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Abstract

Until recently, academia has largely neglected the impact of religion on sustainable development. However, empirical studies have shown that religion remains important in many societies and that its importance has been increasing since the beginning of the new millennium. This paper reviews the empirical quantitative literature on the effect of religion on development from the last decade. We start by disaggregating the concepts of religion and sustainable development into four religious and three developmental dimensions and proposing a framework to identify causal mechanisms. Numerous mechanisms are possible, and this complexity explains why only a few uncontested findings exist. Religion is ambivalent vis-à-vis development: although religious dimensions exert a positive influence on physical and mental health as well as on general well-being, scholars have found a negative relationship between religious dimensions and both income and gender equality. Studies agree that the dominance of one religious group together with parallel ethnic and religious cleavages increases the risk of conflict, while studies on the pro-peace effects of religious factors are largely missing. Methodological challenges relate to the availability of fine-grained data, especially for non-Western countries, and the use of concepts and definitions. Most importantly, the study of religion and development requires methods that allow for causal inference.

Keywords: religion, sustainable development, quantitative evidence, growth, inequality, education, conflict, health, multidimensionality

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Article Outline

1 Introduction

Until the start of the new millennium, the academic debate largely neglected the importance of religion (Deneulin and Rakodi 2011) as a determinant of development.[1] In the course of rapid industrialisation, and heavily influenced by the Enlightenment, theories of modernisation and secularisation put forward by Karl Marx (Simon 1994 [Marx 1878]), Emile Durkheim (1995 [1912]), and Max Weber (2001 [1905]) had suggested that religion would become less important

1 We thank Anna Wolkenhauer for excellent research assistance. Research for this article was funded by the German Federal Ministry for Economic Cooperation and Development.

with increased industry; expanding economic markets; and the advance of science, technology, and education. However, subsequent developments did not conform to this expectation. Persistently high levels of self-reported religious identity, practice, and religiosity across most nations suggest that the world has not become more secular. In fact, in 2015 more than 80 per cent of the global population was affiliated with a religion, and projections predict this share will increase in future (Pew Research Center 2015).

In the academic debate, classical theories have been complemented by rational-choice models (Azzi and Ehrenberg 1975), club-good models (Berman 2000; Chen 2011; Iannaccone 1992), and other microeconomic approaches that explain religious participation by focusing on individual-, group-, and market-level religious behaviour.[2] These microeconomic theories mainly treat religion as the explained variable. Yet religion can also be seen as an independent variable, as famously argued by Weber (2001 [1905]) in *The Protestant Ethic*, in which he claimed that the Calvinist Protestant doctrine's special emphasis on hard work and worldly economic success was particularly favourable to capitalism and overall economic development.

Indeed, religious ideas and practice, religious identities and actors, and the organisation of religious groups can significantly promote or hinder the process of sustainable development. A growing body of literature has been devoted to the question of whether and how religious dimensions affect different facets of sustainable development. So far, however, a systematic and comprehensive appraisal of this literature is missing. The following question remains: What do we actually know about the effect of religion on sustainable development?

This literature review intends to contribute to filling this gap by focusing on the empirical literature of the last decade that has tested the effects of religion on sustainable development.[3] As religion is a multifaceted if not vague concept – often poorly theorised, if at all – we start by disaggregating the concept of religion into several dimensions; this will make a difference in how the causal mechanisms or transmission channels[4] of the link unfold. *Religious ideas* shape the behaviour of believers by providing them with guidance for everyday actions and a moral understanding of the world. Moreover, shared religious ideas form the basis of individual and group *identity*, which has profound implications for social capital and overall development. Religious followers perform specific *religious practices* that demand investments in terms of time and can reinforce religious ideas and identities. Finally, *religious actors* – like religious organisations or clerics – engage in social and political activities, provide access to education and health services, and influence individual and group behaviour with their messages. For example, the organisational capacities of religious organisations may influence the effectiveness of the transmission of religious ideas. In addition, interactions between religious dimen-

2 Comprehensive reviews of these approaches can be found in Iyer (2016) and Iannaccone (1998).

3 We focus on quantitative, empirical studies published after 2005 that look at the effect of religion on development. Of the work published before 2005, only influential studies are also considered. This review does not consider studies that take religion as the dependent variable.

4 We use "causal mechanism" and "transmission channel" interchangeably in this paper.

sions, their ambivalent impact on development dimensions, and the context specificity of these effects represent a challenge for theoretical and empirical work.

The remainder of this paper proceeds as follows: After outlining the different dimensions of religion, we relate them to different dimensions of sustainable development in Section 2. In order to capture the multidimensionality of sustainable development we use the sustainable development goals (SDGs) as guidance, distinguishing between the economic, social, and environmental dimensions of sustainable development. After theorising causal mechanisms linking religious dimensions to SDGs, we review the empirical evidence on the causal mechanisms in Section 3. In Section 4 we present our conclusion and point out a number of challenges for future research.

2 Conceptual Considerations

2. 1 A Multidimensional Approach towards Religion

Religion is a multifaceted and contested, if not vague, concept. To gain a proper understanding of the relationship between religion and development and the corresponding causal mechanisms, it makes sense to disaggregate religion into several dimensions. The idea of a multidimensional concept of religion is not new (e.g. Barro and McCleary 2003; Campante and Yanagizawa-Drott 2015; Feess et al. 2014). Durkheim acknowledged the multidimensionality of religion by emphasising the beliefs and practices that religious communities follow. However, the different dimensions are often not clearly defined and separated. Following Durkheim and other works, our disaggregated definition of religion comprises four dimensions: religious ideas, religious practice, religious actors and organisation, and religious identity.

Religious ideas are the foundation of any consideration of religion. These ideas refer to transcendence in order to explain the world and provide a meaning of life to individual believers and society as a whole. Religious practice, identity, and actors and organisation are epiphenomena of religious ideas. Religious ideas include written and formal norms (e.g. commandments and other holy writings), oral traditions, and inward religious ideas. More ambivalent exegeses of religious writings or ideas (e.g. by individual clerics) as well as religiously legitimised comments on contemporary events are also subsumed under religious ideas. They form the preferences of religious individuals and inspire their behaviour. The strength with which each individual believer follows these ideas varies and is commonly referred to as religiosity.

Religious practice only includes direct religious behaviour such as worshipping, making pilgrimages, fasting, meditating, and constructing temples; it does not comprise any other activities not directly related to religious practice. For example, if certain religious ideas encourage hard work, the resulting behaviour, although religiously inspired, cannot be

considered religious practice. The activities of religious actors are also not included in the dimension of religious practice.

The latter activities are subsumed under the dimension of *religious actors and organisation*. The term "actor" refers to individuals such as clerics as well as to the formal organisational expressions of religious communities such as single groups, faith based organisations (FBOs), religious networks, or associations of several religious groups. The organisation of religious groups comprises formal and informal rules that govern religious communities, including official state and non-state laws and the unofficial organisational rules and hierarchies of religious communities. Religious practice and religious actors as well as the organisation of religious groups can reinforce existing religious ideas or promote new religious ideas.

Finally, *religious identity* refers to individuals' identification with religious groups. People with the same religious identity share the same core beliefs and build group identities. Religious identities can follow the same in- and out-group mechanisms as other group identities (such as ethnicity or class), sometimes independently from particular religious ideas within a given community.

2.2 A Multidimensional Approach towards Sustainable Development

The term "sustainable development" has gained in importance since the late 1980s. Although there is no commonly accepted definition, most scholars agree that sustainable development is multidimensional and results from human actions (carried out by individuals, groups, or organisations) on both the private level and the state level. In September 2015, the United Nations adopted the 2030 Agenda for Sustainable Development, which includes 17 goals and 169 targets. Unlike the preceding millennium development goals, the SDGs are integrated in that the targets of individual SDGs emphasise the interlinkages between SDGs. A second novelty is the agenda's universal character: the SDGs are directed towards both developed and developing countries.

A conceptual problem arising from the integrative character of the 17 SDGs and their targets is that they often comprise multiple, overlapping aspects, which makes some of them vague and ambiguous. Thus, instead of separately reviewing evidence on the link between religion and development for each SDG and SDG target, we classify the SGDs into economic, social, and environmental dimensions of sustainable development (as described in Table A1 in the Appendix) and structure our review according to these three commonly distinguished dimensions.

2.3 The Link between Religious Dimensions and Sustainable Development: Conceptualising Causal Mechanisms

Conceptualising causal mechanisms requires a number of assumptions. First, sustainable development results from human actions and requires an agent's willingness and capacity (or

opportunity) to act. Willingness refers to a motive to act in a certain way or direction – that is, for or against development. Capacity (or opportunity) refers to an actor's ability to influence the scope or strength of the outcome. If the willingness or the capacity to act is absent, development cannot take place.

Second, different religious dimensions – although often occurring in conjunction – exert distinct influences on sustainable development through the different effects they have on agents' willingness and capacity. They can hinder or spur sustainable development, depending on the *direction* and *strength* of their effects. For example, the religious practice of Ramadan fasting has the potential to slow down economic growth (Campante and Yanagizawa-Drott 2015) (*direction*), yet the magnitude of this effect depends on how strictly Ramadan practice is followed within societies (*strength*).[5]

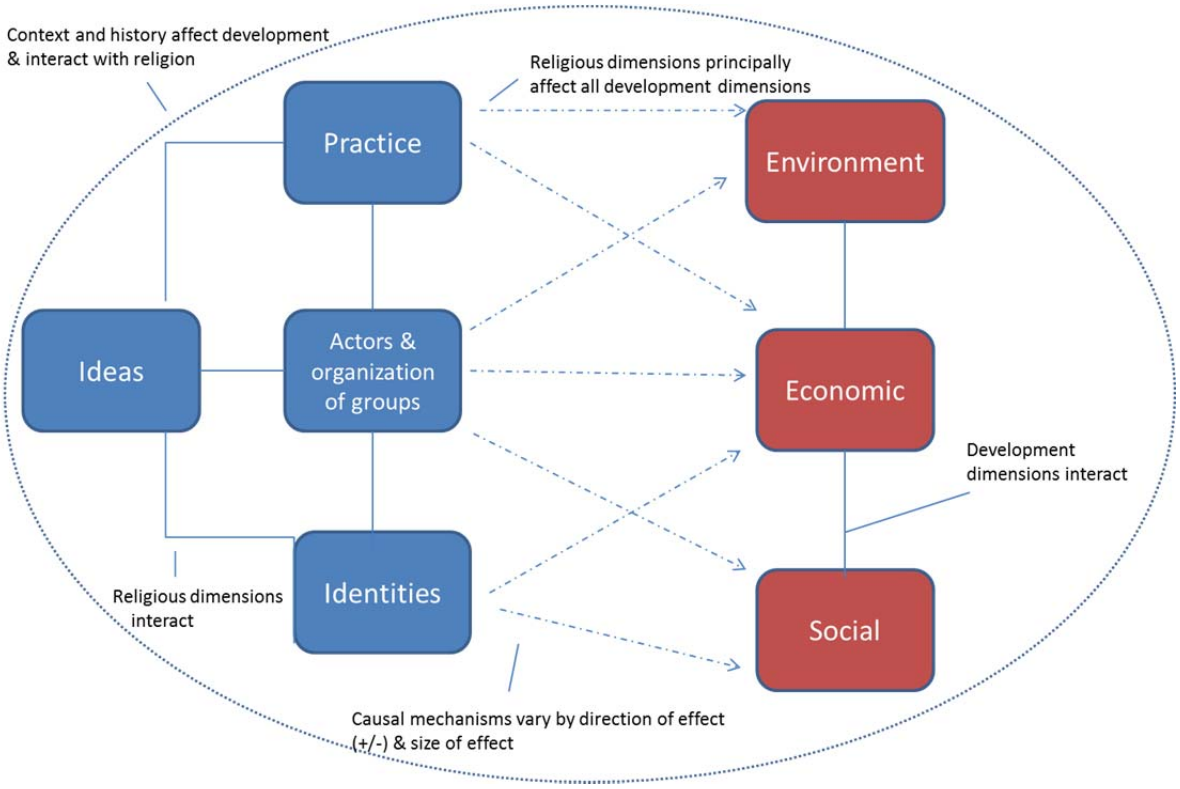
Third, different religious dimensions have different effects on various dimensions of development. This results in quite a large number of possible "bilateral" causal relationships, which take different forms and go in different directions. For instance, religious ideas on work ethic could foster economic growth, whereas certain religious practices (such as a significant amount of time being devoted to prayer) could hinder economic growth. Moreover, a religious dimension can have differing effects on distinct development dimensions. To take one example, the behaviour of believers motivated by the religious idea of giving to the poor may reduce inequality and foster social relations, but it may also hamper economic growth if less money is available for investment. The magnitude of these effects in turn depends on the relevance of the religious idea.

Fourth, in addition to direct bilateral relationships between religious and developmental relations, there can also exist indirect mechanisms. Religious dimensions can be related to other religious dimensions, and the effects of these relationships can indirectly impact development dimensions. For instance, religious practices often function as an amplifier for religious ideas or identities. The practice of visiting religious services may strengthen certain religious ideas and religious identity. In addition, religious dimensions can impact non-religious and non-developmental dimensions, which then affect development.

Fifth, all mechanisms are embedded in a context of surrounding conditions that may influence development independently or in interaction with religious factors. Conflicting relationships between the religious dimensions are possible as well and have already been outlined with regard to religious practice. Similarly complex and ambiguous are the interrelations between developmental dimensions. Thus, the causal impacts of religious dimensions on developmental dimensions can be ambivalent, interrelated, reinforcing, reversing, or conditional upon each other. Figure 1 shows a simplified model of the link between the dimensions of religion and sustainable development.

5 In the following, we use the terms "religion" and "development" if we refer to these concepts more generally, and not to their particular dimensions.

Figure 1. Simplified Model of the Religion–Development Link



Given the complexity, we focus mainly on direct effects in our review. Indirect effects are only considered if they play a major role in the literature. The proposed framework provides us with a comprehensive, well-structured guideline. Table A2 in the Appendix summarises the causal mechanisms discussed and tested in the literature for each development dimension and its subdimensions. Each causal mechanism is assigned a unique code, which we then refer to in the main text when presenting the empirical evidence on the respective mechanism.

3 Review of Empirical Evidence

3.1 Methodological Challenges

The first finding from our literature survey is that empirical research on the influence of religion on development faces the following interrelated methodological challenges: (a) unclear conceptualisations and incorrect operationalisation of the variables measuring religious dimensions, (b) a lack of sufficient data, (c) limited comparability of concepts across countries and religious traditions, (d) blurred lines between cultures and religions, and (e) difficulties in establishing causality.

All too often, empirical work uses the term "religion" without defining the underlying concept. An *unclear conceptualisation* is often followed by an incorrect operationalisation of the religious variable. For example, studies interested in examining how religious ideas

about work ethic affect economic growth often use country shares of people affiliated with a specific religion rather than measures of particular beliefs on work, which would better reflect the real topic of interest. The discrepancy between the specific research question and the operationalisation of variables occurs within most subthemes of the broader literature on religion and development and is partly due to a *lack of appropriate data*. Most studies rely on secondary data such as those from the World Values Survey (WVS), which are typically collected for a general purpose and thus contain rather unspecific, standardised questions on religious dimensions – for example, on whether respondents believe in heaven and hell, or how often they attend church.

Another methodological challenge is the limited *comparability of religious concepts* across countries and religious groups. Many cross-country studies use population shares of certain religious groups as proxies for "religion." This implies, for example, that Islam in Asia is in the same category as Islam in the Middle East, although the former may be very different from the latter regarding the interpretation of teachings or the relevance thereof in social life. In fact, concepts of God and other religious aspects and their interpretation vary across nations (Heath et al. 2005), and answers to questions on religion may depend on the significance and normative predominance of religion in a particular society (Galen 2012). As Deneulin and Rakodi (2011: 50) note, standardised cross-national surveys do not allow for analysis of the meanings that religious concepts have for people, "despite it being precisely through these meanings that religion manifests itself differently in the public sphere."

A related problem stems from the *interrelations between religious, social, and cultural characteristics* of societies. Measures of religion may capture other social and cultural characteristics, such that views or behaviours attributed to "religion" may actually reflect other, non-religious factors (Deneulin and Rakodi 2011). In practice, it is often difficult, if not impossible, to disentangle the "pure" influence of religion on a specific outcome variable from that of other factors.

A final, and probably the most challenging, methodological problem refers to the difficulty *of inferring the causality* of empirical correlations between religious dimensions and developmental dimensions due to endogeneity issues, which occur if the independent variable (the religious dimension) is correlated with the unexplained part of the regression. Two common causes of endogeneity are reverse causality and the omission of (unobservable) variables that cause both the independent variable and the dependent variable. Omitted variable bias is particularly common when unobservable variables like personality traits are important. For example, a positive correlation between charitable giving and agreement with the religious idea of giving to the poor may be spurious and caused by a third variable not considered in the model, such as empathy (Norenzayan and Shariff 2008). Many religious and development dimensions are interrelated. Thus, depending on the specific dimension and context, two-way causal relationships are likely to exist. For example, a robust finding is one that demonstrates a strong positive relationship between religious dimensions and in-

come inequality. Some authors argue that economically vulnerable people suffer existential insecurity in the face of increasing insecurity and seek comfort in religion (Norris and Inglehart 2004), thereby assuming that inequality causes religion. Yet, as demonstrated in section 3.3.5, it is also possible that religious ideas foster income inequality.

A standard solution to the endogeneity problem is the use of instrumental variables (IVs). IVs are correlated with the endogenous explanatory variable (the religious dimension) and uncorrelated with the error term in the explanatory equation. Whether or not an IV is suitable in a specific study is not testable, which means that IV approaches are always subject to criticism. An alternative approach to establish causality is to exploit an exogenous variation in the religious dimension of interest. Campante and Yanagizawa-Drott (2015), for example, use the length of Ramadan fasting in countries with Muslim majorities to estimate the effect of the strictness of religious practice on economic growth and happiness. However, such exogenous variations are hard to find and are often context specific. Moreover, such approaches typically only depict a very specific aspect of religion. In the case of Campante and Yanagizawa-Drott (2015), the authors can only indirectly draw conclusions on religiosity by assuming that longer fasting indicates increased religiosity. To summarise, identifying the causal effects of religious dimensions on development dimensions remains a challenge, and the overwhelming majority of evidence is correlational rather than causal.

3.2 Economic Dimension

We have subsumed three SDGs under the economic dimension of sustainable development (see Table A1). Goal 1 addresses the need to end poverty;[6] Goal 8 promotes economic growth, employment, and decent work. Goal 9 aims to foster industrialisation, innovation activities, and infrastructure development, thereby helping lay the foundation for growth and prosperity. Three main topics that are influenced by religion emerge from these goals: poverty, income, and growth; employment and the labour market; and innovation and science.

3.2.1 Poverty, Income, and Growth

Although the topic of economic prosperity has been well covered in the literature, the results are inconclusive. The seminal works of Barro and McCleary (2003) and McCleary and Barro (2006) propose four broadly defined causal mechanisms that have been widely used in subsequent studies. First, religious ideas influence individual traits (such as work ethic, honesty, and thrift) and, by extension, economic outcomes (*ECON-INC-IDEA*). Second, extensive religious practice consumes resources that could be used in the production process, and

6 We understand poverty mainly in a monetary sense related to adequate income. Other typical aspects of multidimensional poverty definitions are discussed under the social dimension in Section 3.3.

therefore has a negative influence on economic performance (*ECON-INC-PRAC*).[7] Third, religious networks among people who share the same religious identity are a form of social capital that positively affects economic outcomes (*ECON-INC-IDEN*). Fourth, religious actors and organisations of groups influence political and economic rules, which in turn shape economic incentives and thereby economic outcomes (*ECON-INC-ACT*).

Barro and McCleary (2003) use the presence of a state religion and an index of religious pluralism as instruments for their religious variables, and find that economic growth is positively influenced by the strength of religious ideas and negatively influenced by church attendance. The authors trace these findings back to *ECON-INC-IDEA* and *ECON-INC-PRAC*, respectively, although their empirical strategy does not make it possible to differentiate between different causal mechanisms. However, the validity of the instruments that Barro and McCleary (2003) use is questionable (Young 2009), and their results are not robust to the use of model-averaging methods that account for model uncertainty (e.g. Durlauf et.al. 2012; Young 2009). Moreover, Bettendorf and Dijkgraaf (2010) show that the relationship between religion (measured by church membership) and income is positive in high-income countries, but negative in low-income countries. Possible explanations for this heterogeneity range from differences between high- and low-income countries in utility functions, opportunity costs for time devoted to religious activities, and the importance of traditional values – for example, with respect to women's participation in the labour market (Bettendorf and Dijkgraaf 2010).

Other studies claim that the results depend on the religious ideas attributed to a specific religious tradition. Islam has long been seen as a hindrance for growth (Noland 2005) due to its prohibition on charging interest and its instructions concerning charitable giving. However, the results are mixed and inconclusive: Barro and McCleary (2003) find a negative link between Islam and growth, but Pryor (2007) and Noland (2005) do not. However, radical Islam has been found to impede economic development, possibly due to its subordination of economic prosperity to geopolitical goals (Hillman 2007). Campante and Yanagizawa-Drott (2015) are among the few to have directly tested the influence of religious practice (*ECON-INC-PRAC*). They find a negative relationship between (exogenously determined) longer Ramadan fasting and GDP per capita.

Montalvo and Reynal-Querol (2005) and Rupasingha and Chilton (2009) test the hypothesis on the social capital of religious identity (*ECON-INC-IDEN*) more directly by including religious fractionalisation in their model on economic growth. Both studies find a significant negative relationship between religious fractionalisation and economic growth. On the contrary, religious polarisation has only been found to have an indirect negative link through

7 Our multidimensional approach towards religion classifies the attendance of religious services under the dimension of religious practice. Like other scholars, Barro and McCleary (2003) use the term religious belonging. However, they do not provide a clear definition of different dimensions of religion.

decreased investment, increased public consumption, and increased likelihood of civil war (Montalvo and Reynal-Querol 2005).

Macro-studies on the influence of religious dimensions on economic development are helpful for identifying general patterns. Yet the empirical operationalisation of the religion variables in most studies has not made it possible to differentiate between different causal channels. Furthermore, these studies have not been able to extract the direct impact of religious ideas on traits, attitudes, and preferences, which are seen as the main drivers of economic outcomes. Scholars have recently started to fill this gap by demonstrating that the strength of religious ideas is positively correlated with certain personal characteristics relevant for development, such as work ethic (Feess et al. 2014; Parboteeah et al. 2009), risk aversion (Dohmen et al. 2011; Hilary and Hui 2009; Liu 2010; Noussair et al. 2013), or bequest motives and longer planning horizons (Renneboog and Spaenjers 2012). Guiso et al. (2003, 2006) find that religion fosters economic prosperity through its positive association with attitudes that favour free markets and improved institutions.

Other studies have tested Weber's hypothesis that Protestant ideas spur work ethic and pro-market attitudes (Arruñada 2010; Feess et al. 2014; Hayward and Kemmelmeier 2011; Schaltegger and Trogler 2010).[8] However, few studies have actually supported Weber's hypothesis. Although the strength of religious ideas (that is, religiosity) is positively correlated with a stronger work ethic (Feess et al. 2014; Parboteeah et al. 2009), it does not appear that this association depends on individuals' specific religious affiliation, as Weber proposes. Even those studies that report differences between Protestants and other believers have put forward explanations other than work ethic, such as the promotion of impersonal trade in Protestantism (Arruñada 2010) or the historically stronger emphasis on promoting universal access to education (Becker and Woessmann 2010).

3.2.2 Employment and the Labour Market

Many studies have investigated the influence of religious dimensions on labour market participation and outcomes (e.g. Drydakis 2010; Heath and Martin 2013; Khattab 2009; Kortt and Dollery 2012). There are several mechanisms through which religion can have an impact here. First, employees might follow religious ideas that foster relevant forms of human capital acquisition (such as discipline) (Kortt and Dollery 2012) (*ECON-ELM-IDEA1*) or profit from religious networks (Heath and Martin 2013) (*ECON-ELM-IDEN1*). Second, employers may rely on visible or indicated religious identities that may trigger prejudices related to certain religions (Heath and Martin 2013) or act as signals for desirable but unobservable characteristics of job applicants (such as trustworthiness or strong work ethic) (Kortt and Dollery 2012) (*ECON-ELM-IDEN2*). Third, self-imposed restrictions on the part of believers, particularly due to religious ideas, may influence participation decisions and occupational choices (Heath and Martin

8 Many studies have not properly distinguished between different branches of Protestantism, although Weber explicitly referred to Calvinists rather than to Protestants in general.

2013) (*ECON-ELM-IDEA2*).[9] These restrictions also include religious ideas that prevent harmful behaviour such as alcohol or drug abuse (Chiswick and Huang 2008) (*ECON-ELM-IDEA3*), and religious practice, which demands time and can therefore conflict with labour market participation (Heath and Martin 2013) (*ECON-ELM-PRAC*). While these causal mechanisms have been repeatedly discussed in the literature, there is an absence of empirical tests confronting different causal mechanisms. The standard procedure is to look at an outcome variable such as earnings and use a dummy variable indicating religious denomination as an explanatory variable, sometimes complemented by a measure of religiosity or frequency of religious practice (Chiswick and Huang 2008; Kortt and Dollery 2012). Therefore, it is unclear how observed differences come about. Another challenge is the difficulty of distinguishing between religious and ethnic discrimination given that categories often overlap and data availability is still limited (Heath and Martin 2013).

A major topic in the literature is religion-based labour market discrimination, with a special focus on the existence of a "Muslim penalty" and preferential treatment of Jews and Catholics. Evidence on labour-marked discrimination against Muslims is mixed. In Britain, Muslims have been found to be employed less frequently than non-Muslims (Heath and Martin 2013) and to experience lower occupational attainment, on average, despite similar qualifications (Khattab 2009). However, Khattab's (2016) study, based on updated data, does not confirm previous results. Authors have recently started to draw on experimental data in order to test causal mechanisms related to employers. Acquisti and Fong (2013) created online profiles of US job candidates on social networks that indicated their religious identity as Muslims or Christians. In Republican areas, Muslims received significantly fewer interview invitations than Christians. Wallace et al. (2014) and Wright et al. (2013) expanded this research by considering seven different religious identifies. In these experiments, the authors sent out fictitious résumés to advertised job openings. Both papers found a lower response rate for those who indicated their religious identity in general and an even lower rate for Muslims. Studies by Borooah et al. (2007) and Bhaumik and Chakrabarty (2009) confirm the Muslim penalty in India (compared to Hindus).

A different yet related strand of the literature looks at the labour market consequences of religiously motivated terror. In particular, the September 11 terrorist attacks in the United States have been studied by comparing the situation of Muslims in the labour market before and after the attacks. Empirical evidence is mixed. Studies conducted in Sweden (Aslund and Rooth 2005), Canada (Shannon 2012), and Germany (Braakmann 2009) find no evidence of anti-Muslim discrimination, while others provide suggestive evidence that Muslims face discrimination in the form of lower and declining earnings as well as declining employment and working hours in the United States (e.g. Davila and Mora 2005; Kaushal et al. 2007;

9 The separation of economic spheres between men and women propagated in some religions, particularly in Islam, has received a great deal of attention. We review this literature in Section 3.3.4.

Rabby and Rodgers 2011) and in Germany (Cornelissen and Jirjahn 2012). None of these studies allow for causal inference.

The literature on labour market discrimination against Jews and Catholics mainly draws on data from the United States. Most studies report that Jews have a significant advantage over other religious denominations in the labour market after controlling for education and other wage determinants (e.g. Burstein 2007; Chiswick 2007; Chiswick and Huang 2008; Wallace et al. 2014). Furthermore, Chiswick and Huang (2008) find that the relationship between earnings and attendance of religious service (used as a proxy for religiosity) for American Jews is non-monotonic. Jews who attend religious service approximately once a week have the highest earnings, followed by those who go daily to the synagogue, and those who never attend synagogue. Chiswick and Huang (2008) argue that a certain level of religiosity lifts spirits (*ECON-ELM-IDEA1)* and prevents destructive behaviour (*ECON-ELM-IDEA3*), both of which are favourable to labour market outcomes. If religious practice takes up too much time it becomes destructive, as there is a certain point beyond which religious human capital no longer complements secular human capital but instead conflicts with it (*ECON-ELM-PRAC*). Like Jews, Catholics also appear to earn higher wages compared to Protestants in the United States (Ewing 2000; Steen 2004, 2005) and in Australia (Kortt and Dollery 2012). However, the extent to which the positive discrimination of Jews and Catholics in the US labour market is associated with the minority status of these groups remains largely unclear.

3.2.3 Innovation and Economic Modernisation

Religious ideas and scientific knowledge both provide explanations for worldly phenomena. Thus, scientific understandings of the nature of the world can conflict with religious understandings (O'Brien and Noy 2015) (*ECON-INN-IDEA*). Strong believers are likely to refuse scientific explanations (Brossard et al. 2009) based on the perception that scientists are "playing God" by interfering with nature (Sjöberg 2004). In addition, Bénabou et al. (2015) discuss four indirect causal mechanisms. First, religious people might be less open to new ideas and developments and show lower tolerance and creativity than non-religious people. Second, religious people are more risk-averse than non-religious people. Third, human capital and education levels are negatively correlated with religious dimensions. Openness and creativity, risk tolerance, and human capital are positive influencing factors for innovation. However, Bénabou et al. (2015) also mention the possible positive influence that trust (which is assumed to be higher among religious people) has on the level of innovation.

Most studies have confirmed the conflicting relationship between religiosity and science or innovation. Support for science and positive attitudes towards science become lower as religiosity increases (e.g. Bénabou et al. 2015; Brossard et al. 2009; Gaskell et al. 2005). A recent comprehensive cross-country study by Bénabou et al. (2015), based on five waves of the WVS, combines different measures for religion with a wide set of attitudes regarding science and innovation. The authors find that religiosity is nearly uniformly negatively correlated

with pro-innovation attitudes. The evidence further shows that the level of technological progress is lower in highly religious countries (Bénabou et al. 2013).

As Johnson et al. (2015) show, the negative association between religiosity and science or innovation does not necessarily imply that religious people are less interested in or knowledgeable about science. However, confidence in science appears to be significantly lower for more religious people. In keeping with this finding, Nisbet (2005) reports that religious people are less responsive than their non-religious counterparts to the provision of information that aims to increase scientific awareness.

3.3 Social Dimension

The social dimension of sustainable development subsumes the largest number of SDGs (see Table A1) and includes education (SDG 4), physical and mental health (SDG 3), and nutrition (SDG 2). All of these aspects may be influenced by religious dimensions and are well covered in this literature. The promotion of equity and inclusive societies is another important feature of the social dimension of development. Three SDGs address equity and social cohesion. SDG 5 is concerned with gender inequality.[10] SDG 10 focuses more generally on reducing inequality within and across countries. SDG 16 promotes peaceful, just, and inclusive societies and institutions, and thus has a political and social dimension. The targets related to this goal concern the legitimacy and effectiveness of the state, democracy, and good governance as well as securing peace and avoiding conflict. Other facets of social development considered in the SDG framework – such as housing and sustainable cities and communities (SDG 11), water and sanitation (SDG 6), and energy supply (SDG 7) – are at best indirectly affected by religion (for example, through its influence on economic growth and structural transformation or on environmental attitudes and behaviour that in turn interact with the aforementioned aspects) and are not covered in the literature.

3.3.1 Mental Health and (Subjective) Well-Being

An extensive number of studies have analysed the influence of religious dimensions on mental health and well-being. The definition and operationalisation of the religious and outcome variables differ greatly across studies, particularly when the broad concept of subjective well-being[11] is used as a measure for mental health. Still, causal mechanisms for mental health and subjective well-being are similar. Overall, there is support for a positive relationship between

10 Gender equality is a cross-cutting theme that is closely interlinked with education, health, income inequality, social inclusion, and other dimensions of social development. Despite these interlinkages, we decided to devote a separate section to gender inequality to account for its high relevance in the literature on religion and development.

11 We use the terms subjective well-being, happiness, and life satisfaction as synonyms.

mental health and religious dimensions, irrespective of the operationalisation of variables (Koenig and Larson 2001; Hackney and Sanders 2003).[12]

Different forms of religious ideas influence mental health and well-being (Hayward and Krause 2014). For example, some people turn to religious or spiritual ideas after suffering negative events *(SOC-MHE-IDEA1)* (Schuster et al. 2001); Chatters et al. (2008). However, the direction of the effect that religious ideas have on coping with shocks depends on the interpretation of the shock. If experienced shocks are interpreted positively, such as an opportunity for spiritual growth or being part of God's plan (Pargament et al. 2000), the adoption of religious coping strategies seems to positively influence adjustment to stress (Ano and Vasconcelles 2005), mental health more generally, and well-being (Bhui et al. 2008; Khan and Watson 2006; Krause et al. 2010). By contrast, if negative shocks are perceived as demonic interference or punishment from God, people may also develop negative coping strategies (Pargament et al. 2000) associated with negative adjustment to stress (Ano and Vasconcelles 2005).

Religious ideas can also provide a meaning for life and help reduce uncertainty (Hayward and Krause 2014) (*SOC-MHE-IDEA2*). Experimental evidence suggests that religious ideas can help people cope with the certainty of death (Jonas and Fischer 2006; Norenzayan et al. 2009). Moreover, belief in an afterlife is a significant predictor of lower anxiety (Ellison et al. 2009), less stress when confronted with shock (Bradshaw et al. 2010), and lower levels of mental illness (Flannelly et al. 2006). A greater sense of meaning in life drives the positive relationship between self-reported spirituality and higher self-esteem in the future (Kashdan and Nezlek 2012), while doubts about religious beliefs are associated with higher levels of anxiety and depression (Galek et al. 2007) and lower subjective well-being (Krause 2006). A negative view of God is correlated with more mental health problems (Bradshaw et al. 2008) and greater difficulty coping with stressful or traumatic events (Bradshaw et al. 2010; Exline et al. 2011).

Finally, religious ideas can influence a person's sense of control over his or her life in opposing ways (Hayward and Krause 2014) (*SOC-MHE-IDEA3*). The view that believers can actively influence their destiny through religious practices such as regular praying or charity enhances the feeling of control. That feeling is reduced by belief in an almighty God who shapes the world according to his will and is not influenced by the behaviour of believers. Ellison and Burdette (2012) empirically support these considerations for Christians in the United States. Similarly, the belief that God supports one's goals is positively correlated with life satisfaction, self-esteem, and optimism and is negatively correlated with fear of death (Krause 2005).

Belonging to a religious group may also affect mental health and well-being. It is generally assumed that feeling part of a social group has a positive effect on mental health and well-be-

12 Religious satisfaction can even partly outweigh economic dissatisfaction (Campante and Yanagizawa-Drott 2015; Dehejia et al. 2007, and Gundlach and Opfinger 2013).

ing (Haslam et al. 2009). Religious identities have a high potential to create strong ties (Ysseldyk, Matheson, and Anisman 2010) (*SOC-MHE-IDEN1*). In addition, members of religious communities may receive social support from fellow members (Cohen and Wills 1985) (*SOC-MHE-IDEN2*). Both facets of religious identity may be conducive to mental health and well-being. Indeed, active members of religious groups tend to have larger social networks and experience higher social integration (Ellison and George 1994; Idler 1987; Strawbridge et al. 2001), which translates into lower incidences of mental health problems and higher subjective well-being (Hayward et al. 2012; Park et al. 2012; Putnam and Campbell 2010). Negative interactions within the religious community, in turn, can have detrimental consequences for mental health (Cohen et al. 2009; Ellison et al. 2009; Krause and Hayward 2012). Evidence further suggests that the strength of identification with a religious community is positively correlated with lower rates of depression (Keyes and Reitzes 2007), accessibility of religious coping strategies (Elliott and Hayward 2007), seeing meaning in life through religious ideas (Fullow et al. 2004), and life satisfaction (Greenfield and Marks 2007) – which is even higher if the religious group is perceived as highly coherent (Krause and Hayward 2013).[13] The high bonding potential within one religion is often not accompanied by bridging capital between religions (Okulicz-Kozaryn 2011). Thus, religious fractionalisation is negatively correlated with life satisfaction (Mookerjee and Beron 2005; Okulicz-Kozaryn 2011).

Finally, religious communities provide mental health services that may affect health outcomes (*SOC-MHE-ACT*). However, evidence on the relevance of religious mental health programmes is scarce and available almost only for informal religious support in developed countries, where it tends to play only a minor role (e.g. Brown et al. 2014; Kovess-Masfety et al. 2007). This might be different outside the West (Brown et al. 2014), but evidence on the effectiveness of religious health services in developing countries is largely missing. However, there can be conflict between medical/psychological and religious explanations for mental health problems (Trice and Bjorck 2006; Wesselmann and Graziano 2010), particularly in contexts where religious leaders are not formally educated (Weaver 1995).

3.3.2 Physical Health

Overall, the evidence indicates a positive influence of religious dimensions on physical health outcomes (Williams and Sternthal 2007), although negative links have been identified as well. Most mechanisms via which religious dimensions may affect physical health outcomes are analogous to those discussed for mental health. An important link between religious dimensions and physical health occurs via behavioural responses to religious ideas (Ellison and Levin 1998) (*SOC-PH-IDEA*). In a positive manner, religious ideas can restrict potentially harmful behaviour such as drug consumption or unprotected sexual contact (Ellison and Levin

13 Systematic denominational differences in the effect of religious identities on subjective well-being are not reported (Rehdanz and Maddison 2005). Instead, there seems to be strong heterogeneity within the same denomination (Haller and Hadler 2006).

1998). Beyond that, a positive association between religion and physical health may also be indirect in nature, stemming from improved mental health and well-being.

An extensive field of research has emerged out of these considerations, reporting positive influences of religious dimensions on mortality (Williams and Sternthal 2007), the risk of serious illnesses such as cancer (e.g. Jim et al. 2015) and the incidence of sexually transmitted diseases (e.g. Shaw and El-Bassel 2014). On the other hand, several studies have shown that religiosity, religious identity, or religious practice are positively correlated with higher body weight (Bharmal et al. 2013; Cline and Ferraro 2006; Gillum 2006; Kortt and Dollery 2014; Sidik et al. 2009). While the concept of sin plays a role in many vices, excessive eating is not usually among the condemned behaviours (Cline and Ferraro 2006) and may act as a compensation. However, reverse causality cannot be ruled out, as overweight people might find comfort in religion (Cline and Ferraro 2006). A different string of the literature concentrates on specific religious practices, showing, for example, that Ramadan fasting during pregnancy has a negative effect on the child's health (Almond and Mazumder 2011; Van Ewijk 2011) (*SOC-PH-PRAC*).

A further important causal mechanism is the provision of health services by religious organisations (*SOC-PH-ACT*). According to the World Health Organization (2007), approximately 40 per cent of all health services in sub-Saharan Africa (SSA) are provided by religious organisations. However, Olivier and Wodon (2012) cast serious doubts on the importance of faith-based healthcare. They claim that early estimates from the 1960s have not been updated and that the actual contribution is smaller. Overall, there is a clear lack of systematic evidence on the extent of formal and informal support from FBOs for physical and mental health service delivery in developing countries and the effectiveness thereof.

3.3.3 Education

There is a comprehensive body of literature regarding the relationship between religiosity or religious affiliation and educational outcomes. Most of these studies have reported a positive correlation (e.g. Abar et al. 2009; Brown and Taylor 2007; Loury 2004; Mooney 2010)[14]. In particular, being raised religiously seems to be important for better educational outcomes (e.g. Lehrer 2006; Loury 2004). Similar to the case of labour market outcomes and innovation, there are two general mechanisms through which religiosity may enhance educational outcomes. First, religious ideas can foster certain forms of human capital acquisition (such as discipline) that are conducive to educational achievement (*SOC-EDU-IDEA1*). Second, religious ideas can prevent harmful behaviour such as alcohol or drug abuse (Mooney 2010) (*SOC-EDU-IDEA2*). However, neither of these mechanisms has been explicitly tested in the literature, and religious ideas are typically operationalised through religious identity.

14 However, a causal interpretation of this correlation is difficult and the majority of the literature deals with the influence of education on religiosity by testing the secularisation theory (e.g. Glaeser and Sacerdote 2008; Hungerman 2014).

Other studies within this field have looked at educational differences between denominations. The seminal contribution by Lehrer (1999) finds that Jews in the USA have a higher level of educational attainment than members of other religious groups. Subsequent studies have confirmed this result (Mooney 2010, Mukhopadhyay 2011; Sander 2010). Lehrer (1999) attributes this difference to religion-induced gender roles. There is a strong tendency for Jewish women, so the argument goes, to stay at home once they have children (Chiswick 1983); they therefore have time to support their children's education. However, fundamentalist Protestants show a comparatively low (albeit steadily increasing) level of educational attainment despite a strong tendency for female believers to stay at home (e.g. Darnell and Sherkat 1997; Massengill 2008; Sherkat and Darnell 1999). This could possibly be because the positive effect of staying at home is offset by a high fertility rate, resulting in less time for educational training per child (Lehrer 1999). In addition, conflicting religious and scientific ideas may restrict the investment in certain forms of learning (Lehrer 1999) (*SOC-EDU-IDEA3).* Results for other religious denominations are inconclusive. For example, Sander (2010) finds that Muslims have reached higher educational levels than Christians in the United States, while Mukhopadhyay (2011) finds lower educational attainment for Muslim immigrants to the USA relative to other immigrants. This could be explained by religious practice that is specific to Islam, such as Ramadan fasting (*SOC-EDU-PRAC*). Oosterbeek and van der Klaauw (2013) adopt a difference-in-difference approach and find that an additional week of fasting lowers the final grade of Muslim students by nearly 10 per cent of the standard deviation.

Yet another branch of the literature concentrates on the educational effect of belonging to a religious community. Through its social function, a religious community may influence its members' preferences for education and their educational behaviour. As Loury (2004) notes, religious peers influence the norms of "correct" behaviour, usually towards norms that are beneficial for education (*SOC-EDU-IDEN1*; reference group theory). Moreover, adult religious peers may act as role models and as controlling authorities outside the family (*SOC-EDU-IDEN2*; collective socialisation theories). Finally, handling stress might be easier for pupils who are part of a religious community (*SOC-EDU-IDEN3*; buffer theories) (Loury 2004). Consistent with that idea, Gruber (2005) shows that individuals have higher educational attainment in areas where a larger share of the population shares the individual's religion. Loury finds, in the context of the USA, that Christians who went to church regularly during their adolescence obtained significantly more years of schooling than non-regular attendees. Brown and Taylor (2007) support these results for the United Kingdom. The reference group theory is further supported by Monney (2010). She finds that for US students, attendance at religious service is positively associated with the amount of hours spent studying and overall academic achievement, and negatively associated with the amount of time spent partying.

Finally, religious actors may influence education demand and supply, either as providers of education or as opinion-makers who shape individual educational choices or curricula (*SOC-EDU-ACT1*) The UNFPA (2009) states that, in many developing countries, approxi-

mately 30 to 60 per cent of educational services are provided by FBOs. By contrast, Tsimpo and Wodon (2014) use household and administrative data from 17 African countries and find that this share is considerably lower, at 14 per cent for primary education and 11 per cent for secondary education, on average.[15] It is commonly believed that schools run by religious actors are better at reaching poor pupils than other schools (*SOC-EDU-ACT2*). However, recent empirical evidence challenges this view: schools run by religious actors are no more effective at reaching the poor than public schools, but they are more effective than non-confessional private schools (Tsimpo and Wodon 2014; Wodon 2013). This result is not surprising, given that the costs of public schools are lower than those of faith-inspired schools and the costs of private schools are higher (Wodon 2013). Moreover, it is questionable whether faith-inspired schools treat pupils from different religions similarly. In Tanzania, for example, Bengtsson (2013) finds that an educational programme run by the Evangelical Lutheran Church favours Protestants over Catholics. Meyersson (2014) compares Turkish municipalities where Islamic parties have won elections with those where secular parties have won and finds increased secular education – particularly for women – under religious rule. Meyersson attributes this finding to better mobilisation activities and greater efficiency in providing education and finds that the effect is particularly strong in poor areas.

Other studies have examined the role of religious actors from a historical perspective (e.g. Becker and Woessmann 2010; Coşgel et al. 2012; Chaudhary and Rubin 2011) find that although the printing press spread quickly across Europe, it was heavily restricted by Ottoman religious authorities looking to protect the legitimacy of the ruling elite. Also, Chaudhary and Rubin (2011) stress the importance of the level of influence by the religious authorities. In the context of India, they find that areas with a relatively high share of Muslims, which were ruled by religious authorities for a longer period after the British colonised India, show lower literacy rates as more students were attracted by less effective religious schools. Finally, Becker and Woessmann (2010) show for the formerly Prussian territories that the number of primary schools and enrolment rates are higher in those areas with a large current-day share of Protestants. The authors attribute these results to Martin Luther's statement that all Christians should be able to read the Bible.

3.3.4 Gender Inequality

Women suffer disproportionally from unequal opportunities, with negative implications for economic development. The fifth SDG strives for gender equality. It is often assumed that religion negatively affects gender equality, and the literature mainly explores the effect of religion on gender attitudes, female labour force participation, and gender gaps in education and mortality. Although religious ideas are the main dimension assumed to affect gender in-

15 This mismatch could be partly due to the decreasing importance of FBOs in providing educational services (Jimenez and Lockheed 1995).

equality, empirical studies typically operationalise ideas through proxies of other religious dimensions.

Religious ideas and traditions shape the formal and informal rules of a society that guide human attitudes and decisions. The highly patriarchal nature of most religious traditions results in different societal roles and responsibilities that men and women are expected to assume, with negative consequences for women's capabilities and gender equality (Tomalin 2013) (*SOC-GIN-IDEA*). Cross-country evidence strongly supports this conjecture. Using the United Nations Gender Inequality Index and the Social Watch Gender Equity Index as outcome measures, Schnabel (2016) shows that countries with larger proportions of religious people have lower gender equality. Further, micro-level studies show that individual religious practice, identity, and particularly ideas (religiosity) are all negatively correlated with gender equitable attitudes (Guiso et al. 2003; Seguino 2011).[16] Moreover, conditional on a country's level of economic development, the aforementioned religious dimensions – through their effects on gender attitudes – are independently negatively associated with female-to-male population ratios, female-to-male primary and secondary school enrolment ratios, female labour force participation rates (see also Dildar 2015), and other outcome measures (Seguino 2011). While Seguino (2011) and Schnabel (2016) find that no major religious denomination stands out as being particularly gender unequal, other studies show that the biggest educational gender gaps exist in countries with large shares of Muslim adherents (Baliamoune-Lutz 2007; Cooray and Potrafke 2011; Norton and Tomal 2009). This effect remains significant after controlling for overall economic development (Baliamoune-Lutz 2007) and the quality of democratic institutions (Cooray and Potrafke 2011). Unfortunately, the authors of these studies do not provide a theoretical explanation for their finding.

Gender inequality is most brutally exhibited in the high mortality rates for women. The literature assumes that the influence of religious ideas mainly operates through (religiously inspired) marriage practices, inheritance laws, and other formal and informal institutional arrangements related to fertility decisions. With the exception of Carranza (2012), these studies rely on correlational evidence. Carranza (2012) exploits a change in the Islamic inheritance law (IIL) in Indonesia to estimate the effect of religiously motivated inheritance practices on son preferences and the fertility behaviour of Muslim couples. She shows that the modification of the IIL to allow daughters (and not just sons) to exclude the deceased father's male relatives from inheritance and hence to preserve wealth within the nuclear family was associated with a significant reduction in fertility and in sex-selective abortion among couples in which the man had male siblings.

Other studies explore differences between religious groups. Borooah et al. (2009), for example, report a higher gender bias in child mortality among Hindu families than among Muslim families in India. This difference is concentrated among girls and higher birth orders

16 Religiosity (that is, the strength of religious ideas) has stronger effects on gender inequitable attitudes than religious practice and remains of great significance if religious identity is controlled for (Seguino 2011).

(Iyer and Joshi 2013), and may be attributed to religious differences in ritual and marriage regulations. In contrast to Muslim marriages, the authors argue, Hindu marriages are defined as a sacrament and often involve the bride's family making considerable non-returnable dowry payments to the husband, meaning that daughters come at a higher cost to Hindus than to Muslims (Borooah et al. 2009; Iyer and Joshi 2013). The strong son preference in Hindu culture might also explain the significant height disadvantages observed for Indian children – specifically, firstborn Indian daughters and girls with no older brothers, but not firstborn Indian sons – relative to sub-Saharan African children (Jayachandran and Pande 2015). Overall, the effects of religion on fertility decisions appear to depend strongly on (and operate through) a society's cultural and institutional setting. This is also illustrated by the findings of Rossi and Rouanet (2015), who report a strong incidence of son preference in Muslim-dominated North African countries, but no differences in fertility preferences between Muslims, Christians, and animists within SSA, where patterns of son preference appear not to exist.

Religious actors and organisations of groups influence popular and political debates and lobby for the preservation of traditional values (Kane 2008) (*SOC-GIN-ACT*). This may undermine opportunities for women. For example, many religious groups oppose or prohibit the use of modern reproductive health services, such as abortion or contraceptives, with negative implications for women's health and agency (Tomalin 2013). Some scholars have also noted an increasing tendency within all religions to promote subordinate roles for women (Howland 2001). Although the consequences of emerging religious extremism have not been well researched, existing case studies show that it can be devastating for women (e.g. Ahmed 1999; Kalu 2003), particularly in contexts where legal protection by the government is weak or absent, and where religious education amongst the public is poor (Tomalin 2013).

3.3.5 Income Inequality

While the tenth SDG acknowledges the multiple facets of inequality, the economic literature on religion has focused on income inequality. Most studies treat religious dimensions as the explained variables and consistently report a positive correlation with income inequality (Barber 2013; Norris and Inglehart 2004; Solt 2014; Solt et al. 2011). However, the opposite patterns of causality are also possible.

There is a significant amount of evidence to suggest that people who are religious differ from their secular counterparts regarding their preferences for economic redistribution (Alesina et al. 2011; Bénabou and Tirole 2006; Guiso et al. 2003; Scheve and Stasavage 2006; Stegmueller 2013). For example, frequent churchgoers in Western democracies are less likely to support social government spending (Scheve and Stasavage 2006) and to vote for redistributive parties (Stegmüller 2013) than less frequent attendees. Moreover, religious people, particularly the religious poor, tend to be more conservative regarding moral values and traditions than non-religious people (Hoffmann 2013; Saroglou et al. 2004). The argu-

ment is that religiously inspired ideas and values distract poor people's attention from their material interests in favour of traditional values and morals (De La O and Rodden 2008), which translates into larger support for conservative parties and inhibits the political mobilisation of redistributive parties (Jordan 2014) (*SOC-INI-IDEA1*). In line with this argument, De La O and Rodden (2008) show, for economically advanced democracies, that poor religious people's preferences for morals appear to predominate over their preferences for redistribution, particularly in countries with large Catholic populations. There are also other mechanisms through which religious ideas may affect preferences and attitudes and, by extension, inequality. For example, religious individuals may derive psychic benefits from religion that shield them from the psychological burden of social insecurities (see also Dehejia et al. 2007) (*SOC-INI-IDEA2*), or may oppose welfare spending on the basis that it decouples work from reward (Bénabou and Tirole 2006) (*SOC-INI-IDEA3*). Moreover, religious organisations provide material benefits for poor members (Hungerman 2005) that may substitute for social welfare spending and nullify the need for state-provided social insurance (Dehejia et al. 2007) (*SOC-INI-ACT1*). Huber and Stanig (2011) further propose that church–state financial separation and voter coalitions among rich and poor religious people counteract religious individuals' demand for welfare spending (*SOC-INI-ACT2*). Accordingly, rich and poor religious individuals form electoral coalitions in favour of lower taxation (and hence state redistribution), where the religious poor are compensated by the rich via charitable donations to the churches. These donations benefit the religious poor but not the secular poor (Huber and Stanig 2011).

Religious actors may also oppose the development of comprehensive social welfare regimes as a means to preserve power and prestige, or for other reasons (Jordan 2014) (*SOC-INI-ACT3*). There is mounting qualitative evidence that religious actors played a vital role in shaping the development of distinct social welfare regimes in Western societies (Jordan 2014; Kahl 2005; van Kersbergen and Manow 2009; Manow 2004). For example, Manow (2004) argues that the Reform Protestant Movement's emphasis on individual self-responsibility and hard work (see also Bénabou and Tirole 2006), combined with its deep suspicion of state authority, delayed and restricted welfare programmes in Britain, Switzerland, and the Netherlands (Jordan 2016). Jordan (2014) demonstrates for a sample of Western societies that the positive correlation between religion and economic inequality disappears once welfare regime types are controlled for. Despite endogeneity problems, Jordan argues that this finding represents suggestive evidence for the strong impact of religious organisations on inequality through their historical influence on the size and structure of welfare states (Jordan 2014).

All of these observations support the idea that religion influences income inequality. However, empirical evidence on the relationship between religious dimensions and redistribution preferences, voting behaviour, and attitudes toward the welfare state has so far been correlational, not causal, and has come almost exclusively from advanced economies. Future research must carefully examine whether this relationship is causal or spurious,

and whether it is driven by underlying traits such as ambiguity intolerance or desire for order and structure (see also Fairbrother 2013; Jost et al. 2007; Jost, Nosek, and Gosling 2008). Moreover, recent evidence suggests that trust in government (Kuziemko et al. 2015) or the psychological need to support and justify existing social systems (Trump and White 2015) can influence demand for redistribution. Thus, low demand for redistribution among the religious poor could partly reflect lower levels of trust in government or stronger system-justification motivations.

3.3.6 Democracy and Good Governance

How can religious factors affect the chances of democracy and good governance? The literature discusses a number of direct causal mechanisms that refer to the dimensions of religious ideas, religious actors and organisation, and religious diversity (see Anderson 2004; Dahl 1998; Schmidt 2000). The content of particular religious ideas is more or less favourable for liberal democracy and good governance (*SOC-GOV-IDEA1*).[17] A strong debate has developed regarding the relative (dis)advantages of Christianity versus Islam in this regard. The relative strength of religious ideas is also important. Societies that are more secular may have higher chances of better governance (*SOC-GOV-IDEA2*). Moreover, the diversity of religious identities in a given society can form an obstacle to better governance (*SOC-GOV-IDEN*). Finally, the actual behaviour of religious actors may hinder or promote democracy and good governance depending on these actors' specific values and related political and social activities (*SOC-GOV-ACT*).[18]

Several global cross-country studies have investigated the effect of *religious diversity* and the compatibility of particular religious ideas with liberal democracy and good governance. These studies suggest that religious diversity, measured as the fractionalisation of different identities, does not hurt the chances of democracy (Fish and Brooks 2004) but is partly correlated with less good governance (Alesina et al. 2003). A number of scholars have argued that Christianity, and especially Protestantism, is favourable for democracy and good governance and that Islam is not, mainly because Islam is said to favour the integration of religion and politics and has not undergone enlightenment and secularisation (e.g. Hofmann 2004; Huntington 1997; Lewis 2001; Schmidt 2000). At first glance, there appears to be a strong correlation between higher shares of Christians and democracy, while higher population shares of Muslims are associated with lower degrees of democracy (Clague et al. 2001; Herb 2005; Minkenberg 2007; Ross 2001; Schmidt 2000). According to the same studies, Orthodox Christian countries are also less democratic, while Hindu countries (primarily India) are more likely to also have a democratic political system.

17 The classical thesis of Karl Marx suggests that religious ideas, especially the prospect of an afterlife in paradise and the divine nature of worldly rule, serve as the "opium of the people" and legitimise autocratic rule.

18 Religious ideas may inform this behavior, but more profane considerations may also come into play.

However, the above relationship must be put into perspective. First, the relationship is not deterministic, as some democratic Muslim countries exist and some predominantly Christian countries in Latin America and Africa are not democratic. A particular religious idea or identity is just one of several factors that determine the success or failure of democracy. In Clague et al. (2001), for instance, oil, education, and other controls reduce the negative effect of Muslim shares on democracy.

The effects of particular faiths on other aspects of good governance are more clear-cut. Cross-country studies have found that Protestantism is a predictor of lower corruption (Licht et al. 2007; North et al. 2013) than Catholicism, Orthodox Christianity, or Islam, while corruption also seems to be lower in countries that had an Asian ethno-religion in 2000 (ibid). Protestantism positively predicts better rule of law – that is, that laws are principally abided by and that an effective and just judiciary is in place (Licht et al. 2007). Rule of law appears to be stronger in countries that had Protestant, Catholic, or Hindu majorities in 1900 (North et al. 2013).[19] According to Putnam's (1993) classical study, the presence of "hierarchical religious traditions" may hinder trust and is therefore more negatively connected to government effectiveness than less hierarchical religions such as Protestantism and Buddhism (La Porta et al. 1997).

There is also evidence of better governance in secular states. Leaman (2009) finds that countries with a higher share of people who practice religion (worshipping, praying, etc.) tend to have higher levels of corruption. It also seems that secular states, which have little clerical involvement in politics, experience better governance (Tusalem 2015).

These results do not provide proof beyond reasonable doubt. Religion and culture, among other variables, are not (fully) disentangled in many of these studies. Population shares are used as a proxy indicator for a particular religious belief (for example, Muslim shares for Islam), but it could well be the case that there are systematic variations in the relative strength of religious ideas and other variables. For example, Islamic countries could be less democratic because they are also less secular and less wealthy, while many Christian countries are extremely secularised and comparatively rich. Many factors other than the levels of secularisation and development can play a role, and religious factors may not be the most important ones (see e.g. Anderson 2004; Dahl 1998; Schmidt 2000).[20]

Moreover, no religious tradition is per se for or against democracy or good governance as an essentialist notion of Islam, Christianity, or any other tradition might suggest (Anderson 2004). Instead, the pro-democratic effect of religion on democracy depends on specific ideas and behaviours that can vary widely across time, space, and actors. In this context, it makes sense to look at the actual behaviour of collective and individual religious actors in transi-

19 The authors decided to use the year 1900 as institutions do not change in a rapid manner and it makes sense to look at the longue durée.

20 Some empirical studies on the determinants of regime types have ignored the variable "religion" altogether (e.g. Haber and Menaldo 2011; Wright et al. 2015).

tions from autocracy to democracy or cases of protest against authoritarian regimes. Richardson (2006) finds that religious ideas and FBOs have promoted democratisation in former Soviet states. FBOs have mostly promoted democratisation worldwide, especially when independent from the state, to liberal democracy (Philpott et al. 2011). Münkler and Leininger's (2009) comparison of five countries (West Germany after World War II, Georgia and Ukraine after 1987, Mali, and Indonesia) finds that, on balance, religious actors promoted rather than hindered democracy.[21]

A few studies have used more fine-grained data. On the basis of the WVSs in Azerbaijan, Bangladesh, Bosnia, Croatia, Georgia, Macedonia, and Russia, Hofmann (2004) finds that support for democracy is stronger among Muslims than among Eastern Orthodox Christians. The same study finds that Catholics (in Croatia) perform slightly better in terms of support for democracy than average Muslims, but that religion only explains a small variance in this regard. A survey of US decision makers revealed no significant difference between more or less religious leaders: few respondents based decisions on religious considerations (Evans 2014). A subnational analysis of district assemblies in Indonesia yields a more optimist view on the link between religion and corruption. An (increased) share of Islamic parties in district assemblies reduced corruption more than an (increased) share of secular parties (Henderson and Kuncoro 2011).

The ambiguous role of religion can also be observed based on studies of voting behaviour. While religiosity can often promote more socially conservative political preferences (Roth 2008), the affiliation with a religious community can prevent voters from favouring extremism. Spenkuch and Tillmann (2016) find that a Catholic identity reduced the vote share for the NSDAP (the Nazi party in the German Weimar Republic) compared to a Lutheran identity. However, looking at the religious determinants of individual ideological and other political preferences – for example, on redistribution and social equity – a number of studies have found mixed evidence regarding whether particular religious traditions exhibit specific ideological preferences (Basten and Betz 2013; De La O and Rodden 2008; Esteban et al. 2015; Scheve and Stasavage 2006; Strieborny 2013). On balance, however, Muslims are more supportive of religious ideas and actors playing a role in politics, according to two sets of WVS data on 63 and 86 countries worldwide respectively (Breznau et al. 2011; Carlson and Listhaug 2006).

3.3.7 Social Capital

The social dimension of sustainable development encompasses elements of social capital as an important vehicle for achieving social cohesion and peaceful and inclusive societies (SDG 16). The promotion of social capital is assumed to be an important mechanism through which religion affects broader economic outcomes (Barro and McCleary 2003) and is regarded as a key

21 To the best of our knowledge, no studies have tested whether autocratic rulers systematically use religious ideas in order to stay in power, as suggested by Marx, Lenin, and others.

pillar of peace. Social cohesion and manifestations of social capital may be influenced by religion through different channels. Most religions have tenets of trust, generosity, and humanity, and share a representation of God (or other supernatural beings) as a knowledgeable, rewarding, and punishing being who is concerned with human morality (Preston and Ritter 2013: 1471). The prospect of being punished or rewarded for one's deeds may facilitate prosocial behaviour (*SOC-SCA-IDEA*). Moreover, the collective practice of religious rituals may foster social cohesion and promote cooperation and other forms of prosociality within religious groups (Durkheim 1995; Putnam 2000; Sosis and Ruffle 2003) (*SOC-SCA-PRAC*). A huge body of literature has tested the so-called *religious prosociality hypothesis* (Galen 2012). The evidence is mixed and inconclusive and depends largely on the methodology applied and the behaviour observed. Non-experimental survey studies consistently find that religious people self-report more prosocial behaviour, such as charitable giving or interpersonal trust (Monsma 2007; Park and Smith 2000; Smith and Stark 2009). However, the validity of these findings is disputable. Self-reported measures of prosocial behaviour are susceptible to impression management and self-deception. By contrast, incentivised economic experimental studies[22] that correlate observed rather than self-reported measures of cooperativeness or trust with church attendance (Akay et al. 2015; Anderson and Mellor 2009; Anderson et al. 2010) or self-reported religiosity (Ahmed and Salas 2009) have found little support for the prosociality hypothesis. In general, sociodemographic characteristics appear to have stronger explanatory power in these correlational studies than measures of religion (Hoffman 2013). The exceptions are studies that include highly religious people (Ahmed 2009; Sosis and Ruffle 2003).

More recently, scholars have begun to draw on priming techniques in order to establish a causal link between religion and behaviour. Religious primes are intended to temporarily activate a set of norms and values associated with religious identity or ideas and hence to provide information about the effects of the primed religious dimension on behaviour (Benjamin et al. 2016; Shariff and Norenzayan 2007). In a seminal contribution, Shariff and Norenzayan (2007) use sentence-unscrambling tasks containing words such as "God" or "divine" to make God concepts temporarily salient to participants. The authors find that priming with God concepts increases generosity in a dictator game.[23] Other priming studies largely confirm the generosity-enhancing effect in response to religious priming. Religious primes also foster cooperativeness (Rand et al. 2014; Xygalatas 2013) and honesty (Mazar et al. 2008). A recent meta-analysis of priming studies reveals that religious primes have a robust effect on prosocial behaviour, with a small but significant effect size (Shariff et al. 2016).

The design of most studies does not make it possible to test whether the positive effect is due to altruistic motives to better the conditions of others, or reputational concerns (whether they are fear-driven or based on belief) accruing from the perception of being watched by

22 In economic experiments, participants are paid according to their decisions and thus face incentives to truthfully reveal their preferences. Hoffmann (2013) reviews economic experiments on religion.

23 However, priming with secular institutions of justice has similar effects (Shariff and Norenzayan 2007).

God (Norenzayan and Shariff 2008). However, the evidence strongly suggests that the fear of supernatural punishment plays a significant role. For example, Purzynski et al. (2016) find a strong positive correlation between perceptions of gods as knowledgeable and punitive and prosocial behaviour across different societies.

Another question subject to debate is whether religious primes activate intrinsic beliefs or society-wide stereotypes (Galen 2012). In their meta-analysis, Shariff et al. (2016) report that religious people are more responsive to religious primes than non-religious people and infer that "[…] responsiveness to religious cues depends to a significant extent on culturally transmitted beliefs […]" (ibid: 15). However, several authors have found priming effects to be largely independent of subjects' level of religiosity (Ahmed and Salas 2011; Johnson et al. 2012; Shariff and Norenzayan 2007), and it remains unclear whether the variability in the effect of religious primes follows any systematic patterns (Shariff et al. 2016).

Furthermore, religious primes can also trigger antisocial attitudes towards out-group members (Johnson et al. 2010). LaBouff et al. (2012) find that participants surveyed next to a church (religious prime) self-report more negative attitudes toward ethnic, racial, and religious out-group members than participants surveyed outside a civic building (secular prime). Preston and Ritter (2013) argue that the ambivalent effects of primes may be due partly to the different "moral audiences" that are activated: God primes activate universal concerns for prosociality, whereas primes with religion-specific contents may enhance the salience of religious identity, which tends to promote in-group favouritism and/or out-group discrimination.

Most studies of the religious prosociality hypothesis do not cross-reference the religious identities of the decision makers, which means they cannot distinguish between universal concerns for prosociality, taste-based discrimination, or statistical discrimination (stereotyping) (Galen 2012: 878).[24] However, it is possible that a shared religious identity may evoke in-group favouritism and out-group discrimination (Norenzayan and Shariff 2008) (*SOC-SCA-IDEN*).

Studies that do explicitly test for the existence of religiously motivated intergroup bias have obtained mixed and inconclusive results. Johansson-Stenman et al. (2009) and Parra (2011) provide no evidence of intergroup bias in trust between subjects of different religious identities in Bangladesh and Ghana, respectively. By contrast, Chuah et al. (2013) find that Muslims and Hindus in India trust members of their own religious group relatively more than members of the other religious group. While controlling for the effect of stereotyping, Chuah et al. (2016) further report that interpersonal similarity in both religiosity and identity promote trust and that religiosity amplifies in-group favouritism.

24 In this context, statistical discrimination or stereotyping occurs if religious people are generally believed to be more prosocial and therefore treated differently than non-religious people. Taste-based discrimination includes in-group favoritism and out-group discrimination and refers to situations where people from the same religious group are treated differently than members of other religious groups.

The extent and strength of intergroup bias also depends on the degree of religious fragmentation. Chakravarty et al. (2015) observe significantly higher levels of mutual cooperation among individuals of the same religious group compared to groups of different religious identity, but only in fragmented villages. Gupta et al. (2013) also consider possible interactions between religious affiliation (Muslim vs. Hindu) and minority status in Bangladesh (Muslim majority) and India (Hindu majority). They observe higher levels of trust within groups of the same religious identity for religious minorities, but not for religious majorities. This in-group bias is driven by religious people and appears to be mainly motivated by in-group favouritism rather than out-group discrimination. An important avenue for future research in this vein is a more comprehensive analysis of the relative importance of religious identity vis-à-vis other identity markers for in-group and out-group discrimination, particularly in conflict contexts where religious or ethnic identities may be prone to misuse by conflict parties.

Finally, some studies have tested whether differences in the organisational structures of churches affect trust and cooperation, and have again had mixed results. As hypothesised by Putnam (1993), the emphasis of hierarchical religions (such as Catholicism and Islam) on vertical bonds of authority may impede the formation of trust in others and undermine cooperation. By contrast, horizontally organised denominations (such as Protestantism and Judaism) may strengthen trust and cooperation among their followers (Putnam 1993) (*SOC-SCA-ACT*). While survey studies (Welch et al. 2007) have supported Putnam's hypothesis, experimental studies have largely failed to confirm it (Anderson et al. 2010; Bellemare and Kröger 2007; Fehr et al. 2002).

3.3.8 Conflict and Peace

Since 11 September 2001, a growing body of literature has investigated religion as a cause of violence (e.g. Toft et al. 2011). A number of different dimensions of religion can create the necessary opportunity, capacity, and/or motive to help overcome the collective action problems of organised violence (Davies 1962; Gurr 1970; McAdam et al. 2003). The main causal mechanisms work through ideas and identities, as well as actors and organisations.[25] Both the content and relative relevance of religious ideas can either promote or hinder peace (*SOC-CON-IDEA).* Ideas may include the belief that non-believers have to be converted "by the sword," or the commandment "thou shall not kill." The diversity of religious identities will facilitate or hinder mobilisation. A number of competing arguments expect that particular constellations of diversity (such as fractionalisation, polarisation, and dominance) are most conflict-prone (*SOC-CON-IDEN1*). How religious boundaries relate to other social boundaries may also matter (*SOC-CON-IDEN2*). When religious identities overlap with ethnic, economic, or

25 The dimension "religious practice" is partially important, at best, as it may be used to cope with the perils of combat. In exotic cases, religious practice may include violence directly – for example, in the form of human sacrifice.

other identities, the risk of conflict may increase. Finally, religious actors can call for peace, end religious discrimination, and engage in dialogue (*SOC-CON-ACT1*). Moreover, although they have hardly been quantitatively investigated, the organisational capacities of religious communities may amplify the effect of their actions *(SOC-CON-ACT2).*

A first group of studies has investigated whether religious conflicts are bloodier and last longer than other conflicts, assuming that religious incompatibilities are more difficult to resolve given their divine character, which will form an obstacle to compromise. Indeed, some studies have found that religious conflicts are both more intense and longer (Svensson 2007; Toft 2007). However, many definitions of "religious" only refer to the fact that the warring factions differ in their religious identity (for example, Protestants and Catholics in Northern Ireland) – that is, that there is not necessarily a difference in terms of religious ideas.

A second group of quantitative works has investigated the effects of several forms of religious diversity, such as fractionalisation, polarisation, and dominance, on the onset of armed conflict. The empirical results have been mixed and non-robust, with one possible exception (e.g. Basedau et al. 2016; Ellingsen 2000; Montalvo and Reynal-Querol 2005; Rummel 1997). In a situation where one group has numerical dominance – that is, when it forms at least 60 per cent of the population – there regularly appears to be an increased risk of conflict (Basedau et al. 2011; Collier and Hoeffler 2004). Recent works have found evidence that civil conflict is more likely when religious cleavages run parallel to divides in income, geography, and ethnicity (Basedau et al. 2016; Gubler and Selway 2012).

The studies are unclear about the effects of religious discrimination (Akbaba and Taydas 2011), again partly because of a lack of data. Basedau et al. (2015) find that discriminated groups are more likely to voice grievances, but there is no significant connection to their involvement in violence. While many case studies (De Juan 2008; Toft 2007; Trejo 2009) have shown that religious leaders can indeed instigate violence, there have so far been only a few systematic quantitative studies, with limited samples (Quinley 1974). In a study on political violence perpetrated by Jews and Muslims in Israel, Canetti et al. (2010) found that relative deprivation results in support for violence only when religious leaders provide an inflammatory interpretation of these deprivations. A recent opinion-poll-based survey of 100 religious leaders in South Sudan (Basedau and Koos 2015) yields evidence that leaders are more likely to support faith-based violence when they are intolerant towards other faiths, not in favour of secularism, and belong to the Muslim minority in South Sudan.

Although recent data collection suggests that Muslim groups form the majority of religiously motivated rebel groups, and that their number and proportion seems to be on the rise (Gleditsch and Rudolfsen 2015; Meserole 2015; Fox 2012), there is limited evidence that Islam as such is a major driving force behind this development, calling into question the thesis of a "clash of civilizations" between Muslims and Christians (Huntington 1997). One-sided violence appears to be less severe among Muslim rebel groups (Meserole 2015), violent state repression has been the worst in Catholic countries in the long run (De Soysa and Nor-

das 2007), and Muslim groups are no more conflict-prone than other groups (Bormann et al. 2015). Islamist (or other religious) radicalisation of individuals seems to be a question of personality and other circumstances (Aly and Striegher 2012). Survey respondents representing 62 per cent of the world's Muslim population indicate that approval of Islamist terror is not associated with religiosity (or low education, poverty, or income dissatisfaction), but with urban poverty (Mousseau 2011). Similarly to the case for other political outcomes, the challenge remains to ensure that it is religion, in its various forms, and not confounding factors, that produce the outcome.

The focus on conflict has masked the fact that religion also has a pronounced pro-peace aspect. The "ambivalence of the sacred" (Appleby 1999) is a defining feature of the nexus. A number of qualitative papers have made a convincing case for the pro-peace effects of religion (e.g. Bercovitch and Kadayifci-Orellana 2009; Smock 2002). Religious ideas and actors aid reconciliation and may prevent violence from happening in the first place. However, the pro-peace effects of religion have rarely been tested in quantitative studies. A subnational study on Indonesia (De Juan et al. 2015) suggests that a more closely knit network of religious institutions – measured through the number of churches or mosques in a given district – has reduced the likelihood of conflict in these districts. Whether interreligious networks and dialogue really generally promote peace remains an open question. However, the necessary data, especially for non-Western cases and at a more disaggregated level, is missing.

3.4 Environmental Dimension

The SDGs contain four goals that concern the environmental dimension of sustainable development (Table A1). Goal 12 strives to ensure sustainable consumption and production patterns and can be read as a prerequisite for achieving the other ecological SDGs. Goal 12 reads, "Take urgent action to combat climate change and its impact," while goals 14 and 15 aim to protect, conserve, restore, and sustainably use all ecosystems and their resources.

Over the last 15 years, a comprehensive interdisciplinary research programme regarding the ambivalent relationship between "religion and ecology" has emerged (e.g. Gottlieb 2006; Taylor 2008). Quantitative empirical studies have mainly examined the influence of religion on environmental attitudes and behaviour, typically in Western societies, and have almost exclusively relied on correlation design. Overall, the empirical evidence on the influence of religious dimensions on the environment is mixed, inconclusive, and sometimes contradictory (Hitzhusen 2007; Sherkat and Ellison 2007). This may be partly attributed to the large variety of different measures of religion and environmental issues considered in this literature (Djupe and Hunt 2009), the great heterogeneity of (often unrepresentative) samples (Clements et al. 2013), and the differences in empirical rigor and the control variables considered. However, it may also partly reflect the possibility that religion has a genuinely ambiguous, diverse, and context-specific influence on ecology.

A widely shared conjecture is that concepts of God and perceptions about the role human beings ought to play in human–nature relationships affect environmental orientations and behaviour (Gottlieb 2006; Moe-Lobeda and Helmiere 2013). However, a controversial debate concerns the responsibility of religious worldviews for the contemporary ecological crises. White (1967) claims that the anthropocentric Judeo–Christian belief of human dominion over nature laid the foundation for environmental exploitation in the course of Western development. Other scholars have stressed that religious scriptures also call on humans to respect and take on the stewardship of nature (Boyd 1999; Kanagy and Willits 1993; Whitney 1993). Some studies have explicitly investigated the influence of dominion or stewardship views on environmental concerns (*ENV-IDEA1*). Woodrum and Hoban (1994) report no significant association between dominion over nature views and environmental concerns, while (Wolkomir et al. 1997) find a negative association. Stewardship beliefs, on the other hand, seem to raise consciousness of environmental problems and are positively correlated with political environmental activism, private environmental behaviour, and willingness to sacrifice for the environment (Sherkat and Ellison 2007).

Other studies have analysed whether Judeo-Christians are more likely to adopt a dominion view compared to non-Judeo-Christians (*ENV-IDEA2*), but have found little empirical support for White's hypothesis, at least if political orientations are controlled for (Guth et al. 1995; Hitzhusen 2007; Wolkomir et al. 1997). Similarly, most contributions have found no significant differences in environmental behaviour and attitudes between these two groups (e.g. Guth et al. 1995; Hitzhusen 2007), with some exceptions (Clements et al. 2013). However, a relatively robust finding is that members of more conservative and fundamental congregations tend to be less concerned about the environment and less likely to engage in pro-environmental behaviour (Boyd 1999; Kanagy and Nelsen 1995; Sherkat and Ellison 2007; Tarakeshwar et al. 2001), probably because they tend to hold a more conservative eschatology (*ENV-IDEA3*).

In general, doctrinal beliefs such as biblical literalism or end-time beliefs seem to matter more than religious identity. For example, Barker and Bearce (2013) find that believers in Christian end-time theology are more likely to oppose governmental actions to curb global warming as they have shorter *sociotropic* time horizons than non-believers. Studies using biblical literalism as a proxy for the strength of religious ideas report ambivalent effects. Sherkat and Ellison (2007) obtain no significant association between biblical literalism and the willingness to sacrifice for the environment once political conservatism and stewardship beliefs are included in multivariate regression, but they also find a negative correlation with political environmental activism. Findings from Schultz et al. (2000) suggest that the environmental concerns of biblical literalists are mainly anthropocentric – that is, rooted in the effects these environmental problems will have for humanity. Evidence is also mixed and inconclusive for religious practice, which is used as yet another proxy for religious commitment and strength of internalised ideas. While the frequency of church attendance seems to

be largely unrelated to general environmental concerns (Clements et al. 2013; Hayes and Marangudakis 2000) or support for government actions to curb global warming (Barker and Bearce 2013), some studies have reported that regular churchgoers show a greater willingness to accept tax increases in order to help protect the environment (Schumacher 2015) and stronger engagement in waste recycling behaviour (Fiorillo 2013).

Finally, religious actors may affect environmental attitudes and behaviour through their own initiatives as well as their influence on members, public debates, and political decision makers (Djupe and Hunt 2009) (*ENV-ACT)*. An increasing number of religious actors – the most prominent of whom has been Pope Francis – have recently started to engage in environmental activities and to make pro-environmental pronouncements (Clements et al. 2013). Despite this, the influence of religious actors and organisations of groups is empirically under-researched. A notable exception is the work of Djupe and Hunt (2009), who show that the more clergy speaks out on the environment, the more pro-environmental the church members' orientations are. However, the average environmental view in the congregation seems to have an even stronger effect, which points to the importance of horizontal *and* vertical information for preference formation.

4 Conclusion

The link between religion and development has attracted increasing scholarly attention; this link is not just a phenomenon of the ivory tower but corresponds closely to reality. Religion plays a fundamental role in shaping societies, not only through its direct influence on human behaviour, but also, and especially, through its effects on formal and informal rules, norms and values, and public discourses.

However, the relationship between religion and development is complex, for theoretical and empirical reasons. Both concepts – religion and development – are multidimensional. Religion can be disaggregated into ideas, practice, and identities, as well as actors and organisations of religious groups. The same multidimensionality applies to development. This results in myriad possible causal mechanisms that can connect religious and development dimensions. Generally, one can distinguish between causal mechanisms in which religious factors primarily affect the willingness of actors to behave in a certain direction, and those mechanisms in which religious factors have an impact on the capacity of actors and hence the strength of their actions.

The nature of the relationship is even more complex and far exceeds the classical thoughts of Marx, Durkheim, and Weber. The relationship is not only multidimensional, but also ambivalent and embedded in a context that is non-religious and not necessarily related to development. The relationship is sometimes positive and sometimes negative, sometimes strong and sometimes weak. Development often affects religion, or there is a process of mutual influence.

Despite the existence of a large number of studies on this subject, this complexity has hindered progress in the empirical study of religion and its impact on development. Even if we were to concentrate on more recent empirical, mostly quantitative studies and largely disregard the effects of development on religion, a comprehensive literature review would require several volumes, not just the rather short report presented here.

We have identified the following methodological challenges that apply to almost the entire body of literature. First and foremost, causal identification remains a serious problem. Second, there is a lack of sufficient micro-level and other data, especially for developing countries. Third, concepts are often vague and do not directly measure a theoretically important religious dimension. Often closely related to this point is the fact that scholars do not use indicators that directly measure a given theorised religious dimension. Fourth, it is often unclear whether or to what extent concepts can be compared across countries and cultures. Certain questions in survey polls will produce different results according to cultural context. For instance, in highly religious societies, social desirability may lead to responses that misrepresent the actual level of religiosity or religious practice.

Closely related to methodological challenges, the geographical and other coverage of empirical studies varies significantly. The literature has addressed developed nations, especially Western democracies, to a much greater extent than developing countries. With a few exceptions (such as HIV and gender in relation to religion), research on religion has focused far more on traditions that are dominant in the Western world, such as mainstream Christianity and Islam than on other traditions. There are almost no studies on small fundamentalist, but increasingly influential, groups such as the Jehovah's Witnesses, evangelists, and born-again Christians. In terms of methods, experimental studies are mainly conducted with Western students and thus draw on largely unrepresentative subject pools.

Regarding scientific content, two important aspects have received little attention. First, the role of religious actors has hardly been investigated; second, causal mechanisms are rarely directly tested and sometimes not even discussed on a theoretical basis. All of the above-mentioned challenges affect most empirical findings in the three dimensions of development we identified from the SDGs – namely, the economic, social, and environmental dimensions. Nevertheless, a number of more or less uncontested findings can be identified.

Regarding economic development, some classical hypotheses are not robustly supported; this applies to the assumption that Protestantism is good for growth while Islam is not. However, especially in Western countries, there seems to be negative discrimination against Muslims and positive discrimination vis-à-vis Jews and Catholics regarding access to employment. Scientific knowledge and innovation often stand in conflict to religious explanations of the world.

Studies on the social dimension of development have found that a number of religious dimensions exert a positive influence on physical and mental health, as well as on general well-being, while religious fractionalisation – that is, significant religious diversity – is nega-

tively correlated with well-being. Regarding physical health, the risk of cancer and sexually transmitted diseases is lower for religious people. Many studies have shown that religiosity can prevent harmful behaviour such as drug abuse, resulting in higher educational outcomes for religious individuals. Scholars have further found a negative relationship between religious dimensions and both income equality and different forms of gender equality. Regarding social capital (such as trust in others), the evidence is mixed and inconclusive and partly dependent on the methodology used. The majority of priming studies have found that religious or God concepts have a positive effect on prosocial behaviour. However, most studies have left unclear what kind of moral audiences are activated and to what extent greater prosociality reflects universal concerns for prosociality or intergroup biases.

Works on democracy and good governance have yielded evidence that Christian (especially Protestant) and Hindu countries are, on average, more democratic and better governed than Muslim (and Orthodox Christian) countries. However, it remains unclear whether this is due to the predominant religious tradition or the levels of secularisation or other uncontrolled variables. Regarding conflict, studies agree that the dominance of one religious group and parallel ethnic and religious cleavages increase conflict risks, while studies on the propeace effects of religious factors are largely missing.

The negative association between religious conservatism and environmental concerns and behaviours is the only robust finding in the literature regarding the influence of religious dimension on the environmental dimension of development. Otherwise, the evidence is mixed, inconclusive, and sometimes contradictory. Generally, political orientations and sociodemographic characteristics appear to have a stronger effect on environmental attitudes and behaviours than measures of religious dimensions.

We have found ample evidence of an often substantial, but complex and ambivalent effect of religion; however, gaps and open questions are manifold, as even this short conclusion shows. A future study of religion and development clearly needs more rigorous methodological and theoretical investigations and better availability and coverage of data. Moreover, two major questions remain unanswered. First, do results from studies in Western countries hold in developing countries and for faiths other than mainstream Christianity and Islam? Second, what role do FBOs and other religious actors play in relation to the different dimensions of sustainable development?

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Appendix

Table A1. Classification of the SDGs into Three Dimensions of Sustainable Development

Dimensions of sustainable development	Sustainable development goals	
Economic dimension	Goal 1.	End poverty in all its forms everywhere
	Goal 8.	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
	Goal 9.	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
Social dimension	Goal 2.	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
	Goal 3.	Ensure healthy lives and promote well-being for all at all ages
	Goal 4.	Ensure inclusive and equitable quality education and promote life-long learning opportunities for all
	Goal 5.	Achieve gender equality and empower all women and girls
	Goal 6.	Ensure availability and sustainable management of water and sanitation for all
	Goal 7.	Ensure access to affordable, reliable, sustainable, and modern energy for all
	Goal 10.	Reduce inequality within and among countries
	Goal 11.	Make cities and human settlements inclusive, safe, resilient, and sustainable
	Goal 16.	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels (also relevant for the political dimension)
Environmental dimension	Goal 12.	Ensure sustainable consumption and production patterns
	Goal 13.	Take urgent action to combat climate change and its impacts
	Goal 14.	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development
	Goal 15.	Protect, restore, and promote sustainable use of terrestrial ecosystems; sustainably manage forests; combat desertification; and halt and reverse land degradation and halt biodiversity loss

Notes: The table assigns each sustainable development goal to one of the three dimensions (economic, social, environment) of sustainable development. While some SDGs are clearly primarily economic, social, or environmental, others address more than one dimension. Moreover, the targets under each goal typically include elements that reflect the other dimensions. For simplicity, we have not considered all the different interactions among goals and dimensions, but have instead structured the literature review according to the main themes mentioned by the goals. The table does not include Goal 17, which reads, "Strengthen the means of implementation and revitalize the global partnership for sustainable development." Unlike the other goals, Goal 17 has no thematic content, but concerns the means of implementation.

Table A2. Causal Mechanisms for Different Religious Dimensions, Separated According to Development Dimensions and Subdimensions

3.2 ECONOMIC DIMENSION (ECON)			
3.2.1 Poverty, income, and growth (INC)			
Religious dimension	**Mechanism**	**Code used in manuscript**	**Empirical support**
Religious ideas	Religious ideas influence individual traits (such as work ethic, honesty, thrift, and openness to strangers), which in turn affect economic growth and income (Barro and McCleary 2003).	ECON-INC-IDEA	Directly and indirectly tested; mixed evidence regarding growth and income, positive correlation with work ethic and patience
	Protestant ideas spur work ethic and pro-market attitudes.	ECON-INC-IDEA2	Indirectly tested; partly refuted
Religious practice	Extensive religious practice consumes resources that could be used in the production process, and therefore has a negative influence on growth and income (Barro and McCleary 2003).	ECON-INC-PRAC	Directly tested; partly supported
Religious identity	Religious networks are a form of social capital that positively affects growth and income (Barro and McCleary 2003).	ECON-INC-IDEN	Indirectly tested; partly supported (negative effect of religious fractionalisation on growth)
Religious actors and organisations	Organised religion influences political and economic formal and informal rules, which in turn affect economic incentives and thereby also growth and income (Barro and McCleary 2003).	ECON-PIG-ACT	Not tested
3.2.2 Employment and the labour market (ELM)			
Religious ideas	Religious ideas foster certain forms of human capital acquisition (such as discipline), which are rewarded in the labour market (Kortt and Dollery 2012).	ECON-ELM-IDEA1	Not tested
	Religious ideas influence participation decisions and occupational choices (Heath and Martin 2013).	ECON-ELM-IDEA2	Not tested
	Religious ideas prevent harmful behaviour such as alcohol or drug abuse and indirectly increase labour market participation and outcomes (Chiswick and Huang 2008).	ECON-ELM-IDEA3	Not tested
Religious practice	Religious practices demand time and thus conflict with labour market participation (Heath and Martin 2013).	ECON-ELM-PRAC	Directly tested; partly supported*
Religious identity	Religious networks created through religious identity can be beneficial for labour market participation and outcomes (Heath and Martin 2013).	ECON-ELM-IDEN1	Indirectly tested; partly supported (positive discrimination of Jews and Catholics, negative discrimination of Muslims)

	Visible or indicated religious identity may be interpreted as a (positive or negative) signal of certain (presumed) characteristics of job applicants (such as trustworthiness or strong work ethic), which influence employers' decisions (Kortt and Dollery 2012).	ECON-ELM-IDEN2	Indirectly tested; partly supported (positive discrimination of Jews and Catholics, negative discrimination of Muslims)
3.2.3 Innovation and economic modernisation (INN)			
Religious ideas	Religious ideas can stand in conflict to scientific discoveries and theories.	ECON-INN-IDEA	Directly and indirectly tested; supported
3.3 SOCIAL DIMENSION (SOC)			
3.3.1 Mental health and well-being (MHE)			
Religious ideas	Religious ideas can provide comfort in the face of negative events, which helps people handle them (Hayward and Krause 2014).	SOC-MHE-IDEA1	Directly tested; supported
	Religious ideas can provide a meaning for life, which may help people deal with uncertainty (Hayward and Krause 2014).	SOC-MHE-IDEA2	Directly tested; supported
	Religious ideas can influence the sense of control over one's life, with positive or negative consequences for mental health and well-being (Hayward and Krause 2014).	SOC-MHE-IDEA3	Directly tested; supported
Religious identity	Identification with a religious group influences mental health and well-being (Hayward and Krause 2014).	SOC-MHE-IDEN1	Directly tested; supported
	Religious communities create social resources that influence mental health and well-being (Hayward and Krause (2014).	SOC-MHE-IDEN2	Directly tested; supported
Religious actors and organisations	Religious communities provide mental and physical health services (Hayward and Krause (2014).	SOC-MHE-ACT	Not tested
3.3.2 Physical health (PH)			
All dimensions	Causal mechanisms relevant for mental health are also relevant for physical health. Mental and physical health influence each other.		
Religious ideas	Behavioural responses to religious ideas can (positively or negatively) influence health outcomes.	SOC-PH-IDEA	Indirectly tested; supported (negative relationship with mortality and serious diseases, positive relationship with obesity)
Religious practice	The religious practice of (Ramadan) fasting can have negative effects on health outcomes (Almond and Mazumer 2011).	SOC-PH-PRAC	Directly tested; supported
Religious actors and organisations	Religious communities provide physical health services.	SOC-PH-ACT	Not tested

3.3.3 Education (EDU)			
Religious ideas	Religious ideas foster certain forms of human capital acquisition (such as discipline) that are favourable for educational outcomes (see also ECON-ELM-IDEA1).	SOC-EDU-IDEA1	Indirectly tested; supported
	Religious ideas prevent harmful behaviour such as alcohol or drug abuse and thereby indirectly increase school participation and outcomes (Mooney 2010) (see also ECON-ELM-IDEA3).	SOC-EDU-IDEA2	Indirectly tested; supported
	Religious ideas can conflict with scientific discoveries and theories (see also ECON-INN-IDEA).	SOC-EDU-IDEA3	Indirectly tested; mixed evidence
Religious practice	Religious practice demands time and can thus conflict with educational requirements (see also ECON-ELM-PRAC).	SOC-EDU-PRAC	Directly tested; supported
Religious identity	Religious peers influence the norms of "correct" behaviour, usually towards norms beneficial for education.	SOC-EDU-IDEN1	Indirectly tested; supported
	Adult religious peers can be seen as role models and act as controlling authorities outside the family.	SOC-EDU-IDEN2	Indirectly tested; supported
	Handling stress might be easier for pupils who are part of a religious community.	SOC-EDU-IDEN3	Not tested
Religious actors and organisations	Religious actors provide educational services and shape educational choices and curricula through their influence as opinion-makers.	SOC-EDU-ACT1	Influence not quantitatively tested; mixed evidence regarding relevance of actors for provision of educational services
	Schools run by religious actors reach poor pupils more effectively than other schools.	SOC-EDU-ACT2	Directly tested; mixed evidence
3.3.4 Gender inequality (GIN)			
Religious ideas	Religious ideas and traditions shape those formal and informal rules in a society that guide human attitudes and decisions. The patriarchal nature of most religious traditions results in men and women being expected to assume different societal roles and responsibilities, with negative consequences for women's capabilities (Tomalin 2013).	SOC-GIN-IDEA	(Mainly) indirectly tested; supported
Religious actors and organisations	Religious actors influence popular and political debates and lobby for the preservation of traditional values. This may undermine female labour force participation, deliberate family planning, and other opportunities for women.	SOC-GIN-ACT	Not tested; supported in qualitative studies

3.3.5 Income inequality (INI)			
Religious ideas	Religion as opium – religiously inspired, internalised values distract the poor's attention from their material interests in favour of traditional values and morals (De La O and Rodden 2008).	SOC-INI-IDEA1	Indirectly tested; supported*
	Religious people derive a psychic benefit from religion that substitutes for social state spending and, by extension, influences electoral preferences and redistribution policies (Scheve and Stasavage 2006).	SOC-INI-IDEA2	Indirectly tested; supported*
	Religious people oppose welfare spending as this decouples work from reward (Bénabou and Tirole 2006).	SOC-INI-IDEA3	Not tested
Religious actors and organisations	Religious people receive material benefits from churches that substitute for public social spending (e.g. Dehejia et al. 2007).	SOC-INI-ACT1	Indirectly tested; supported*
	Church–state financial separation and voter coalitions among rich and poor religious people counteract religious individuals' demand for welfare spending (Huber and Stanig 2011).	SOC-INI-ACT2	Indirectly tested; supported*
	Religious actors may oppose the development of comprehensive social welfare regimes as a means to preserve power and prestige, or for other reasons (Jordan 2014).	SOC-INI-ACT3	Indirectly tested; supported
3.3.6 Democracy and good governance (GOV)			
Religious ideas	Particular religious ideas are more or less favourable to liberal democracy and good governance. Christian, and especially Protestant, countries may have higher chances of better governance.	SOC-GOV-IDEA1	Indirectly tested; partly supported
	More secular countries have higher chances of better governance.	SOC-GOV-IDEA2	Indirectly tested; partly supported
Religious identity	The diversity of religious identities in a given society can form an obstacle to better governance.	SOC-GOV-IDEN	Directly tested; mixed evidence
Religious actors and organisations	The actual behaviour of religious actors and organisations may hinder or promote democracy and good governance.	SOC-GOV-ACT	Directly tested; partly supported
3.3.7 Social capital (SCA)			
Religious ideas	Most religions have tenets of prosociality and share a perception of God as a rewarding and punishing being concerned with human morality, which facilitates prosocial behaviour.	SOC-SCA-IDEA	Directly and indirectly tested; partly supported (but depending on methodology)

Religious practice	The collective practice of religious rituals fosters social cohesion and promotes cooperation and other forms of prosociality within religious groups (Durkheim 1995; Sosis and Ruffle 2003).	SOC-SCA-PRAC	Directly and indirectly tested; mixed evidence
Religious identity	Shared religious identity can evoke in-group and out-group discrimination (Norenzayan and Shariff 2008).	SOC-SCA-IDEN	Directly tested; partly supported
Religious actors and organisations	Hierarchical religions' emphasis on vertical bonds of authority impedes the formation of trust in others and undermines cooperation. By contrast, horizontally organised denominations strengthen trust and cooperation among their followers (Putnam 1993).	SOC-SCA-ACT	Indirectly tested; mixed evidence
3.3.8 Conflict and peace (CON)			
Religious ideas	The content and relative relevance of religious ideas can either promote or hinder peace. Ideas may include the belief that non-believers have to be converted "by the sword" or the commandment "thou shalt not kill."	SOC-CON-IDEA	Indirectly tested; partly supported
Religious identity	A number of competing arguments expect that particular constellations of diversity (such as fractionalisation, polarisation, and dominance) are most conflict-prone.	SOB-CON-IDEN1	Directly tested; partly supported
	When religious identities overlap with ethnic, economic, or other identities, the risk of conflict may increase.	SOC-CON-IDEN2	Directly tested; supported
Religious actors and organisations	Religious actors can call for peace, end religious discrimination, and engage in dialogue and thus work against conflict.	SOC-CON-ACT1	Not tested
	The organisational capacities of religious communities may amplify the effect of their actions.	SOC-CON-ACT2	Not tested
3.4 ENVIRONMENTAL DIMENSION (ENV)			
Religious ideas	Concepts of God and perceptions about the role human beings ought to play in human–nature relationships affect environmental orientations and behaviour. Stewardship orientations promote pro-environmental actions; dominion orientations undermine them.	ENV-IDEA1	Directly tested; partly supported
	Followers of Judeo-Christian religions tend to have less pro-environmental attitudes and behaviours due to the religions' emphasis on humans' mastery over nature (White 1967).	ENV-IDEA2	Indirectly tested; mixed evidence

	Individuals holding a conservative eschatology (biblical literalism, end-time beliefs) are less concerned about the environment (Guth et al. 1995).	ENV-IDEA3	Directly tested; supported
Religious actors and organisations	Religious actors may hamper or promote environmental activism through their own initiatives as well as their influence on members, public debates, and political decision makers (Djupe and Hunt 2009).	ENV-ACT	Directly tested; supported*

Notes: Table A2 summarises, for each dimension and subdimension of sustainable development, the main causal mechanisms discussed in the literature. For each developmental subdimension, we further distinguish the different religious dimensions (first column) assumed to be particularly relevant for the respective causal mechanism (second column). The third column reports the code assigned to each causal mechanism. The fourth column specifies (a) whether the causal mechanism has been tested in quantitative research, and (b) the direction and strength of the empirical evidence. In particular, we distinguish between causal mechanisms that are not tested at all and those that are tested directly or indirectly. In many cases, especially if religious ideas are hypothesised to affect certain facets of sustainable development, the underlying mechanisms are not operationalised through a variable that captures the specific idea, and are therefore indirectly rather than directly tested. Regarding the direction and strength of empirical evidence, we define the following categories: (1) mixed evidence if there is no clear tendency; (2) partly supported (refuted) if there is a clear tendency toward support (refutation); and (3) supported (refuted) if the vast majority of evidence is in support (refutation) of the proposed underlying mechanism. Finally, rows denoted with * refer to themes or mechanisms that are rarely tested, at least quantitatively.

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