Scandinavian Economic History Review

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/sehr20

'I will learn from it for as long as I live' – religious reading and functional literacy skills

Mikko Moilanen & Hilde Leikny Sommerseth

To cite this article: Mikko Moilanen & Hilde Leikny Sommerseth (2020): 'I will learn from it for as long as I live' – religious reading and functional literacy skills, Scandinavian Economic History Review, DOI: 10.1080/03585522.2020.1786449

To link to this article: https://doi.org/10.1080/03585522.2020.1786449

SCANDINAVIAN ECONOMIC HISTORY REVIEW
https://doi.org/10.1080/03585522.2020.1786449

'I will learn from it for as long as I live' – religious reading and functional literacy skills

Mikko Moilanen[a] and Hilde Leikny Sommerseth[b]

[a]School of Business and Economics, UiT The Arctic University of Norway, Tromsø, Norway; [b]Department of Archaeology, History, Religious Studies and Theology, UiT The Arctic University of Norway, Tromsø, Norway

ABSTRACT

Max Weber claims in his well-known book, The Protestant Ethic and the Spirit of Capitalism, that the emergence of capitalism had its roots in the Protestant work ethic. Becker and Woessmann's seminal 2009 paper finds that the more likely relationship between Protestantism and economic prosperity runs via literacy. They claim that Protestants unintendedly acquired literacy skills that functioned as human capital in the economic sphere by adhering Luther's call to learn to read the Bible on their own. In this paper, we investigate at individual level to what extent one by reading Holy scripts acquired functional literacy skills. By using unique individual-level data from nineteenth-century Protestant Norway, we are able to identify offsprings of families known to be intensive readers of religious texts. Our results indicate that the effect of religious reading on functional literacy was restricted: religious reading gave better skills to read easily understood texts, but did not give better skills to read more advanced texts. Our results give more nuances in our understanding of what role pre-modern Nordic religious reading played in economic progress in Lutheran Nordic countries.

ARTICLE HISTORY
Received 3 July 2019
Accepted 30 January 2020

KEYWORDS
Religious reading; functional literacy; protestantism

JEL CODES
Z12; I21; N33; O15

1. Introduction

According to Max Weber (Weber, 1904/1905), the origins of capitalism were in the Protestant work ethic that made accumulation of wealth acceptable and thus provided the moral foundation for industrialisation. Over one hundred years later, economists have shown interest in revisiting this so-called Weber hypothesis empirically using historical data. This has propelled alternative explanations for Weber's observations. Becker and Woessmann's seminal paper (2009) sparked much of this renewed interest. Instead of the idea of a widespread presence of a capitalist sprit, they argue that the relationship between Protestantism and economic prosperity runs through literacy. The key feature in their argument is Luther's call to teach people reading skills so that they could understand Bible by themselves. Becker and Woessmann claim that as an unintended side effect of this exhortation, Protestants acquired linguistic and methodological skills 'that functioned as human capital in the economic sphere' (Becker & Woessmann, 2009, p. 581). The key understanding, as Becker and Woessmann argues, is that skills acquired by reading, understanding, and interpreting the Bible were of value in other tasks beyond the religious sphere.

Following this, economists have given particular attention on studying the direct connection between Protestantism and human capital accumulation on regional level: Becker and Woessmann (2010) find that school enrolment levels in Protestant counties were higher than the levels in Catholic

CONTACT Mikko Moilanen mikko.moilanen@uit.no

ones already before industrialisation. Similarly, Boppart, Falkinger, Grossmann, Woitek, and Wüthrich (2013) find out that Protestant districts had higher educational spending. Dittmar and Meisenzahl (2016) show that Protestant cities with mass public education produced and attracted more high-level human capital compared to Catholic cities. Boppart, Falkinger, and Grossmann (2014) study the effect of Protestant reformers Huldrych Zwingli's and John Calvin's effect on education. They use aggregated regional data from nineteenth century from the pedagogical tests in military service from over 160 Swiss districts. They find that higher share of Protestants in a region increased especially reading skills, but also led to better marks in essay writing, mathematics and knowledge of Swiss history and constitution.

However, the above economists have not touched the central claim of Becker and Woessmann (2009), namely that learning to read, understand, and interpret the Bible gave Protestants skills that functioned as human capital in the economic sphere. Nordic historians in literacy have nevertheless been debating this linkage between Protestantic religious literacy and human capital since Johansson (1972). He finds by examining the Swedish catechetical examination registers (*husförhörslängder*) that over 90 per cent could read by the turn of the nineteenth century. Odén (1975) criticises Johansson's conclusion, and argues that his selected source only measures religious reading ability. Odén (1975) states on the other hand that the pre-modern religious reading ability was no more than a passive skill, its function being restricted only to supporting memorisation of already known religious texts. As Guttormsson (1990) writes, what Johansson had found was not a functional literacy, but only a restricted *religious literacy*. He defined the concept of religious literacy referring to the capacity to read familiar religious texts in print – associating letters with words, memorising and reading aloud. However, it is still unclear to what extent this pre-modern religious reading promoted functional literacy skills. This paper contributes to fill this gap and investigates what type of skills people acquired by reading the Bible and other holy scripts. Functional literacy is in this context understood as an ability to read unfamiliar texts and to be able to form coherent, written text (Nilsson, Pettersson, & Svensson, 1999). The concept of functional reading skills thus is very close to Becker and Woessmann's wording for skills 'that functioned as human capital in the economic sphere' (Becker & Woessmann, 2009, p. 581).

Pre-modern Lutheran Norway provides an interesting laboratory to study this issue. Reading in Norway was then characterised with a distinct Nordic religious literacy pattern (Appel & Fink-Jensen, 2011; Gundersen, 2003). This was a specific manner of reading that evolved in the Nordic Protestant regions of Europe in the centuries after the Reformation. It is this reading pattern Guttormsson (1990) defines as *religious literacy.*[1] Appel and Fink-Jensen (2011) coin it as *religious reading in Lutheran North.* As this term refers only to a manner of reading and not writing, we now on denote it as *Nordic religious reading*. The teaching initiated by the State and Church during the 17th and the eighteenth century did not aim primarily to teach people to read, but to teach them how to master – or just memorise – the ecclesiastical message of the Church in a Lutheran Protestant setting (Gundersen, 2003). Further, the acquisition of reading skills at home often happened in environments that focused on a very limited array of religious texts alone (Appel & Fink-Jensen, 2011). For example, detailed studies of the soul registers from Ofoten in Norway, just south of the region covered in our study, convey that households on average only owned 3.25 books in 1775 (Apelseth, 2004). Inventory lists among farmers from Norway in the period from 1690 to 1839 indicate that the books people read most were religious. Bibles, Catechisms, hymn books and postils were the most usual books people owned (Fet, 1995).

More importantly, the didactic mechanism of *Nordic religious reading* was aloud-reading and the repetition of known text, an intensive drill of a non-literal, formulaic language (Guttormsson, 1990). Undoubtedly, the reader became well acquainted with the intricate terminology from the Bible and other devotional books, but still powerless to face a simple text about the events in the capital or the

[1]"Literacy" in English denotes both reading and writing skills while the Nordic languages have no single common word for the two kinds of skill.

benefits of potato cultivation (Gundersen, 2003). Following Mitch (1990), one possible explanation for the limited progress among the nineteenth century peasant farming could be that although Norwegian farmers seemingly had widespread proficiency in reading, they lacked functional reading skills. Ole Vig (1824–1857), who was one of the prominent pioneers in Norwegian education, has nicely portrayed this paradox: 'People who read fairly quickly and steadily in Bible history, Pontoppidan and New Testament […] are almost completely stuck if they get a Newspaper or Agricultural book in their hands' (our translation; Tveit, 1981). From this, it is clear that religious reading skills were not synonym to functional reading skills.

With our data we are able to measure different kind of functional literacy skills, and we specifically ask to what extent *Nordic religious reading* increased functional literacy. Answering this question will contribute to shed more light on the foundations of the assumed link between literacy and economic development. In this paper, we use Haugeanism, a Pietistic reform movement in nineteenth century Norway, to identify religious readers. The church historical development in Norway in the nineteenth century was characterised by revival movements, and Haugeanism was the largest of these revival movements (Molland, 1978). The movement's founder, Hans Nielsen Hauge (1771–1824) was theologically inspired by German pietism and British puritanism (Grytten, 2013). The premise of their reading culture was on old catechism piety, and Haugeanism was the main preserver of the *Nordic religious reading* pattern described above (Gundersen, 2011). Haugean followers were known to intensively read the Bible and religious scripts and they were called readers by their contemporaries (Grendahl & Simonsen, 1849). Gundersen (2011) points out that instead of embracing the broad possibilities of the new written culture of the nineteenth century, the converts turned towards this old-fashioned Nordic religious reading pattern.[2] The purpose of reading was to read the same text repeatedly, until the defining sphere of one's life and the text finally blended into one. Despite their traditional way of religious reading, quite many Haugeans launched industry initiatives (Grytten & Minde, 2019), and this progressive behaviour suggests that they may have been in need for functional literacy skills.

It is no easy to identify the supporters of Haugeanism, the movement was difficult to delineate, because it was not organised in associations (Molland, 1978). Therefore, Haugeans must be identified by other sources. Since available historical register data does not directly identify members belonging to Lutheran religious movements, we indirectly identified Haugeans using a large-scale migration of Haugean followers from the inland of South Eastern Norway to Inner Troms County in Northern Norway as a case. Largely through the efforts of Hans Nielsen Hauge himself, his followers, literally hundreds of people, moved from mountain villages in South Eastern Norway (mainly from the valleys of Gudbrandsdalen and Østerdalen) to Inner Troms during the first half of the nineteenth century. Målselv was in the nineteenth century one of the strongest Haugean societies in Norway (Seland, 2017). In 1865, one of four inhabitants in Målselv (with a population size of 2,479) was born in South Eastern Norway. In addition to their strong faith, they also imported their culture – dialects, place names, customs and practices, construction methods, clothes and eating habits – from the areas they migrated from (Bårnes, 1991).

According to Graff (2009), the environment where children learn to read has a major influence on the likely use of reading skills. Home instruction was important and widespread (Skjelbred, 2010). There are several stories in which the Haugeans thank their parents for instructions in religious reading, and Hauge himself also expressed gratitude to his parents for learning to read the Bible and Catechism (Golf, 1996). The parents adhered to the teaching methods they had used when learning to read, and thus preserved the reading culture (Skjelbred, 2010). Obviously, such informal teaching in private homes did not leave many archival traces behind and is difficult to document. With our data, we are able to identify different religious reading cultures between families.

[2]Similar revivalist reading cultures that evinced a thorough Christian knowledge through intense reading of religious literature developed also in Northern Sweden. The reading movement had its centre in Skellefteå parish, and fought for a pre-modern reading culture based on repletion of Holy Scripts (Lindmark, 2009).

To measure which functional literacy skills religious reading at home enhanced, we gathered unique data on subject marks from school records for 118 pupils upon completion of compulsory education in Målselv, a rural municipality in Inner Troms, during the twenty-year period between 1869 and 1889. We then linked the pupils to demographic and socio-economic characteristics of their families, using the Norwegian Historical Population Register (HPR).[3] Our period of study coincides with the introduction of the 1860 Public Rural Schools Act in Norway. The Act introduced a new subject: Geography, history and natural sciences. In the preparatory work of the Act it was clearly pronounced that the school should put more emphasis on functional literacy skills than before, as these subjects were of importance for this 'external (material) Life' (Vig, 1855, p. 331).[4] The curriculum then consisted of seven subjects: Bible history, Deontology, Reading, Writing, Geography, history & natural sciences, Arithmetics, and Singing. With our data, we are able to measure offsprings' skills based on marks in all these subjects, and separate between religious and functional literacy skills. Reading, Writing, Geography, history & natural sciences and Arithmetics represent skills in functional literacy. In addition, the period of our study is also particularly interesting, as the agrarian transition in Northern Norway to more market-oriented agriculture made understanding of written information increasingly important (Bratrein, 1997).

This article is structured into five sections. Following the introduction, section 2 describes Haugean religious reading and its historical contexts, followed by a recount of Haugeanism and its reading culture as it developed in our case municipality. Section 3 explains our data and data linking process. In section 4, we present our main results. We document that the effect from religious reading was restricted to be able to read easily understood unknown texts, but not more advanced texts. The fifth and final section discusses the findings, and suggests further work. Haugeanism and premodern religious reading.

2. Haugeanism

Hans Nielsen Hauge was the founder of the Haugean movement and is probably the most important figure when it comes to the development of Norwegian religious life in the nineteenth century. He founded the movement in 1796 after a revelatory experience. He soon started to spread his message as an evangelist holding meetings for ordinary people in villages, and during the following eight years, he covered 15,000 km by walking. He produced 17 books, the combined number of copies issued being estimated as somewhere between 200,000 and 250,000. About 100,000 Norwegians, majority of them peasants, read one or more of Hauge's books, an impressing number taking into account that the Norwegian population at that time was approximately 800,000. The books were distributed across the entire country through Haugean friends' network of preachers, and ordinary believers (Haukland, 2014).

Haugeanism was a community of reading. Based on the biographies of Haugeans in the nineteenth century, reading of holy scripts in childhood seem to have been a common trait among many of the converts (Gundersen, 2011). The New Testament, Luther's Catechism and Pontoppidan's explication were the most frequent books owned by Haugeans, in addition to Hauge's books. Knowledge of the Bible was the main goal for Hauge himself (Fet, 1995). As mentioned, Haugean followers were in many communities called readers, and they were considered having better reading skills than others. However, they did not read like us, like modern readers. A typical Haugean family had only a few books that they read over a course of a lifetime According to Gundersen (2011) it was very important for the Haugeans to appear as old-fashioned, intensive readers, as upheld in conservative catechismal piety. Although the 1800s were a century for emergence of the printed public sphere, Haugeans did not embrace this new reading culture; their religious reading culture was defined by their piety as a conscious choice, and not as a choice out of necessity. The

[3]A description of the linkage follows in Section III.
[4]According to Vig, religious knowledge was important for salvation.

purpose of their reading was repetition, re-reading same texts and books over and over again to learn them by heart in order to internalise the text in one's life. This is confirmed by Bishop in Bergen, Johan Nordahl Brun, who writes in a letter that the Haugeans' only talent was to know a great quantity of the Bible by heart (Bang, 1874). Hauge's words about his own reading of the Small Catechism is captured in his first book *Contemplation on the Foolishness of the World* and describes this kind of reading very well: 'I will learn from it for as long as I live' (our translation; Hauge, 1796, p. 38).

2.1. Haugeanism and Målselv

There were no sedentary residents in Målselv, an inland municipality in Troms in Northern Norway, before 1788, but nomadic reindeer husbandry had used the areas for centuries. The first settlers to Målselv came from Helgeland in 1788, but already the following year the first settlers from South Eastern Norway arrived. Migration to Inner Troms is regarded as one of the largest organised colonizations of 'uninhabited' land in Norway. The starting point was a large flood disaster, *Storofsen*, which mainly hit the upper parts of Gudbrandsdalen and Østerdalen in South Eastern Norway in 1789. A number of farmers abandoned their damaged farms and settled in Målselv. The bailiff in the district, Jens Holmboe, was instrumental in settling this region. The first Hauge followers settled in Målselv and Bardu (the neighbouring municipality) in 1801–1802. Hauge himself visited the settlers in 1803. After the trip Hauge encouraged many of his followers to move to Inner Troms (Bakken, 1973). Hauge even sent single women from South Eastern Norway who he found suitable to become wives for the settlers (Thorvaldsen, 2004). This first wave of pioneer in-migration to Inner Troms continued until 1805, but then it almost stopped. By then, 40 settler families had inhabited the valleys. It is also believed that Hauge himself encouraged also the second wave of in-migration from 1820 and onwards; in 1817, two prominent Haugeans travelled to Målselv and afterwards wrote letters to Hauge encouraging him to tell his followers from the south about the favourable life in the north. One of the closest friends of Hauge, Lars Iversen Kvarekvol, moved to Målselv the following year. He is mentioned as the most prominent and influential of the Haugeans in Målselv (Kiil & Eilertsen, 1976). From 1820 and onwards land clearing in Inner Troms again put on speed and a total of 159 families from South Eastern Norway were counted until 1835 (Thorvaldsen, 2004). Other leading Haugean revivalists also moved to the municipality, like Elling Eielsen (in 1830s), Anders Haave (1840s) and Ole Kallem (in 1850s), and kept revival meetings. Their migration attracted other Haugean believers to relocate to inner Troms. The in-migration from South Eastern Norway to Inner Troms culminated just before the mid-1800s, and after 1850 there was little migration to the region (Thorvaldsen, 1995).

The faith among settlers was strong, and the same goes with the intergenerational cultural transmission from a generation to the next. Blom (1832) speaks of a sect when writing about Haugeans in Målselv. When he visited Inner Troms in 1827, he was told that Haugeans stood in uninterrupted bloodline to their brothers in the southern regions. He also wrote that many men and women had made trips to Christiania and the surrounding areas 'to visit the formal martyr of their faith, the strange and reportedly less righteously treated, Hans Nielsen Hauge' (Blom, 1832, p. 316). The first Hauge followers in Målselv brought with them Hauge's writings, which were diligently read, and there was hardly no settler who did not own a copy of Hauge's writings (Kiil & Eilertsen, 1976).[5] Indication that the religious reading culture among the settlers was strong and transmitted between generations is also well indicated by the district agronomist Jensenius who as late as in 1860s wrote: 'A beautiful feature of Maalselv settlers' character I still have to touch – is their sense of

[5]In connection with Hauge's imprisonment in 1804, it was ordered that all those who possessed or distributed Hauge's writings were to hand them over to the police chief. If later a single copy was found in someone's possession, or one copy was handed over to others, the person was to pay a fine of 50 riksdaler (1200 euro today) to the poor relief fund. The writings were to be kept by the police chief - until Hauge was convicted. When it was time to hand over the books again in 1816, the police chief in Målselv informed that he had two barrels full of Hans Nielsen Hauge's writings – 18 different books in a total number of 433 (Kiil and Eilertsen, 1976).

religious enlightenment and fear of God. Almost at every farm I saw a small collection of pious books' (Sæter, 1926). A well-known contemporary Norwegian author Kristofer Janson also described Haugeans' reading culture. They were reading religious books, especially devotional books, and had 'no sense of literature and similar expressions of spiritual life'. They only lived for two things: the word of God and food (Eilertsen & Kiil, 1981). Culture and religion was also transmitted across generations through endogamy, as many of the sons of in-migrant families travelled to South Eastern Norway to get wives and to preserve 'blood unmixed' (Bårnes, 1991, p. 60). What makes the colonisation of Inner Troms a good case to study religious reading culture is that it is clearly defined in time and place. It was a population group that for a limited period almost collectively moved from South Eastern Norway. The first generations constituted a closed society without much contact with the northern Norwegian coastal population. It should be emphasised here that it really seems to have been a colony, it was a settler society that imported, as earlier mentioned, its vital culture elements from South Eastern Norway (Bårnes, 1991). The group's geographical isolation, endogamy and a high degree of self-sufficiency are the reasons why Haugeanism, with its religious reading culture, had a strong religious influence not only throughout the nineteenth century, but its cultural legacy has characterised Målselv right up to the present generations. Until 1960s, it was still common for some families in Inner Troms to have devotions at home, often accompanied by a house organ, and on Sundays there were catechism readings, prayers and hymns up to three times daily (Bårnes, 1991).

Although Haugeans in Målselv embraced the pre-modern religious reading culture, they were also known to be 'enterprising' that made them 'leading pioneers in the material field' (Sæter, 1926, pp. 180–183).

3. Data

We have combined data from many different sources. Our data on subject marks, our proxy for skills, were collected from scanned school records from Målselv municipality. These school records are a part of UNESCO's Memory of the World register. The school records used in the analysis span from 1869 to 1889. All the schools in the data were arranged as ambulatory schools.[6] The pupils gathered in the living room of a farm and were taught by a teacher who moved on to the next farm in the school tract when he was finished. All children from the year they turned eight years old were obliged to attend school when teacher visited their school tract. Målselv had 14 school tracts in total, which were organised under seven school districts. In order to have comparable data between pupils, we gathered the final subject marks upon completion of compulsory education. We were able to identify school completion as all teachers had orderly written down in a remark column when every pupil was confirmed. This resulted in school records for 194 pupils by school completion. The school records also included names and birth dates of the pupils. Using this information, we were able to link pupils to their appearance in the Norwegian Historical Population Register (HPR).[7] By linking the pupils from the school records to HPR, we were able to establish complete life courses for these individuals and their biological parents, in addition to information about their siblings. We restricted our sample to study children from agricultural households (over 95 per cent of population in Målselv), as we then could measure their wealth. This was measured by using a number of livestock (by type) extracted from 1865 and 1875 population censuses. Our goal was to identify the effect of religious reading at home through the variation in skills

[6]School law of 1860 allowed sparsely populated school tracts under 30 pupils to have ambulatory schools. In Målselv, only one tract had a permanent school.

[7]The Research Council of Norway has funded the construction of a historical population register for Norway. In its final form HPR will be a national database in which virtually all individuals living in Norway enter observation at birth, and leave at death or emigration. The register has its point of departure with the first nominative census conducted in 1801, and ends in 1964, when the modern population register of Norway was established. For each individual HPR provides individual attributes such as sex, age, marital status, occupations, birth place, places of residence, etc., relational attributes such as intra-generational family and kin ties, and contextual attributes such as household, school district, neighborhood networks and municipality characteristics. It also captures time stamped vital events such as marriage, divorce, children born, children dying, partners dying, and migration.

Table 1. Definitions and sample means.

Variable	Definition	Monogamous Haugean families (23%)	Heterogamous Haugean families (35%)	Non-Haugean families (42%)
Skills				
Reading	Subject mark in reading	4.71	4.47	4.36
Geography, history and natural sciences	Subject mark in geography, history and natural sciences	4.30	4.10	3.97
Arithmetics	Subject mark in arithmetics	4.27	4.42	4.24
Writing	Subject mark in writing	4.40	4.51	4.41
Bible history	Subject mark in bible history	4.91	4.61	4.64
Deontology	Subject mark in deontology	4.66	4.49	4.32
Singing	Subject mark in singing	4.50	4.45	4.23
Household characteristics				
Livestock	Number of livestock measured in cow equivalents (kyrlag)	11.56	12.68	12.58
Children	Number of children in a family	6.92	8.24	8.04
One biological parent dead	Dummy variable = 1 if one biological parent dead	4%	11%	11%
Conservative	Exact age in years when vaccinated	5.80	4.61	4.92
Individual characteristics				
Age upon Confirmation	Exact age in years upon Confirmation	16.14	16.40	16.12
Female	Dummy variable = 1 if the offspring is female	42%	45%	42%
Peer effects				
Share of monogamous Haugean families	Share of Monogamous Haugean families in a school tract	44%	24%	13%
N		50	41	27

Notes: On representativeness. In Målselv, according to 1865 census 18% were monogamous Haugeans, 29% were heterogamous Haugeans, and 53% were non-Haugeans.45% of children were females. The average livestock size was 10.8 cow equivalents. The distributions are close to the distributions in our sample.

of pupils. We thus only included the pupils who were born in Målselv, and thus shared the same economic and institutional environment in their childhood. We ended up with 118 analysable cases, see Table 1. 80 per cent of the pupils came from freeholder families, six per cent from tenant families and 13 per cent of parents were crofters. As most school records have disappeared in the course of time, we do not know the exact total number of pupils who completed their education 1869–1889. Our own calculations based on the 1865 census show that the available records we used include just above 11 per cent of those pupils born in Målselv who completed the school in the period studied. Based on the 1865 census, we are also able to compare our sample to the whole Målselv population and find that our sample is representative with respect to variables for which the population distribution is known (see Notes in Table 1).

Our aim is to study to what extent *Nordic religious reading* increased functional literacy. Our dependent variables were pupils' subject marks, measuring their religious reading and functional literacy skills. We used subject marks upon completion of public school.[8] The subject marks on Bible history, Deontology and Singing measure religious literacy skills, and the marks on Reading, Writing, Geography, history & natural sciences and Arithmetics proxy different aspects of functional literacy.

The main books used in Bible history and Deontology were also the most frequent books owned by Haugeans, namely the Bible and Pontoppidan's explication. Pontoppidan's explication for the

[8]Optimally, in order to better capture the effect of religious reading at home on skills, we should have employed the first subject marks given in the school, and not the last ones. However, it was impossible to identify first grades of the pupils using the data.

catechism was heavy and theoretical, memorisation was the essential thing. The content was so difficult and the language so distant from the daily language that it had to be memorised – if there was any hope that it would be learned (Myhre, 1998). Singing is defined as a part of religious literacy, as this subject consisted exclusively of hymns and religious songs. The emphasis in this subject was good voice production and clear pronunciation (Lund, 2010).

One strength of our data is the possibility to construct four measures of functional literacy, unveiling different skills more thorough than previous literature. We measured pupils' skills in the ability (a) *to read easily understood texts*. Spelling and reading exercise was essential to get a good grade in reading, and it was important both to read clearly and with the right tone and to understand the text (Madssen, 1999). Reading exercises included in addition to religious texts also some easily understood unknown texts; (b) *to read and understand more advanced and unfamiliar texts* from 'Efter udvalgte Stykker af Lærebog' ['After selected Pieces of Textbook']. We have called this subject Geography, history and natural sciences, as these were the subjects the textbook covered; (c) *to master numerical literacy*. Religious readers' focus on repetition may have given the skills that also increased their numeracy skills, like memorisation the multiplication table. We used subject marks in Arithmetics as proxies for numerical literacy: (d) *to write*. In order to be functional literate, Nilsson et al. (1999) requires that one has to be able to form coherent, written text. Writing is also a more advanced functional literacy skill than reading. In addition writing was an important skill as it implied commercial literacy (Nilsson et al., 1999).

The grade scale in Norwegian public school of the time was ranging on a scale from one to six, where one was the lowest. Teachers used plus and minus signs and half-grades to differentiate marks.[9] Some of the teachers also used tenth values in their grading. For convenience, we inverted this scale in the analysis, so that higher mark means better skills.

Our main explanatory variable of interest is religious reading cultures in families. To build a proxy for this, we exploited the fact that parents that moved from the mountain villages in South Eastern Norway were Haugean followers.[10] We categorised families in three different groups according to religious reading intensity. First, we assumed that monogamous Haugean (both parents born in South Eastern Norway) families had the most intensive religious reading culture. Our assumption is based on the fact that it was a social norm in the families that were most eager to preserve their culture to have a spouse born in South Eastern Norway (Eggen, 1950). Following the same line of reasoning, the reading intensity was assumed to be lower in heterogamous Haugean families (only one parent born in South Eastern Norway). The third category of families (non-Haugeans) are those who did not share the Haugean religious reading culture. When building this proxy, we empirically and theoretically lean upon the literature on culture transmission; Inheritance of cultural and religious behaviour has found to be lower for non-monogamous families (Bisin & Verdier, 2000; Te Grotenhuis & Scheepers, 2001; Voas, 2003). Families in which parents differ significantly in their religious behaviour are also less able to transmit this behaviour to the next generation (Bader & Desmond, 2006; Myers, 1996). Bisin and Verdier (2000) explain this process theoretically in their model of culture transmission in which monogamous families more effectively socialise their offsprings to the trait both parents share compared to families with heterogamous parents. 23 per cent of the pupils in our sample had a mother and father who both were born in the Haugean heartlands in South Eastern Norway, while 35 per cent of pupils had one of their parents born in those municipalities. 42 per cent had parents not born in South Eastern Norway. see Table 1.[11]

[9]In order to be able to analyse the data quantitatively, plus signs are converted to be 0.2 better than whole grades, i.e. 2+ is converted to 1.8. Minus signs are similarly converted to be 0.2 worse than whole grades.

[10]Following municipalities have been included in this proxy: Os, Tolga, Tynset, Alvdal, Folldal, Engerdal, Åmot, Rendalen, Stor-Elvdal, Lillehammer, Øyer, Ringebu, Sør-Fron, Nord-Fron, Sel, Dovre, Lesja, Gausdal, Vågå, Lom, Skjåk, Oppdal and Rennebu.

[11]Our data does not allow the identification of birthplaces of pupils' grandparents, nor do we have information on siblingship in the parent generation.

Our primary interest is to estimate the effect of religious reading culture on an offspring's functional literacy skills. In order to isolate the effect of the religious reading culture on functional literacy skills, we therefore have to control for families' other educational and economic motives for offsprings to acquire literacy skills.[12]

Our measure of offsprings' skills depend on parents' attitudes towards schooling and schooling subjects. Could it be for example that Haugeans were more conservatively religious and therefore more sceptical towards some school subjects? We control how well families embraced the modern rationality by using information of age when children were vaccinated against smallpox. Moseng (2003) writes that protests against the smallpox vaccine in the late nineteenth century had religious arguments; one should not tamper with God's Creation. Tryland (2001) shows that religious fatalism was widespread in Northern Norway in nineteenth century: the medical report for 1846 noted that the vaccinators in Troms county had to go door-to-door 'since the Fatalism of the Northlanders means that they will not meet at the specific gathering places', thus deliberately delaying the vaccination. To control for this kind of religious conservatism, we thus included a pupil's age when he or she was vaccinated as a continuous variable. We assumed that the older the pupil was when vaccinated, the more conservative his or her family was. We can see that monogamous Haugeans' offsprings were on average vaccinated later compared to the two other groups, see Table 1.

More entrepreneurial farmers may have been more in the need of functional literacy skills due to the transition to more market-oriented agriculture with increasing commercialisation, and a greater reliance on the capital market (Nilsson et al., 1999). International research also has consistently confirmed the importance of family economic status for better school performance (Björklund & Salvanes, 2011; Coleman, 1966). We would thus expect that offsprings from richer, more entrepreneurial farms would have had economic motives to acquire functional literacy skills. In our study, it is especially important to control for these economic motives, as Haugeans were known not only for their strong religious reading culture, but also for their entrepreneurial spirit (Grytten & Minde, 2019; Haukland, 2014; Sæter, 1926). We therefore control for agricultural families' wealth by the size of livestock as registered in 1865 and 1875 population censuses. The number of livestock was in the census converted to a single measure, the *kyrlag*, or the cow equivalent. A *kyrlag* was a contemporary statistical unit used for the conversion of different livestock to a similar denomination. The basis for the conversion was the weight of the meat. The conversion is as follows: one cow was equal to 1/2 horse, or six sheep or goat, or two pigs or four reindeer. The average size of the livestock in our sample was approximately 12 *kyrlag* (see Table 1). We also condition on number of offsprings in the family to test whether there was a trade-off between child quantity and quality: recent literature has found that the more children, the worse school performance because of resource dilution or lower average maturity level (Black, Devereux, & Salvanes, 2005). We also control for the death of a biological parent, as loss of a parent has found to decrease at least two key inputs into education, namely financial resources and parental involvement (Gertler, Levine, & Ames, 2004).

Our data set also included two individual-level control variables affecting acquiring of skills. Innate ability has been found to be a strong predictor of school achievement (see for example Hanushek, 1979; Todd & Wolpin, 2003). We proxy innate ability by a pupil's age upon confirmation. Confirmation was mandatory for all citizens, and it was necessary to obtain the rights to get married, to take a military service, to lease a farm or to get the right to work outside home. The young people had to learn Luther's Small Catechism by heart, while Pontoppidan's explanation was supposed to be discussed with the priest. If the candidate did not meet the minimum requirements, he or she had to meet in the confirmation year after. We assume that the higher the confirmation age, the lower the abilities. We also conditioned for gender.

[12]We thus try to control for how useful the skills taught at school were for families. We do not look at the de facto usefulness of literacy later in life (for studies that have examined usefulness of literacy, see, for example, usefulness of literacy in terms of social mobility (Laqueur, 1974; Sanderson, 1972), usefulness of literacy for farmers in late 19th century in commercial transactions (Nilsson et al., 1999), and effect of literacy on salaries (Sandberg), (Sandberg, 1979), occupational mobility (Mitch, 2003, 2005) and on socioeconomic returns (Long, 2006)).

There is strong evidence that the children's religious behaviour is affected by peers' behaviour (see for example Patacchini & Zenou, 2016). We proxied the peer effect as a share of pupils from Haugean families of all households residing in a school tract.

Subject marks had their main function within the school district, as a tool for motivation and control for teachers and pupils, but they were not as standardised as they are today (Thorvaldsen, 1978). Teachers were responsible for school districts that consisted of several school tracts. We therefore included also school district fixed effects in the regressions. We also included yearly time trend in order to control for potential changes in grading practices.

4. Results

Table 2 displays the main results concerning the relationship between functional literacy and religious reading culture. As we have inverted the subject mark scale, a positive coefficient means better skills. We get interesting findings. Firstly, as expected, pupils from monogamous Haugean families known to be the most intensive religious readers were significantly better in religious literacy skills, Deontology and Bible history. Secondly, and most interestingly, offsprings from the most intensive religious reading families had significantly better skills in only the least advanced form of functional literacy skills, namely skills in Reading. Religious reading did not give significantly better skills in the

Table 2. Effects on subject marks.

	Functional literacy skills				Religious literacy skills		
	Reading (1)	Geography, history and natural sciences (2)	Arithmetics (3)	Writing (4)	BibleHistory (5)	Deontology (6)	Singing (7)
Household characteristics							
Heterogamous Haugean family (base case: non-Haugean family)	0.163	0.126	0.281	0.191	0.0430	0.231	0.0884
	(0.139)	(0.159)	(0.184)	(0.172)	(0.133)	(0.145)	(0.198)
Monogamous Haugean family (base case: non-Haugean family)	0.574**	0.329	0.255	0.253	0.436*	0.563**	0.248
	(0.211)	(0.225)	(0.241)	(0.239)	(0.207)	(0.196)	(0.219)
Livestock	0.0228*	0.0293*	0.00765	0.0214^{+}	0.0261**	0.0178^{+}	−0.0109
	(0.0102)	(0.0120)	(0.0113)	(0.0121)	(0.00968)	(0.0106)	(0.00884)
Children	0.0212	−0.00278	0.0223	0.0348	0.0234	0.0258	0.0199
	(0.0227)	(0.0263)	(0.0251)	(0.0212)	(0.0201)	(0.0229)	(0.0258)
One biological parent dead	−0.378*	−0.0665	−0.0213	−0.0309	0.171	−0.163	−0.136
	(0.184)	(0.246)	(0.206)	(0.235)	(0.116)	(0.146)	(0.219)
Conservative	0.0160	0.00956	0.0351	0.0203	0.00225	−0.00539	0.0217
	(0.0192)	(0.0208)	(0.0214)	(0.0215)	(0.0141)	(0.0162)	(0.0171)
Personal characteristics							
Age upon Confirmation	−0.224*	−0.339***	−0.256*	−0.197*	−0.220**	−0.239**	−0.00388
	(0.0904)	(0.0915)	(0.105)	(0.0932)	(0.0824)	(0.0815)	(0.103)
Female	0.185	0.0946	−0.165	0.0392	0.124	0.160	0.324*
	(0.137)	(0.143)	(0.139)	(0.133)	(0.119)	(0.123)	(0.156)
Peer effects							
Share of Monogamous Haugean families	0.00607	0.0102*	0.00517	0.00314	0.00766*	0.00465	−0.00171
	(0.00490)	(0.00465)	(0.00448)	(0.00415)	(0.00361)	(0.00391)	(0.00450)
Constant	7.189***	9.170***	7.851***	6.736***	7.420***	7.716***	4.562*
	(1.618)	(1.649)	(1.778)	(1.664)	(1.425)	(1.463)	(1.800)
School district fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	113	113	114	114	114	114	109
R^2	0.396	0.419	0.295	0.227	0.375	0.403	0.243

Notes. Robust standard errors in parentheses.
* 5%, ** 1%, and *** 0.1% significance level.
Ordinary least squares coefficients.

three other, more advanced functional literacy skills, Geography, history and natural sciences, Writing and Arithmetics.

Regarding other control variables, our proxy for lower innate ability – age upon confirmation – had as expected a negative and strongly significant effect on all skills, except Singing. Our proxy for economic motives, number of livestock, was positively related to all functional literacy skills, except Arithmetics. It also had a positive effect on religious literacy skills. Interestingly, death of a biological parent entered significant negatively only in the field of Reading. This result confirms that reading culture at home was particularly important to develop reading skills.

In order to assess the likelihood that the estimates are biased by unobservables, we use an econometric technique developed by Oster (2019) to evaluate the robustness of the main results to omitted variable bias.[13] This robustness test shows that it is less likely that the estimated effect of intensive religious reading is driven by unobservables.

To further test the robustness of our results, we tested two alternative models. First, we tested whether our main results could be driven by potential positive or negative selection of in-migrants on the basis of skills (see Borjas, 1987) that they further transfer to their offsprings. Instead of categorising based on religious reading culture, we divide the families in three groups: families where both parents born in Målselv, families where one of parents is not born in Målselv, and families whereboth parents are in-migrants, independent where in Norway they were born. We can see (Table A1 in Appendix) that there are no significant differences in skills between families using this categorisation, indicating that our results are not driven by selection of in-migrants. Second, we tested our assumption on that monogamous Haugean families had higher religious reading intensity. We ran a regression where we pooled Haugean families together, creating a dummy variable equal to one if an offspring had one or both parents from South Eastern Norway, and zero otherwise. The results (reported in Table A2 in Appendix) reveal that, when employing this alternative specification, Haugeans have significantly better skills in Reading than non-Haugeans. However, if we compare the coefficient in this regression (0.308), we can see that it is only half of the size of the coefficient of monogamous Haugeans (0.574) in our initial model in Table 2. In addition, we see that when grouping Haugeans together, there is no significance difference between Haugeans and non-Haugeans in religious skills, namely Deontology and Bible history. These results give further evidence to support to our assumption on that the religious reading culture really was more intense in monogamous Haugean families.

5. Discussion

This paper has employed a historical data set from Northern Norway to investigate more closely on micro level the key feature in Becker and Woessmann's human capital theory of Protestant economic history. We have empirically been able to nuance and specify the 'unintended side effect', their claim that Protestants acquired linguistic and methodological skills 'that functioned as human capital in the economic sphere' (Becker & Woessmann, 2009, p. 581). Our unique data set made it possible to differentiate between different dimensions of functional literacy. Our results show that intensive religious reading gave better skills only in Reading, the least advanced form of functional literacy skills. Religious reading did not give better skills in the three other more advanced functional literacy skills, namely Geography, history and natural sciences, Writing and Arithmetics. Our results indicate that 'the side effect' from the *Nordic religious reading* culture was restricted to be able to read easily

[13]This method relies on comparing the coefficient of interest and the R-squared between regressions with and without control variables. Here, our focus is on calculating of the ratio of the impact of unobservables to the impact of observables, δ, that would drive the coefficients on the variable Monogamous Haugeans to zero. Oster (2019) suggests that coefficients for which the ratio is larger to one can be considered robust. We assume, following the recommendations in Oster (2019) that the inclusion of unobservables would increase the R-squared to 1.3 times the value in the regression with controls. The ratios range from 4.7 for Bible history, 17.6 for Reading and 54.2 for Deontology. For example, the ratio for Bible history indicates that selection on unobservables would have to be more than 4.7 times as large as the selection on observables to make the effect of intensive reading culture go to zero. When we calculate δ, we use the Stata command psacalc and set Rmax to 1.3 times the R^2 in the respective column. For details, see Oster (2019).

understood unknown texts, but not more advanced texts. These results substantiates Mitch (1990) and can partly explain the paradox why rural areas in Norway made limited progress during the nineteenth century.

One limitation that could lay a foundation on further research is the time point when the effects on skills are measured. We measure the effect of religious reading on functional literacy rather early in life. We do not have information whether the effect of religious reading would give a larger positive effect on human capital later in life. This could be done by studying how religious reading affected the salaries or social mobility. Our study is a regional study and we cannot claim that this article represents the final word on the relationship between religious reading and functional literacy, nor it is almost certainly representative for the whole country or all Protestants. However, we hope that it will spur more extensive research using individual data from school records and historical population registers.

Disclosure statement

No potential conflict of interest was reported by the author(s).

References

Apelseth, A. (2004). *Den låge danninga. Skriftmeistring, diskursintegrering og tekstlege deltakingsformer 1760–1840 [The low education. Scriptwriting, discourse integration and textual participation forms 1760-1840]* (PhD thesis). University of Bergen.

Appel, C., & Fink-Jensen, M. (2011). *Religious reading in the lutheran north: Studies in early modern scandinavian book culture*. Newcastle upon Tyne: Cambridge Scholars Publishing.

Bader, C. D., & Desmond, S. A. (2006). Do as I say and as I do: The effects of consistent parental beliefs and behaviors upon religious transmission.(essay). *Sociology of Religion*, *67*(3), 313–329.

Bakken, A. O. (1973). *Haugianerne i Nord-Østerdal de første årene og lederen Sara Oust [Haugeans in north Østerdalen and their leader Sara Oust]*. Hodalen: Author.

Bang, A. C. (1874). *Hans Nielsen Hauge og hans Samtid : en Monografie* [*Hans Nielsen Hauge and his Contemporaries: a Monography*] Kristiania: Dybwad.

Bårnes, V. (1991). *Dølakultur som delkultur. Kontinuitet og endring hos ei østnorsk innvandrerbefolkning i Indre Troms [Døla culture as partial culture. Continuity and change among Eastern Norwegian settlers in Inner Troms]* Universitetet i Tromsø.

Becker, S. O., & Woessmann, L. (2009). Was weber wrong? A human capital theory of protestant economic history. *Quarterly Journal of Economics*, *124*, 531–596.

Becker, S. O., & Woessmann, L. (2010). The effect of protestantism on education before the industrialization: Evidence from 1816 Prussia. *Economics Letters*, *107*(2), 224–228.

Bisin, A., & Verdier, T. (2000). Beyond the melting pot: Cultural transmission, marriage, and the evolution of ethnic and religious traits. *The Quarterly Journal of Economics*, *115*(3), 955–988.

Björklund, A., & Salvanes, K. G. (2011). Chapter 3 - education and family background: Mechanisms and policies. In E. A. Hanushek, S. Machin, & L. Woessmann (Eds.), *Handbook of the economics of education* (Vol. 3, pp. 201–247). Amsterdam: Elsevier.

Black, S. E., Devereux, P. J., & Salvanes, K. G. (2005). The more the merrier? The effect of family size and birth order on children's education. *The Quarterly Journal of Economics*, *120*(2), 669–700.

Blom, G. P. (1832). *Bemærkninger paa en Reise i Nordlandene og igjennem Lapland til Stockholm i Aaret 1827* [*Remarks on a trip in the North and through Lapland to Stockholm in the year 1827*] (2. oppl. ed.) Christiania: R. Hvids Forlag.

Boppart, T., Falkinger, J., & Grossmann, V. (2014). Protestantism and education: Reading (the Bible) and other skills. *Economic Inquiry*, *52*(2), 874–895.

Boppart, T., Falkinger, J., Grossmann, V., Woitek, U., & Wüthrich, G. (2013). Under which conditions does religion affect educational outcomes? *Explorations in Economic History*, *50*(2), 242–266.

Borjas, G. (1987). Self-Selection and the earnings of immigrants. *The American Economic Review*, *77*(4), 531–553.

Bratrein, H. D. (1997). People, society and the past. In H. D. Bratrein, E. J. Nilsen, & P. Posti (Eds.), *Northern-Norway: A way of life* (pp. 13–18). Tromsø: University of Tromsø, Tromsø Museum.

Coleman, J. (1966). *Equality of educational opportunity*. Washington, DC: U.S. Department of Health, Education, and Welfare, Office of Education.

Dittmar, J., & Meisenzahl, R. R. (2016). *State capacity and public goods: Institutional change, human capital, and growth in early modern Germany*.

Eggen, E. (1950). *Bardu bygdebok bind I [[Bardu local history I]*. Bardu.
Eilertsen, T. F., & Kiil, A. (1981). *Målselv bygdebok 1: Fram til 1920 [Målselv local history 1: Until 1920]* Moen: Målselv kommune.
Fet, J. (1995). *Lesande bønder: litterær kultur i norske allmugesamfunn før 1840* [*Reading farmers: literary culture in Norwegian rural communities before 1840*] Oslo: Universitetsforlaget.
Gertler, P., Levine, D. I., & Ames, M. (2004). Schooling and parental death. *The Review of Economics and Statistics*, *86* (1), 211–225.
Golf, O. (1996). *Haugebevegelse og folkeopplysning 1800–1860 [Haugean movement and public education 1800-1860]*. Oslo: University of Oslo.
Graff, H. J. (2009). Introduction to historical studies of literacy. In H. J. Graff, A. Mackinnon, B. Sandin, & I. Winchester (Eds.), *Understanding literacy in its historical contexts: Socio-cultural history and the legacy of Egil Johansson* (pp. 14–22). Lund: Nordic Academic Press.
Grendahl, M., & Simonsen, C. L. (1849). *Om Hans Nielsen Hauges liv, virksomhed og dennes følger* [*About Hans Nielsen Hauge's life, business and its consequences*]. Trondhjem: Author.
Grytten, O. H. (2013). The protestant ethic and the spirit of capitalism: Entrepreneurship of the Norwegian puritan leader Hans Nielsen Hauge. *Review of European Studies*, *5*(1), 31–44.
Grytten, O. H., & Minde, K. B. (2019). Generational links between entrepreneurship, management and puritanism. *Problems and Perspectives in Management*, *17*(1), 244–256.
Gundersen, T. R. (2003). Den enfoldige leseren: Folkelesningens former på 1700-tallet [The Simple Reader: Forms of Public Reading in the eighteenth Century]. *Arr. Idéhistorisk Tidsskrift*, *15*(1), 47–59.
Gundersen, T. R. (2011). Memory and meaning: The Haugean revival (1796-1804) and its place in the history of reading. In C. Appel & M. Fink-Jensen (Eds.), *Religious reading in the Lutheran north: Studies in early modern Scandinavian book culture* (pp. 159–190). Newcastle upon Tyne: Cambridge Scholars Publishing.
Guttormsson, L. (1990). The development of popular religious literacy in the seventeenth and eighteenth centuries. *Scandinavian Journal of History*, *15*(1-2), 7–35.
Hanushek, E. (1979). Conceptual and empirical issues in the estimation of educational production functions. *The Journal of Human Resources*, *14*(3), 351.
Hauge, H. N. (1796). *Betragtning over Verdens Daarlighed* [*Contemplation on the Foolishness of the World*]. Christiania: Jens Ørbek Berg.
Haukland, L. (2014). Hans Nielsen Hauge a catalyst of literacy in Norway. *Scandinavian Journal of History*, *39*(5), 539–559.
Johansson, E. (1972). *En studie med kvantitativa metoder av folkundervisningen i Bygdeå socken 1845-1873 [A study on public education using quantitative methods in the municipality of Bygdeå 1845-1873]* (Doctoral thesis. University of Umeå, Umeå.
Kiil, A., & Eilertsen, T. F. (1976). *Målselv bygdebok* [*Målselv local history*]. Målselv: Municipality of Målselv.
Laqueur, T. W. (1974). Literacy and social mobility in the industrial revolution in England. *Past & Present*, *64*, 96–107.
Lindmark, D. (2009). Universalism in the Swedish history of literacy. In H. J. Graff, A. Mackinnon, B. Sandin, & I. Winchester (Eds.), *Understanding literacy in its historical contexts: Socio-cultural history and the legacy of Egil Johansson* (pp. 99–119). Lund: Nordic Academic Press.
Long, J. (2006). The socioeconomic return to primary schooling in Victorian England. *The Journal of Economic History*, *66*(4), 1026–1053.
Lund, R. E. (2010). "I sangen møtes vi på felles grunn." Om sang og sangbøker i norsk skole ["In the song we meet on common ground." About singing and songbooks in Norwegian school]. *Acta Didactica Norge*, *4*(1), 1–21.
Madssen, K.-A. (1999). *Morsmålfagets normtekster: et skolefag blir til-norskfaget mellom tradisjon og politikk* [*The norm texts of the mother tongue subject: a school subject becomes the Norwegian subject between tradition and politics*]. Trondheim: NTNU Norges teknisk-naturvitenskapelige universitet.
Mitch, D. (1990). Education and economic growth: Another axiom of indispensability? From human capital to human capabilities. In G. T. Casares (Ed.), *Education and economic development since the industrial revolution* (pp. 29–45). Valencia: Generalitat Valenciana.
Mitch, D. (2003). How did illiterates fare as literacy became almost universal? Evidence from nineteenth and early twentieth century Liverpool. *Interchange*, *34*(2-3), 313–335.
Mitch, D. (2005). Literacy and occupational mobility in rural versus urban Victorian England: Evidence from the linked marriage register and census records for Birmingham and Norfolk, 1851 and 1881. *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, *38*(1), 26–38.
Molland, E. (1978). *Church life in Norway, 1800-1950*. Westport, CT: Greenwood Press.
Moseng, O. G. (2003). *Det offentlige helsevesen i Norge 1603-2003: Ansvaret for undersåttenes helse 1603-1850. Bind 1. [The public health service in Norway 1603-2003: The responsibility for the subjects' health. Volume 1]*. Oslo: Universitetsforlaget.
Myers, S. (1996). An interactive model of religiosity inheritance: The importance of family context. *American Sociological Review*, *61*(5), 858–866.

Myhre, R. (1998). *Den norske skoles utvikling [The development of Norwegian school]* (8. utg. ed.). Oslo: Ad notam Gyldendal.
Nilsson, A., Pettersson, L., & Svensson, P. (1999). Agrarian transition and literacy: The case of nineteenth century Sweden. *European Review of Economic History*, *3*(1), 79–96.
Odén, B. (1975). Läskunnighet och samhällsförändring [literacy and social change]. *Forskning om Utbildning*, *1*, 17–31.
Oster, E. (2019). Unobservable selection and coefficient stability: Theory and evidence. *Journal of Business & Economic Statistics*, *37*(2), 187–204.
Patacchini, E., & Zenou, Y. (2016). Social networks and parental behavior in the intergenerational transmission of religion. *Quantitative Economics*, *7*(3), 969–995.
Sandberg, L. G. (1979). The case of the impoverished sophisticate: Human capital and Swedish economic growth before World War I. *The Journal of Economic History*, *39*(1), 225–241.
Sanderson, M. (1972). Literacy and social mobility in the industrial revolution in England. *Past & Present*, *56*, 75–104.
Seland, B. (2017). I 'Fællesskab og Samfund' – Haugebevegelsens organisasjon [In 'community and 'society' – Hauge movement's organisation]. In K. Dørum & H. K. Sødal (Eds.), *Hans Nielsen Hauge: fra samfunnsfiende til ikon [Hans Nielsen Hauge: From public enemy to icon]* (pp. 104–132). Oslo: Cappelen Damm akademisk.
Skjelbred, D. (2010). *Fra Fadervår til Facebook: Skolens lese- og skriveopplæring i et historisk perspektiv*. Bergen: Fagbokforlaget.
Sæter, I. (1926). *Maalselvdalen: Maalselv og Øverbygd herreder [Maalselv valley: Maalselv and Øverbygd municipalities]*. Oslo: Grøndahl.
Te Grotenhuis, M., & Scheepers, P. (2001). Churches in Dutch: Causes of religious disaffiliation in The Netherlands, 1937–1995. *Journal for the Scientific Study of Religion*, *40*(4), 591–606.
Thorvaldsen, G. (1978). *Konfirmanter og karakterer - en sosialhistorisk analyse [Confirmands and grades - a social historic analysis]* (Master thesis, University of Tromsø).
Thorvaldsen, G. (1995). *Migrasjon i Troms i annen halvdel av 1800-tallet : en kvantitativ analyse av folketellingene 1865, 1875 og 1900 [migration in Troms in the second half of the nineteenth century: A quantitative analysis of censuses 1865, 1875, and 1900]*. Tromsø: University of Tromsø.
Thorvaldsen, G. (2004). Koloniseringen av Bardu og Målselv [Colonialization of Bardu and Målselv]. In K. Soltvedt (Ed.), *Folketellinger gjennom 200 år [censuses through 200 years]* (pp. 48–70). Oslo: Statistisk sentralbyrå.
Todd, P. E., & Wolpin, K. I. (2003). On the specification and estimation of the production function for cognitive achievement. *Economic Journal*, *113*(485), 3–33.
Tryland, M. (2001). Kopper og koppevirus – 200 år siden første vaksinasjon i Norge [smallpox and smallpox virus – 200 years since the first vaccination in Norway]. *Tidsskrift for den Norske laegeforening: tidsskrift for praktisk medicin*, *121*(30), 3546–3550.
Tveit, K. (1981). Lesekunne og undervisning før folkeskolevesenet [Reading proficiency and education before people's school education system]. In M. Jokipii & I. Nurmela (Eds.), *Ur nordisk kulturhistoria. Läskunnighet och folkbildning före folkskoleväsenet. XVIII Nordiska historikermotet* (pp. 87–122). Jyväskylä: University of Jyväskylä.
Vig, O. (1855). Hvad Hensyn bør der i Almuskolen tages til den skjønne Litteratur og især til Poesien? [What considerations should be taken in the public schools to the fiction literature and especially to poetry?]. *Den Norske Folkeskole*.
Voas, D. (2003). Intermarriage and the demography of secularization. *British Journal of Sociology*, *54*(1), 83–108.
Weber, M. (1904/1905). Die protestantische Ethik und der 'Geist' des Kapitalismus. *Archiv für Sozialwissenschaft und Sozialpolitik* 20 (1904/1905) pp. 1–54 and 21: pp. 1–110; reprinted in *Gesammelte Aufsätze zur Religionssoziologie*, pp. 17–206, 1920; English translation as *The Protestant Ethic and the Spirit of Capitalism*, translated by Talcott Parsons (London, UK: Routledge Classics, [1930] 2001).

Appendix

Table A1. Effects on subject marks.

	Functional literacy skills				Religious literacy skills		
	Reading (1)	Geography, history and natural sciences (2)	Arithmetics (3)	Writing (4)	Bible History (5)	Deontology (6)	Singing (7)
Household characteristics							
One or both of the parents in-migrant (base case: both parents non-migrants)	−0.120 (0.210)	0.156 (0.188)	0.124 (0.218)	0.146 (0.203)	0.0736 (0.199)	0.130 (0.174)	−0.0769 (0.236)
Both parents migrants (base case: both parents non-migrants)	0.266 (0.221)	0.358 (0.204)	0.277 (0.210)	0.402 (0.215)	0.224 (0.230)	0.306 (0.213)	0.270 (0.248)
Livestock	0.0244* (0.0102)	0.0305* (0.0119)	0.00812 (0.0121)	0.0230 (0.0122)	0.0265** (0.00947)	0.0179 (0.0112)	−0.00906 (0.00843)
Children	0.0115 (0.0236)	−0.00777 (0.0254)	0.0207 (0.0243)	0.0316 (0.0202)	0.0162 (0.0199)	0.0187 (0.0233)	0.0160 (0.0260)
One biological parent dead	−0.478* (0.207)	−0.118 (0.238)	−0.0407 (0.207)	−0.0872 (0.247)	0.117 (0.114)	−0.208 (0.150)	−0.223 (0.206)
Conservative	0.0212 (0.0191)	0.0114 (0.0207)	0.0345 (0.0214)	0.0216 (0.0214)	0.00558 (0.0132)	−0.00328 (0.0163)	0.0254 (0.0176)
Personal characteristics							
Age upon Confirmation	−0.181 (0.0959)	−0.324** (0.0992)	−0.227* (0.102)	−0.167 (0.0959)	−0.218* (0.0838)	−0.222* (0.0845)	0.0360 (0.0960)
Female	0.217 (0.144)	0.124 (0.149)	−0.131 (0.141)	0.0749 (0.136)	0.144 (0.128)	0.197 (0.133)	0.341* (0.153)
Peer effects							
Share of Monogamous Haugean families	0.00857 (0.00467)	0.0112* (0.00435)	0.00590 (0.00425)	0.00355 (0.00356)	0.00950** (0.00358)	0.00699 (0.00376)	−0.00115 (0.00415)
Constant	6.491*** (1.670)	8.749*** (1.756)	7.297*** (1.735)	6.043*** (1.696)	7.325*** (1.461)	7.406*** (1.525)	3.784* (1.681)
School district fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	113	113	114	114	114	114	109
R^2	0.380	0.421	0.285	0.244	0.342	0.364	0.263

Notes. Robust standard errors in parentheses
* 5%, ** 1%, and *** 0.1% significance level
Ordinary least squares coefficients.

Table A2. Effects on subject marks.

	Functional literacy skills				Religious literacy skills		
	Reading (1)	Geography, history and natural sciences (2)	Arithmetics (3)	Writing (4)	Bible History (5)	Deontology (6)	Singing (7)
Household characteristics							
One or both parents Haugean (base case: non-Haugean family)	0.308* (0.140)	0.128 (0.172)	0.251 (0.181)	0.202 (0.180)	0.137 (0.133)	0.277 (0.151)	0.0427 (0.184)
Livestock	0.0225* (0.00961)	0.0289* (0.0119)	0.00759 (0.0113)	0.0213 (0.0119)	0.0256** (0.00897)	0.0173 (0.0101)	−0.0115 (0.00895)
Children	0.0162 (0.0234)	−0.00547 (0.0256)	0.0233 (0.0245)	0.0345 (0.0210)	0.0179 (0.0200)	0.0216 (0.0234)	0.0173 (0.0257)
One biological parent dead	−0.414* (0.200)	−0.0784 (0.249)	−0.0236 (0.205)	−0.0387 (0.238)	0.144 (0.106)	−0.187 (0.140)	−0.144 (0.220)
Conservative	0.0174 (0.0190)	0.00949 (0.0209)	0.0332 (0.0212)	0.0195 (0.0211)	0.00429 (0.0132)	−0.00483 (0.0160)	0.0223 (0.0174)

(*Continued*)

Table A2. Continued.

	Functional literacy skills				Religious literacy skills		
	Reading (1)	Geography, history and natural sciences (2)	Arithmetics (3)	Writing (4)	Bible History (5)	Deontology (6)	Singing (7)
Personal characteristics							
Age upon Confirmation	−0.227*	−0.337***	−0.237*	−0.187*	−0.230**	−0.235**	−0.00397
	(0.0928)	(0.0967)	(0.0988)	(0.0922)	(0.0839)	(0.0822)	(0.0976)
Female	0.165	0.0888	−0.175	0.0296	0.115	0.148	0.326*
	(0.141)	(0.142)	(0.144)	(0.133)	(0.123)	(0.128)	(0.158)
Peer effects							
Share of Monogamous Haugean families	0.00845	0.0117*	0.00595	0.00403	0.00970**	0.00704	−0.000492
	(0.00468)	(0.00446)	(0.00429)	(0.00378)	(0.00362)	(0.00377)	(0.00430)
Constant	7.251***	9.184***	7.546***	6.573***	7.624***	7.697***	4.631**
	(1.651)	(1.740)	(1.668)	(1.655)	(1.454)	(1.467)	(1.686)
School district fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	113	113	114	114	114	114	109
R^2	0.366	0.408	0.289	0.224	0.337	0.370	0.233

Notes. Robust standard errors in parentheses
* 5%, ** 1%, and *** 0.1% significance level
Ordinary least squares coefficients.