Research paper

Compulsory schooling laws and formation of beliefs: Education, religion and superstition

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\section*{Abstract}

We exploit information on compulsory schooling reforms in 14 European countries, implemented mostly in the 1960s and 70s, to identify the impact of education on religious adherence and religious practices. Using micro data from the European Social Survey, conducted in various years between 2002 and 2013, we find consistently negative effects of schooling on religiosity, social religious acts (attending religious services), as well as solitary religious acts (the frequency of praying). We also use data from European Values Survey to apply the same empirical design to analyze the impact of schooling on superstitious beliefs. We find that more education, due to increased mandatory years of schooling, reduces individuals' propensity to believe in the power of lucky charms and the tendency to take into account horoscopes in daily life.

\begin{quote}
\textit{The state . . . derives no inconsiderable advantage from [the instruction of uneducated citizens]. The more they are instructed the less liable they are to the delusions of enthusiasm and superstition, which, among ignorant nations, frequently occasion the most dreadful disorders.”} Adam Smith, The Wealth of Nations; V.1.189
\end{quote}

\section*{1. Introduction}

A long line of philosophers and social scientists, ranging from Durkheim to Weber, have argued that increased levels of education would diminish the need for religious adherence. Along the same lines, as summarized by Becker et al. (2014), increased education and advances in scientific knowledge are assumed to be leading sources of secularization of societies in Europe during the late 19th and the early 20th centuries. If education improves cognition and the ability for critical thinking, more educated people should be less likely to believe in supernatural forces, suggesting that education should reduce religiosity. On the other hand, it can be argued that an increase in educational attainment can increase religiosity, especially at lower levels of education. For example, an increase in education may increase individuals' literacy which would allow them to read complicated religious texts, which in turn may lead to enhanced religiosity.\textsuperscript{1}

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\textsuperscript{+} Similarly, if education improves the aptitude for foreign languages, people can read religious texts in their original language such as Hebrew, Arabic or Latin, which could have a positive impact on their religiosity.

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At a cross-section of countries, education, the degree of religiosity, the level of economic development and the extent of democracy are correlated. More educated countries on average tend to be less religious. They also have stronger democracies as well as higher per capita incomes. It is, of course, not possible to draw cause-and-effect inference from such cross-country data regarding the impact of education on religiosity and other outcomes. This is because the extent of religiosity of a country, the level of economic development and democracy are endogenous and they potentially influence each other. Thus, a credible empirical design necessitates some exogenous change in education that can be used to analyze the relationship between education and religion.

Employing individual-level data from 14 European countries and using the compulsory schooling reforms within these countries as a source of exogenous variation we show that exposure to these education reforms increased the years of completed education. Employing micro data from the European Social Survey (ESS), and using “treatment” by education reforms as an instrument for educational attainment, we analyze how individuals’ propensity to identify themselves as religious and the extent of their religious activities are impacted by their education levels. The ability to analyze both religiosity and the extent of religious activity (e.g. attending religious services and praying) is important. This is because some previous research reported a positive association between education and church attendance, which can be attributed to the premise that education increases the returns to social activities. According to this hypothesis, the more educated attend religious services more often not because education enhances religiosity but because the more educated benefit more from attending religious services due to its network benefits (Gaeser and Sacerdote, 2008). Because we have data on the frequency of attending religious services as well as data on various measures of religiosity and the frequency of praying, we can investigate the impact of education on various dimensions of religiosity, ranging from solitary religious acts (praying) to social religious acts (attending religious services).

We also utilize data from the European Values Study (EVS) for the years 1999 and 2008 to investigate the impact of an increase in education on superstitious beliefs, prompted by the same compulsory education reforms in Europe. We analyze whether additional years of schooling alter individuals’ beliefs in horoscopes and lucky charms and the extent to which people take into account horoscopes in their daily lives.

The origins of superstitious beliefs have been investigated by psychologists, sociologists and anthropologists since the late 19th century. As summarized by Vyse (2014), theories have been developed to explain the reasons behind superstitious beliefs and practices, ranging from the significance of uncertainty about the future to the impact of a society’s culture and collective psychology. Religion and superstition are related in that both involve believing in supernatural forces and there is overlap between the two. In many societies the practice of superstitious acts has religious connotations, and organized religions have ceremonies that are borrowed from superstitious rites (also called magic) of pagan cultures. For example, Vyse (2014, p. 13) writes that:

During the 16th and much of the 17th centuries, religious objects were the source of much magic. To encourage converts to a new religious order, the priests of the medieval church in England found it necessary to incorporate a large measure of pagan supernaturalism. Anglo-Saxons commonly worshipped wells, trees, and stones; eventually a wide variety of powers were attributed to the consecrated objects of the church. Holy water was a particularly versatile agent. To avail themselves of its reputed curative powers, parishioners often drank it, sprinkled it on children’s cradles or on ailing cattle, and splashed it on their houses to ward off evil spirits and protect against lightning.²

It is, of course, the case that a particular religion’s beliefs and practices can be perceived as superstition by another religion. In this paper we consider such behaviors as believing in fortune-telling or in horoscopes, or having faith in the powers of lucky charms as indicators of superstitious beliefs. Such actions also involve reliance on supernatural forces, but they are outside of the belief structure of mainstream religions.

Using exposure to education reforms as an instrument for years of education, we find negative effects of schooling on religiosity, the frequency of praying and attending religious services. We also find that schooling reduces the propensity to believe in the protective power of lucky charms, and it decreases the tendency to consult horoscopes and to take into account horoscopes in daily life.

Our identification strategy is based on the comparison of individuals who, on average, are four years apart in age. We assume that the intensity of religious beliefs would not have changed during this relatively short time period absent the impact of increased mandatory education. We think that this is a reasonable assumption, and the models control for country-specific cohort trends, but it is still possible that these two groups of individuals are different from each other because of other factors that may have changed over the course of those four years. We conduct a large number of sensitivity analyses, and perform placebo tests. Specifically, if religiosity has a strong time trend and a tendency to change rather rapidly over the course of a few years, then moving the actual dates of the reforms back and forth a couple of years (creating fake reform dates) would produce a positive impact of the reform on religiosity and superstition, when in fact none exists. These placebo tests reveal that this is not the case.

² Another example of superstition intermingling with religion is the practice of “faith healing” which has a long tradition in the Roman Catholic Church. Over the centuries thousands of Catholics have traveled all over the world to be healed by miracle cures, and as detailed in Woodward (1990), to this day, to be declared as a saint by the Vatican, the candidate is required to have performed some miracle which is generally the magical treatment of a medical condition (Vyse, 2014, p. 7).
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