? To investigate, we use the US census data from 1920 (Ruggles et al., 2021b) and focus on second generation men born between 1883 and 1900. This ensures that they were at least 20 years old at the time of the recording of their occupation. We use the occupational income score as provided by IPUMS, which assigns the median income of people with the specific occupation in 1950. We assign HISCO codes to the occupational titles using the procedure described by Dahl and Vedel (2024) and use these to classify individuals according to HISCLASS (van Leeuwen and Maas, 2011). We then define a dummy variable for whether an individual has a non-manual (HISCLASS lower than 5, and thus higher social status) or farming (HISCLASS 8) occupation.

Table 6 provides the results, estimating equation 1, now with occupational outcome variables. The fraction of second generation Danish men in the labor force is 99.9 percent (see Table 1). We do not therefore use this as an occupational variable for the second generation and focus instead on the type of occupation the individual worked in. As column (1) indicates, we do not find any significant effect from the type of community the individual lives in, i.e. from the beliefs concerning assimilation, on income scores. Assimilation thus does not seem to have led to higher earnings.[26] Happy Danes are, however, more likely to work in manual occupations and to be farmers.[27] Interestingly, there is no significant effect from the size of the enclave on any occupational outcome. The estimate on the size of the Danish community in the county is positive, as is in line with the findings of Eriksson (2020), but only the coefficient on the Happy churches is significant, indicating that this effect for Danes is only for one community, possibly due to their beliefs.[28] Holy and Happy communities wanted to become part of American society, as demonstrated by the two quotes we began this article with, but had different beliefs about how to achieve that.

[26] Although this is difficult to interpret since it is based on wages in the 1950s.

[27] In fact, the effect on non-manual and farming is present from 1890 only. Boberg-Fazlić and Sharp (2024) demonstrate that Danes in the US transferred knowledge about new agricultural techniques after this date and promoted dairying in the US. As Happy Danes were more focused on preserving their culture, it is likely that they also kept contact with their home country to a greater degree and thereby facilitated the knowledge transfer.

[28] In a regression not including the church indicators, we find a significantly positive effect on the likelihood of being a farmer in larger enclaves. In parallel to our findings for assimilation behavior, however, the beliefs of the community seem to matter more than its size, as indicated by column (3) in Table 6.

Table 6: Effects on occupational outcomes in the second generation

	(1) ln(occscore)	(2) nonmanual	(3) farmer
Holy	-0.015	-0.005	0.017
	(0.025)	(0.012)	(0.018)
Happy	-0.028	-0.026**	0.042**
	(0.025)	(0.012)	(0.020)
Both	-0.030	-0.011	0.054*
	(0.036)	(0.018)	(0.028)
1st genDanes/pop	-0.824	-0.289	0.713
	(0.638)	(0.309)	(0.452)
ln(population)	0.146***	0.089***	-0.095***
	(0.008)	(0.004)	(0.006)
State FE	Yes	Yes	Yes
Birthyear FE	Yes	Yes	Yes
Observations	50,045	50,045	50,045
Counties	1,748	1,748	1,748
Mean (dep.var.)	2.893	0.263	0.268

Notes: This table shows the effects of different types of churches, and thereby differential beliefs on assimilation, on economic outcomes in the second generation. We find no effect in terms of income, but Happy Danes are less likely to work in non-manual occupations and are more likely to be farmers. Second generation boys, born 1883-1900, 1920 census (Ruggles et al., 2021b). Standard errors in parentheses, clustered at the county level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

6 Conclusion

We considered the unique case of Danish Americans in the United States to investigate the importance of beliefs for assimilation, and in turn the impact of assimilation on labor market outcomes. We exploit that they were divided into rival Holy and Happy camps from the 1880s. The former favored assimilation, the latter wished to preserve their Danishness. Using data taken from the US census, and Danish American church and newspaper archives, we find evidence that although Happy Danes were less assimilated, this made little difference to their integration into the labor market, or their labor market outcomes. Thus, by investigating the division within this otherwise relatively homogeneous group of migrants, we provided evidence that beliefs matter for assimilation, but Danes in enclaves were no worse off in terms of economic outcomes than Danes without a church. This contrasts with previous literature which has relied on comparing particular ethnic enclaves and churches with e.g. the native born population, and find enclaves to be bad for economic success.

All this suggests that policymakers should be less concerned about migrants' desire for assimilation, or even about religious figures who preach the preservation of cultural identity. After all, as Boberg-Fazlić and Sharp (2024) and others have argued, immigrants who maintain contact abroad might even be beneficial for the host country. The invitation to join the "Happy" *Dansk Folkesamfund*, quoted at the beginning of this paper, argued correctly that it was possible to be good Danes, and at the same time be good American citizens who contribute to society. Happy Danes spoke English just as well as Holy Danes, and we found no evidence that they fared worse in an economic sense, or that they contributed less to the American economy. The important point must be that the desire to preserve language, religion and culture among immigrants may be of secondary importance to their will to succeed - and of course whether they are given opportunities to do so. In that sense, for example for reasons of legal or social discrimination, some ethnic enclaves today are certainly not as fortunate as those established by Danish Americans a century and a half ago.

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Table A1: Most frequent names among Danes, Americans, and Danish emigrants

	Men			Women		
Rank	US 1900s	DK1880 census	DK emigr.lists	US 1900s	DK1880 census	DK emigr.lists
1	John	Jens	Hans	Mary	Ane	Anna
2	William	Niels	Jens	Helen	Karen	Marie
3	James	Hans	Niels	Margaret	Maren	Ane
4	George	Peder	Carl	Anna	Marie	Karen
5	Charles	Anders	Peter	Ruth	Johanne	Johanne
6	Robert	Lars	Anders	Elizabeth	Anna	Maren
7	Joseph	Søren	Chr.	Dorothy	Mette	Christine
8	Frank	Peter	Lars	Marie	Kirsten	Caroline
9	Edward	Rasmus	Johan	Florence	Anne	Emma
10	Thomas	Christian	Nils	Mildred	Else	Kirstine

Notes: Most frequent names among 1900s US birth cohorts (from *Social Security Adminstration*, https://www.ssa.gov/oact/babynames/decades/names1900s.html), Danish population in 1880 (from Rigsarkivet, 1880), and among emigrants from Denmark 1868-1909 (from Det Danske Udvandrerarkiv, 2018).

Table A2: Balancing test: differences in the first generation

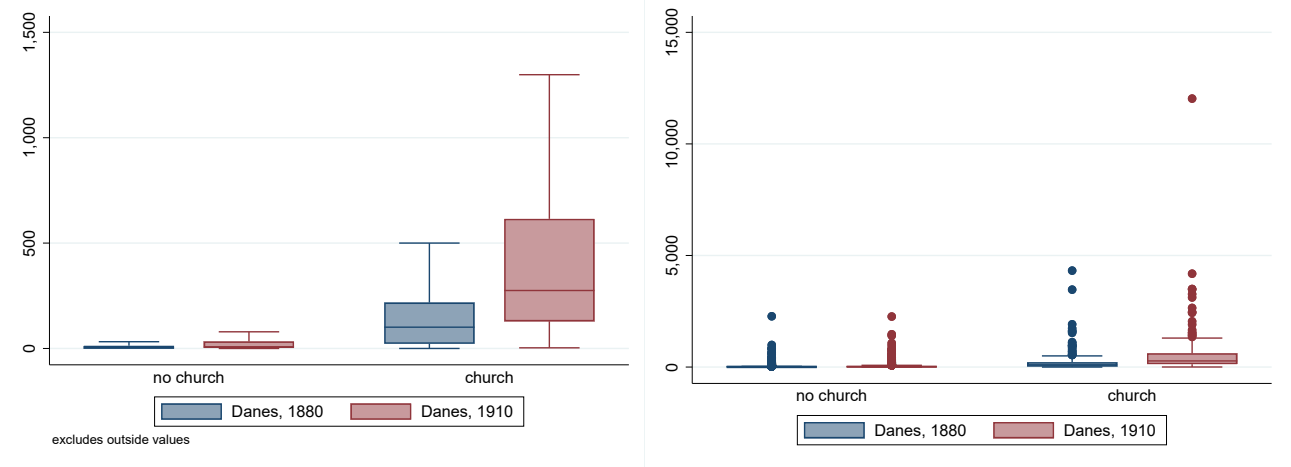
	All		Men				All	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Literate	SpeaksEnglish	Lab.force	ln(occscore)	Nonmanual	Farmer	1st gen./pop	ln(pop)
Holy	-0.000	-0.005	0.002	0.026	0.020	-0.002	0.016***	0.839***
	(0.003)	(0.006)	(0.001)	(0.023)	(0.014)	(0.035)	(0.004)	(0.190)
Happy	0.006***	0.009*	0.001	0.012	0.004	-0.002	0.009***	0.232
	(0.002)	(0.005)	(0.001)	(0.021)	(0.013)	(0.034)	(0.002)	(0.178)
Both	0.006**	-0.008	0.001	0.035	0.027	-0.000	0.020***	1.110***
	(0.003)	(0.006)	(0.001)	(0.032)	(0.018)	(0.050)	(0.005)	(0.209)
1st gen.Danes/pop	-0.043	-0.390***	0.011	-0.657**	-0.446***	0.886**		
	(0.037)	(0.148)	(0.008)	(0.276)	(0.157)	(0.427)		
ln(totpop)	0.002**	0.005***	-0.001	0.084***	0.047***	-0.118***		
	(0.001)	(0.002)	(0.000)	(0.007)	(0.005)	(0.012)		
Female	-0.011***	-0.042***						
	(0.001)	(0.003)						
Age	-0.001***	-0.004***	-0.000	-0.004***	-0.004***	0.005***	0.000***	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Immigr. year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	56,074	56,074	27,465	27,465	27,465	27,465	56,074	56,074
Counties	1,464	1,464	1,355	1,355	1,355	1,355	1,464	1,464
Mean (dep.var.)	0.984	0.960	0.997	2.956	0.182	0.419	0.212	9.927

Notes: This table shows differences in individual characteristics between first generation Danes, who immigrated before 1883, in counties which would later become Holy, Happy or both (columns (1) to (6)) and community characteristics (columns (7) and (8)). Estimating columns (7) and (8) on the county level gives the same results. Data: 1910 census (Ruggles et al., 2021a). Results: We find no significant differences in terms of occupational outcomes. Danes in (later) Happy counties are significantly more likely to be literate, but literacy is close to hundred percent for both groups. Communities with a church are located in counties with a larger Danish population and in counties with larger total populations. Community controls included throughout include the share of first generation Danes in the county population and the natural logarithm of total county population. Standard errors in parentheses, clustered at the county level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

Table A3: Balancing test: counties with at least one type of Danish church

	All		Men				All	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Literate	SpeaksEnglish	Lab.force	ln(occscore)	Nonmanual	Farmer	1st gen./pop	ln(pop)
Happy	0.004	0.022***	-0.000	0.026	0.002	-0.081	-0.008*	-0.979***
	(0.003)	(0.007)	(0.001)	(0.038)	(0.025)	(0.059)	(0.004)	(0.222)
1st gen.Danes/pop	-0.006	-0.699***	0.023	-0.501	-0.275	0.612		
	(0.072)	(0.251)	(0.015)	(0.508)	(0.252)	(0.808)		
ln(totpop)	0.001	0.009***	-0.001	0.117***	0.062***	-0.176***		
	(0.001)	(0.003)	(0.001)	(0.012)	(0.007)	(0.021)		
Female	-0.010***	-0.044***						
	(0.001)	(0.005)						
Age	-0.001***	-0.004***	-0.000	-0.004***	-0.004***	0.004***	0.000**	-0.002**
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
State FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Immigr. year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	30,367	30,367	14,575	14,575	14,575	14,575	30,367	30,367
Counties	153	153	152	152	152	152	153	153
Mean (dep.var.)	0.987	0.959	0.998	2.99	0.203	0.379	0.022	10.36

Notes: This table shows differences in the first generation for individual characteristics (columns (1) to (6)) and community characteristics (columns (7) and (8)) for Danes who immigrated before 1883. Estimating columns (7) and (8) on the county level gives the same results. Data: 1910 census (Ruggles et al., 2021a). We find no significant differences in terms of literacy or occupational outcomes. Happy churches are located in counties with smaller total populations than Holy churches. Community controls include the share of first generation Danes in county population and the natural logarithm of total county population. Standard errors in parentheses, clustered at the county level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$



(a) Excluding outside values

(b) With outside values

Figure A1: Size of first generation Danish communities across counties

Notes: An outside value is any value beyond the 5th and the 95th percentiles. This figure shows the number of distribution of the size of Danish communities per county in 1880 and 1910. We distinguish between counties with a Danish church (Happy and/or Holy) and counties without a Danish church. Communities in counties without a Danish church are much smaller than those with a church, but outliers exist. Data: 1880 census (Ruggles et al., 2021c) and 1910 census (Ruggles et al., 2021a).

Table A4: OLS estimations: enclaves vs. churches

	Birth cohort<=1883		Birth cohort>1883	
	(1)	(2)	(3)	(4)
	Dependent variable: DK(phon.)			
Holy	0.013		0.001	
	(0.009)		(0.004)	
Happy	0.003		0.017***	
	(0.009)		(0.004)	
Both	0.004		0.011**	
	(0.008)		(0.005)	
Enclave, dummy	0.025***		0.003	
	(0.007)		(0.003)	
ln(membersHoly)		0.001		-0.001
		(0.001)		(0.001)
ln(membersHappy)		0.000		0.002***
		(0.001)		(0.001)
1st gen.Danes/pop		0.490***		0.100
		(0.093)		(0.101)
ln(population)	-0.011***	-0.007***	-0.005***	-0.005***
	(0.003)	(0.002)	(0.001)	(0.001)
State FE	Yes	Yes	Yes	Yes
Birthyear FE	Yes	Yes	Yes	Yes
Observations	23,047	23,047	114,022	114,022
Counties	1,337	1,337	1,803	1,803
Mean (dep.var.)	0.195	0.195	0.116	0.116

Notes: This table estimates the role of living in an enclave vs. living close to a church. Before 1883, living in an enclave seems more important as measured by an enclave dummy (= 1 if the number of Danes is larger than the average Danish settlement) and by the number of members of the church. After 1883, only Happy churches play a significant role for naming behaviour. Second generation boys, split by birth cohort before / after 1883. Data: 1910 census (Ruggles et al., 2021a). Standard errors in parentheses, clustered at the county level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

Table A5: OLS estimation with different control variables

	Birth cohort<=1883		Birth cohort>1883		All	
	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable: DK(phon.)					
Holy	0.013	0.007	-0.002	-0.001	0.008	0.011
	(0.009)	(0.008)	(0.003)	(0.004)	(0.010)	(0.009)
Holy × post1883					-0.009	-0.013
					(0.011)	(0.010)
Happy	0.007	0.002	0.016***	0.015***	-0.015	-0.013
	(0.009)	(0.009)	(0.004)	(0.004)	(0.012)	(0.011)
Happy × post1883					0.035***	0.031***
					(0.012)	(0.012)
Both	0.001	-0.005	0.004	0.005	-0.010	-0.007
	(0.007)	(0.008)	(0.005)	(0.005)	(0.009)	(0.009)
Both × post1883					0.016	0.010
					(0.010)	(0.010)
MotherDanish		-0.024***		-0.001		
		(0.008)		(0.003)		
BothParentsDanish		0.061***		0.024***		
		(0.007)		(0.003)		
1st gen.Danes/pop		0.429***		0.066		0.295***
		(0.086)		(0.109)		(0.056)
ln(population)		-0.005**		-0.004***		-0.004***
		(0.002)		(0.001)		(0.001)
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Birthyear FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	23,047	23,047	114,022	114,022	137,070	137,070
Counties	1,337	1,337	1,803	1,803	1,953	1,953
Mean (dep.var.)	0.195	0.195	0.116	0.116	0.130	0.130

Notes: Columns (1) and (3) correspond to columns (2) and (6) in table 2 without control variables. Columns (2) and (4) include additional parental controls for having one or both parents Danish (the reference category is having a Danish father). Second generation boys, split by birth cohort before / after 1883. Second generation Danes are more likely to have a more Danish name when both parents were born in Denmark. This does not, however, affect the separate effect from living in a county with a Happy church after 1883. Columns (5) and (6) show the interacted version on the full sample. Data: 1910 census (Ruggles et al., 2021a). Standard errors in parentheses, clustered at the county level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

Table A6: Robustness checks

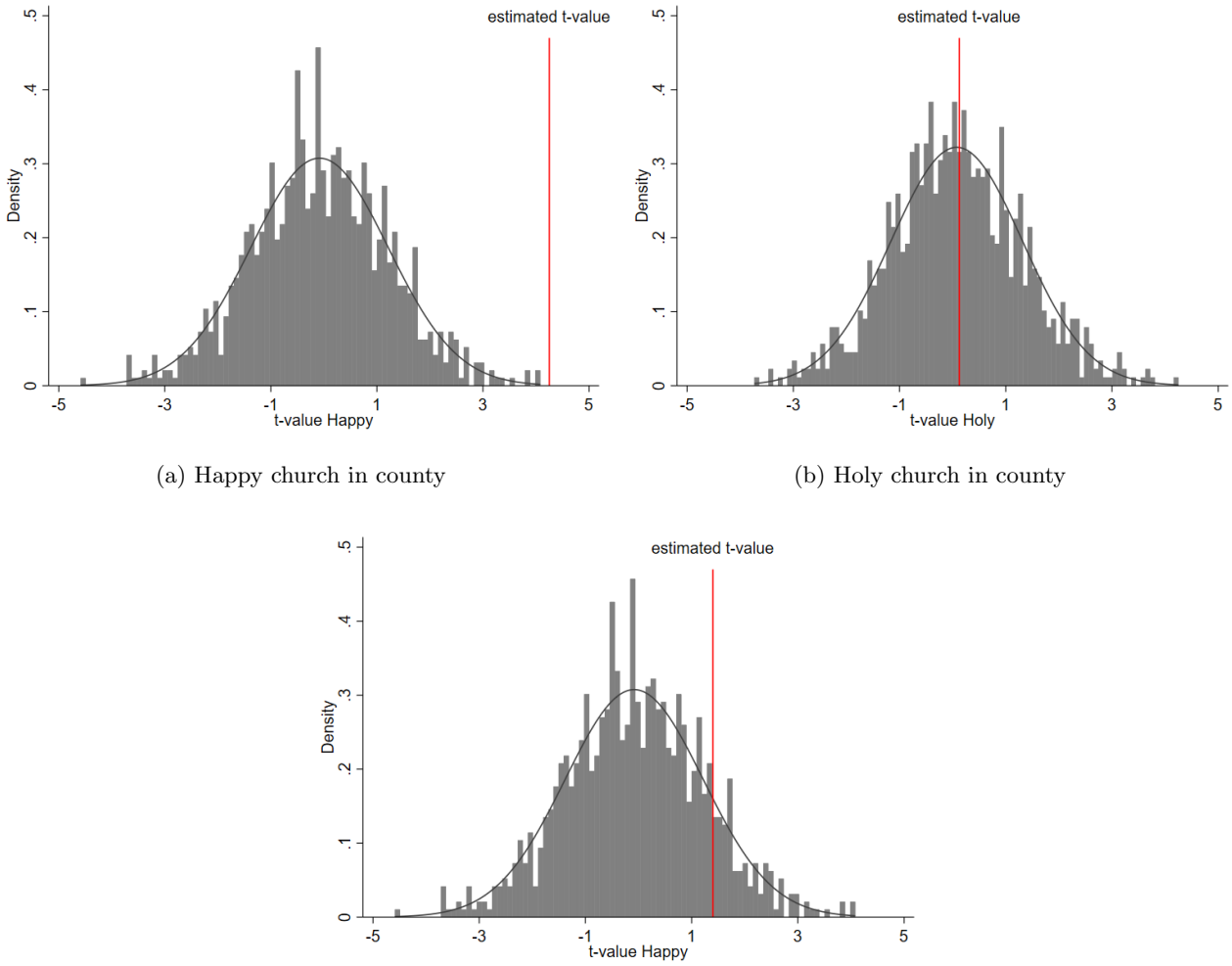
	OLS		DiD	
Birth cohort	<=1883	>1883	All w/church in county	
	(1)	(2)	(3)	(4)
	Dependent variable: DK(phon.)			
Holy	0.010	-0.000		
	(0.008)	(0.004)		
Happy	0.006	0.017***		
	(0.009)	(0.004)		
Both	-0.000	0.008		
	(0.008)	(0.005)		
NorwegianChurch	0.002	-0.004		
	(0.011)	(0.004)		
ln(population)	-0.006***	-0.004***		
	(0.002)	(0.001)		
Happy			0.025**	0.023**
× post1883			(0.012)	(0.010)
NorwegianChurch			-0.023*	
× post1883			(0.012)	
1st gen.Danes/pop1880				-0.580**
× post1883				(0.266)
ln(pop1880)				0.007***
×post1883				(0.002)
Observations	23,047	114,022	67,313	65,367
Counties	1,337	1,803	168	153
Mean (dep.var.)	0.195	0.116	0.131	0.131

Notes: This table presents robustness checks of table 3, including a dummy for Norwegian church in the county (as of 1906). Second generation boys, split by birth cohort before and after 1883. Data: 1910 census (Ruggles et al., 2021a). Norwegian churches play a role for naming only before 1883 and do not affect our main results. Standard errors in parentheses, clustered at the county level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$

Table A7: Spatial robustness checks

	Midwest only			Conley (50km)		
Birth cohort	<=1883	>1883	All	<=1883	>1883	All
	(1)	(2)	(3)	(4)	(5)	(6)
	Dependent variable: DK(phon.)					
Holy	0.012	0.000		0.010	0.000	
	(0.010)	(0.004)		(0.009)	(0.004)	
Happy	0.014	0.018***		0.006	0.017***	
	(0.011)	(0.006)		(0.010)	(0.004)	
Both	-0.014	0.005		0.000	0.007	
	(0.010)	(0.007)		(0.008)	(0.005)	
1st	0.675***	0.147		0.495***	0.115	
gen.Danes/pop	(0.190)	(0.122)		(0.092)	(0.101)	
ln(population)	-0.001	-0.004**		-0.006**	-0.004***	
	(0.003)	(0.002)		(0.002)	(0.001)	
Happy			0.013			0.029*
× post1883			(0.013)			(0.015)
Observations	12,100	71,018	48,834	23,051	114,022	67,319
Counties	730	884	129	1,337	1,803	168
Mean (dep.var.)	0.197	0.116	0.130	0.105	0.117	0.131

Notes: This table presents spatial robustness checks of the main results. Columns (1)-(3) use counties in the Midwest only (as defined by US Census Bureau, this includes: North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Michigan, Indiana, and Ohio). Columns (4)-(6) present Conley standard errors for 50km cut-off. Data: 1910 census (Ruggles et al., 2021a). Standard errors in parentheses, clustered at the county level (columns (1)-(3)). *** $p < 0.01$ ** $p < 0.05$ * $p < 0.10$



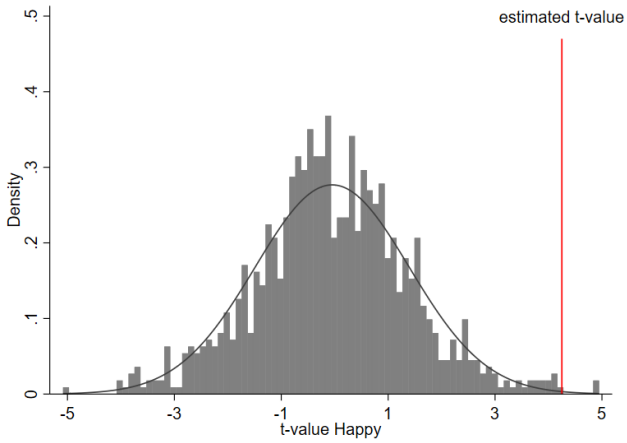
(a) Happy church in county

(b) Holy church in county

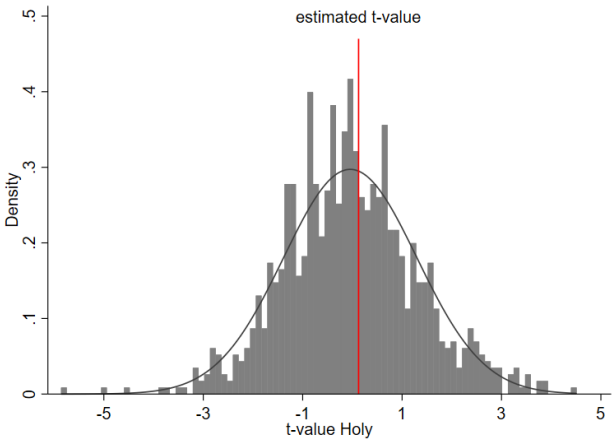
(c) Both churches in county

Figure A2: Randomized church distribution, method 1 - no clustering of churches. Dependent variable: DK(phon.)

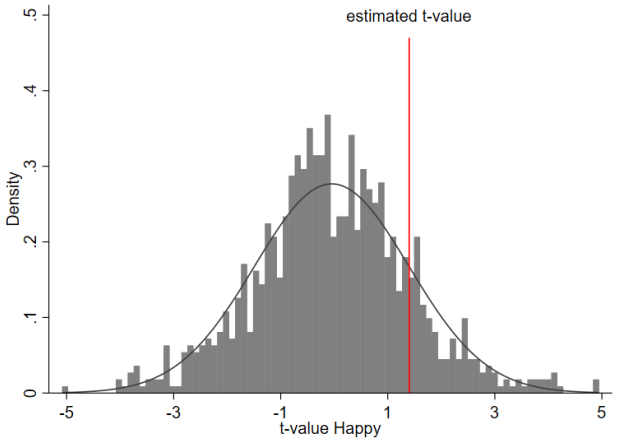
Notes: The figures show t-values for the coefficients on Happy, Holy and Both using a randomized distribution of churches and repeating this process 1,000 times. The estimation corresponds to column (6) in table 2. The distribution of coefficients if churches were randomly placed is shown (as t-values) together with the corresponding coefficient estimated with the real data (as a t-value in red). This indicates, that it is unlikely that the observed coefficient occurred by chance. The share of observations, that would randomly fall beyond what we observe is 0.001 for Happy, 0.914 for Holy and 0.333 for both churches. This can be interpreted as the p-value given spatial randomization.



(a) Happy church in county



(b) Holy church in county



(c) Both churches in county

Figure A3: Randomized church distribution, method 2 - with clustering of churches. Dependent variable: DK(phon.)

Notes: The figures show t-values for the coefficients on Happy, Holy and Both using a randomized distribution of churches and repeating this process 1,000 times. The estimation corresponds to column (6) in table 2. The distribution of coefficients if churches were randomly placed is shown (as t-values) together with the corresponding coefficient estimated with the real data (as a t-value in red). This indicates, that it is unlikely that the observed coefficient occurred by chance. The share of observations, that would randomly fall beyond what we observe is 0.003 for Happy, 0.902 for Holy and 0.368 for both churches. This can be interpreted as the p-value given spatial randomization.

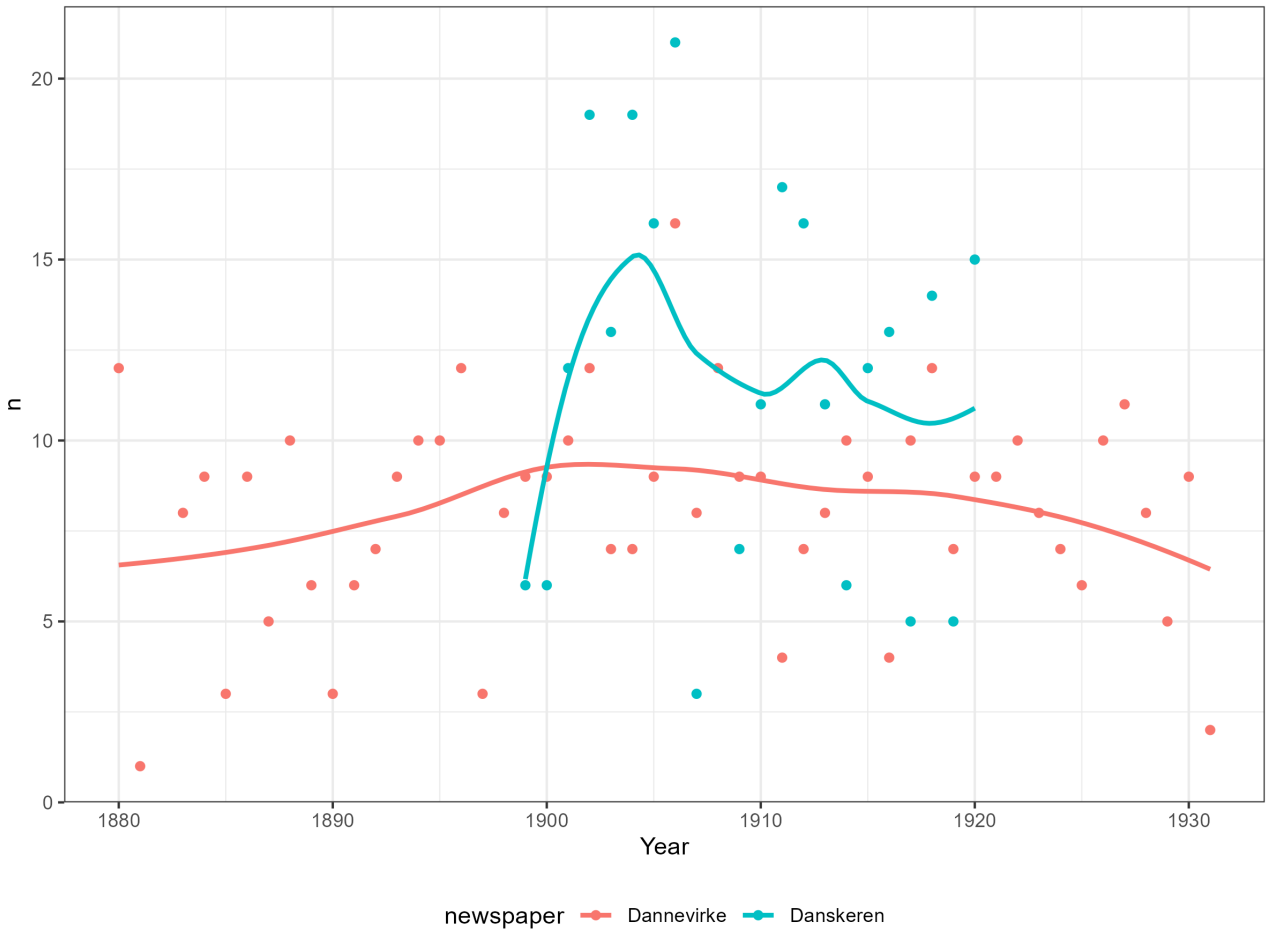


Figure A4: Number of pages in the newspapers used for Language detection

Notes: This figure shows the number of publications over time of the newspapers used in the analysis. This is a random subsample and thereby this distribution, on average reflects the overall distribution of all the publications in the archive. The line reflects the average over time estimated with LOESS.

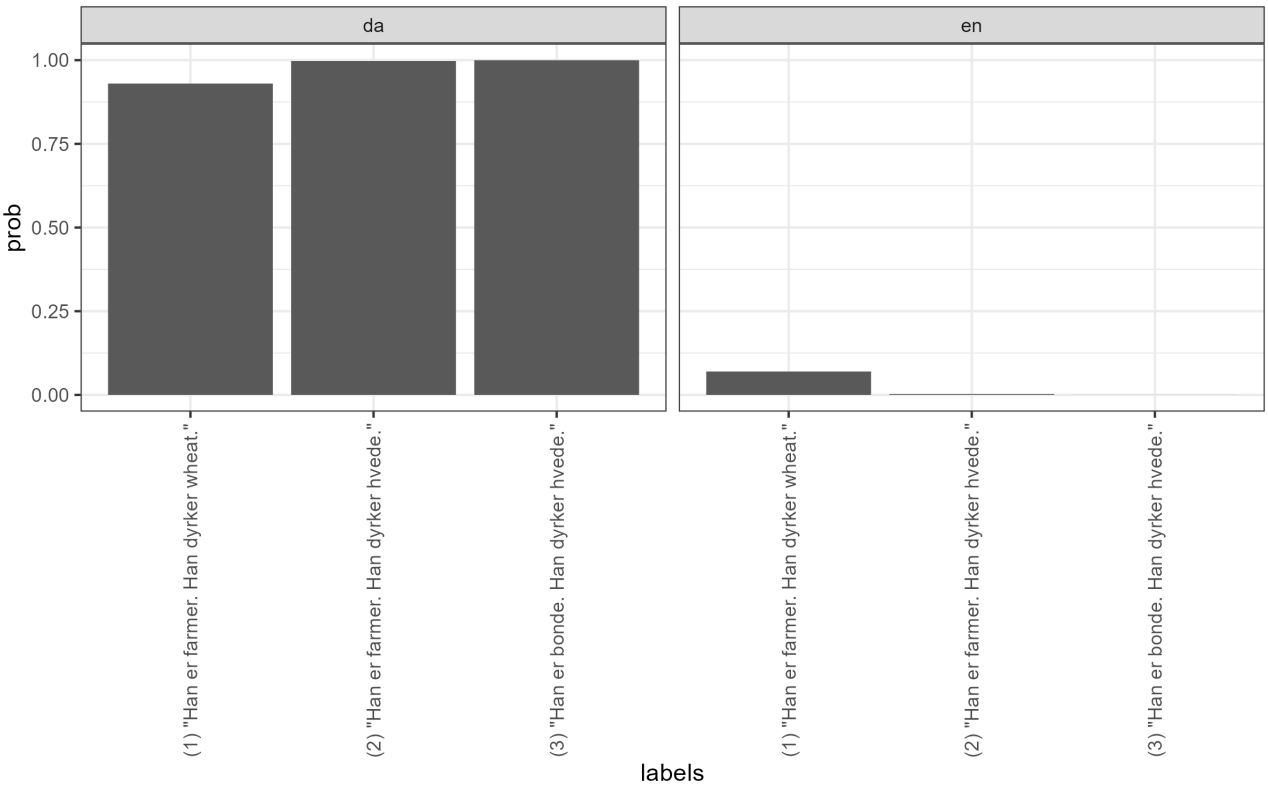


Figure A5: Detected language probabilities from the three illustrative sentences.

Notes: The figure shows the probability that a sentence is classified as Danish or English. This illustrates, that the procedure classifies the language correctly, but also that the estimated probability of Danish is still very high, although there is a strong impact of English in the sentence. Any estimated effect size will therefore be small, despite a clear Anglicization of central words.

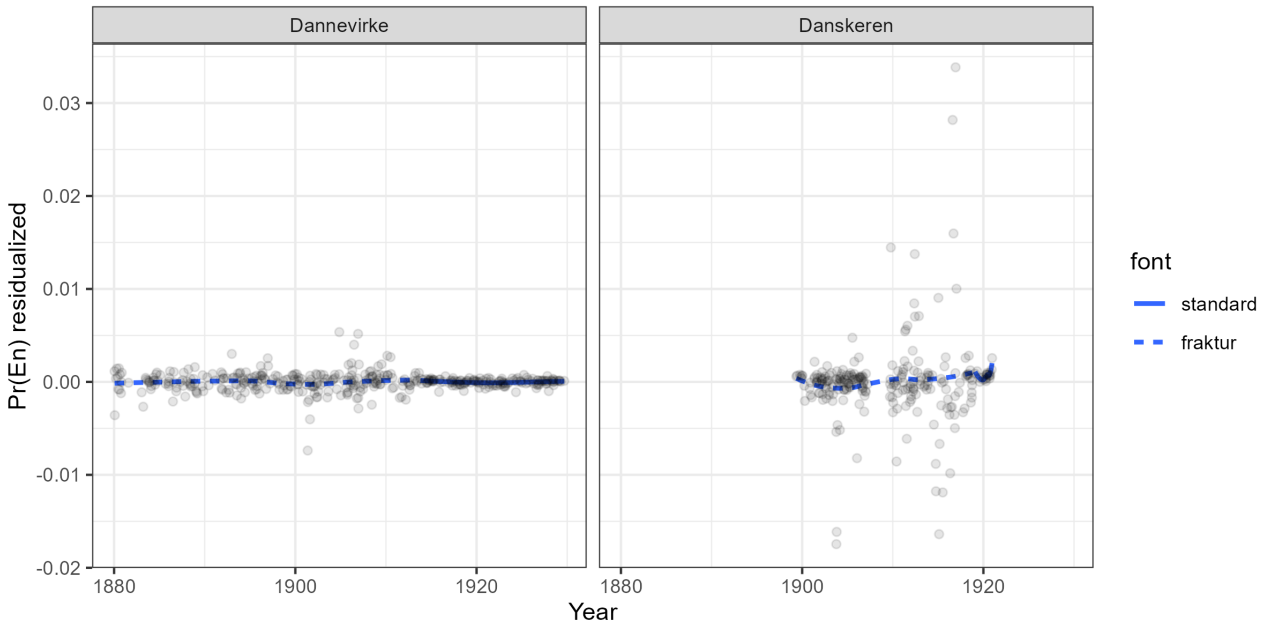


Figure A6: Probability of English residualised by the probability of other languages than Danish.

Notes: This figure corresponds to figure 5 including the individual data points. Excluding 30 potential outliers (defined as >2 SD measured for the individual newspaper) yields the same result.

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