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## Suicide and Religion: New Evidence on The Differences Between Protestantism and Catholicism

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# **Suicide and Religion: New Evidence on The Differences Between Protestantism and Catholicism**

Working Paper No. 2012-12

# SUICIDE AND RELIGION:

## NEW EVIDENCE ON THE DIFFERENCES BETWEEN PROTESTANTISM AND CATHOLICISM

BENNO TORGLER AND CHRISTOPH A. SCHALTEGGER<sup>\*</sup>

**Abstract:** *In this study of the persistent social phenomenon of suicide, we find that even though theological and social differences between Catholicism and Protestantism have decreased, Catholics are still less likely than Protestants to commit or accept suicide. This difference remains even after we control for such confounding factors as social and religious networks. Although religious networks do mitigate suicides among Protestants, the influence of church attendance is more dominant among Catholics. The methodological strength of our paper is that it uses two data sets: a 20-year panel for Switzerland and a cross-sectional analysis of alternative religious concepts like religious commitment and religiosity in 414 European regions. We find that these alternative concepts strongly reduce acceptance of suicide.*

JEL CLASSIFICATION: Z120, I200, J240

KEYWORDS: SUICIDE, RELIGION, PROTESTANTISM, CATHOLICISM

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*A faithful Catholic's supreme wish is to depart from this world fortified by the holy sacraments. As suicide would of necessity deprive him of this means of arriving at a blissful eternity, only a non-believing or strayed Catholic could kill himself voluntarily.*

Halbwachs (1978, p. 187).

## 1. INTRODUCTION

Acts of suicide are not only as ancient as humanity itself but feature prominently in many important pieces of literature, particularly those by Shakespeare. For example, 200 years ago, Goethe's widely read *Sorrows of the Young Werther* was banned in Italy, Leipzig, Copenhagen, and other European regions in case the hero's suicide encouraged others to imitate his manner of death (Phillips 1974). Immanuel Kant, one of the first to observe the persistence of suicide, saw it as a certain organic character within society (Stark and Bainbridge 1996), and Barraclough (1992) even identified 11 possible suicides in the Holy Bible with Apocrypha (many in the Old Testament) by such diverse means as stabbing, hanging, burning, poisoning, evisceration, or abdominal bursting. According to Barraclough (1992), these factual reports contain no implication that suicide is either a criminal or a praiseworthy action and accord it no penalty or prohibition except for its inclusion under the Sixth Commandment. In short, nowhere in the description of death and its aftermath is it implied that suicide is wrong or shameful.

Attitudes towards suicide, however, have changed greatly over the history of the church (Colucci and Martin 2008), with the early Christian view of martyrdom as a way to prove love and fidelity to God shifting to disapproval during the 4<sup>th</sup> century A.D. based on the works of St. Augustine and later Thomas Aquinas. In 1284, the church introduced denial of Christian burial to those who had committed suicide, and indignities like public exposure

were often committed on the corpses of suicides<sup>1</sup>. In 1943, the Pope Pius XI explicitly condemned suicide as a grave sin; however, in recent decades, the church has relied on contextual/situational ethics when judging suicidal behaviour.

Research on suicide has substantially advanced since the middle of the 19th century with the pioneering works of Guerry, Etoc-Demazy, Lisle, and Masaryk, and in particular Wagner, Morselli, and Durkheim (for a discussion, see Halbwachs 1978 and Stark and Bainbridge 1996). The fact that religion presumes to offer answers about the ultimate meaning of life makes its relevance for understanding suicide readily apparent: “Religion is an imaginative ‘cultural system’ – a collection of directing ‘pictures’ through which humans organize and give meaning to the phenomena which impinge on their consciousness, especially insofar as these phenomena require some explanation of the ultimate purpose of life” (Greeley 1989, pp. 485–486).

With respect to the existing body of scholarly literature, sociologists have exerted significant influence over the analysis of whether religion impacts suicide. Until the early 1980s, however, most such work used simple methodologies and only explored bivariate relationships and was thus criticized for failure to control for factors outside the immediate area of study (Breault 1986). Such methodological weakness even plagues more recent studies in the U.S., which Cutright and Fernquist (2004, p. 272) criticize both for their failure to include many empirical indicators and their lack of control for spurious effects. These authors are also critical that most of the research used before the 1980s religious affiliation as a measure for religious integration and regulation, a practice that is becoming problematic given the growing convergence of Catholicism and Protestantism (Stack 1983a). Another limitation of the research on religion and suicide is that it is based predominantly on data from the U.S. (see, e.g., Colucci and Martin 2008), a nation with high religiosity values compared to other

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<sup>1</sup> Consequently, the suicide of the Catholic Austro-Hungarian crown prince Rudolph in Meyerling was officially announced to be due to his state of mental unbalance so that he was buried in the Imperial Crypt of the Capuchin Church in Vienna ([http://en.wikipedia.org/wiki/Rudolf,\\_Crown\\_Prince\\_of\\_Austria](http://en.wikipedia.org/wiki/Rudolf,_Crown_Prince_of_Austria)).

industrial countries. We may thus gather additional valuable insights by turning to Europe to explore the religion-suicide relation.

The proposition that Catholics have a lower suicide rate than Protestants, attributed to Durkheim and classified as “sociology’s own law” by Merton, Simpson, LaCapra, and Johnson (see Pope and Danigelis 1981, Pescosolido 1990), in fact derives from *Die Gesetzmässigkeit in den scheinbar willkürlichen menschlichen Handlungen vom Standpunkte der Statistik*, published in 1864 by economist and politician<sup>2</sup> Adolph Wagner. Stark and Bainbridge (1996) emphasize this attribution:

[This] law, such as it is, belongs of course to Wagner, not Durkheim. Had Wagner’s important work not vanished from scholarly sight before sociology was born, European researchers might have looked further into his tremendously assiduous collection of data, applied multivariate statistical techniques when they became available, and resolved the questions he so carefully raised about the meaning of apparently strong Protestant-Catholic differences in German-speaking nations. Today, we can only hope that quantitatively minded European sociologists with ready access to the original data will be motivated to complete the important work Wagner began a century and a third ago. (pp. 51–52)

They also lament “that this complex and pioneering work has not been translated into English, and that it appears to have vanished from German scholarly consciousness” (p. 45). Among Wagner’s most valuable contributions were his calculations of suicide rates for 128 European states and provinces, 126 of which he categorized by religious profession.

Another criticism that arose in the early 1980s was that “no contemporary sociologist has tested Durkheim’s proposition that Protestants have higher suicide rates than Catholics” (Pope and Danigelis 1981, p. 496). Even Halbwachs (1978), whose work Pope and Danigelis considered to be the most comprehensive empirically based evidence that Protestants commit suicide more often than Catholics, emphasized that the differences he identified were driven by traditional cohesion rather than religious cohesion: “Thus, it is certainly a bit premature to

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<sup>2</sup> See, e.g., [http://en.wikipedia.org/wiki/Adolph\\_Wagner](http://en.wikipedia.org/wiki/Adolph_Wagner).

conclude that Protestants are especially exposed to suicide. German Protestantism presents particular traits just because it is German. Whenever religious influences vary by milieu we must guard against attributing to religion influences emanating from the milieu” (p. 191). In fact, Pope and Danigelis (1981), using a large cross-national data set for 24 industrialized nations over the 1900–1972 period, were unable to report that Catholics have lower suicide rates than Protestants (see in particular the pre-World War II results). They thus stressed that further research is needed to “test, not sociology’s ‘one law’ which never received adequate empirical support and which must now be rejected, but Durkheim’s theory of integration as applied to suicide” (p. 511). Almost 20 years later, Stack (2000), in a review of the sociological literature on suicide that focuses particularly on social integration, concludes that the Catholic-Protestant difference has received mixed support. Most particularly, despite substantial support in the 1980s literature for the “concepts of religious commitment and religious networking underlined by historical hubs and favourable religious structure,” the evidence in fact suggests that “religion may offer the most protection for women, and possibly none at all in nations where it has been highly secularized” (p. 171).

Economists have also addressed the topic of suicide, with a natural inclination to examine the value of economic theory for understanding the problem (Hamermesh and Soss 1974, Becker and Posner 2004). In one of the first empirical studies to use a time series for the 1947–1967 period in the U.S., Hamermesh and Soss (1974) observed that even though the trend variable was not statistically significant, a 0.03 increase in unemployment increased the suicide rate of 0.19 per 100,000 for the youngest age group interval to 4.26 per 100,000 for the 60–64 age group. Thus, younger people seem to be less sensitive to variations in unemployment than older people. Although this discovery stimulated a large body of literature exploring the link between unemployment and suicide rates, the empirical results are mixed (for an overview, see Noh 2009). For instance, Noh (2009) observes a positive effect of unemployment on suicide rates for high-income countries and a negative one for low-income

countries. Chen et al. (2012) also provide a good overview of how socio-economic factors influence suicide. Cutler et al. (2001), however, in their study of the relation between age and suicide – and especially the strong increase in youth suicide rates over time – find that divorce rates and social contagion seem to play a particularly strong role in teen suicide and parasuicide.

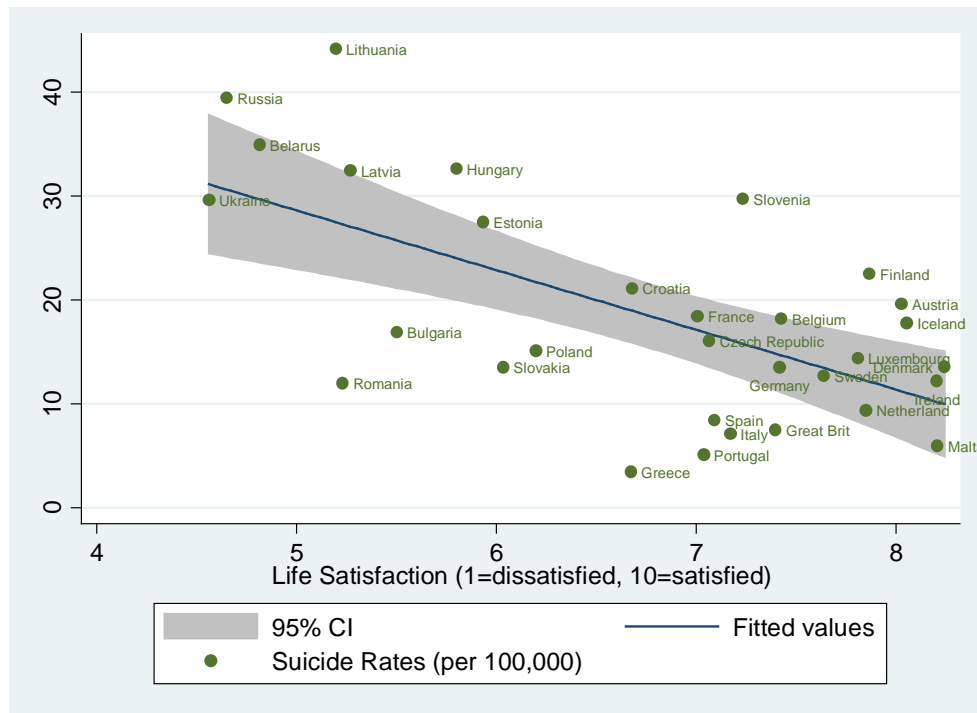
There is little doubt that economists will continue to conduct research on suicide given that the very act of committing suicide reflects extreme life dissatisfaction, an aspect of the happiness issue to which economists have paid notably more attention in recent decades (see, e.g., Layard 2005, Frey and Stutzer 2002). Indeed, the fact that suicide data are based on behaviour rather than subjective opinion provides a different way of measuring life satisfaction: “It should be expected that the subjective well-being and suicide data might respond differently even when they are brought together for exactly the same countries and years, because the subjective well-being data are collected from a wide cross-section of the population, while the suicide data count final and often impulsive acts of individuals at the extreme lower end of the distribution from high hopes to hopelessness” (Helliwell and Putnam 2004, p. 1444). Moreover, as Layard (2005, p. 37) points out, suicide reflects the very extreme of misery and provides numerical information on the behavioural responses of the “most desperate among the much broader class of very unhappy persons” (p. 1). Helliwell (2007) also stresses that suicide rates represent “actions rather than mere opinions, and hence acquire more credibility in the eyes of some behaviourists” (p. 456). This relation between life satisfaction and suicide is depicted in *Figure 1*, which reports life satisfaction data (1999–2000) from the European Values Study (EVS, see Section 3) and suicide data (2000) from the World Health Organization.<sup>3</sup> As is apparent, there is a strong negative correlation between each country’s life satisfaction and suicide rates (Pearson  $r = -0.6297$ ).

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<sup>3</sup> [http://www.who.int/mental\\_health/prevention/suicide/country\\_reports/en/index.html](http://www.who.int/mental_health/prevention/suicide/country_reports/en/index.html).



FIGURE 1: LIFE SATISFACTION AND SUICIDE RATES



Economists have also begun recently to focus on religion and suicides. For example, Becker and Woessman (2011) complement early work in Prussia by using a multivariate analysis to analyse the periods 1816–1821 and 1869–1871. In a novel approach, they deal with the problem that religious affiliation may not be exogenous by implementing an instrumental variable (IV) strategy that uses a country’s distance to Wittenberg (where Luther initiated the Reformation in 1517) as an instrument for the share of Protestants. They find support for the notion that Protestantism increases suicides. We complement their within-country analysis by using a more recent 20-year panel (1981–2001) of cantonal data from Switzerland to test whether secularisation indeed reduces the impact of religion on suicides. As the next section shows, Switzerland has been a key area of investigation since the beginning of the empirically oriented suicide literature because of its cantonal variation in the share of Protestants and Catholics (see *Figures A1* and *A2* in the Appendix). Switzerland is also unique in that it offers the opportunity to control for a large set of factors at the cantonal level, which allows better

isolation of the potential influence of religion (while also controlling for cultural and institutional differences).

We also explore Europeans' justifiability of suicides by examining EVS data for Catholics and Protestants living in 414 different regions. Because this survey covers a large set of variables related to religion and integration, these data permit a detailed examination of the influence of the church, its dogmas or doctrines and sanctions; individuals' beliefs; and social integration factors such as family and friends. The remainder of the paper comprises three further sections: Section 2 provides a discussion of the differences between Protestants and Catholics, Section 3 presents the empirical results, and Section 4 concludes the paper.

## 2. PROTESTANTS VERSUS CATHOLICS

The study of suicide has long been possible because suicides are recorded almost as completely as births, deaths, and marriages, and these records provide statistically useful details such as demographic information and location (Helliwell 2007). In fact, Halbwachs' (1978) overview of early studies<sup>4</sup> shows that even in the 19th century, researchers were already trying to reduce confounding factors by looking at provinces or countries in which Catholics and Protestants coexist. Durkheim (1970), for example, stressed that to avoid "sources of error and determine more definitely the influence of Catholicism and Protestantism on the suicidal tendency, the two religions must be compared in the heart of a single society" (p. 153). To that end, he explored societies from Bavarian, Prussian, and Swiss regions. As the German state with the lowest proportion of Protestants, Bavaria had by far the fewest suicides, and suicides within Bavarian provinces occurred in direct proportion to the number of Protestants and in inverse proportion to Catholics. A similar picture emerged for Prussia, Baden, Württemberg, and Austria for which he relied also on statistical data provided by Wagner, Morselli, Prinzing, and Legoyt. In Switzerland the Catholic cantons had less

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<sup>4</sup> We are referring to a translation of *Les Causes du suicide*, first published in French in 1930.

suicides than the Protestant cantons. In his overview of the early studies, Halbwachs (1978) concluded that “of thirty-seven comparisons made on the proportions of Catholic and Protestant suicides in Bavarian, Prussian, Austrian, and Hungarian provinces, in Württemberg and in Baden, only four exceptions were found” (p. 157). For Durkheim (1970), the “only essential difference between Catholicism and Protestantism is that the latter permits free inquiry to a far greater degree than the first” (p. 157). As Durkheim explains it,

[the] Catholic accepts his faith ready made, without scrutiny. He may not even submit it to historical examination since the original texts that serve as its basis are proscribed. A whole hierarchical system of authority is devised, with marvellous ingenuity, to render tradition invariable. All *variation* is abhorrent to Catholic thought. The Protestant is far more the author of his faith. The Bible is put in his hands and no interpretation is imposed upon him. The very structure of the reformed cult stresses this state of religious individualism. (p. 158)

It is also worthwhile to consider the additional similarities or differences between the two denominations. Protestants, for instance, like Catholics, “believe in the hereafter, in the Last Judgment, in the reward of the virtuous, and in the punishment of the wicked” (Halbwachs 1978, p. 169). Their views on what these consequences embody, however, differ greatly:

[the] image of hell is much less concrete and sentient and certainly occupies a lesser place in the totality of their religious representations. The [Catholic] Church teaches that one who dies in a state of mortal sin will undergo, in a definite place, tortures of which corporeal sufferings here on earth give him a foretaste... The wicked are not simply annihilated after death. They will burn eternally... The doctrine of the Protestant churches on the fate of sinners after their death is uncertain... there are different opinions about the fate of the damned, and in many instances the burden of elucidating this mystery is placed on the faithful man himself. (pp. 169–170)

Thus, the cost of committing suicide and thereby incurring afterlife disutility is higher among Catholics than Protestants (Becker and Posner 2004). The fact that it is obviously impossible

to confess (and thus be absolved of) a successful suicide also raises the “price” of suicide in Catholicism relative to any other (sinful) option (Becker and Woessmann 2011). Halbwachs (1978), for example, cites the Protestant J. L. Casper, who in 1886 admitted that “the sacrament of the confession and of extreme unction, without which the Catholic believer does not wish to leave the world, is certainly in many cases a weapon against suicide” (p. 187).

Surprisingly, however, Durkheim (1970) denied the relevance of theological differences, pointing out that “both prohibit suicide with equal emphasis; not only do they penalize it morally with great severity, but both teach that a new life begins beyond the tomb where men are punished for their evil actions, and Protestantism just as well as Catholicism numbers suicide among them” (p. 157). Stark, Doyle, and Rushing (1983, p. 121) criticize this statement heavily on the grounds that in Durkheim’s time, the Roman Catholic Church imposed vastly heavier sanctions against suicide than most Protestant groups, classifying it as a mortal sin that prevented salvation of the soul and led to eternal damnation. Protestants, on the other hand, although they saw suicide as a sin, lacked the concept of mortal sin. In addition, among Catholics, suicide brought about substantial stigmatisation and suffering for loved ones: funeral services and burial in holy grounds were withheld from suicides, which imposed a real cost on family and friends. On the other hand, Durkheim did emphasize the relevance of common beliefs and practices and their link to church activities: “The more intense religious life, the more men are needed to direct it. The greater the number of dogmas and precepts the interpretation of which is not left to individual consciences, the more authorities are required to tell their meanings; moreover, the more numerous these authorities, the more closely they surround and the better they restrain the individual” (Durkheim 1970, p. 161).

A useful discussion of the differences between Protestants and Catholics is offered by Greely (1989, pp. 485–486) who relates his discussion to the work of David Tracy (*The Analogical Imagination*). Protestantism, he points out, emphasizes the relationship of the

individual with God, while Catholicism emphasizes the community in which the individual relates to God. Hence, the Catholic ethic is communitarian, whereas the Protestant ethic is individualistic. Whereas Catholics assume a God who is present in the world (e.g., disclosed through creation) and a world that is closely linked to God, Protestants assume that God is radically absent from the world (discloses on rare occasions). Thus, whereas the Catholic view of the world as God's sacrament and a natural good for humans encourages a social response to God, the Protestant view of human society as God-forsaken, unnatural, and oppressive promotes a view of the individual standing against society rather than being integrated into it. As a result, Catholics are more likely to value social relationships, while Protestants are more likely to emphasize personal responsibility. Moreover, as Stark (1983a) aptly pointed out, because Catholics attend church more regularly than Protestants, they are subject to greater expectations.

One problem with these empirical studies, however, is that many rely on religious affiliation as a measure of religious integration and regulation. Yet, as long as three decades ago, Stack (1983b) suggested that the focus be moved to alternative religious concepts like religious commitment and new measures of religiosity because a few core beliefs and practices exist that may act as counteragents against suicide. One such core belief is the promise of "a blissful afterlife to those who presently endure adversity" (p. 364). Similarly, belief in prayer can be seen as an answer to adversity, and religious ideologies on suffering can buffer and prevent suicide. In other words, if religion promotes a belief that God is watching and cares about suffering, problems might be endurable, and suffering could even be seen as God's will. Likewise, if religion includes belief in a responsive God, prayer may help with goal achievement and the alleviation of suffering. As Stark (1983) and his colleagues put it, "No one knows how to construct a society in which there is no stratification and hence no relative deprivation. But the gods can offer heavenly glory in return for earthly suffering. No

scientific means exist to achieve immortality. But for millennia religions have convincingly promised life beyond death” (p. 125).

In general, religious communities, unlike secular communities, provide not only support (e.g., in times of distress and misfortune) but also stronger prohibitions against suicide (van Tubergen, te Grotenhuis, and Ultee 2005). Religion thus acts through the channels of social support, providing more hope in the face of adversity and increasing the reluctance to commit a deadly sin (Helliwell 2007). Stark et al. (1983) therefore criticized Durkheim’s preoccupation with the Protestant-Catholic suicide rates, which may have led him to disregard the impact of religion per se on suicide; for example, through its ability to relieve pressure in the face of adversity and suffering: “for believers faith is real... it makes a difference if, on the one hand, one thinks one’s problems are overwhelming and unsharable, or, on the other, if one thinks that Jesus knows and cares... When we observe millions making considerable sacrifice for their faith, must we maintain that they gain no ‘real’ value from something they appear to value so highly? And, if faith does comfort the faithful, why would it not influence their decision to go on living?” (p. 125). Religious organisations are also relatively accessible to all people and offer a generous source of affect and self-esteem besides other concerns and doctrines: “Pastors will listen to troubles. Other members do rally to the support of those overtaken by misfortune. The lonely do find sociability in church” (p. 125).

It is unclear, however, whether such discussion of the differences between Catholics and Protestants has changed over time. For Prussia, Halbwachs (1978) noted, the difference in suicide rates between the two denominations had diminished noticeably since 1849–1855. Between 1852 and 1904, the suicide rate for Protestants increased by 58% while the Catholic suicide rate rose by 102%. More recently, however, theological and social differences between Catholicism and Protestantism have decreased, and the Roman Catholic Church no longer stigmatizes suicides in the same way. At the same time, Catholics have experienced a substantial decline in church attendance and growing conflict between the clergy and laity on

orthodoxy (Stack 1983c). The latter particularly would suggest that differences between Protestants and Catholics have decreased (Stack 1983c). Other differences with respect to family-size preferences, marital fertility, birth control practices, or educational differences have also largely disappeared, leading Catholics and Protestants to become more similar in their cultural views and socio-economic status (Kalmijn 1991).

Rising levels of education after World War II also seem to have contributed to the decline in inter-denominational status differences (Pyle 2006), while institutional religion declined during the second part of last century. For example, in the U.S., the Supreme Court ruled against prayer in school, and there has been an increase in the acceptability of questioning church teachings (for a discussion, see Stack 1983a). Stack (1983a) cited another study that reports that the share of religious books on all published books declined from 7.4 to 4.5 from 1955 to 1972. Yet, despite all these changes, other elements seem to persist. For instance, Schaltegger and Torgler (2010) show that in Europe, education and religiosity shape the work ethic among Protestants but not among Catholics and thus account for the work ethic gap between the two. Arruñada (2009), however, finds no difference in work ethic between Protestants and Catholics but does observe differences in social control, institutional performance, and homogeneity of values. Halbwachs (1978) did provide data from Switzerland for the years 1881–1890 that shows that Protestants kill themselves more often than Catholics. However, as he himself pointed out, these differences can be explained by other factors, including urban or rural lifestyle, the level of industrialisation, and the size of the agricultural sector. These factors, together with the secularisation process, suggest the importance of examining more recent data from Switzerland and controlling for a large set of variables, including those Halbwachs identified as confounding factors; for example, urbanisation and economic situation.

The use of more recent data at the micro level also allows more detailed exploration of the importance of religious commitment and religious integration, which historically was

measured by religious affiliation (Breault 1986), initially based on professed denomination and substantially later on church memberships when they eventually became available. As early as 1952, Portefield (cited in Stark and Bainbridge 1996) published a (largely ignored) paper reporting that church membership rates in the U.S. were negatively correlated with suicide rates. Other empirical analyses, like those by Stack (1983, 1991), used religious book production as a percentage of all book publication as a proxy for religious integration-regulation. Such studies, however, disregard the option of exploring the intensity of the attachment and the level of religious integration so emphasized by Durkheim (1970): “for a group to be said to have less common life than another means that it is less powerfully integrated; for the state of integration of a social aggregate can only reflect the intensity of the collective life circulating in it. It is more unified and powerful the more active and constant is the intercourse among its members” (p. 202). Stark et al. (1983, p. 127) also suggest the use of population turnover as a reasonable inferential measure of social integration because examining religious books and newspapers may be problematic in environments in which there is divergence between religious sentiments and an unusually low number of religious books (Breault 1986).

Subsequently, studies began to use “church attendance” instead of religious affiliation and/or proportion of books published. For instance, Stack (1983a) and Stack and Wasserman (1992) implemented church attendance as a proxy for a network component (e.g., social capital) and for commitment to those basic religious beliefs that are thought to be life-saving. Church attendance can also better measure the “community-support mechanisms” discussed by Tubergen et al. (2005, p. 806) in that people interact more often with homogeneous others and thus receive more social support from those belonging to the same denomination. Hence, church attendance may also help measure the magnitude and intensity of people’s ties or connections to one another.



Because it encompasses so many values, the EVS provides the opportunity to explore many factors, including key beliefs (in hell, heaven, life after death, sin, God), the importance of God in one's life, comfort in religion, clear guidelines on what is good and evil, and the frequency of praying. The data also allow comparison of whether these factors shape individual justifiability of suicide differently in Catholics versus Protestants. Hence, our analysis not only takes into account more generic measures of religiosity and adherence to central components of religious orthodoxy, it also assesses the relative strength between these factors and church attendance and explores the results for Catholics and Protestants separately. Durkheim (1970), in his chapter on "Egoistic Suicide," points particularly to the importance of religious community involvement:

If religion protects man against the desire for self-destruction, it is not that it preaches the respect for his own person to him with arguments *sui generis*; but because it is a society. What constitutes this society is the existence of a certain number of beliefs and practices common to all the faithful, traditional and thus obligatory. The more numerous and strong these collective states of mind are, the stronger the integration of the religious community, and also the greater its preservative value. The details of dogmas and rites are secondary. The essential thing is that they be capable of supporting a sufficiently intense collective life. And because the Protestant church has less consistency than the others it has less moderating effect upon suicide. (p. 170)

If indeed Catholicism promotes a greater involvement in religious community, then church involvement, relative to other factors, should work to a greater degree among Catholics than among Protestants. In fact, previous research using World Values Survey data does indicate that religious beliefs have a stronger effect on suicide tolerance than church attendance (Neeleman et al. 1997); however, to our knowledge, no study so far has explored whether there are differences between Catholics and Protestants.

Durkheim (1970) concluded that suicide varies inversely with the degree of integration within a social group: "When society is strongly integrated, it holds individuals under its control, considers them at its service and thus forbids them to dispose wilfully of

themselves... For they cling to life more resolutely when belonging to a group they love, so as not to betray interests they put before their own” (pp. 209–210). Hence, subordination can have a variety of dimensions beyond religion; for example, family and friends (Stack 1983b) are highly relevant because they allow individuals to experience physical, emotional, and psychological bonds (Breault 1986). We therefore aim for a better understanding of the role of social integration by exploring the importance of friends and family, previously measured for the most part in terms of family integration, as signalled by marital status (Breault 1986). It will also be interesting to observe the relative strength of these factors compared to the effect of religious organisations.

More recent studies on attitudes to suicide tend to work with individual data in order to avoid the problems (e.g., neglect of contextual effects) associated with drawing conclusions about individual behaviour based on aggregated information. Nevertheless, as Stark and Bainbridge (1996) point out, it is of course impossible to interview people who have committed suicide or to find substantial biographical material for such individuals that will substitute for interviewing them about their attitudes toward suicide. They, therefore, merge General Social Survey (GSS) data from 1989 to 1991 but find no difference between Catholics and Protestants. Stack and Wasserman (1992) also draw on GSS data to explore attitudes towards suicide using the following four-item index as the dependent variable: “Do you think it is right for a person to end his or her own life if this person... (1) has an incurable disease? (2) has gone bankrupt? (3) has dishonoured his or her family? and (4) is tired of living and ready to die?” Interestingly, among all the indicators of religious structure in their analysis, the church attendance variable has the largest beta coefficient.

Subsequent to the GSS-based research, several studies turned instead to the World Values Survey (WVS; see Neeleman et al. 1997), possibly also in a bid to avoid the biases inherent in using aggregated rather than individual data (van Tubergen et al. 2005). We follow this trend in our study by drawing specifically on the European Value Study with a focus on

suicide tolerance. Such a focus, Stack and Kposowa (2011) emphasize, may bring the population that is more likely to be at risk into sociological research on the religious commitment perspective that has until now been based on highly aggregated data. In their own study, these authors report an estimated 20 unsuccessful suicide attempts for every completed suicide and stress that suicide acceptability is a reliable measure of the greater phenomenon of suicidal behaviour associated not only with suicide attempts and completions but also with suicide ideation or thinking about committing suicide. Likewise, Joe, Romer, and Jamieson (2007) report that in the U.S., those who strongly believe that it is acceptable to end one's life are 12.7 times more likely than others to plan a suicide. Hence, looking at suicide tolerance can throw light on the "three parts of the 'suicidal path'": "suicidal attitudes and ideation, nonlethal suicidal behaviour, and lethal suicidal behaviour" (pp. 229–230). Stack and Kposowa (2008) also note that the prevention of suicide requires control over the degree of positive attitudes towards suicide and that we may observe spill-over effects when the individual's attitudes towards suicide can affect others in his/her social networks.

We further observe a recent research tendency to deal with the contextual elements of suicide acceptance by using questionnaires that contain descriptions of fictitious suicides (see, e.g., Sorjonen 2004–2005). Important information about suicide attempts has also been contributed by studies in the psychiatric and epidemiologic literature, which provides further indications that no differences exist between Protestants and Catholics (Dervic et al. 2004). Rather, as suggested by the earlier research reported by Stack (1983a), a lower number of suicide attempts may be associated with religiosity and church activities regardless of denomination, meaning that church attendance could substantially reduce the suicide rate.

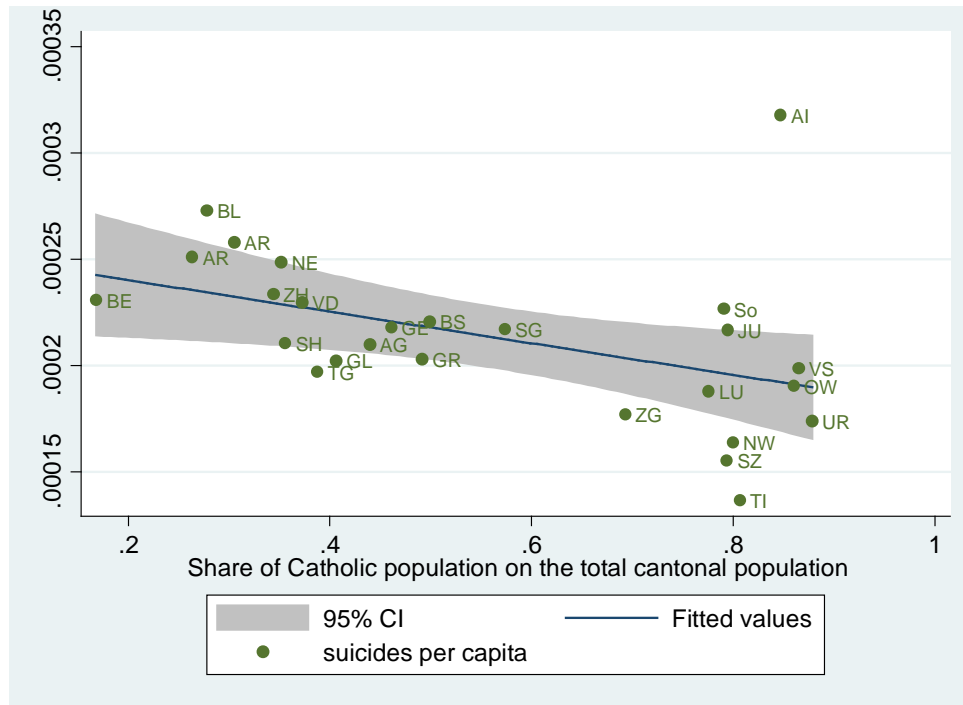
### 3. EMPIRICAL ANALYSIS

Working with suicide data offers a comparative empirical advantage in that suicide is – at the individual level – a "final act" that reduces the risk of reverse causation (Helliwell 2007).

Using more recent data may also reduce an additional bias; namely, that past practices of denying a religious funeral to proven suicides may have created an incentive among Catholics to underreport suicides and classify them differently (Becker and Woessmann 2011). Such a bias would be larger for the suicide proportion (suicides in relation to total deaths) than for the suicide rate (suicides in relation to the population). Suicide rates may also have been reported more accurately for larger cities than for small towns or rural areas (Stark et al. 1983). Nevertheless, as Stark et al. (1983) stressed, “common sense would suggest that if social pressures are strong enough to bias reporting suicides in Catholic communities such pressures also ought to inhibit suicides ... Of course, some people commit suicide in ways that evade detection. But there is no reason to suppose that such incidents are a *systematic* source of error in ecological rates” (p. 124).

As a first step in our analysis, we provide evidence from Switzerland based on 21 years (1981–2001) of data using two proxies of suicide: suicides per capita (*Table 1*) and suicides per death (*Table 2*). As already mentioned, *Figures 1A* and *2A* in the appendix report the share of Protestants within different cantons for the years 1981 and 2001, and also indicate regional fragmentations (low proportions in the south and the centre of Switzerland). All specifications control for year effects. In addition, because clustering the standard errors for the 26 cantons will pick up any cantonal characteristics that are not controlled for in the specification, we report our estimations with and without clustering.

FIGURE 2: CORRELATION BETWEEN CANTONAL SHARE OF CATHOLICS AND NUMBER OF SUICIDES PER CAPITA IN SWITZERLAND



Notes: Averages between 1981 and 2001. Pearson  $r = -0.449$ . The identification codes stand for the following cantons: Aargau (AG), Appenzell-Innerrhoden (AI), Appenzell-Ausserrhoden (AR), Bern (BE), Basel-Landschaft (BL), Basel-Stadt (BS), Fribourg (FR), Genève (GE), Glarus (GL), Graubünden (GR), Jura (JU), Luzern (LU), Neuchâtel (NE), Nidwalden (NW), Obwalden (OW), Schaffhausen (SH), Schwyz (SZ), St.Gallen (SG), Solothurn (SO), Thurgau (TG), Ticino (TI), Uri (UR), Vaud (VD), Valais (VS), Zug (ZG), and Zürich (ZH).

We begin with a descriptive analysis, which, as shown in *Figure 2*, reveals a relatively strong correlation between the cantonal share of Catholics and the number of suicides using average values for the entire time period explored. If we exclude the outlier canton AI, the correlation increases to  $r = -0.73$ , although this change might be driven by other factors. In our baseline specification, we follow Becker and Woessmann (2011) and control for the demographic structure using the proportion of pupils (aged below 15) and, because older adults may be at higher risk for suicide than any other age segment (Conwell and Duberstein 2001), the proportion of pensioners (over 65). We also control for urbanisation (proportion of local communities having more than 10,000 inhabitants), education (share of population with secondary education), and economic conditions (log of real cantonal GDP per capita). Because a large set of studies identifies a positive association between unemployment and

suicide (see Chen et al. 2012), we take into account the possibility that suicides could respond to economic circumstances by controlling for the unemployment rate.

Because the gender issue presents a special puzzle – in most countries the male suicide rate is four times higher than the female although self-reported suicide attempts are higher among the latter (Helliwell 1997) – we also control for the share of female citizens. As a potential explanation for this gender inconsistency, Becker and Posner (2004) refer to the literature that interprets suicide attempts as signals of misery and suggests that women can obtain sympathy more easily than men and are less familiar with the more lethal methods that provide a higher probability of success. Canetto and Sakinofsky (1998) also provide a detailed discussion of the gender suicide paradox with a major emphasis on the importance of cultural expectations.

Two additional factors we consider are that migrants tend to take suicide propensities with them and that migration could be the cause or consequence of increased stress that can augment the suicide risk (Helliwell 2006). Accordingly, we first control for the share of foreigners and then add cantonal net migration (see specifications [7] and [14]). We also take into account the cultural differences in Switzerland (Latin and German origin) by controlling for the share of German-speaking population. To do so, we extend the baseline specifications [1] and [2] to include communal and cantonal health expenditures per capita. We recognize that such a proxy, although it may measure health issues at the cantonal level, could equally be a sign of the quality of health services locally, which makes any prediction difficult to assess. In line with Frey and Stutzer's (2002) observation that direct democratic participation rights and local autonomy enhance subjective well-being in Switzerland, we control for institutional conditions; namely, direct democracy<sup>5</sup> and centralisation.<sup>6</sup> We then extend the

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<sup>5</sup> The direct democracy index implemented here reflects the extent of direct democratic participation (1 equals the lowest and 6 the highest degree of participation) at the cantonal level.

<sup>6</sup> Share of cantonal public spending on cantonal and local spending.

estimation by adding a proxy for weather conditions (cantonal precipitation multiplied by cloudiness divided by the sunshine duration (in minutes)).<sup>7</sup>

Our results indicate that the variable SHARE OF PROTESTANTS is always statistically significant. The standardized coefficients show that an increase of one standard deviation in the share of Protestants produces an increase of between 0.14 and 0.2 standard deviations in the suicide rate (*Table 1*) and the suicide proportion (*Table 2*). With respect to the control variables, we observe relatively strong influences for urbanisation (increase), economic conditions (GDP; better conditions lead to lower suicides), and share of females (negative relationship). Centralisation also tends to increase suicides (less robust in *Table 1*), while direct democracy seems not to be relevant. As a robustness test, we also conduct a between-estimator analysis in which the group means of the dependent variable are regressed on the group means of independent variables replacing each yearly observation for a canton with its mean (see *Table A1* in the appendix). The results obtained are robust. The SHARE OF PROTESTANTS coefficient is statistically significant in all four estimations.

We then explore whether urbanisation triggers suicides among Protestants and find that this is indeed the case. The interaction effect is positive and highly statistically significant with beta coefficients of around 0.38 (suicide rate) and 0.49 (suicide proportion) using the full specifications reported in [7] and [14]. Because divorce reduces social integration and regulation by disrupting family and social ties (Huang 1996), we also conduct further robustness tests that include cantonal divorce rate. In all specifications, the coefficient is statistically significant. For example, if we apply specification [2], we observe that a one standard deviation increase in the divorce rate increases the suicide rate by more than 0.1 standard deviations for both dependent variables, but the coefficient for SHARE OF PROTESTANTS remains statistically significant.

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<sup>7</sup> When there is more than one weather station in a canton, we use the location with the highest population. For those cantons that have no weather station, we build the average weather conditions of all the neighbour cantons.

TABLE 1: SUICIDE RATE AND PROTESTANTISM

Explanatory variables	Dependent variable: suicides per capita						
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Share of Protestants	<b>0.00005***</b> (2.89) <i>0.1426</i>	<b>0.0001***</b> (4.13) <i>0.1872</i>	<b>0.0001**</b> (2.13) <i>0.1737</i>	<b>0.0001***</b> (3.56) <i>0.1737</i>	<b>0.0001*</b> (1.92) <i>0.1627</i>	<b>0.0001***</b> (3.27) <i>0.1627</i>	<b>0.0001*</b> (1.79) <i>0.1627</i>
Higher schooling	<b>0.00003</b> (0.28) <i>0.0264</i>	<b>-0.0001</b> (-0.82) <i>-0.0949</i>	<b>-0.0001</b> (-0.75) <i>-0.1719</i>	<b>-0.0002</b> (-1.47) <i>-0.1719</i>	<b>-0.0002</b> (-1.32) <i>-0.1702</i>	<b>-0.0002</b> (-1.46) <i>-0.1702</i>	<b>-0.0002</b> (-1.30) <i>-0.1702</i>
Population < 15	<b>-0.00017</b> (-0.49) <i>-0.0615</i>	<b>-0.0004</b> (-1.18) <i>-0.1576</i>	<b>-0.0004</b> (-1.20) <i>-0.1576</i>	<b>-0.0005</b> (-1.38) <i>-0.1879</i>	<b>-0.0005</b> (-1.40) <i>-0.1879</i>	<b>-0.0006</b> (-1.54) <i>-0.2075</i>	<b>-0.0006</b> (-1.47) <i>-0.2075</i>
Population > 65	<b>0.00166***</b> (5.79) <i>0.5011</i>	<b>0.0012***</b> (3.67) <i>0.3546</i>	<b>0.0012*</b> (2.01) <i>0.3222</i>	<b>0.0011***</b> (3.21) <i>0.3222</i>	<b>0.0011*</b> (1.79) <i>0.3222</i>	<b>0.0011***</b> (3.21) <i>0.3231</i>	<b>0.0011*</b> (1.80) <i>0.3231</i>
Share of females	<b>-0.00451***</b> (-4.06) <i>-0.6846</i>	<b>-0.0046***</b> (-4.07) <i>-0.7008</i>	<b>-0.0046**</b> (-2.34) <i>-0.7130</i>	<b>-0.0047***</b> (-4.11) <i>-0.7130</i>	<b>-0.0047**</b> (-2.36) <i>-0.7130</i>	<b>-0.0050***</b> (-4.32) <i>-0.7541</i>	<b>-0.0050**</b> (-2.45) <i>-0.7541</i>
Share of foreigners	<b>0.00005</b> (0.60) <i>0.0457</i>	<b>0.0001</b> (1.33) <i>0.0991</i>	<b>0.0001</b> (0.74) <i>0.1407</i>	<b>0.0001*</b> (1.81) <i>0.1407</i>	<b>0.0001</b> (1.03) <i>0.1611</i>	<b>0.0002**</b> (2.03) <i>0.1611</i>	<b>0.0002</b> (1.20) <i>0.1611</i>
Log GDP	<b>-0.00010**</b> (-2.04) <i>-0.1566</i>	<b>-0.0002***</b> (-3.79) <i>-0.3593</i>	<b>-0.0002**</b> (-2.31) <i>-0.4375</i>	<b>-0.0003***</b> (-4.28) <i>-0.4375</i>	<b>-0.0003**</b> (-2.65) <i>-0.4360</i>	<b>-0.0003***</b> (-4.27) <i>-0.4360</i>	<b>-0.0003**</b> (-2.67) <i>-0.4360</i>
Unemployment rate	<b>0.000003</b> (0.94) <i>0.0927</i>	<b>0.00001</b> (1.59) <i>0.1588</i>	<b>0.00001</b> (1.02) <i>0.1709</i>	<b>6.50E-06*</b> (1.72) <i>0.1709</i>	<b>6.50E-06</b> (1.22) <i>0.1620</i>	<b>6.16E-06*</b> (1.65) <i>0.1620</i>	<b>6.16E-06</b> (1.17) <i>0.1620</i>
Urban	<b>0.00012***</b> (6.05) <i>0.4536</i>	<b>0.0001***</b> (4.94) <i>0.4206</i>	<b>0.0001**</b> (2.34) <i>0.3984</i>	<b>0.0001***</b> (4.50) <i>0.3984</i>	<b>0.0001**</b> (2.28) <i>0.4071</i>	<b>0.0001***</b> (4.56) <i>0.4071</i>	<b>0.0001**</b> (2.38) <i>0.4071</i>
German language	<b>-0.00003**</b> (-2.34) <i>-0.1412</i>	<b>-0.00001</b> (-0.75) <i>-0.0610</i>	<b>-0.00001</b> (-0.50) <i>-0.0370</i>	<b>-7.21E-06</b> (-0.36) <i>-0.0370</i>	<b>-7.21E-06</b> (-0.31) <i>-0.0364</i>	<b>-7.08E-06</b> (-0.36) <i>-0.0364</i>	<b>-7.08E-06</b> (-0.31) <i>-0.0364</i>
Health expenditures		<b>2.93E-08**</b> (1.98) <i>0.1953</i>	<b>2.93E-08</b> (1.24) <i>0.2854</i>	<b>4.25E-08***</b> (2.73) <i>0.2854</i>	<b>4.25E-08*</b> (1.99) <i>0.2773</i>	<b>4.13E-08***</b> (2.64) <i>0.2773</i>	<b>4.13E-08*</b> (1.96) <i>0.2773</i>
Centralisation		<b>0.0001**</b> (2.56) <i>0.1587</i>	<b>0.0001</b> (1.57) <i>0.1720</i>	<b>0.0001***</b> (2.71) <i>0.1720</i>	<b>0.0001</b> (1.64) <i>0.1492</i>	<b>0.0001**</b> (2.40) <i>0.1492</i>	<b>0.0001</b> (1.45) <i>0.1492</i>
Direct democracy		<b>-2.01E-06</b> (-0.60) <i>-0.0358</i>	<b>-2.01E-06</b> (-0.38) <i>-0.0358</i>	<b>-2.89E-06</b> (-0.78) <i>-0.0514</i>	<b>-2.89E-06</b> (-0.55) <i>-0.0514</i>	<b>-4.08E-06</b> (-1.07) <i>-0.0726</i>	<b>-4.08E-06</b> (-0.74) <i>-0.0726</i>
Weather index				<b>-0.0011</b> (-0.79) <i>-0.0453</i>	<b>-0.0011</b> (-0.70) <i>-0.0453</i>	<b>-0.0011</b> (-0.78) <i>-0.0452</i>	<b>-0.0011</b> (-0.68) <i>-0.0452</i>
Net migration						<b>-0.0010</b> (-1.33) <i>-0.0791</i>	<b>-0.0010</b> (-1.09) <i>-0.0791</i>
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustering over cantons	No	No	Yes	No	Yes	No	Yes
Prob > F	0.0000	0.0000	-	0.0000	-	0.0000	-
R-squared	0.33	0.35	0.35	0.352	0.352	0.355	0.355
# of observations	546	546	546	522	522	522	522

Notes: Coefficients in bold; t-statistics in parentheses; standardized coefficients in italics. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively. Estimations with robust standard errors.



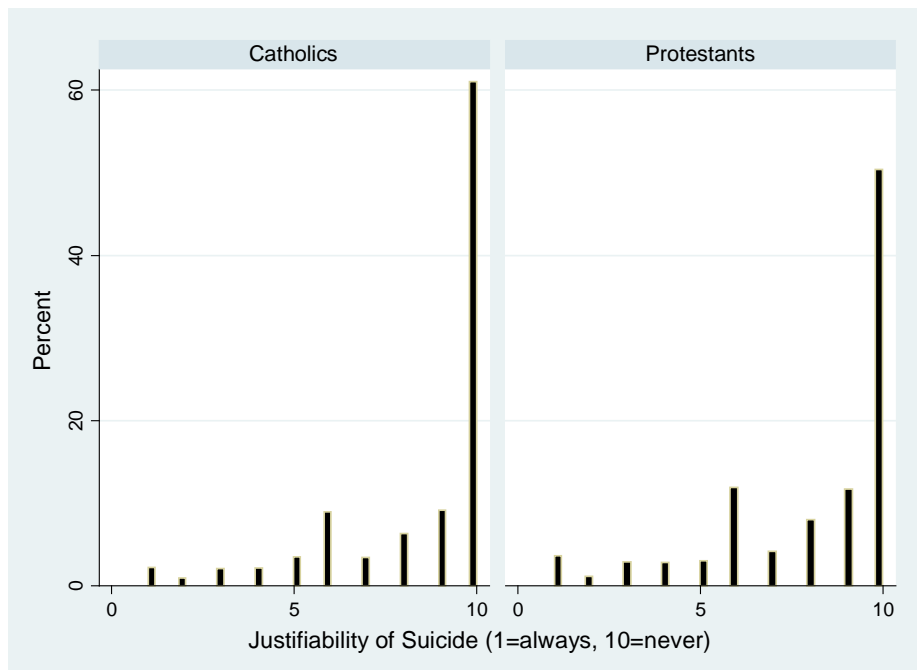
TABLE 2: SUICIDE PROPORTION AND PROTESTANTISM

Explanatory variables	Dependent variable: suicides/deaths						
	[8]	[9]	[10]	[11]	[12]	[13]	[14]
Share of Protestants	<b>0.0053***</b> (3.07) <i>0.1574</i>	<b>0.0069***</b> (4.08) <i>0.2027</i>	<b>0.0069**</b> (2.19) <i>0.1864</i>	<b>0.0063***</b> (3.53) <i>0.1864</i>	<b>0.0063*</b> (1.86) <i>0.1806</i>	<b>0.0061***</b> (3.37) <i>0.1806</i>	<b>0.0061*</b> (1.81) <i>0.1806</i>
Higher schooling	<b>0.0115</b> (0.99) <i>0.1004</i>	<b>-0.0027</b> (-0.20) <i>-0.0236</i>	<b>-0.0027</b> (-0.20) <i>-0.0236</i>	<b>-0.0117</b> (-0.84) <i>-0.1028</i>	<b>-0.0117</b> (-0.84) <i>-0.1028</i>	<b>-0.0116</b> (-0.84) <i>-0.1018</i>	<b>-0.0116</b> (-0.83) <i>-0.1018</i>
Population < 15	<b>-0.0301</b> (-0.77) <i>-0.1074</i>	<b>-0.0547</b> (-1.30) <i>-0.1952</i>	<b>-0.0547</b> (-1.37) <i>-0.1952</i>	<b>-0.0667</b> (-1.55) <i>-0.2419</i>	<b>-0.0667</b> (-1.67) <i>-0.2419</i>	<b>-0.0695*</b> (-1.65) <i>-0.2522</i>	<b>-0.0695</b> (-1.69) <i>-0.2522</i>
Population > 65	<b>-0.0060</b> (-0.21) <i>-0.0182</i>	<b>-0.0507</b> (-1.49) <i>-0.1552</i>	<b>-0.0507</b> (-0.94) <i>-0.1552</i>	<b>-0.0658*</b> (-1.85) <i>-0.2029</i>	<b>-0.0658</b> (-1.26) <i>-0.2029</i>	<b>-0.0656*</b> (-1.84) <i>-0.2024</i>	<b>-0.0656</b> (-1.26) <i>-0.2024</i>
Share of females	<b>-0.4197***</b> (-3.73) <i>-0.6457</i>	<b>-0.4256***</b> (-3.67) <i>-0.6548</i>	<b>-0.4256**</b> (-2.40) <i>-0.6548</i>	<b>-0.4290***</b> (-3.68) <i>-0.6636</i>	<b>-0.4290**</b> (-2.41) <i>-0.6636</i>	<b>-0.4430***</b> (-3.81) <i>-0.6852</i>	<b>-0.4430**</b> (-2.43) <i>-0.6852</i>
Share of foreigners	<b>0.0039</b> (-0.49) <i>0.0377</i>	<b>0.0092</b> (1.15) <i>0.0878</i>	<b>0.0092</b> (0.72) <i>0.0878</i>	<b>0.0136</b> (1.64) <i>0.1309</i>	<b>0.0136</b> (1.04) <i>0.1309</i>	<b>0.0148*</b> (1.74) <i>0.1417</i>	<b>0.0148</b> (1.13) <i>0.1417</i>
Log GDP	<b>-0.0103**</b> (-2.01) <i>-0.1649</i>	<b>-0.0218***</b> (-3.34) <i>-0.3477</i>	<b>-0.0218**</b> (-2.11) <i>-0.3477</i>	<b>-0.0271***</b> (-3.93) <i>-0.4409</i>	<b>-0.0271**</b> (-2.61) <i>-0.4409</i>	<b>-0.0270***</b> (-3.92) <i>-0.4401</i>	<b>-0.0270**</b> (-2.62) <i>-0.4401</i>
Unemployment rate	<b>0.0006</b> (1.39) <i>0.1524</i>	<b>0.0008**</b> (2.01) <i>0.2170</i>	<b>0.0008</b> (1.33) <i>0.2170</i>	<b>0.0008**</b> (2.06) <i>0.2219</i>	<b>0.0008</b> (1.61) <i>0.2219</i>	<b>0.0008**</b> (2.03) <i>0.2171</i>	<b>0.0008</b> (1.60) <i>0.2171</i>
Urban	<b>0.0109***</b> (5.20) <i>0.4044</i>	<b>0.0105***</b> (4.21) <i>0.3893</i>	<b>0.0105**</b> (2.11) <i>0.3893</i>	<b>0.0096***</b> (3.71) <i>0.3565</i>	<b>0.0096*</b> (1.96) <i>0.3565</i>	<b>0.0097***</b> (3.71) <i>0.3612</i>	<b>0.0097*</b> (2.01) <i>0.3612</i>
German language	<b>-0.0013</b> (-1.11) <i>-0.0694</i>	<b>-0.0002</b> (-0.14) <i>-0.0112</i>	<b>-0.0002</b> (-0.10) <i>-0.0112</i>	<b>0.0003</b> (0.14) <i>0.0147</i>	<b>0.0003</b> (0.13) <i>0.0147</i>	<b>0.0003</b> (0.15) <i>0.0151</i>	<b>0.0003</b> (0.13) <i>0.0151</i>
Health expenditures		<b>0.000002</b> (1.48) <i>0.1545</i>	<b>0.000002</b> (1.01) <i>0.1545</i>	<b>0.000004**</b> (2.36) <i>0.2620</i>	<b>0.000004*</b> (1.89) <i>0.2620</i>	<b>0.000004**</b> (2.29) <i>0.2577</i>	<b>0.000004*</b> (1.88) <i>0.2577</i>
Centralisation		<b>0.0103**</b> (2.47) <i>0.1624</i>	<b>0.0103*</b> (1.88) <i>0.1624</i>	<b>0.0109***</b> (2.60) <i>0.1770</i>	<b>0.0109*</b> (1.92) <i>0.1770</i>	<b>0.0102**</b> (2.39) <i>0.1649</i>	<b>0.0102*</b> (1.84) <i>0.1649</i>
Direct democracy		<b>-0.0001</b> (-0.36) <i>-0.0224</i>	<b>-0.0001</b> (-0.25) <i>-0.0224</i>	<b>-0.0002</b> (-0.52) <i>-0.0353</i>	<b>-0.0002</b> (-0.40) <i>-0.0353</i>	<b>-0.0003</b> (-0.66) <i>-0.0465</i>	<b>-0.0003</b> (-0.48) <i>-0.0465</i>
Weather index				<b>-0.0878</b> (-0.55) <i>-0.0355</i>	<b>-0.0878</b> (-0.58) <i>-0.0355</i>	<b>-0.0877</b> (-0.55) <i>-0.0354</i>	<b>-0.0877</b> (-0.56) <i>-0.0354</i>
Net migration						<b>-0.0536</b> (-0.64) <i>-0.0417</i>	<b>-0.0536</b> (-0.64) <i>-0.0417</i>
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustering over cantons	No	No	Yes	No	Yes	No	Yes
Prob. > F	0.0000	0.0000	-	0.0000	-	0.0000	-
R-squared	0.229	0.247	0.247	0.246	0.246	0.247	0.247
# of observations	546	546	546	522	522	522	522

Notes: Coefficients in bold; t-statistics in parentheses; standardized coefficients in italics. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively. Estimations with robust standard errors.

Next, we use micro data from the EVS to test the relevance of church attendance, beliefs, dogmas and guidelines, and praying. Although the survey's third wave covers 32 countries, we specifically extract information on Protestants and Catholics in the 414 official local regions defined by level 2 of Eurostat's NUTS ("Nomenclature of Units for Territorial Statistics") and control for unobserved regional characteristics by including regional dummies in our specification. From the EVS survey data, we select the following question to proxy individuals' acceptance of suicide: "Please tell me whether you think suicide can always be justified, never be justified, or something in between." We then recode the 10-point scale (1 = always, 10 = never) into a two-point scale (1 = never, 0 = other) based on its natural cut-off point (see *Figure 3*).

FIGURE 3: HISTOGRAM OF JUSTIFIABILITY OF SUICIDE AMONG EUROPEAN CATHOLICS AND PROTESTANTS



As *Figure 3* clearly demonstrates, Catholics are less likely to justify suicide. When we assess whether our different samples on the 10-point scale have the same distribution, the Wilcoxon rank-sum test (Mann-Whitney) reveals significant differences between Catholics and

Protestants ( $z = 13.126$ ). It is important to recognize, however, that as a measure of suicide tolerance, this proxy is not free from problems. For example, people do not always see suicide as a unidimensional issue, which suggests the need to work with a wide variety of questions. People are also more favourably disposed towards suicide if, for instance, an individual is on life support or has terminal cancer than if the person is depressed or quadriplegic (Westfield et al. 2004). Our question, however, is not so context specific.

To test whether these differences are robust to the inclusion of other suicide determinants, we conduct a multivariate analysis (see *Table 3*) in which we use *weighted* estimations to correct the samples in our linear probability model<sup>8</sup> and thus obtain a reflection of the national distribution.<sup>9</sup> We control for education<sup>10</sup> in recognition of Durkheim's (1970) emphasis on the relevance of learning: "The taste for free inquiry can be aroused only if accompanied by that for learning. Knowledge is free thought's only means of achieving its purpose" (p. 162). Durkheim also asked whether "the craving for knowledge to the degree that it corresponds to a weakening of common faith really develop[s] as does suicide?" (p. 164), pointing out that Protestants are better educated and yet commit suicide more often than Catholics. He then compared suicide rates among Italian regions (all Catholic) and observed that regions with higher levels of literacy have higher suicide rates. According to Helliwell (2007) and Chen et al. (2012), however, the evidence on education's effect on suicide risk is mixed.

Durkheim (1970) also reported that suicide rates for France in the years 1889 to 1891 were lower among married people (see p. 178), which echoes Moreselli's finding (with no control for age) that fewer married than unmarried men kill themselves in France and Italy (for a discussion, see Halbwachs 1978). Because this protective factor has also been observed

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<sup>8</sup> We also conduct robustness tests using a probit or an ordered probit model (using the original scale), but the key results remain robust.

<sup>9</sup> The weighting variable is provided by the EVS.

<sup>10</sup> Question: "At what age did you complete or will you complete your full time education, either at school or at an institution of higher education? Please exclude apprenticeships."

in more recent studies (see, e.g., Masocco et al. 2008), we expect that social support at the family level helps to prevent suicide. Having children should produce similar effects:

The expected utility loss or gain from committing suicide depends on whether a person is concerned about the effect on a spouse, children, or others. He might be discouraged from suicide solely because he is concerned, and they would be especially unhappy if he died by taking his own life. The role of such mutual interdependence in preferences implies that single persons, childless couples, and those without close friends are more likely to take their own lives. (Becker and Posner 2004, p. 7)

The presence of children may also act as a restriction on suicide through a feeling of responsibility towards the offspring; the duty to always be available to care for the children. In fact, Halbwachs (1978), in his discussion on suicide and the family, concluded that the more children married men and women have, the better protected they are from suicide. He also qualified this claim, however, by pointing out that “our observations pertain to several countries, but only for very short and very recent periods, thus providing a static description rather than a historical process...The preserving virtue of the family, if due principally to the number of children, could in fact only be weaker today, since the average number of children has diminished” (p. 155).

In our estimations, we not only control for number of children but also use several dummies (with age <30 as the reference group) to examine the age profile, which Stack and Kposowa (2008, 2011) report is negatively correlated with suicide tolerance. This finding, which is consistent with those in other studies, reflects the fact that older individual socialised in periods in which suicide tolerance was lower may be more sensitive to issues like euthanasia and assisted suicide (Stack and Kposowa 2008). We also take a closer look at the relation between suicide tolerance and employment status, a variable not always controlled for in earlier research (e.g., Stack and Kposowa 2011), and address Helliwell’s (2007) criticism that the long-standing myth of high suicide rates among university students has no broad empirical support by including the student category in our specification.

*Table 3* presents the initial results. In specification [15], we add a dummy for Protestantism and find that the coefficient is statistically significant at the 5% level. More specifically, being Protestant reduces the probability of stating that suicide is never justified by 0.04. In fact, the beta coefficient shows that the variable PROTESTANT is of similar importance to the variable NUMBER OF CHILDREN, although the strongest relative impact comes from EDUCATION, which, consistent with Durkheim's argument, returns a negative sign. This negative effect is also visible for the variable STUDENT (see employment status). NUMBER OF CHILDREN and being MARRIED are also linked with a lower probability of justifying suicide; however, AGE is negatively correlated with such justification. Of particular interest given the gender paradox is that WOMEN, although they make more suicide attempts than men, are more likely to argue that suicide is never justified. Also interesting is that the PART-TIME EMPLOYED are more likely to justify suicide than the FULL-TIME EMPLOYED (reference group), but the SELF-EMPLOYED or UNEMPLOYED are less likely to differ from the reference group.

Next, to explore childhood religious experience,<sup>11</sup> we include actual CHURCH ATTENDANCE and individuals' CHURCH ATTENDANCE AT THE AGE OF 12. If Durkheim's (1970) link between the existence of a collective *credo* and social integration holds true, then we expect that controlling for church attendance will decrease the significance of being Protestant:

a religious society cannot exist without a collective *credo* and the more extensive the *credo* the more unified and strong is the society... It socializes men only by attaching them completely to an identical body of doctrine and socializes them in proportion as this body of doctrine is extensive and firm. The more numerous the manners of action and thought of a religious character are, which are accordingly removed from free inquiry, the more the idea of God

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<sup>11</sup> Question: "Apart from weddings, funerals, and christenings, how often do you attend religious services these days? More than once a week, once a week, once a month, only on special religious days, once a year, less often, practically never or never" (ranging from 1 = practically never or never to 8 = more than once a week to).

presents itself in all details of existence, and makes individual wills converge to one identical goal. (p. 159)

We do indeed observe in specification [16] a decrease in both the statistical significance and the quantitative effect for the variable PROTESTANT. However, the fact that it remains negative at the 10% level may support Durkheim's (1970) contention that "the superiority of Protestantism with respect to suicide results from its being a less strongly integrated church than the Catholic church" (p. 159).

Interestingly, our results indicate that religious exposure as a child has no impact on individuals' current tolerance of suicide, meaning that internalisation of moral codes and orders through church attendance at an early age seems not to guide individuals in their suicide tolerance at a later stage. The socialisation effect, however, is nicely visible, even in our exploration of how strongly the church attendance channel works for Protestants. As evidenced in specification [17] of Table 4, the interaction term PROTESTANT\*CHURCH ATTENDANCE is statistically significant at the 10% level and returns a negative sign, which signals a decrease in the justifiability of suicide dependent on church participation. This finding supports our earlier discussion on the importance of religious commitment and integration – or more precisely, the exposure to religious beliefs.

We explore this relation further by replacing exposure to religious beliefs with a proxy for religious network (SPEND TIME PEOPLE AT CHURCH), a variable that also turns out to have a strong negative impact on suicide acceptance. In line with our previous estimations, we interact this variable with PROTESTANT and again observe that the interaction effect is statistically significant. In fact, the beta coefficient even indicates a stronger effect than CHURCH ATTENDANCE.

TABLE 3: RELIGIOUS DENOMINATION AND CHURCH ATTENDANCE

<i>Weighted Linear Probability Model</i>	<i>Coeff.</i>	<i>t-Stat.</i>	<i>Beta</i>	<i>Coeff.</i>	<i>t-Stat.</i>	<i>Beta</i>
<i>DEPENDENT V.: SUICIDE IS NEVER JUSTIFIED</i>						
		[15]			[16]	
<b><i>Religion</i></b>						
PROTESTANT	-0.042**	-2.59	-0.037	-0.031*	-1.9	-0.027
CHURCH ATTENDANCE				0.016**	7.99	0.077
CHURCH ATTENDANCE AT THE AGE 12				0.002	1.02	0.01
<b><i>Education and Demographic Factors</i></b>						
EDUCATION	-0.008***	-9.71	-0.082	-0.009***	-9.45	-0.083
AGE 30-39	0.012	0.87	0.01	0.01	0.7	0.008
AGE 40-49	0.031**	2.06	0.024	0.025	1.62	0.019
AGE 50-59	0.047***	2.96	0.035	0.041**	2.55	0.031
AGE 60-69	0.094***	5.17	0.069	0.079***	4.24	0.058
AGE 70+	0.118***	5.73	0.077	0.102***	4.85	0.067
FEMALE	0.018**	2.24	0.019	0.012	1.37	0.012
<b><i>Marital Status and Children</i></b>						
MARRIED	0.028**	2.17	0.028	0.024*	1.84	0.024
WIDOWED	0.022	1.21	0.013	0.014	0.77	0.008
DIVORCED	-0.02	-1.05	-0.009	-0.024	-1.19	-0.011
SEPARATED	0.008	0.25	0.002	0.01	0.29	0.002
NUMBER OF CHILDREN	0.014***	4.88	0.044	0.012***	4.18	0.039
<b><i>Employment Status</i></b>						
PART-TIME EMPLOYED	-0.036**	-2.17	-0.018	-0.034**	-1.99	-0.017
SELF-EMPLOYED	-0.005	-0.28	-0.002	0.002	0.1	0.001
RETIRED	0.023	1.62	0.02	0.029**	2.08	0.026
AT HOME	0.009	0.64	0.006	0.012	0.85	0.008
STUDENT	-0.082***	-3.96	-0.035	-0.088***	-4.16	-0.037
UNEMPLOYED	0.01	0.63	0.005	0.019	1.09	0.009
OTHER	0.005	0.17	0.001	-0.007	-0.23	-0.002
REGIONAL DUMMIES	YES			YES		
R2	0.19			0.193		
Number of observations	19126			18305		
Prob > F	0.000			0.000		

*Notes:* Coefficients in bold; t-statistics in parentheses; standardised coefficients in italics. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively. Estimations with robust standard errors. Reference group: CATHOLIC, AGE<30, MALE, SINGLE/NEVER MARRIED, FULL-TIME EMPLOYED.

TABLE 4: RELIGIOUS EXPOSURE AND RELIGIOUS NETWORK

<i>Weighted Linear Probability Model</i>	<i>Coeff.</i>	<i>t-Stat.</i>	<i>Beta</i>	<i>Coeff.</i>	<i>t-Stat.</i>	<i>Beta</i>
<i>DEPENDENT V.: SUICIDE IS NEVER JUSTIFIED</i>						
	[17]			[18]		
<b><i>Religion</i></b>						
PROTESTANT	-0.014	-0.19	-0.008	-0.014	-0.19	-0.009
CHURCH ATTENDANCE	0.009***	2.63	0.039			
PROTESTANT*CHURCH ATTENDANCE	0.018*	1.69	0.047			
SPEND TIME PEOPLE AT CHURCH				0.015**	2.22	0.033
PROTESTANT*SPEND TIME PEOPLE AT CHURCH				0.050**	2.41	0.072
EXPLORE DIFFERENT RELIGIONS	-0.023***	-9.43	-0.13	-0.024***	-8.82	-0.132
<b><i>Education and Demographic Factors</i></b>						
EDUCATION	-0.007***	-4.65	-0.063	-0.005***	-3.33	-0.049
AGE 30-39	-0.004	-0.15	-0.003	-0.0001	-0.01	0.000
AGE 40-49	0.052**	2.04	0.04	0.056*	1.95	0.043
AGE 50-59	0.025	0.9	0.019	0.038	1.22	0.028
AGE 60-69	0.109***	3.54	0.084	0.125***	3.63	0.096
AGE 70+	0.132***	3.68	0.085	0.162***	4.06	0.104
FEMALE	0.002	0.14	0.002	0.004	0.28	0.004
<b><i>Marital Status and Children</i></b>						
MARRIED	0.016	0.72	0.016	0.026	1.07	0.026
WIDOWED	0.02	0.67	0.012	0.053	1.6	0.032
DIVORCED	-0.013	-0.41	-0.006	-0.017	-0.45	-0.007
SEPARATED	0.051	0.85	0.011	0.032	0.5	0.007
NUMBER OF CHILDREN	0.015***	2.95	0.045	0.016***	2.85	0.048
<b><i>Employment Status</i></b>						
PART TIME EMPLOYED	-0.028	-1.11	-0.014	-0.023	-0.81	-0.012
SELF-EMPLOYED	0.016	0.57	0.007	0.015	0.52	0.007
RETIRED	0.003	0.12	0.003	-0.019	-0.75	-0.017
AT HOME	-0.007	-0.3	-0.004	-0.008	-0.34	-0.005
STUDENT	-0.008	-0.24	-0.003	-0.011	-0.31	-0.005
UNEMPLOYED	0.007	0.25	0.003	-0.009	-0.29	-0.004
OTHER	-0.026	-0.47	-0.007	-0.020	-0.32	-0.005
REGIONAL DUMMIES	YES			YES		
R2	0.224			0.215		
Number of observations	6686			5432		
Prob > F	0.000			0.000		

Notes: Coefficients in bold; t-statistics in parentheses; standardised coefficients in italics. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively. Estimations with robust standard errors. Reference group: CATHOLIC, AGE<30, MALE, SINGLE/NEVER MARRIED, FULL-TIME EMPLOYED.



TABLE 5: SUICIDE ACCEPTANCE AND THE IMPORTANCE OF FRIENDS AND FAMILY

<i>Weighted Linear Probability Model</i>	<i>Coeff.</i>	<i>t-Stat.</i>	<i>Beta</i>	<i>Coeff.</i>	<i>t-Stat.</i>
<i>DEPENDENT V.: SUICIDE IS NEVER JUSTIFIED</i>				Clustering over regions	
	[19]			[20]	
<b><i>Religion</i></b>					
PROTESTANT	-0.030*	-1.82	-0.026	-0.030*	-1.95
CHURCH ATTENDANCE	0.016***	8.32	0.076	0.016***	6.97
<b><i>Social Integration</i></b>					
IMPORTANCE OF FRIENDS	0.012**	2.15	0.016	0.012**	1.98
IMPORTANCE OF FAMILY	0.044***	4.66	0.035	0.044***	4.13
<b><i>Education and Demographic Factors</i></b>					
EDUCATION	-0.009***	-10.71	-0.090	-0.009***	-9.47
AGE 30-39	0.017	1.19	0.014	0.017	1.25
AGE 40-49	0.035**	2.34	0.028	0.035**	2.29
AGE 50-59	0.048***	3	0.036	0.048***	2.92
AGE 60-69	0.085***	4.67	0.063	0.085***	4.58
AGE 70+	0.105***	5.09	0.068	0.105***	4.94
FEMALE	0.009	1.05	0.009	0.009	1.03
<b><i>Marital Status and Children</i></b>					
MARRIED	0.016	1.22	0.016	0.016	1.14
WIDOWED	0.014	0.78	0.008	0.014	0.75
DIVORCED	-0.020	-1.06	-0.009	-0.020	-1.02
SEPARATED	0.012	0.4	0.003	0.012	0.44
NUMBER OF CHILDREN	0.012***	4.12	0.037	0.012***	3.75
<b><i>Employment Status</i></b>					
PART TIME EMPLOYED	-0.035**	-2.12	-0.017	-0.035**	-2.53
SELF-EMPLOYED	-0.001	-0.05	0.000	-0.001	-0.04
RETIRED	0.028**	2.05	0.025	0.028**	2.12
AT HOME	0.011	0.75	0.007	0.011	0.73
STUDENT	-0.084***	-4.07	-0.036	-0.084***	-4.33
UNEMPLOYED	0.012	0.7	0.006	0.012	0.68
OTHER	0.005	0.18	0.001	0.005	0.15
REGIONAL DUMMIES	YES			YES	
R2	0.197			0.197	
Number of observations	18890			18890	
Prob > F	0.000			0.000	

Notes: Coefficients in bold; t-statistics in parentheses; standardised coefficients in italics. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively. Estimations with robust standard errors. Reference group: CATHOLIC, AGE<30, MALE, SINGLE/NEVER MARRIED, FULL-TIME EMPLOYED.

TABLE 5: Church Attendance Versus Other Factors

<i>Weighted Linear Probability Model</i>	<i>Coeff.</i>	<i>t-Stat.</i>	<i>Beta</i>	<i>Coeff.</i>	<i>t-Stat.</i>	<i>Beta</i>
<i>DEPENDENT V.: SUICIDE IS NEVER JUSTIFIED</i>	PROTESTANTS			CATHOLICS		
	[19-28]			[29-38]		
CHURCH ATTENDANCE	0.026***	12.64	0.030	0.047***	7.78	0.084
RELIGIOUS <sup>1</sup>	0.060	1.29	0.0232	0.187***	5.74	0.056
N	4593			13900		
R2	0.197			0.2032		
CHURCH ATTENDANCE	0.026**	2.26	0.042	0.051***	7.91	0.091
BELIEF IN HELL <sup>2</sup>	0.166***	2.99	0.052	0.143***	5.25	0.056
N	4294			12228		
CHURCH ATTENDANCE	0.016	1.39	0.026	0.046***	6.9	0.081
BELIEF IN HEAVEN <sup>2</sup>	0.254***	5.14	0.096	0.193***	6.62	0.074
N	4239			12375		
R2	0.203			0.209		
CHURCH ATTENDANCE	0.019	1.59	0.030	0.054***	8.18	0.096
BELIEF IN LIFE AFTER DEATH <sup>2</sup>	0.147***	3.05	0.056	0.056*	1.9	0.020
N	4054			12218		
R2	0.205			0.203		
CHURCH ATTENDANCE	0.025**	2.24	0.041	0.045***	7.19	0.079
BELIEF IN SIN <sup>2</sup>	0.103***	2.12	0.039	0.232***	7.37	0.080
N	4370			13231		
R2	0.196			0.209		
CHURCH ATTENDANCE	0.016	1.39	0.026	0.047***	7.57	0.082
BELIEF IN GOD <sup>2</sup>	0.111*	1.87	0.033	0.265***	4.76	0.050
N	4403			13732		
R2	0.198			0.200		
CHURCH ATTENDANCE	0.017	1.56	0.027	0.019***	8.01	0.087
CLEAR GUIDELINES WHAT IS GOOD AND EVIL <sup>3</sup>	0.247***	5.01	0.082	0.053***	5.66	0.053
N	4527			12695		
R2	0.198			0.206		
CHURCH ATTENDANCE	0.008	0.67	0.013	0.026***	4.1	0.046
IMPORTANCE OF GOD IN YOUR LIFE <sup>4</sup>	0.029***	3.31	0.064	0.064***	11.86	0.133
N	4784			14183		
R2	0.197			0.213		
CHURCH ATTENDANCE	0.014	1.16	0.024	0.038***	5.56	0.068
FREQUENCY OF PRAYING <sup>5</sup>	0.029**	2.5	0.052	0.041***	5.97	0.073
N	4322			13484		
R2	0.189			0.208		
CHURCH ATTENDANCE	0.015	1.25	0.024	0.039***	5.97	0.070
COMFORT IN RELIGION <sup>6</sup>	0.103**	2.02	0.039	0.231***	7	0.079
N	4436			13278		
R2	0.207			0.210		

*Notes:* Estimations with all control variables used beforehand. \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively. Estimations with robust standard errors. <sup>1</sup> Questions: “Independently of whether you go to church or not, would you say you are: 1 = A convinced atheist, 2 = Not a religious person, 3 = A religious person?” <sup>2</sup> “Which, if any, of the following do you believe in ...?” (Yes = 1, No = 0). <sup>3</sup> “Here are two statements people sometimes make when discussing good and evil. Which one comes closest to your own point of view? 1 = There are absolutely clear guidelines about what is good and evil. These always apply to everyone, whatever the circumstances. 0 = There can never be absolutely clear guidelines about what is good and evil. What is good and evil depends entirely upon the circumstances at the time.” <sup>4</sup> “And how important is God in your life? Please use this card to indicate – 10 means very important and 1 means not at all important.” <sup>5</sup> “How often do you pray to God outside of religious services? Would you say 1 = never, 2 = less often, 3 = several times a year, 4 = at least once a month, 5 = once a week, 6 = more than once a week 7 = every day?” <sup>6</sup> “Do you find that you get comfort and strength from religion or not?” (1 = Yes, 0 = No).

*Table 5* checks whether including other dimensions of subordination – specifically, importance of family and friends – crowds out the difference between Protestants and Catholics. The marginal effect and statistical significance are comparable to specification [16] in *Table 3*, which indicates that including close social networks does not alter our previous results. Both IMPORTANCE OF FRIENDS<sup>12</sup> and IMPORTANCE OF FAMILY<sup>13</sup> are statistically significant; however, the latter seems more important in reducing suicide acceptance.

We then explore Protestants and Catholics separately (see *Table 5*) to assess the relative importance of church attendance in the two groups and identify whether alternative religious concepts influence suicide acceptance in relation to church attendance. Based on the discussion in the previous section, we anticipate that church attendance should be, *ceteris paribus*, more important among Catholics, an outcome that is indeed clearly visible in *Table 5*. In all 10 specifications, the coefficient for CHURCH ATTENDANCE is statistically significant at the 1% level for Catholics but only statistically significant in 3 out of 10 cases for Protestants. The results also point to the importance of focusing on alternative religious concepts to understand suicide acceptance: all 10 factors influence suicide acceptance in both Protestants and Catholics, although the rankings for several differ. For Protestants, BELIEF IN HEAVEN and CLEAR GUIDELINES WHAT IS GOOD AND EVIL show the strongest quantitative effects, followed by the IMPORTANCE OF GOD IN YOUR LIFE. For Catholics, on the other hand, the IMPORTANCE OF GOD IN YOUR LIFE has the strongest relative effect, followed by BELIEF IN SIN and BELIEF IN HEAVEN. Thus, the belief in a blissful afterlife and the importance of God in one's life are very dominant for both Catholics and Protestants, but it is also clear that the belief in sin is more important among Catholics

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<sup>12</sup> “Please say, for each of the following, how important it is in your life: Friends and acquaintances.” (1 = Not at all important, 4 = very important).

<sup>13</sup> “Please say how important it is in your life: Family.” (1 = Not at all important, 4 = very important).

than Protestants. Institutionalised religion also appears to work more strongly than individuals' perceived level of religiosity (RELIGIOUS).

#### 4. CONCLUSIONS

The social phenomenon of suicide is unlikely to disappear from human history: the World Health Organisation (WHO) reports that every year almost one million people die by their own hand (one death every 40 seconds). Moreover, in the last 45 years, suicide rates have increased by 60% worldwide, making it now among the three leading causes of death in some countries for those aged 15 to 44. As a result, in 1998, suicide accounted for 1.8% of the total global burden of disease.<sup>14</sup> These staggering statistics clearly indicate that economists should contribute to the understanding of the suicide phenomenon; most particularly, given the strong negative correlation that has been documented between life satisfaction and suicide rates in Europe.

The aim of this paper, therefore, was to identify the differences proposed in earlier studies between Protestant and Catholic enactment of and attitudes towards suicide. In line with early descriptive studies from the 19th century, we first used comparatively recent data for a 20-year period (1981–2001) to explore the case of Switzerland, in which confounding factors are inherently reduced. A simple correlation using average values for the entire time period indicates a strong negative correlation between the cantonal share of Catholics and the number of suicides per capita. The difference identified in this descriptive analysis remains statistically significant in a subsequent multivariate panel analysis that controls for a large set of factors. In this latter, which uses number of suicides per death and number of suicides per capita as proxies, suicide is positively correlated with the cantonal share of Protestants. Thus, despite the recent decrease in theological and social differences between Catholicism and Protestantism, a denomination effect persists.

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<sup>14</sup> [http://www.who.int/mental\\_health/prevention/suicide/suicideprevent/en/](http://www.who.int/mental_health/prevention/suicide/suicideprevent/en/).

This finding is supported by our second analysis of suicide acceptance in 414 European regions inhabited by both Catholics and Protestants. Once social factors like church attendance or importance of family are controlled for, Protestants are more likely to be accepting of the suicide option. Nevertheless, Protestants who are more active churchgoers or spend more time with people from their church are less likely to accept suicide. Not surprisingly, individuals who are more open to exploring different religions are also more likely to accept suicide. When we incorporated several alternative core religious concepts into our analysis – including belief in God, life after death, hell, heaven, or sin – we found that all 10 factors had a strong impact on both Catholics and Protestants. This finding underscores the importance of including such variables in the future, especially as controlling for them led to church attendance being more dominant among Catholics than Protestants.

These findings are especially important in light of Eckersley and Dear's (2002) criticism that modern Western culture "may be failing to do well what cultures do: provide a web or matrix of stories, beliefs, and values that holds a society together, allows individuals to make sense of their lives and sustains them through the trouble and strife of mortal existence" (p. 1892). Attitudes towards suicide are also pervasive in the policy debates on assisted suicide and euthanasia (Stack and Kposowa 2008), and the topic has gained substantial attention in recent decades because of such issues as the suicide crisis among teens and the right-to-die debate (Sawyer and Sobal 1987). The topic thus warrants more research using a longitudinal design that provides the opportunity to explore how life event shocks and value changes influence suicide tolerance in the same population over time.

One recent endeavour in this direction is NESARC, the U.S. Census Bureau's nationally representative longitudinal survey of an extremely large sample of the adult non-institutionalised, civilian population (Wave 1 encompassed 43,093 respondents), which is generating valuable insights. Other important insights are provided by Rasic et al.'s (2011) analysis of the Baltimore Epidemiologic Catchment Area study for 1993/1996 and 2004/2005,

which shows that those with higher rates of church attendance are significantly less likely to report having made a suicide attempt. This finding is consistent with the happiness literature based on such panel data as the GSOEP (Germany), HILDA (Australia), or the British Household Panel Survey. It would also be valuable to work with such survey instruments as Domino's Suicide Opinion Questionnaire (SOQ), which allows exploration of the multi-dimensional aspect of suicide (see the work of George Domino and colleagues; e.g., Domino et al. 1980, 1982, Domino and Miller 1992). Another valuable avenue for future research would be to assess the relevance of the privatised or invisible religions that in the modern era substitute for institutionalised religion. As far back as 30 years ago, Stack (1983a) noted that the vitality of such invisible religions had been equal or even greater than that of institutionalised religion possibly now for several although he also believed that the latter might be more relevant than the former in promoting integration-regulation. This opinion is indeed borne out by our findings.

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## APPENDIX

FIGURE A1: SHARE OF PROTESTANTS IN 1981

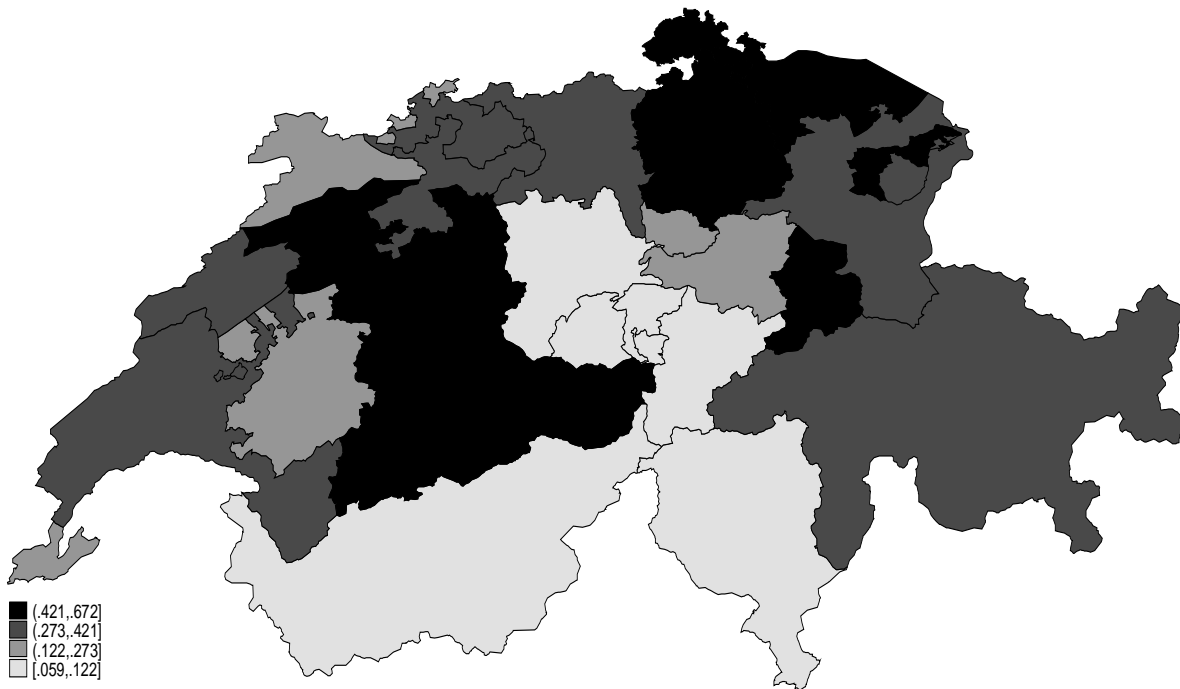


FIGURE A2: SHARE OF PROTESTANTS IN 2001

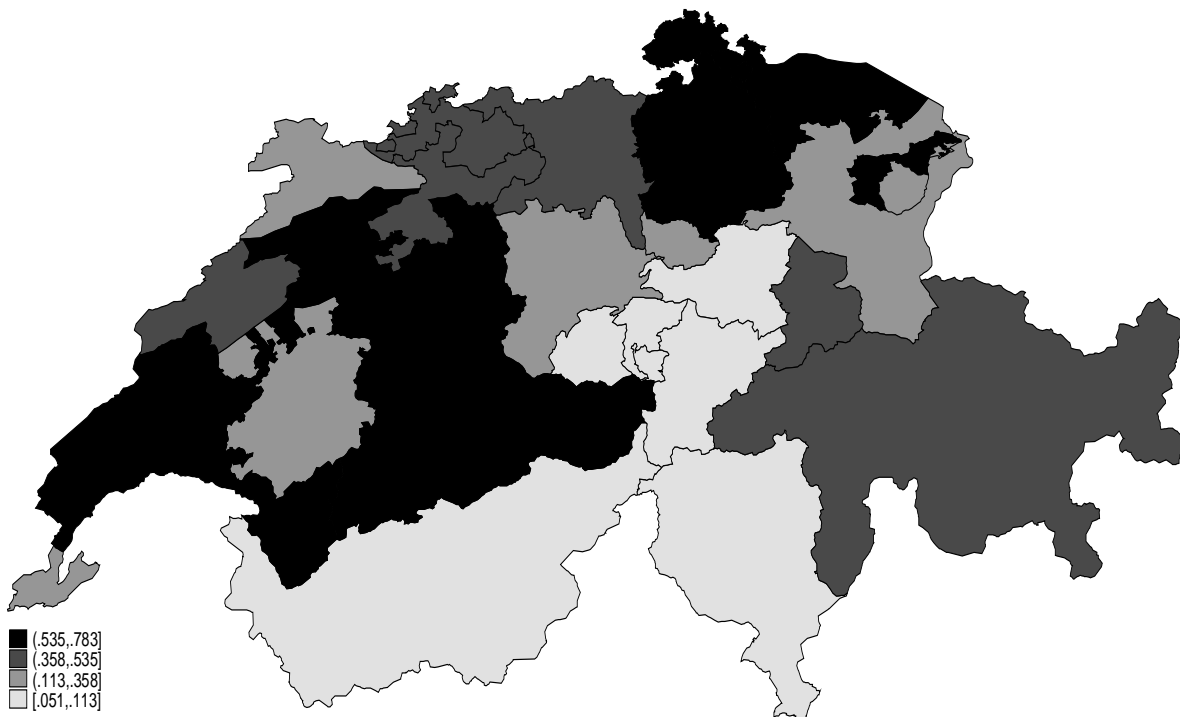


TABLE A1: BETWEEN ESTIMATOR

Explanatory variables	Dependent variable: suicides per capita		Dependent variable: suicides/deaths	
	[A1]	[A2]	[A3]	[A4]
Share of Protestants	0.0001*** (2.80)	0.0001** (2.60)	0.0108*** (3.02)	0.0109** (2.84)
Higher schooling	0.0006* (1.75)	0.0006 (1.51)	0.0700** (2.35)	0.0699* (1.86)
Population < 15	0.0018 (1.72)	0.0013 (1.15)	0.1649 (1.70)	0.1085 (1.03)
Population > 65	0.0026*** (4.77)	0.0022** (2.86)	0.0605 (1.18)	0.0080 (0.11)
Share of females	-0.0071** (-2.42)	-0.0077** (-2.45)	-0.5458* (-1.98)	-0.5863* (-2.02)
Share of foreigners	-0.00001 (-0.04)	0.00002 (0.11)	-0.0081 (-0.47)	-0.0035 (-0.19)
Log GDP	0.0001 (0.72)	-0.0001 (-0.42)	0.0065 (0.57)	-0.0128 (-0.74)
Unemployment rate	0.0001** (2.14)	0.0001* (1.95)	0.0052* (2.01)	0.0050* (1.81)
Urban	0.0001** (2.39)	0.0001 (1.00)	0.0079* (1.97)	0.0038 (0.70)
German language	0.0001 (1.37)	0.0001* (1.89)	0.0071 (1.74)	0.0113* (2.13)
Health expenditures		5.38E-08 (1.10)		0.00001 (1.28)
Centralisation		0.00001 (0.11)		0.0028 (0.33)
Direct democracy		-0.00001 (-1.05)		-0.0008 (-0.89)
Prob > F	0.0064	0.023	0.0296	0.0624
R-squared	0.736	0.782	0.662	0.729
# of observations	546	546	546	546

Notes: t-statistics in parentheses. \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively.