

Economics, Religion and Happiness

LASSE STEINER, LISA LEINERT, BRUNO S. FREY*

This survey intends to portray the two main approaches of economic research on religion. The first investigates the impact of religion on the economy. Religion and the internalized value system are found to influence economic attitudes output in a favorable way. The second approach is to explain religious behavior with economic models showing how an individual can derive utility from religion. Modern happiness research makes it possible to measure the impact of religion on subjective well-being empirically. The literature finds a positive correlation of religion and happiness, with a robust effect of churchgoing and protestant confession, while the results on internal religiosity are more ambiguous. In our analyses for Switzerland we are able to confirm these results and show that the effect of church going on happiness is quite sizeable.

Keywords: Well-being, Happiness, Religion, Church, Switzerland, Psychological Economics.

1. Introduction

The study of human incentives being at the centre of the economic discipline, religious beliefs form an important object of investigation. Already Adam Smith (1776) studied how religious markets should be organized optimally. However, for a long time (up to the mid seventies of the last century), religion was considered an irrational belief not worth-wile to explain within the rationality framework of economics. Today, a multitude of researchers are investigating religious beliefs and activities and their economic consequences.

A variety of aspects are of interest for economists of which a few are listed and outlined here: How do the values and norms internalized in a belief system influence human behavior? What are the resulting economic consequences on a microeconomic and macroeconomic level? How is it possible to explain belief in God within the standard economic framework? What impact do religious beliefs have on utility?

Answers of the literature to these questions are outlined in the following sections, concluding with our own empirical analysis on the impact of different dimensions of religiosity on subjective well-being or happiness.

The paper is outlined as follows: Section two shows how religious beliefs may alter the economic behavior of individuals and how religion impacts on economies as a whole. In section three we describe how religious behavior can be explained within the framework of neoclassical and psychological economics. Section four presents results on the influence of religion on happiness, a dimension of subjective well-being used as

* Dipl.-Oec. Lasse Steiner, Institute for Empirical Research in Economics, University of Zurich, Winterthurerstrasse 30, CH-8006 Zurich, phone: +41-446343795, e-mail: lsteiner@iew.uzh.ch; Dipl.-Oec. Lisa Leinert, Center of Economic Research at ETH Zurich, Zürichbergstrasse 18, CH-8092 Zurich, phone: +41-446326033, e-mail: lleinert@ethz.ch; Prof. Dr. Dr. h.c. mult. Bruno S. Frey, Institute for Empirical Research in Economics, University of Zurich, Winterthurerstrasse 30, CH-8006 Zurich, phone: +41-44633730, email: bsfrey@iew.uzh.ch.

a proxy for economic utility. In section five, we analyze and quantify the impact of religion on happiness in Switzerland and conclude in section six.

2. Impact of religion on the economy

The debate about the impact of religion on people's economic attitudes started with Max Weber's (1930) work on the protestant ethic. He stated that the Protestant Reformation caused a mental and social change enabling the success of capitalism. Until today, many researchers have dealt with the question whether religion and religious norms shape human behavior in an economically favorable way.

We distinguish between the microeconomic perspective that explains how religion alters the behavior of individuals and the macroeconomic perspective that explains how religion influences the growth of economies.

2.1 Microeconomic perspective

2.1.1 Income and labor market prospects

The question of whether, and in what way, religion influences employment, wages or general labor market attainment is the most interesting aspect from the viewpoint of economists. People believing in God may acquire greater human capital, which is rewarded on the labor market (Tao 2008). Furthermore, religious values like modesty, honesty and accuracy tend to increase the quality of daily work and foster collaboration, thus translates into greater income and better labor market prospects.

In contrast to Weber later empirical finding suggest that especially Catholics seem to profit in financial respect from their religion. Tomes (1984) provides empirical evidence that Catholics with college education earn more than Protestants with the same education. Ewing (2000) supports this result with his finding that there is a substantial wage premium for people raised in the Catholic religion after controlling for standard human capital, institutional and demographic variables. Steen's (2004) results point in the same direction but in addition find that Jews earn more than any other denomination. This substantiates the finding of Chiswick (1983) who states that Jews earn 8% more than other denominations, which he attributes to higher rates of return from schooling and investments in on-the-job-training.

However, there is also empirical evidence that denies the influence of religion on personal income. Neal (1997) does not find any advantage of Catholic secondary schooling on graduation rates and future wages compared to public schools in general. Tao (2008) investigates whether religion indirectly enhances subjective well-being through increasing job stability. He does not find evidence for this hypothesis: Religious people do not profit from their beliefs with respect to the risk of becoming unemployed. To conclude, there is a mixed picture of whether religion improves people's income and labor market prospects.

2.1.2 Attitudes to rules and institutions

Religious beliefs may positively influence economic attitudes which in turn may lead to higher income and better labor market prospects of religious individuals. Using the World Values Survey data Guiso et al. (2003) investigate the effect of religion on eco-

conomic attitudes toward cooperation, the government, the market economy, legal rules, working women and thriftiness. They find that on average religious beliefs are correlated with economic attitudes, which are beneficial for per capita income and growth. Protestants, Catholics, and Hindus tend to be favorably disposed toward private ownership, while Muslims want significantly less private ownership. However, the authors also find that religion is correlated with higher degrees of racism and less respect for working women. These attitudes may harm economic growth. Religious participation is positively correlated with trust toward others while intolerance is an outcome of being raised religiously. Different religions seem to have different effects on economic attitudes, whereas Christian religions are more positively associated with attitudes, which are beneficial for growth.

There are contradictory results from other studies which found no relationship between one's religion and economic attitudes. According to them, religious affiliation or degree of religiosity do not seem to influence attitudes toward capitalism, socialism, income redistribution, private property, free trade, and government regulation (Gay 1991; Kuran 1993). However, capturing these effects via correlations does not establish the direction of causality: It is unclear whether religion really affects behavior or whether people with certain character traits tend to be more religious.

2.1.3 Effects on health, social networks and crime

Religious beliefs may also have an influence on health. Since healthy people cause less costs for health systems, the impact of religion on people's health is also of economic importance. Levin (1994) finds that faith in God, whatever denomination, increases people's health. The health effect of religion is especially large for elderly people (for example Levin/Chatters 1998; Ferraro/Kelley-Moore 2000). According to Tao (2008), religion increases well-being significantly through greater health. Thus, the effect religion has on health seems to be less ambiguous than the one on income.

Religion may also influence social networks and family relationships (for example, Koenig et al. 1997; Krause et al. 1999). Sound family relationships, social networks and secure income help to prevent people from committing crimes. A lower crime rate is beneficial for an economy since it leads to a greater willingness to undertake investments and to take economic risks. Furthermore, costs of prosecution and detention decrease.

Religiosity may also directly influence the tendency to commit crimes. Hirschi and Stark's (1969) "hellfire" hypothesis states that religion deters criminal behavior by increasing the costs of crimes through the thread of punishment in afterlife. In a meta-analysis of 60 studies of the effect of religion on crime Baier and Wright (2001) also find a moderate deterrent effect. Since these studies use methods with limited validity, the results have to be interpreted with caution. Using a more sophisticated methodology, only a negligible effect of religion on crime was found (Heaton 2006).¹

¹ Most empirical studies on the deterrence effect of religion on crime use cross-sectional OLS regression and therefore suffer from a possible endogeneity bias. Religious adherence is usually negatively affected by an increase in crime rates, which results in biased estimates toward a finding that religion reduces the incidence of crime. In contrast, Heaton (2006) applies an instrumental variable approach using historic religiosity as an instrument for current religious participation.

2.2 Macroeconomic perspective

For economists the association of religion with economic attitudes, income, health and criminal behavior on an individual level is of significant importance. But, of course, religion may also affect the economy as a whole.

Since Weber (1930) noted that Protestantism favors macroeconomic development, many researchers have engaged into investigating this relationship. Denominational and religious institutions have played a major role in forming and shaping today's economic and governmental institutions, which are important prerequisites for economies to grow and develop.

Since denominations differ more or less with respect to the value system internalized, it is likely that denominations may account for differences in economic growth. Amongst all denominations, Protestantism has been declared the one encouraging economic growth most. Early work has found evidence that Catholicism seems to feature growth-retarding characteristics while Protestantism teaches hard work and individualism. These differences are said to be one of the reasons why the United States and Canada have seen good economic development whereas Latin America, inheriting the Hispano-Catholic tradition, has lagged behind (Morse 1964). Catholicism has even been found to promote communism (Andreski 1969).

In later studies, however, this clear view of denominational influence on growth could not be retained. Rather, it was shown that religion is not the sole determinant of differences in economic development (Grier 1997). Thus, Protestantism is found to be only one of many factors determining economic progress. In addition, the catholic religion was not found to be associated with lower per capita income in comparison to countries that consist mainly of Hindus, Muslims, orthodox Christians and Protestants (Barro/McCleary 2003). Rather, Islam and in some specifications, Confucianism, are positively associated with per capita income growth (Sala-i-Martin et al. 2004). There exist even more adverse results to Weber's original hypothesis. Noland (2005) finds that Jewish, Catholic, and Protestant population shares are negatively correlated with per capita income growth, even after accounting for economic fundamentals. This study confirms the notion that Islam promotes growth.

Weber's hypothesis, that Protestantism is a causal reason for economic growth, is thus not supported in recent research work. At the same time, empirical research has not been able to establish any consistent effect of denominations on economic growth and per capita income. Either there is indeed no such effect in reality or existing research has not been able to identify it in a satisfactory way.

3. Economic theory of religious behavior

Economists deal with religion in two ways. Firstly, they investigate the impact of religion on economic output as described above. Secondly, they try to explain religious behavior using economic theory with the underlying assumption being that individuals behave rationally. The goal is to describe why some people choose to be religious while others do not. There are mainly two types of models: one type explains belief patterns. The second type describes religious behavior such as going to church. It was long doubted that religious behavior (either faith or church attendance) can be regarded as rational action and that it should therefore be included as an element in the

individual utility functions. Advocates of the rational choice approach in religion, however, claim:

„(...) people approach all actions in the same way, evaluating costs and benefits and acting so as to maximize their net benefits. Hence, people choose what religion, if any, they will accept and how extensively they will participate in it“ (Iannaccone 1995: 77).

Iannaccone highlights the basic assumption underlying neoclassical economic theory: people act as ‘*homines oeconomici*’, weighing pros and cons of each action and acting so as to maximize their own utility. Assuming this behavior, religious beliefs and actions – as irrational as they may seem to be – have to be understood as an action taken by individuals in order to maximize their utility. As a consequence, economists had to find ways to justify religious beliefs as rational action. According to neoclassical theory, religious faith increases personal utility through its function as an insurance against the consequences of hell in afterlife. In contrast, a more recent movement, known as psychological economics, is able to explain how individuals can derive utility from holding religious beliefs (see also Iannaccone 1998).

3.1 The neoclassical insurance model

Pascal (1670) formulated the first model of belief in God. He put up a simple matrix where the possibility of God’s existence (exist/not exist) is opposed to one’s faith (belief/no belief). To maintain one’s level of religion, faith has to be practiced. This practice is regarded as the costs of one’s faith. Each combination in the 2x2 matrix generates a certain payoff and the worst possible outcome will occur if God exists and one does not believe. In this case, hell is waiting with a highly negative payout. In comparison to that outcome, costs arising from believing in God – even if he does not exist - are negligible. Thus, weighing costs and benefits, Pascal concluded that faith in God is a rational action. In this sense, faith may be interpreted as an insurance against the possible state that God exists and that an individual will go to hell for not believing. In a modification of Pascal’s model Durkin and Greely (1992) modeled faith as a continuous variable. An individual chooses a level of faith that maximizes expected utility given his or her respective costs. This model takes into account that faith not only generates a higher utility in afterlife, but creates utility or meaning already during lifetime.

These insurance models have one major problem in common: In order for an individual to weight the costs and benefits of the action “belief”, it is necessary to determine the probability of God’s existence. However, examining the two things more closely, it turns out that they are the same: If an individual chooses a positive probability (above 0) that God exists, he believes that God exists, which means he is religious. It is very unlikely for a person to assign a positive probability to God’s existence (to believe in the existence of heaven and hell) and to decide not to believe in God. Thus, the decision the models try to explain is included in the set up of the models.²

The models presented include some sort of costs in order to be able to find an optimum level of faith. However, as socio-economic studies have shown, praying and going to

² For an extensive discussion of this issue see Montgomery 1992 and 1996.

church are not regarded as costs for people who believe in God. Thus, it seems more appropriate to explain religious beliefs as a question of preferences rather than as the result of weighing costs and benefits. Models of this structure have been studied in psychological economics.

3.2 Psychological Economics

Models explicitly taking into account psychological aspects³ assume that individuals derive utility from holding irrational beliefs, e.g. faith in God. Thus, faith can be viewed as a subjective belief and does not have to be interpreted as an action or an objective probability, as done in neoclassical models. Akerlof und Dickens (1982) introduce the first respective model, carrying over the psychological theory of cognitive dissonance into economics. Neoclassical theory is extended by assuming that persons not only have preferences over states of the world but also over their beliefs about the state of the world. Furthermore, persons are able to manipulate their own beliefs by selecting sources of information likely to confirm “desired” beliefs.

Freese and Montgomery (2007) extended the neoclassical models by incorporating cognitive dissonance. Their behavioral model of “self-serving bias in belief formation” differs from the standard model in mainly one respect: An individual in fact knows the “real” probability of the existence of heaven and hell but chooses probabilities that better support his or her preferences. By deviating, the individual on the one hand increase the expected payoff but encounters on the other hand a so-called loss function. This function takes into account how far the self-formed beliefs deviate from the real probabilities, which reduce expected utility accordingly. The individual handles this trade-off such that his or her expected utility from believing in God, given the loss function, is maximized.

Caplan (2000) has established a model of “Rational Irrationality” that describes religious behavior profoundly. Here, an individual can choose to hold or buy an amount of two types of goods given his or her individual budget constraint. The two goods are ‘irrational beliefs’ and everything else, denoted as ‘wealth’. Applied to religion the quantity of irrational beliefs consumed depicts the level of faith of an individual. The choice of the amount of irrational beliefs depends on two factors: first and foremost, on the individual shape of the preference curve. Only some individuals can derive utility from holding irrational beliefs. Those with neoclassical preferences will not be able to do so whereas, according to Caplan (2000), most people exhibit a mix of neoclassical and irrational preferences, so that they demand a positive amount of irrational beliefs. In contrast to the standard neoclassical models, where more of any good increases utility, the mixed preferences indicate that only a certain amount of a belief is optimal. Secondly, wealth as well as irrational beliefs have a price, introducing a trade-off in individual choices: the demand of either good is restricted by an individual’s budget line. Changes in policies, trends in society or recent scientific findings related to the specific beliefs of an individual result in a change in the relative price, thus a twist of the slope of the budget line and a different level of optimal faith. An example of a price change is the discrimination of a certain religion. In this case the price of

³ Psychological Economics is a movement often, but misleadingly, called “Behavioral Economics”.

holding irrational beliefs increases, which leads to a reduction in the amount of irrational beliefs an individual holds. Thus, the model explains the variation of beliefs over time. The explanatory power is significantly increased compared to standard neo-classical models.

3.3 Models of religious activity

Many economic models seek to explain religious activity and individual choice of denomination. Based on Becker's (1962) household production approach Azzi and Ehrenberg (1975) designed the first household production model of church attendance and contributions. Individuals allocate time and goods between religious and consumer goods in order to maximize the sum of utility from present life and afterlife. Through regular religious activities, a "religious asset" is accumulated in the present life. The religious asset will be consumed in the afterlife with utility resulting from it. By calculating the opportunity cost of acquiring the religious asset (e. g. working), the model can explain some of the existing empirical patterns. Since women and retired persons receive on average a lower wage, they are more likely to spend time in church since their opportunity cost of going to church is smaller than for men.

Later models broaden the assumptions of Azzi and Ehrenberg's household production model. In these models, the payoffs to religious activities individuals can earn in this life become more important. The immediately gained utility from religion includes, among others, a sense of purpose or meaning, group identity and social support (Hull/Bold 1989; Schlicht 1995).

Iannacone (1998) advances these models by emphasizing the learning process that is related to religion. According to his model of "religious human capital", individuals accumulate religious capital by regularly exercising religious rites. Acquired human capital enables the individuals to execute religious activities more efficiently and at decreasing costs. Higher human capital leads to higher utility from religious activity. Religion can be seen as a learning-by-doing process. The more experience one has, the less demanding is the maintenance of faith (decreasing marginal cost of faith). This dynamism explains, amongst others, the greater religiosity of elderly people. Religious human capital increases with age, leading to lower cost of faith and a higher optimal level of faith. The human capital approach allows us to derive testable hypotheses about denominational mobility, conversion age, religious intermarriage, intermarriage and participation, and religious upbringing.

4. Religion and Happiness

4.1 Happiness Research

Modern happiness research seeks to measure the impact of religion on a person's utility empirically. The economic analyses of happiness started with Easterlin's (1974) paradox: Happiness does not increase over time although income, measured as the real Gross Domestic Product, does. This contradicts the neoclassical economic assumption that utility is increasing monotonously with income. His study was the first to use happiness (or subjective well-being) as a proxy for utility.

Due to extensive work by numerous psychologists (Diener et al. 1999; Kahneman et al. 1999), the measurement of utility has made great progress. Using representative surveys it is now possible to approximate individual utility in a satisfactory way. With the help of a single question, or several questions on global self-reports, an individual's evaluation of his or her life satisfaction or happiness is measured. Since the main use of happiness measures is to identify the determinants of happiness, it is neither necessary to assume that reported subjective well-being is cardinally measurable, nor interpersonally comparable (Frey/Stutzer 2002a, 2002b; Frey 2008).

The validity of subjective well-being as a proxy for individual utility was examined by various scholars and was found to be a satisfactory empirical approximation. Happy people are, for example, rated as happy by friends, family members and spouses. People reporting high subjective well-being also smile more often and are less likely to commit suicide. Reported subjective well-being is fairly stable but also sensitive to changing life circumstances (Sandvik et al. 1993).

4.2 Types of Religiosity

Religion can be divided into internal and external religiosity. Internal religiosity or faith is defined as belief in God and a trusting acceptance of God's will. External religiosity refers to all observable activities, which are undertaken in a religious context, in particular going to church. It is useful to distinguish between these two dimensions since subjective well-being can be affected by either of them and they might work in different ways. It is not clear, for example, whether church attendance increases subjective well-being due to the proximity to God and the lessons learnt during the service, or due to the fact that one has social contacts with other churchgoers.

In contrast to the literature on the impact of religion on the economy, there is less ambiguity in the role of religion for subjective well-being: Almost all studies find a positive and significant relation between religion and happiness (Myers 2008). Differences between studies arise with respect to the role of internal and external religiosity for subjective well-being.

4.2.1 Internal Religiosity

So far, researchers have predominantly established a positive relationship between internal religiosity and subjective well-being. According to the results believing in God has a positive impact on global happiness, life satisfaction, life excitement and marital happiness (Pollner 1989). Religious people also suffer from fewer negative psychological consequences of traumatic life events (also Myers 2008; Clark/Lelkes 2005). It is even found that no other factor influences life satisfaction more than religious beliefs (Ellison 1991). Among the religious, especially elderly and less educated people benefit (Pollner 1989).

Several reasons have been proposed for the clear positive connection between faith and subjective well-being. Individuals may derive happiness from a relationship with a supernatural imaginary being with which one interacts (Pollner 1989). Additionally, belief in God enables individuals to create a system of meaning and thus greater purpose in life (Ardelt 2003; Silbermann 2005). Through religion, throwbacks can be understood as part of a greater plan and as a challenge. This aspect is supported by

findings within the psychological literature, where religious coping – the handling of personal throwbacks with faith – has a significant impact on well-being (Lewis et al. 2005).⁴

Internal religiosity creates spillover effects to non-religious people: A higher average religiosity in one region increases the life satisfaction of people in this region. People are more satisfied with their lives in more religious regions. This holds both for those who are religious and for those who are not (Clark/Lelkes 2009). Spillover effects also avoid the causality problem that usually arises with life-satisfaction estimations, since the happiness of an individual is not likely to affect the religious decisions of other people in the region.

The overwhelming evidence of a positive impact of internal religiosity on happiness has to be interpreted cautiously: Most of the studies concentrate on the US where 91% of the population is religious and where religiosity plays a pronounced role even in modern life. Results in less religious countries, like Denmark or the Netherlands, do not show such clear evidence (Snoep 2008).

4.3 External Religiosity

Going to church and building social networks within one's religious community plays an important role for any religious individual. Studies show that the frequency of church attendance monotonously increases the probability of reporting greater happiness (Greene/Yoon 2004; Soydemir et al., 2004; Hayo 2007) and has a significant positive impact on happiness and marital happiness (Pollner 1989). The effect of church-going on subjective well-being is stronger and more robust than the one of internal religiosity. Clark and Lelkes (2009) include only one variable for religiosity: church attendance or prayer. They find that church attendance has a comparatively higher impact on happiness than prayer. Analogous to the spill-over effect of internal religiosity church attendance has positive spillovers on the well-being of others at the national level (Helliwell 2003).

The impact of church services on well-being seems to be related to the importance of community life. While studies in Europe do not find a significant additional impact of church attendance to internal religiosity, Ellison and Gay (1990) show that internal religiosity of Afro-Americans has no effect on subjective well-being in contrast to church attendance. Thus, church life is an important factor of religion and subjective well-being. This impression is confirmed in a recent and more sophisticated study. It is shown that not religious service attendance per se has an impact on well-being, but the number of friends in ones congregation (Putnam 2009).

Happiness derived from religion seems only partly related to the belief itself. As results on external religiosity and subjective well-being suggest friends are responsible for the increase in happiness rather than proximity to God. Individuals can thus gain greater happiness without being necessarily religious. Rather, they need a close network of friendships.

⁴ See also Niederhoffer and Pennebaker 2002 as well as Lyubomirsky et al. 2005.

4.4 Denomination

The literature on religion and happiness also investigates whether there is a difference in the reported well-being depending on one's denomination. Such a hypothesis is justified given the differing value system and institutional structures of churches. In Ellison (1991), Protestants are found to be happier than Catholics, which is explained by the organizational structure of those denominations. Protestants derive greater utility due to a higher autonomy in their belief, due to the collective identity and due to better social integration. Moreover, Christians in general seem to have an advantage compared to other religions in terms of subjective well-being. The probability of being happier is 28% higher for pious Christians than for Buddhists or members of Taiwanese folk religion (Tao 2008). However, there are also studies that do not find any impact of denomination on happiness or life satisfaction in Europe (Hayo 2007; Greene/Yoon 2004).

As mentioned above, religiosity can also have an indirect effect on happiness. Most religious rules promote a healthy lifestyle and communicate values and norms facilitating and strengthening social connections (Myers 2008). In Taiwan faith has a positive impact on health and social networks; and both aspects have a direct impact on well-being (Tao 2008). Religious people also serve more often as volunteers, which is associated with somewhat higher subjective well-being (Harlow/Cantor 1996; Thoits/Hewitt 2001).

5. Religion and subjective well-being in Switzerland

5.1 The data

Following the theoretical models and the literature, we conduct an empirical analysis to capture the impact of religion on happiness in Switzerland. To our knowledge, this is the first such analysis for Switzerland. Studying this country is of particular interest since it is one of the few countries without a predominant denomination.

We use the newest wave of the Swiss Household Panel 2007 and subjective well-being serves as the dependent variable. The corresponding question asked in the survey is: "In general, how satisfied are you with your life?" where 0 means "not at all satisfied" and 10 means "completely satisfied". The explanatory variables of interest are the confession, and external and internal religiosity. For the analysis we select only individuals with a Christian confession (Catholics, Protestants) and those without denomination to avoid possible biases, which might arise from cultural differences. For the same reason only citizens whose first nationality is Swiss are included. Our measure of external religiosity is religious service attendance ("How frequently do you take part in religious services?"). Only adults are included who are above 18 years old to account for the fact that religious service attendance of children may not be voluntarily. As a proxy for internal religiosity we use the frequency of an individual prayer ("How frequently do you pray apart from at church or within a religious community?").⁵

⁵ Frequency of prayer seem to be a valid proxy for internal religiosity, since an analysis with data of the European Social Survey has shown that it is highly correlated with one's faith or piety.

All regressions contain the controls normally used in economic happiness research: age, gender, health status, status of partnership, number of friends, education, occupational status and income. As they all show the expected signs and have no impact on the variables of interest, they are not presented.

5.2 Results

Since life satisfaction is a categorical dependent variable an ordered logit model would be the correct model of choice. However, we show OLS results, which achieve qualitatively and quantitatively the same results, but allow for a more intuitive interpretation (Ferrer-i-Carbonell/Frijters (2004) have shown that OLS is a valid method in happiness estimations in general). We are well aware of the difficulty in interpreting the observed correlations as causal effects. The estimation results in table 1 are therefore interpreted as partial correlations. The relationship between religion and subjective well-being is analyzed by gradually adding variables in four steps.

Controlling for the socio-economic factors mentioned above, the estimated coefficients for the Protestant and Catholic dummy variables show a positive and statistically significant correlation (Estimation 1). Individuals with Christian confessions report a significantly higher subjective well-being, that those without a denomination (which is the group of comparison). In line with the literature Protestants are also happier than Catholics, which may be due to a higher autonomy in their belief.

VARIABLES	(1) Subjective well-being	(2) Subjective well-being	(3) Subjective well-being	(4) Subjective well-being
Confession				
Protestant	0.181*** (0.0578)	0.104* (0.0598)	0.170*** (0.0594)	0.114* (0.0606)
Catholic	0.135** (0.0579)	0.0204 (0.0613)	0.134** (0.0607)	0.0465 (0.0624)
Church attendance				
Special occasion		0.218*** (0.0793)		0.229*** (0.0795)
Few times year		0.337*** (0.0839)		0.366*** (0.0856)
Monthly		0.285*** (0.100)		0.337*** (0.103)
Every two weeks		0.514*** (0.124)		0.546*** (0.128)
Once a week		0.593*** (0.110)		0.627*** (0.115)
Several times a week		0.618*** (0.209)		0.625*** (0.212)

**Prayers apart
from church**

Few times year			0.00949 (0.0624)	-0.0408 (0.0632)
Monthly			-0.000701 (0.0750)	-0.0570 (0.0760)
Once a week			-0.112* (0.0640)	-0.196*** (0.0661)
Daily			0.101* (0.0542)	-0.0355 (0.0596)
Controls	yes	yes	yes	yes
Constant	3.821*** (0.519)	3.588*** (0.521)	3.810*** (0.521)	3.646*** (0.522)
Observations	5022	5011	4959	4952
R-squared	0.082	0.089	0.086	0.093

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

*Table 1: Effect of different religious dimensions on happiness in Switzerland
OLS regression results from a 2007 wave of Swiss Household Panel data⁶*

In the second step dummy variables for the frequency of a person's religious service attendance are added (Estimation 2). Going to church is positively correlated with subjective well-being in a statistically significant way. Subjective well-being increases (almost) monotonically with a higher frequency of religious service attendance. This finding is in line with the literature attributing the positive correlation to the effect of social networks and the associated social contacts or group identity. Compared to other factors influencing happiness this correlation is quite strong. Going to church at least once a week increases happiness by 0.59 points. This is a stronger effect than having a partner (and living together with him/her) which raises happiness by 0.52 points. It is also sizeable compared to the most important factor in happiness estimations: having a job compared to being unemployed raise subjective well-being by 1.02 points.

Interestingly, the coefficients of the denominations decrease and being of Catholic confession is no longer correlated with happiness in a statistically significant way. This can be interpreted in the following way: for Catholics going to church is a crucial religious activity, while Protestants seem to profit from their religion also in other ways.

Prayer as proxy for internal religiosity is not jointly correlated with subjective well-being in a statistically significant manner (Estimation 3). While praying daily is weakly positively correlated with subjective well-being, praying weakly or less often is either weakly negatively or is not statistically significant at all. These results can be inter-

⁶ Source: Swiss Household Panel (SHP). This study has been realized using the data collected in the „Living in Switzerland“ project, conducted by the Swiss Household Panel (SHP), which is based at the Swiss Foundation for Research in Social Sciences FORS, University of Lausanne.

preted in two ways. Firstly, there seem to be no or only a weak correlation of praying and happiness in Switzerland. This is also supported by the fact that the coefficients of the denominations hardly change compared to Estimation 1. Secondly, there might be an endogeneity problem. It seems plausible that people who are unhappy tend to pray to relieve their problems, which may account for the negative sign of the lower praying frequencies. When controlling for denomination, church attendance and praying, the results remain robust (Estimation 4). While the Protestant confession and going to church is significantly correlated with higher happiness, praying shows no jointly significant correlation.

6. Conclusion

This survey portrays the two main strands of economic research on religion. The first investigates the economic consequences of religion. Religion and the internalized value system can influence economic attitudes and economic output. The literature predominantly finds a positive impact of religion on economic output.

In the second strand, religious behavior is explained by economic models. These theoretical models make it possible to explain how an individual derives utility from religion. Modern happiness research has shown that subjective well-being is a valid proxy for utility. Therefore, the impact of the different religious dimensions on subjective well-being can be studied empirically. The literature finds a positive correlation between religion and happiness, with a robust effect of churchgoing and Protestant confession, while the results on internal religiosity are more ambiguous. In our analysis for Switzerland we are able to confirm these results and show that the effect of church going on happiness is quite sizeable.

References

- Akerlof, G. A./ Dickens, W. T.* (1982): The Economic Consequences of Cognitive Dissonance, in: *American Economic Review*, Vol. 72/No. 3, 307-319.
- Andreski, S.* (1969): *Parasitism and Subversion: The Case of Latin America*, New York: Schocken.
- Ardelt, M.* (2003): Effects of Religion and Purpose in Life on Elders' Subjective Well-Being and Attitudes Toward Death, in: *Journal of Religious Gerontology*, Vol. 14/No. 4, 55-77.
- Azzi, C./ Ebnenberg, R.* (1975): Household Allocation of Time and Church Attendance, in: *Journal of Political Economy*, Vol. 83/No. 1, 27-56.
- Baier C. J./ Wright, B. R. E.* (2001): 'If You Love Me, Keep My Commandments': A Meta-Analysis of the Effect of Religion on Crime, in: *Journal of Research in Crime and Delinquency*, Vol. 38/No. 1, 3-21.
- Barro, R./ McCleary, R.* (2003): Religion and Economic Growth Across Countries, in: *American Sociological Review*, Vol. 68/No. 5, 760-781.
- Becker, G. S.* (1962): Irrational Behavior and Economic Theory, in: *The Journal of Political Economy*, Vol. 70/No. 1, 1-13.
- Caplan, B.* (2000): Rational Irrationality: A Framework for the Neoclassical-Behavioral Debate, in: *Eastern Economic Journal*, Vol. 26/No. 2, 191-211.

- Chiswick, B. R.* (1983): The Earnings and Human Capital of American Jews, in: *The Journal of Human Resources*, Vol. 18/No. 3, 313-333.
- Clark, A./ Lelkes, O.* (2005): Deliver us From Evil: Religion as Insurance, PER Working Paper 06/03, European Center for Social Welfare Policy and Research.
- Clark, A./ Lelkes, O.* (2009): Let Us Pray: Religious Interactions in Life Satisfaction, PSE Working Papers 2009-01, PSE (Ecole normale supérieure).
- Diener, E. et al.* (1999): Subjective Well-Being: Three Decades of Progress, in: *Psychological Bulletin*, Vol. 125/No. 2, 276-303.
- Durkin, J./ Greeley, A.* (1991): A Model of Religious Choice Under Uncertainty: On Responding Rationally to the Nonrational, in: *Rationality and Society*, Vol. 3/No. 2, 178-196.
- Easterlin, R. A.* (1974): Does Economic Growth Improve the Human Lot? Some Empirical Evidence, in: David, P. A./ Rederer, M. W. (Eds.): *Nations and Households in Economic Growth: Essays in Honor of Moses Abramowitz*, New York: Academic Press, 89-125.
- Ellison, C.* (1991): Religious Involvement and Subjective Well-being, in: *Journal of Health and Social Behavior*, Vol. 32/No. 1, 80-99.
- Ellison, C./ Gay, D.* (1990): Region, Religious Commitment, and Life Satisfaction Among Black Americans, in: *The Sociological Quarterly*, Vol. 31/No. 1, 123-147.
- Ewing, B. T.* (2000): The Wage Effects of Being Raised in the Catholic Religion, in *American Journal of Economics and Sociology*, Vol. 59/No. 3, 419-432.
- Ferraro, K. F./ Kelley-Moore, J. A.* (2000): Religious Consolation Among Men and Women: Do Health Problems Spur Seeing?, in: *Journal for the Scientific Study of Religion*, Vol. 39/No. 2, 220-234.
- Ferrer-i-Carbonell, A./ Frijters, P.* (2004): How Important is Methodology for the Estimates of the Determinants of Happiness?, in: *Economic Journal*, Vol. 114/No. 492, 641-659.
- Freese, J./ Montgomery, J. D.* (2007): The Devil Made Her Do It? Evaluating Risk Preference as an Explanation of Sex Differences in Religiousness, in: Correll, S. J. (Ed.): *Advances in Group Processes: The Social Psychology of Gender*, Oxford: Elsevier, 187-230.
- Frey, B. S.* (2008): *Happiness: A Revolution in Economics*, Cambridge, Ma: MIT Press.
- Frey, B. S./ Stutzer, A.* (2002a): What Can Economists Learn From Happiness Research?, in: *Journal of Economic Literature*, Vol. 40/No. 2, 402-435.
- Frey, B. S./ Stutzer, A.* (2002b): The Economics of Happiness, in: *World Economics*, Vol. 3/No. 1, 1-17.
- Gay, C. M.* (1991): *With Liberty and Justice for Whom? The Recent Evangelical Debate over Capitalism*, Grand Rapids, MI: Eerdmans.
- Greene, K./ Yoon, B. J.* (2004): Religiosity, Economics and Life satisfaction, in: *Review of Social Economy*, Vol. 70/No. 2, 245-262.
- Grier, R.* (1997): The Effect of Religion on Economic Development: A Cross-National Study of 63 Former Colonies, in: *Kyklos*, Vol. 50/No. 1, 47-62.
- Guiso, L./ Sapienza, P./ Zingales, L.* (2003): People's Opium? Religion and Economic Attitudes, in: *Journal of Monetary Economics*, Vol. 50/No. 1, 225-282.
- Harlow, R. E./ Cantor, N.* (1996): Still Participating After All These Years: A study of Life Task Participation in Later Life, in: *Journal of Personality and Social Psychology*, Vol. 71/No. 6, 1235-1249.
- Hayo, B.* (2007): Happiness in Transition: An Empirical Study on Eastern Europe, in: *Economic Systems*, Vol. 31/No. 2, 204-221.
- Heaton, P.* (2006): Does Religion Really Reduce Crime?, in: *The Journal of Law and Economics*, Vol. 49/No. 1, 147-172.

- Hellivell, J. F.* (2003): How's Life? Combining Individual and National Variables to Explain Subjective Well-Being, in: *Economic Modelling*, Vol. 20/No. 2, 331-360.
- Hirschi, T./ Stark, R.* (1969): Hellfire and Delinquency, in: *Social Problems*, Vol. 17/No. 2, 202-213.
- Hull, B. B./ Bold, F.* (1989): Towards an Economic Theory of the Church, in: *International Journal of Social Economics*, Vol. 16/No. 7, 5-15.
- Iannaccone, L.* (1995): Voodoo Economics? Reviewing the Rational Choice Approach to Religion, in: *Journal for the Scientific Study of Religion*, Vol. 34/No. 1, 76-89.
- Iannaccone, L.* (1998): Introduction to the Economics of Religion, in: *Journal of Economic Literature*, Vol. 36/No. 3, 1465-1496.
- Kahneman, D./ Diener, E. / Schwarz, N.* (1999): *Well-Being: The Foundations of Hedonic Psychology*, New York: Russell Sage Foundation.
- Koenig, H. G. et al.* (1997): Modeling the Cross-Sectional Relationship Between Religion, Physical Health, Social Support, and Depressive Symptoms, in: *American Journal of Geriatric Psychiatry*, Vol. 5/No. 2, 131-144.
- Krause, N./ Ellison, C. E./ Wulff, K. M.* (1999): Church-Based Emotional Support, Negative Interaction, and Psychological Well-Being: Findings From a National Sample of Presbyterians, in: *Journal for the Scientific Study of Religion*, Vol. 37/No. 4, 725-741.
- Kuran, T.* (1993): The Economic Impact of Islamic Fundamentalism, in: *Marty, M. E./Appleby, R. S.* (Eds): *Fundamentalisms and the State: Remaking Politics, Economies, and Militance*, Chicago: University of Chicago Press, 302-341.
- Levin, J. S.* (1994): Religion and Health: Is There an Association, Is it Valid, and Is it Causal?, in: *Social Science Medical Journal*, Vol. 38/No. 11, 1475-1482.
- Levin, J. S./ Chatters, L. M.* (1998): Religion, Health, and Psychological Well-Being in Older Adults Findings from Three National Surveys, in: *Journal of Aging and Health*, Vol. 10/No. 4, 504-531.
- Lewis, C. A./ Maltby, J./ Day, L.* (2005): Religious Orientation, Religious Coping and Happiness Among UK Adults, in: *Personality and Individual Differences*, Vol. 38/No. 5, 1193-1202.
- Lyubomirsky, S./ Sheldon, K. M/ Schkade, D.* (2005): Pursuing Happiness: The Architecture of Sustainable Change, in: *Review of General Psychology*, Vol. 9/No. 2, 111-131.
- Montgomery, J. D.* (1992): Pascal's Wager and the Limits of Rational Choice, in: *Rationality and Society*, Vol. 4/No. 1, 117-122.
- Montgomery, J. D.* (1996): Contemplations on the Economic Approach to Religious Behavior, in: *The American Economic Review*, Vol. 86/No. 2, 443-447.
- Myers, D. G.* (2008): Religion and Human Flourishing, in: *Eid, M./ Larsen, R. J.* (Eds.): *The Science of Subjective Well-Being*, New York: Guilford Press, 323-346.
- Morse, R.* (1964): The Heritage of Latin America, in: *Hartz, L.* (Ed.): *The Founding of New Societies*, New York: Harcourt, Brace & World.
- Neal, D.* (1997): The Effects of Catholic Secondary Schooling on Educational Achievement, in: *Journal of Labor Economics*, Vol. 15/No. 1, 98-123.
- Niederhoffer, K. G./ Pennebaker, J. W.* (2002): Sharing one's story: On the benefits of writing or talking about emotional experiences, in: *Snyder, C.R. and Lopez, S.J.* (Eds.): *Handbook of Positive Psychology*, New York: Oxford University Press, 573-583.
- Noland, M.* (2005): Religion and economic performance, in: *World Development*, Vol. 33/No. 8, 1215-1232.
- Pascal, B.* (1670): *Pensées*, New York: Penguin.

- Pollner, M.* (1989): Divine Relations, Social Relations, and Well-being, in: *Journal of Health and Social Behavior*, Vol. 30/No. 1, 92-104.
- Putnam, R./ Lim, C.* (2009): Praying Alone Is No Fun: Religion, Social Networks, and Subjective Well-being, Mimeo.
- Sala-I-Martin, X./ Doppelhofer, G./ Miller, R. I.* (2004): Determinants of Long-Term Growth: A Bayesian Averaging of Classical Estimates (BACE) Approach, in: *American Economic Review*, Vol. 94/No. 4, 815-835.
- Sandvik, E./ Diener, E./ Seidlitz, L.* (1993): Subjective Well-Being: The Convergence and Stability of Self and Non Self Report Measures, in: *Journal of Personality*, Vol. 61/No. 3, 317-342.
- Schlicht, E.* (1995): Economic Analysis and Organised Religion, in: Jones, Eric E./ Reynolds, V. (Eds.): *Survival and Religion: Biological Evolution and Cultural Change*, Chichester: Wiley.
- Silberman, I.* (2005): Religion as a Meaning System: Implications for the New Millennium, in: *Journal of Social Issues*, Vol. 61/No. 4, 641-663.
- Smith, A.* (1776): *An Inquiry Into the Nature and Causes of the Wealth of Nations*. New York: Modern Library.
- Snoep, L.* (2008): Religiousness and Happiness in Three Nations: A Research Note, in: *Journal of Happiness Studies*, Vol. 9/No. 2, 207-211.
- Soydemir, G./ Bastida, E./ Gonzalez, G.* (2004): The Impact of Religiosity on Self-assessments of Health and Happiness: Evidence from the US Southwest, in: *Applied Economics*, Vol. 36/No. 7, 665-672.
- Steen, T. P.* (2004): The Relationship Between Religion and Earnings: Recent Evidence From the NLS Youth Cohort, in: *International Journal of Social Economics*, Vol. 31/No. 5, 572-581.
- Tao, H.-L.* (2008): What Makes Devout Christians Happier? Evidence From Taiwan, in: *Applied Economics*, Vol. 40/No. 7, 905-919.
- Thoits, P. A./ Hewitt, L. N.* (2001): Volunteer Work and Well-Being, in: *Journal of Health and Social Behavior*, Vol. 42/No. 2, 115-131.
- Tomes, N.* (1984): The Effects of Religion and Denomination on Earnings and Returns to Human Capital, in: *The Journal of Human Resources*, Vol. 19/No. 4, 472-488.
- Weber, M.* (1930): *The Protestant Ethic and the Spirit of Capitalism*. Allen and Unwin, London.