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The Relation Between Entrepreneurship And Religion

Differences in entrepreneurship participation among religions

**Master thesis**

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Student number: 334217

Supervisor: C.A. Rietveld MSc.

Rotterdam, 24-07-2013

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**Abstract**

Entrepreneurship is fundamental for a well-functioning economy. Social values are shown to be important for entrepreneurship, and religion is shown to be important for social values. Therefore, in this study, the relation between entrepreneurship and religion is investigated.

The quantitative analysis uses the LISS panel data. This data set contains over 8,000 Dutch participants. Two religious groups are used to investigate the differences with non-religious people: Catholics and Protestants. The results show that there are differences among the religious groups according to entrepreneurial participation: the Protestants are more entrepreneurial than the non-religious and the Catholics, whereas the non-religious people are more involved in entrepreneurship than Catholics.

Also, the employment satisfaction levels of religious individuals according to their job, career, income, working hours, work type and the atmosphere at work are compared with the satisfaction levels of non-religious participants. Our findings indicate that religion is associated with the satisfaction level in a positive way. Being an entrepreneur is also associated with the satisfaction level in a positive way. Moreover, the interaction between religion and entrepreneurship is positively associated with satisfaction.

Concludingly, the results stress the importance of religion as explanatory variable for entrepreneurship and employment satisfaction.

**Keywords**

Entrepreneurship, Religion, Catholics, Protestants, Non-religious, Culture, Entrepreneurial participation, Demographics, Risk, Education, Employment Satisfaction, The Netherlands.

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**1. Introduction**

Entrepreneurship is a key element of well-functioning economies (Wennekers & Thurik, 1999). Therefore, it is important to understand why individuals become an entrepreneur. The choice to for entrepreneurship is either forced or pulled (Amit & Muller, 1995). This means that becoming an entrepreneur is either a wish or a must. Literature shows that social factors have explanatory power for entrepreneurship entrance (Vivarelli, 1991).

Religion is known to influence social beliefs and aspects (Aldrich & Zimmer, 1986). We might thus expect that entrepreneurship entrance is influenced by religion. This is in line with the thoughts of Adam Smith, who argues that religion plays an important role in shaping the economy (Anderson, 1988).

This paper investigates the relation between entrepreneurship and religion. We investigate whether there are differences in entrepreneurship participation among religions. Every religion has its own base values that influences actual behaviour of its confessors; therefore, we may expect differences among religions regarding the entrepreneurship participation rate. For example, Hindus seem to have a lower participation rate in entrepreneurship compared to Christians (Audretsch, Boente & Tamvada, 2007). This paper investigates the difference between the mainstream religions in The Netherlands to get a clear view on the entrepreneurship participation rate of these groups. The Netherlands is a country with freedom of religion and with inhabitants confessing a wide range of religions. That makes this country very suitable for our research.

The relation between entrepreneurship and religion is largely ignored in current literature. However, Audretsch et al. (2007) profess that religion matters in the decision to become an entrepreneur. They find that Christianity and the Islam enhance entrepreneurship, while others religions like Hinduism participate less in entrepreneurial activities. Other studies also show that religion has an influence on the entrepreneurial participation rate (Selinger, 2004; Aldrich & Zimmer, 1986; Morrison, 2000), but they do not investigate other differences among religions. In our study we also investigate the participation rate differences in entrepreneurial activity among different religions, but our study is more elaborate. First, we use a regression framework to control other factors than religion, to study whether religion has explanatory power for entrepreneurship participation. Second, we study the role of entrepreneurship and religion in employment satisfaction. Hence, this paper contributes to the already available literature about entrepreneurship and religion since it is focussing on entrepreneurial participation differences among religions. Another perspective is added by comparing different religions, since there may be underlying factors for behaviour caused by religion. Measuring different employment satisfaction levels is also new in the literature about entrepreneurship.

In our study we thus try to answer the following two research questions:

1. *Does the entrepreneurial participation rate differ among religions?*

2. *Do the employment satisfaction levels differ among religions?*

The objective is to investigate the role of religion, alongside other factors, in entrepreneurship participation, and the employment satisfaction between the different religious groups. To be able to compare the different religions the LISS panel dataset is used (Scherpenzeel, 2011). It contains individual level data on entrepreneurship participation and religion. Because of the relative smallness of some religious groups in the dataset, it is hard to split all the different religions. Therefore, there is a focus on the mainstream religions in the Netherlands, as to have a sufficient number of observations per religious group. The groups of Catholics and Protestants are compared with non-religious people.

To answer the two research questions three sub-questions are formulated:

1. *Is there a difference among non-religious, catholic and protestant people according to the entrepreneurial participation?*

This question focuses on the raw percentages of entrepreneurial participation among the different religious groups. Therefore a small model is used with just the religion variables.

2. *Does religion have an effect on the choice of becoming an entrepreneur?*

To give an answer to this sub-question we use a logit regression framework, wherein we explain entrepreneurship participation by religion and other factors. If religion has a significant coefficient in this model, this provides evidence for a direct effect of religion on entrepreneurship. Explanatory variables such as gender, age and risk attitude frequency are taken into account. In addition, we check for other religious factors: the frequency of visiting a religious place and the religious background of the parents.

3. *Are religious entrepreneurs more satisfied about their income, working hours, work type, the atmosphere, their career and their current job? And is there an interaction with entrepreneurship?*

For the third sub-question we first study the employment satisfaction levels, and their differences among religions. The satisfaction levels of entrepreneurs are also studied. Thereafter we investigate whether the interaction between entrepreneurship and religion has explanatory power for employment satisfaction.

By providing answers to these three sub-questions, we answer the two main research questions: “Does the entrepreneurial participation rate differ among religions?” and “Do the employment satisfaction levels differ among religion?”.

In this paper several associations between variables are found. Even though there were just a few significant relations, the ones found are really interesting. According to the results of the model including risk attitude and education, the Protestants are more entrepreneurial compared to both non-religious and Catholics. Therefore Protestantism is positively associated to entrepreneurship, whereas Catholicism is negatively associated with entrepreneurship. The control variable according to the risk attitude is shown to have an influence on the models. When this variable is added the association of religion is significant. Another important control variable for the model is education, as it shows a positive association with entrepreneurship for higher educated people.

According to the employment satisfaction we find positive associations for both Protestants and Catholics concerning their current job and career satisfaction. Also education and entrepreneurship show positive association for current job, career, work type and income satisfaction. Therefore, it is concluded that religion is associated with employment satisfaction. Moreover, education and entrepreneurship are also showing positive associations with the employment satisfaction.

The remainder of this thesis is organized as follows: firstly, the literature about this topic is discussed. The current literature about entrepreneurship and religion as well as the literature about the connection between these two is reviewed. The literature on satisfaction levels is also part of this chapter. In this part the hypotheses are also stated to answer the research question.

Secondly, the methodology and data description is disclosed. In this part the dependent variables as well as the independent and control variables are explained. The models and research method will also be part of this chapter.

Thirdly, the research question and the sub-questions are answered in a part where the results are disclosed and explained. The conclusions, which are made based on the findings, are made thereafter. Finally, the limitations are discussed and recommendations for further research are proposed.

**2. Literature review & hypotheses**

In this literature review, current literature in the field of the relationship between religion and entrepreneurship is examined. The literature based on the relation between religion and entrepreneurship is studied and the role of religion for the main decisive characteristics for entrepreneurship is discussed. Also, the role of religion for the several types of satisfaction is reviewed, as well as the influence of entrepreneurship. Firstly, the general role of religion is exposed. By moving from macro level to micro level the research moves to the individual level, since this study is focussing on personal data. Secondly, the current literature about the possible relation between religion and entrepreneurship is discussed. Thirdly, the role of religion on the decisive variables for entrepreneurship is discussed to investigate a possible indirect effect. The focus of this study lies on the effect of religion on entrepreneurship, but the satisfaction levels are also taken into account. Therefore, the literature on associations between both entrepreneurship and religion on satisfaction levels are discussed. Finally, the research question will be discussed, as well as the purpose of this paper and the gap it is going fill.

**The macro role for entrepreneurship**

Literature shows that entrepreneurship has a significant positive influence on economic growth (Wennekers & Thurik, 1999; Thurik & Wennekers, 2004; Carree & Thurik, 2005). Because of this, a lot of investigation on entrepreneurship is done over the last two decades. Several studies are published about more specific details in the process of entrepreneurship that influence the economic growth. For example: Parker (2000) describes the theoretical insights and recent findings to show how entrepreneurship influences the economy. Also Van Stel et al. (2005) find entrepreneurship to increase economic growth by innovation and competition. The effect of entrepreneurship depends on the level of per capita income. Therefore, the relation between entrepreneurship and economic growth is assumed to have a U-shape. This finding is confirmed by Sternberg & Wennekers (2005), since they find evidence for a different role of entrepreneurship across the stages of economic development. A positive effect of entrepreneurial activity is found for highly developed countries, but there is a negative effect for developing nations. Moreover, it is shown that different types of entrepreneurship have a different impact on the economy. They also find entrepreneurship to be a regional event that can only be understood if regional conditions are taken into account.

Van Praag & Versloot (2007) show that entrepreneurship is adding value on macro level by employment, innovation, productivity, growth and utility. Social patterns often lag behind the changing environment. The process of destroying old patterns to create betters ones is enhanced by entrepreneurship. Therefore, entrepreneurship is studied as a societal macro function in many cases (Etzioni, 1987). Others have critics on positive associations in the study for entrepreneurship because of the assumptions made (Shane & Venkataraman, 2000; Baumol, 1993).

**The micro role for entrepreneurship**

For this study the micro effect of entrepreneurship is also important, since this study focuses on personal data about religion and entrepreneurship. Since entrepreneurship on micro level is important for change, killing monopoly power, knowledge spillovers, motivation, employment, newness, creativity, diversity and flexibility (Wennekers & Thurik, 1999) the underlying reasons of entrepreneurship are also investigated in this review.

Traditionally there are two ways of earning money: either as an employee or as an entrepreneur. Becoming an entrepreneur can be forced or pulled (Amit & Muller, 1995). In case someone is forced into entrepreneurship, there is no possibility to earn money as an employee. Another option is that someone is attracted to entrepreneurship because of, for example, the success stories and freedom experienced by others. These two types of entrepreneurship are depending on many factors, especially social factors (Aldrich & Zimmer, 1986), since the behaviour of humans is influenced by their social context. Another differentiator that influences lifestyle is religion, mainly because it affects personal values and beliefs. This affection makes that, by the use of social beliefs, religion is influencing the relationship between religion and entrepreneurship. Therefore, from this point onwards the relation between entrepreneurship and religion is further investigated.

**2.1 Entrepreneurship and religion**

Religion is shown to be influencing entrepreneurial participation by Audretsch et al. (2007) in their empirical paper. In this study the mainstream religions of India are compared. They find that there is a difference between religions according to the entrepreneurial participation rate and the decision to become an entrepreneur. They find a big difference between various religions, by investigating over 87,000 people in India. Christians and Jainism are shown to participate more in entrepreneurship compared to Buddhists and Hindus. The underlying reasons are suggested but not explained. Not all religions are mentioned; therefore, a difference between India and other countries can be expected according to these findings. As mentioned earlier the economic status may affect the role of entrepreneurship since the capita per income differs (Van Stel et al., 2005).

These country differences are investigated by Carswell & Rolland (2004) in their paper. They are suggesting that there is a big difference in the world concerning entrepreneurial participation due to ethnic diversity. Every nation has its own religious mix that creates the ethics of the country. In that way all the religions are combined to one social and ethic belief. For example, the Western Protestant work ethics and the view on entrepreneurship help to give the status of being an entrepreneur more value in Europe in the 17th century (Light, 2010). This finding is confirmed by Anderson et al. (2000), since they find religion to play a significant role for entrepreneurship in Britain. Their main conclusion is that entrepreneurship is elevated to a new moral high ground by religion.

The participation rates in traditional Christian religions are changing. Therefore, Carswell & Rolland (2004) investigate what this change does with the ethical mix in a nation, and with the attitude to entrepreneurship. They conclude that the impact of a change in the religious mix does not have a negative influence on the business start-up rate. Carswell & Roland did not focus on every particular religion and their key values. They show that the religious mix of a country plays an important role for understanding religious impacts on entrepreneurship. The positive and negative influences on the participation rate in entrepreneurship are studied in this paper. Based on their work the conclusion is made that entrepreneurship is influenced by religion. However they did not investigate the differences among religions while these differences are playing a role too. A part of the solution probably lays in the country and culture differences. This theory is supported by the findings of Basu & Altinay (2002), since they find an indication for diversity in business entry motives, patterns of start-up and family involvement in business among different ethnic groups. In their paper religion is seen as a cultural attribute. Therefore we suggest that religion is influencing entrepreneurship. As mentioned above, the religion mix over the past hundred years may influence the attitude towards entrepreneurship, while the (social) values are created not at a point of time but over time. The role of religion as a part of the cultural elements is further investigated by Nunziata & Rocco (2011). They find an indication for a significant effect of the cultural background on the individual propensity to become an entrepreneur. Protestantism increases the probability of being an entrepreneur by about 3 percent compared to Catholicism.

The evidence in the paper of Nair & Pandey (2006) is contradicting the findings stating that entrepreneurship would be influenced by religion. They find that religion does not have an influence on the decision to become an entrepreneur. According to their paper the decisive factors are based on sociological aspects like education, background, age and experience. The social background is based on decades of tradition and history; this may be the reason why the effects of religion are not big in this case. Interestingly, the paper of Nair & Pandey (2006) shows contradicting results. However, the role of history suggests above is not ruled out.

Dodd & Gotsis (2007) also find an association between entrepreneurship and religion. This association is context specific, as it is in line with the already reported findings of Sternberg & Wennekers (2005). They state that the economic situation may influence the role of entrepreneurship. Therefore, the relation between religion and entrepreneurship is different over time, subject to the economic situation and social setting, and influenced by other socio-cultural variables (political structures, ideologies, and religious symbolism at work). Moreover, Dodd & Gotsis conclude in their paper that individual elements influence the decision to become an entrepreneur. They find that if the religious salience is high, entrepreneurs would tend to use more religious arguments in their decision for entrepreneurship, even when the decision has a negative influence on their commercial interest. Therefore, we conclude the intensity of religion and therewith religion to be an important factor in the decision to become an entrepreneur.

Furthermore, Dodd & Gotsis are arguing that within religious groups, the confessors can help each other by making social money available for entrepreneurship in their own environment. Being religious may therefore positively influence the decision to become entrepreneur.

This suggestion is supported by the research of Aldrich & Zimmer (1986). They find that when being embedded in a network of continuing social relations it is easier to be successful, which makes the decision for entrepreneurship easier. They create four applications on social network concepts in favour of entrepreneurship. Firstly, they conclude, in line with the paper of Dodd & Gotsis, when the salience of a group is high it has a positive influence on entrepreneurial attitude of the individuals within a group. It will also increase the chance of success. Secondly, there is an increasing connectedness between individuals, which will increase the spread of information and the recourses within the social network. Thirdly, the increasing social network will increase the change of success for an entrepreneur due to the religious network. Finally, increasing ties with the social resources will provide most access to resources and entrepreneurial opportunities. Being part of a strong social network (religion, ethnicity) will increase both the opportunities and the probability of success, since people within networks tend to help each other.

The role of the social environment is also investigated by Greve & Salaff (2003). They study the various phases during the establishment of a firm. Their investigation is done in four different countries. Greve & Salaff find the role of the social network to be varying among time and phase. There is a difference in the number of discussion partners, the type of people they speak with (family/friends) and the time they spend on networking. Interestingly, they find that networking patterns are the same in all countries (USA, Italy, Norway and Sweden). However, there are country-differences in size of discussion networks and time spent on networking. The social and ethical background of the mentioned countries can be an explanation for the comparable network patterns of these countries. The social values would not differ, because the religious background is more or less the same; so is the developed economic status.

Dana (2009) processes both the role of values and the role of networks. He finds empirical support for the hypothesis that religion shapes values and therefore influences the attitude towards entrepreneurship. His article is showing a difference among religions in their attitude towards entrepreneurship. Religions tend to value entrepreneurship differently. In line with this, he argues in his book (2010) that value orientation of a social group may be an important factor for this difference. He also finds different religious influences on the patterns of an entrepreneur. These differences include the role of money, status, jobs etcetera in the community. He also suggests that entrepreneurship is shaped by specialization along lines. As already mentioned, he also finds evidence for the role of the community and networks. For example, the ability to form credit networks for the availability of money, employment networks or information networks and supply networks. In some sense a community can be seen as a small economy itself, trying to use their own power first. Religions offer possibilities for entrepreneurship according to the findings of Dana, but religion can also hamper the choice to become entrepreneur. Therefore social values are important for the choice for entrepreneurship.

Dana states in his paper that religions have the power and mechanisms to perpetuate values. Religions can therefore integrate values into society that will stay there forever. This means that, regardless whether a person is religious, he or she is influenced by religious values. In this case there is no clear evidence for a direct effect of religion on entrepreneurship. There will be more information according to entrepreneurship in the history of the country and the religions that played a role in the past.

**2.2 Entrepreneurial characteristics and religion**

A possible reason for the suggested link between entrepreneurship and religion can be the effect religion has on the known influencing factors on entrepreneurship.

Investigations in the past are showing a lot of important factors explaining entrepreneurial behaviour. In this part the decisive factors for entrepreneurship are reviewed with a religious perspective, since religion may have an effect on entrepreneurship by influencing the decisive characteristics of entrepreneurs. This part is added to investigate a suggested indirect effect of religion on entrepreneurship, even though the focus will lie on the visible association between religion and entrepreneurship.

Firstly, age is an explaining factor for entrepreneurship according to the findings of Hisrich (1990). However, age may influence the variable religion. Hunsberger (1985) finds religiosity to be increasing in older age. These findings are interesting, since they may point in the direction of an association between religion and entrepreneurship.

Secondly, education is shown as an important factor for entrepreneurship. Hisrich (1990), Van der Sluis, Van Praag & Vijverberg (2008) and Nair & Pandey (2006) find a positive association between entrepreneurship and education. Interestingly, Nair & Pandey (2006) do not assign any explanatory value to religion in their paper. However, Glaeser & Sacerdote (2001) find a negative correlation between education and religion. According to these two papers it can be concluded that there is a negative effect of religion on education and therefore on the choice of becoming an entrepreneur.

Being an entrepreneur is often associated with taking risks. Investigating the attitude of a person towards bearing risks logically says something about the attitude and willingness to become entrepreneur. This is supported by the findings of Shane (1996), stating there is evidence for entrepreneurship to be influenced by the propensity of taking risks. Therefore, the attitude towards risk is the third important factor for entrepreneurship that is reviewed in this paper for a possible indirect effect. The link between risk attitude and entrepreneurship is studied many times (Cramer, Hartog, Jonker & Van Praag, 2002; Newman, 1999; Van Praag & Cramer, 2001; Nair & Pandey, 2006). The investigation of Cramer, Hartog, Jonker & Van Praag (2002) shows a negative effect of risk aversion on the choice of becoming an entrepreneur. Even though they still have some concerns about the causality this is supported by the work of Caliendo, Fossen & Kritikos (2009). They empirically investigate if it is true that more risk-averse individuals are less likely to become entrepreneurs. They were able to empirically investigate whether the decision of starting a business is influenced by the measurable risk attitudes at the time when this decision is made. Their results show that individuals with a lower risk aversion are more likely to become an entrepreneur. In their analysis is an emphasis on unemployment and inactivity: people who are unemployed tend to start a business sooner because they have to earn money. This is the pushed entrepreneurship, mentioned at the beginning of this paper. If someone is unemployed or inactive, risk attitudes do not seem to play a role in the decision to become an entrepreneur.

Dohmen, Falk, Huffman & Sunde (2012) have studied the relation between risk-attitude and religion. They find strong evidence for influences of religion on risk attitude. Their paper states that Catholics are willing to take more risks compared to other Christian denominations. Possibly, the risk-attitude is influenced by religion and it may therefore influence entrepreneurship indirectly.

In addition, Dohmen, Falk, Huffman & Sunde (2012) have shown that risk attitude is a good predictor of religiosity for both males and females. This makes it even more interesting to investigate, since in this study both variables play a major role. These findings suggest that religiosity is influenced by risk attitude, whereas becoming an entrepreneur is also influenced by risk attitude.

**2.3 The influence of entrepreneurship and religion on satisfaction levels**

To investigate the relation between entrepreneurship and religion towards the satisfaction it is interesting to look at the employment satisfaction levels like income satisfaction, working hours, work type, colleagues, career, the current job and their potential connection with religion and entrepreneurship.

**Satisfaction and entrepreneurship**

As shown in literature by Block & Koellinger (2009) there is evidence for the importance of both financial and non-financial incentives for becoming an entrepreneur. This has partly to do with the satisfaction that entrepreneurship might give.

Hofstede et al. (2004) state in their paper the evidence that dissatisfaction is a reason to become an entrepreneur. They find in their paper that culture has an important role in the satisfaction level and therefore in the choice of becoming an entrepreneur. In many cases, the role culture plays for the economy is not investigated.

The important role of satisfaction is conforming the findings of Noorderhaven et al. (2004). By investigating differences in entrepreneurial rates across 15 European countries in the period 1978-2000 they find dissatisfaction to be an important reason for entrepreneurship. They suggest that, besides the negative significant association of the per capita income, dissatisfaction on both life and environment has a positive influence on entrepreneurship. Job dissatisfaction promotes entrepreneurship is their conclusion. This finding also confirms that the push factor in modern economies is an important incentive for the choice of entrepreneurship. This suggests that there are differences between countries regarding to the role of push and pull factors for entrepreneurship and the major role that culture plays in these differences. Schjoedt & Shaver (2007) confirm these findings. They investigate the role of satisfaction in the decision process to become an entrepreneur by the use of a panel study on Entrepreneurial Dynamics. They did not find clear evidence for the role of life satisfaction, whereas they find a significant result for the role of job satisfaction on the decision to become entrepreneur. This finding is taken as strong evidence against the role of push factors for entrepreneurs. Low job satisfaction does not push most of the entrepreneurs into entrepreneurship. It can therefore be concluded that entrepreneurs are more satisfied (about their work) compared to wageworkers. Also Blanchflower, Oswald& Stutzer (2001) are confirming that entrepreneurs are more satisfied about their job. Bradley & Roberts (2004) find more evidence that entrepreneurs are more satisfied about their job compared to wageworkers.

**Satisfaction and religion**

Religion seems to give hope, meaning, optimism, and security to individuals (Hadaway & Roof, 1978; Moberg, 1979). Therefore, some researchers have concluded that religion is positively related to well being (Witter et al., 1985). Lim & Putnam (2010) also find that religious people are more satisfied with their lives. This has to do with their regularly attending to religious services and being part of a strong social network. Since life satisfaction is partly associated with job satisfaction (Judge & Watanabe, 1993), this suggests religion to be positively associated with job satisfaction. Moreover, Poloma (1990) finds that under no circumstance any measure of religiosity contributes to a negative effect on well-being.

In line with these findings, Lelkes (2006) shows evidence for religious involvement to be contributing positively to individuals’ self-reported well-being. Whenever is checked for personal characteristics, money is less important for the happiness of religious people compared to non-religious people. This finding points in the direction of a higher satisfaction rate on income and current job for religious people.

Based on the literature about satisfaction and religion it can be concluded that, even though the relation between job satisfaction and religion was ill defined, there is a relation between satisfaction and religion. Therefore, we conclude satisfaction to be an interesting factor for entrepreneurship and religion. Comparing these factors may give an interesting insight in the differences between entrepreneurs and wageworkers, as well as the differences between religious and non-religious people when comparing their satisfaction levels.

**2.4 Hypotheses**

Based on the arguments presented above and extracted from the present academic literature, the research question is answered. Most of the literature assigned a positive effect of religion in making the decision to become an entrepreneur. This investigation tries to focus on the importance of religion in the decision process for entrepreneurship. The research question that is answered is the following: “Does the entrepreneurial participation differ among religions?” A distinction is made between non-religious, catholic and protestants.

To answer the research question, three sub-questions are formulated for this paper. The first hypothesis to be answered is: “*Is there a difference among non-religious, catholic and protestant people according to the entrepreneurial participation?*” To answer this question, the literature above is used together with the empirical findings of this paper. The literature suggests that there is a difference among religions according to the entrepreneurial participation rate (Audretsch et al. 2007, Carswell & Rolland 2004, Dodd & Gotsis 2007). The empirical part tests the suggestions of the literature.

Also, the decisive factors for the assumed relation between entrepreneurship and religion are investigated to answer the research question, since decisive factors may disclose something about the suggested relation. To investigate the important factors for the relation between entrepreneurship and religion the following question (hypothesis 2) is answered: “*Does religion have an effect on the choice of becoming an entrepreneur?*” In this case the decisive factors are reviewed and the role of religion in the decision process to become an entrepreneur is further investigated. The literature (Hisrich 1990, Nair & Pandey 2006 and a lot more) suggests that religion plays an important role for the decisive characteristics of an entrepreneur.

The difference between religious people and non-religious people according to their satisfaction levels will be investigated with the following question (hypothesis 3): “*Are religious entrepreneurs more satisfied about their income, working hours, work type, the atmosphere, their career and their current job? And is there an interaction with entrepreneurship?*” Finally, the satisfaction levels are taken into account to investigate the possible differences between non-religious and religious entrepreneurs and wageworker. These findings are interesting because the satisfaction levels influence the choice for entrepreneurship (Noorderhaven, Thurik, Wennekers & Stel 2004).

In the following section, the quantitative analysis that tests the hypotheses is described. The aim of this quantitative analysis is to answer the central questions about the entrepreneurial participation differences among religions and the possible reasons for this difference.

**3. Methodology & data description**

The LISS panel data (Scherpenzeel, 2011) is used for this research. This panel study combines new technology of Internet surveys with a traditional probability sample. A simple random sample of 10,150 addresses is drawn, with help of Statistics Netherlands (CBS). Finally the data consists 8,000 responses. The sampling and survey units are independent, private households. The reference group for this panel is the Dutch-speaking population, that is permanently living in the Netherlands.

The sampled households were recruited from May until December 2007. The households would receive an announcement letter, followed by either a phone call or a face-to-face meeting.

The participants are questioned every year on several different themes. These themes together form the core panel questionnaire and are called modules. The eight thematic modules are: Family and Household; Economic Situation and Housing; Work and Schooling; Social Integration and Leisure; Health; Personality; Religion and Ethnicity; and Politics and Values. The core modules are repeated yearly. For this study the modules concerning Economic Situation and Housing, Work and Schooling, Personality, and Religion and Ethnicity from study wave one are used.

The LISS panel dataset is used because it offers the opportunity to study the relation between religion, entrepreneurship and employment satisfaction in a large dataset. In case someone answered: “I do not know” for a question of the questionnaire, the answer is coded as missing.

**3.1 Dependent variables**

The dependent variables in this research are measures for entrepreneurship and employment satisfaction. Entrepreneurship is measured by self-employment, the most frequently used proxy for entrepreneurship (Parker 2000). The variable *Entrepreneur* takes value 1 if someone reports to be self-employed and value 0 if not. No distinction is made between the several types of entrepreneurship, and it thus includes being a freelancer, freestanding worker, director of a public or private company or director and major shareholder. The groups of non-entrepreneurs includes wageworkers with a fixed contract, wageworkers with a temporal contract, call worker and temporary workers.

Seven satisfaction measures are used as the dependent variable for the model to investigate the differences among religions. The following satisfaction levels are used as separate dependent variables combined with the same independent variables: income; working hours; work-type; atmosphere and colleagues; career; and current job. These variables are measured on an 11-point-scale starting with ‘not at all satisfied’ and ending with ‘fully satisfied’. ‘Employment satisfaction’ is used to combine the names of these variables.

**3.2 Main independent variables**

The main independent variable of this study is religion. The choice is made to create three groups (*Non-religious, Catholics* and *Protestants*) even though there were a lot of religions available in the dataset. This categorization is done because most of the different religion types are too small (the absolute number of confessors in the database) to investigate. The religious groups that are used in this study are the main religions in the Netherlands. In this study non-religious people are treated as specific religious group.

By comparing the absolute numbers the biggest group in the database are the non-religious participants, followed by the group of catholic people. By combining several small Protestant denominations a third category (Protestant) is created. The group of Protestants contains the Protestant Church in the Netherlands (Protestantse Kerk in Nederland, PKN), the Evangelical and Pentecostal churches, the Dutch Reformed church (Nederlands Hervormd) and the Reformed Churches in the Netherlands (Gereformeerd). Hence, non-religious people and catholic people are already in the dataset by combining several different small Protestant groups, a general group of Protestants is created. Due to this process the used data is smaller than the original dataset. The religions that are not used for this study are too small and are therefore ignored for further analysis.

**3.3 Control variables**

A number of control variables tries to capture the influences of religion on entrepreneurship. While the likelihood of being an entrepreneur is influenced by age, *Age* is used as a control variable (Arenius & Minniti, 2005). The variable *Age* is used as a continuous variable and it is measured in years.

Another used variable is the one that controls for the frequency of visiting a religious place. This control variable is used because the intensity of the religiosity may affect the choice for entrepreneurship. This variable will also give more insight in the religion variable. The *Frequent visiting* isassumed to express the intensity of the religiosity and may therefore act as a control variable for the more active confessors. Since each religion has a wide range of different confessors, in terms of actively. The variable *Frequent visiting* is a dummy variable that has the value 1 if someone is frequently attending religious gatherings. In the original dataset the following options are available for answering the question about the frequency of visiting religious places: every day, more than once a week, once a week, at least once a month, only on special religious days, less often, never. For this study *Frequent visiting* is seen as attending at least once a week a religious meeting.

*Gender* is another commonly used control variable, since it is shown that there are more male entrepreneurs compared to female entrepreneurs (Kourilsky & Walstad, 1998). For this study a dummy is used with the value 1 for males where females are denoted with value 0. Since the literature has shown education to be important for the decision to become an entrepreneur, the variable *College* is included in the models. *College* is a dummy variable with the value 1 for high-educated participants and the value 0 for the lower educated participants. High-educated means in this case, that the finished level of education is higher than or the same as the professional education level (HBO: Hoger Beroeps Onderwijs).

By using a dummy for ‘*Born in the Netherlands*’ the suggested cultural influence is controlled. This control variable is useful because cultural differences may influence the social values, including religion, and therefore the attitude towards entrepreneurship. The sampling strategy for the data is the Dutch speaking population in the Netherlands. Within this sample there are also people who are not born in the Netherlands. These are for example the former guest workers that came to the Netherlands in the seventies and eighties.

The attitude towards taking risks is also used as a control variable, because it is shown that the opinion and feeling about risk influences the decision to become an entrepreneur. Cramer et al. (2002) find that low risk-aversion encourages moving into entrepreneurship. *Risk attitude* is therefore an important measure for entrepreneurship. In this case *Risk attitude* is measured on a scale with eleven options. The variable has the value 0 for strictly avoiding risk and the value 10 for totally accepting risk.

As shown in the literature review (Aldrich & Cliff, 2003), the situation at home can also influence the decision for entrepreneurship and therefore ‘*Living together*’ is also used as a control variable. Since the situation at home may influence the attitude towards entrepreneurship, this dummy variable is included. This variable denotes the values 1 one in case the participant is living together, either married or unmarried, and the value 0 if not. Another variable that involves the situation at home is the religion of the parents (*Non-religious parents, Protestant parents, Catholic parents*). The religious group of the parents is also reviewed, since the nurturing process might be different and the social values may therefore differ among religious groups. The religious group of the parents probably influence the decision to become an entrepreneur. This variable is created in the same way as the independent variables *Non-religious, Protestant* and *Catholic*. Again the three different religious groups are used (Protestant, Catholic and non-religious). The Protestant group again contains the Protestant Church in the Netherlands (Protestantse Kerk in Nederland, PKN), the Evangelical and Pentecostal churches, the Dutch Reformed church (Nederlands Hervormd) and the Reformed Churches in the Netherlands (Gereformeerd).

**Interaction terms**

The models that investigate the satisfaction levels among religions and entrepreneurs use interaction terms. These interaction terms contain the variables concerning religion and entrepreneurship. By using this interaction term the relation between religion and entrepreneurship towards satisfaction is further tested.

**3.4 Models and research method**

For the quantitative analysis two different models are used, has and they both have several different forms. The numbers and percentages of entrepreneurs among religions are tested in hypothesis 1. Therefore, just a small model is included, which consist of the variables *Protestant*, *Catholic* and with the dependent variable *Entrepreneur*.

**The models for hypothesis 2**

*Entrepreneur =* β1 + β2 *Age* + β3 *College* + β4 *Non-religious* + β5 *Protestant* + β6 *Catholic +* β7 *Frequent visiting* + β8 *Living together* + β9 *Born Netherlands* + β10 *Gender* + β11 *Risk attitude* + β12 *Non-religious parents* +β13 *Protestant parents* +β14 *Catholic parents* + *ε*

The model presented above is the extended model with all the used variables included. To answer hypothesis 2, several extended and smaller models are used. The base category in this model for the variable religionis the *Non-religious* group.

Firstly, a model is used without the variables concerning to the parents. Secondly, a model is used without the variable *Risk attitude*, because the variable *Risk attitude* has a relative high level of missing values. The third model, which is used to answer hypothesis 2, includes both *Risk attitude* and the religious group of the parents. This model is presented above. The last model is excluding the variable *risk attitude* and includes the variables *Non-religious parents, Protestant parents* and *Catholic parents.*

To test these models a logistic regression is used because the dependent variable is a dummy variable.

**The models for hypothesis 3**

All the models used to answer hypothesis 3 have the same structure and use the same variables. The only difference is the dependent variable. Since the dependent variables are categorical an ordered logit model is used for all the models.

*Employment satisfaction level =* β1 + β2 *Entrepreneur* + β3 *Non-religious* + β4 *Protestant +* β5 Catholic+ β6 *Interaction Protestant Entrepreneur* + β7 *Interaction Catholic Entrepreneur* + β8 *Interaction non-religious Entrepreneur* + β9 *Living together* + β10 *Age* + β11 *Gender* + β12 *College* +β13 *Born in the Netherlands* + *ε*

The model above is used as the model to test hypothesis 3. For hypothesis 3 the satisfaction levels for *Income, Current job, Career, Atmosphere, Working hours* and *Work type* are tested. These satisfaction levels are the dependent variable of this model. The base category is non-religious.

By changing just the dependent variable a clear picture is created of different satisfaction measures and the differences among religions within these satisfaction categories. The model presented above is also used without the interaction terms.

**4. Results**

In this part the results are disclosed. Firstly, the correlation between the variables is discussed and afterwards the results of all models are presented. In table 1 and table 2 the results for hypothesis one are showed, whereas table 3 presents the results for hypothesis 2. The results for hypothesis 3 are shown in tables 4 and 5. The descriptive statistics of the variables are presented in the appendix table 6 and 7.

**4.1 Correlation**

The correlation of the variables is tested through the Spearman correlation test, because the variables are ordinal. The table with correlation coefficients is presented in Annex 1; table 8. As can be observed in this table a lot of the correlation coefficients are relatively low (between 0.00 and 0.20). The relative outliers and interesting significant correlations are discussed. The correlation coefficients according to the religious groups and the religious groups of the parents are relatively high (between 0.16 and 0.64) as well as the correlation coefficients between the different employment satisfaction measures (between 0.23 and 0.83).

Apart from these correlations, the negative correlation between risk attitude and religious group suggests that religious people have another attitude towards risk compared to the groups of non-religious. Also, the *Risk attitude* and *Gender* are correlated, which suggests that the willingness to take risks is (partly) depending on gender. The suggestion made earlier that religiosity partly depends on *Age* is supported by the correlation coefficient of 0.10. Surprisingly the frequency of ‘*Visiting a religious place*’ only has a correlation coefficient between 0.07 for *Catholic* and 0.41 for *Protestant*, since religious people tend to visit religious places more. The religious group of the parents is correlated positively with religions and *Age*, and negatively with *Risk attitude*. Interestingly, the results show a positive correlation between *College* and *Satisfaction about career*. This finding suggests higher satisfaction levels for higher educated participants according to their career. Another interesting finding is the negatively correlated between the variable non-religious and most of the satisfaction measures. All the satisfaction levels are highly correlated (above 0.30) with each other. This suggests higher satisfaction levels in general in case someone is satisfied about one specific satisfaction measure.

**4.2 Hypothesis 1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Religious group | Non religious  | Catholic | Protestant | Total |
| Entrepreneur | 305 | 103 | 92 | 500 |
| Not entrepreneur | 2,770 | 1,027 | 741 | 4,538 |
| Total | 3,075 | 1,130 | 833 | 5,038 |
| Percentage entrepreneur | 9.92% | 9.12% | 11,04% | 9.92% |
|  |  |  |  |  |

Table 1: Entrepreneurial participation

Based on table 1 it can be concluded that there is a difference among religions according to entrepreneurial participation. As stated in the table the participation rate in entrepreneurship is higher under non-religious and Protestant people compared to Catholic people. The participation rates are 9.9, 11.0 and 9.1 percent respectively. Even though the differences are not big, this is line with the findings of Butler & Herring (1991). They find a lower entrepreneurship participation rate for Catholics. Also, the higher percentage for Protestants is in line with the literature, which suggests that the Protestant work ethic is positively associated with entrepreneurship (Miles et al., 2004; Shane 1996). Based on both the findings in the literature as well as the empirical findings we cannot conclude that there is a difference in the entrepreneurial participation rate among religions, because table 2 shows no significant results for a possible association. Therefore, even though the absolute numbers suggest an difference in participation rate, we may not associate religion with entrepreneurship. This finding is not in line with hypothesis 1, which states that there is a difference among non-religious, Catholic and Protestant people according to the entrepreneurial participation. The small model, which is created to investigate the entrepreneurial participation (table 2), suggests a positive effect for Protestants and a negative effect for Catholics. Since these effects are not significant, there is no evidence for a positive effect for Protestants or Catholics, compared to the non-religious base category.

Table 2: Relationship between entrepreneurship and religion

|  |  |
| --- | --- |
| **Dependent variable: Entrepreneur** | **Logit on entrepreneurship** |
| Protestant | 0.14 [0.13] |
| Catholic | -0.07[0.12] |
| Non-religious | Base category |
| Constant | -2.23 \*\*\*[0.06] |
| Chi-squared | 2.05 |
| Log-likelihood | -1687.86 |
| Pseudo R-squared | 0.00 |
| Observations | 5270 |
| \*\*\* Indicates a significance level of 1 percent |

**4.3 Hypothesis 2**

To answer hypothesis 2, table 3 is used. This table shows the outcome of the models that examine the effect of religion on the dependent variable *Entrepreneur*. The decisive factors are also investigated. All the used models investigate the role of religion for entrepreneurship with a logistic regression. Among these models the independent variables may differ.

Table 3: Relationship between entrepreneurship and religion

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Dependent variable: Entrepreneur** | **1. Logit on entrepreneurship without risk-preference** | **2. Logit on entrepreneurship** | **3. Logit on entrepreneurship with parents effect without risk preference** | **4. Logit on entrepreneurship with parents effect** |
| Age | 0.02 \*\*\*[0.00] | 0.32 \*\*\*[0.01] | 0.02 \*\*\* [0.00] | 0.03 \*\*\* [0.01] |
| College | 0.40 \*\*\*[0.11] | 0.58 \*\*\*[0.20] | 0.43 \*\*\*[0.12] | 0.58 \*\*\* [0.20] |
| Non-religious | Base category | Base category | Base category | Base category |
| Protestant | 0.00[0.18] | 0.58 \*\*[0.30] | 0.07[0.22] | 0.66 \* [0.36] |
| Catholic | -0.18[0.14] | 0.25[0.24] | -0.05[0.18] | 0.22 [0.30] |
| Frequent visiting | -0.04[0.22] | -0.70 \*[0.40] | -0.15[0.23] | -0.67 \* [0.40] |
| Living together | -0.05[0.14] | 0.09[0.25] | -0.07[0.14] | 0.10 [0.25] |
| Born in the Netherlands | -0.02[0.26] | -0.12[0.47] | 0.24[0.31] | -0.19 [0.47] |
| Gender | 0.23 \*\*[0.11] | 0.18[0.20] | 0.25 \*\*[0.11] | 0.17 [0.20] |
| Risk attitude |  | 0.27 \*\*\*[0.05] |  | 0.27 \*\*\* [0.05]  |
| Non religious parents | Base category | Base category | Base category | Base category |
| Protestant parents |  |  | -0.13[0.18] | -0.08 [0.32] |
| Catholic parents |  |  | -0.16[0.17] | -0.01 [0.30]  |
| Constant | -2.70 \*\*\*[0.38] | -5.29 \*\*\*[0.82] | -2.85 \*\*\*[0.43] | -5.15 \*\*\* [0.83] |
| Chi-squared | 41.89 | 70.40 | 38.80 | 68.88 |
| Log-likelihood | -1194.32 | -365.00 | -1137.06 | -361.59 |
| Pseudo R-squared | 0.02 | 0.09 | 0.02 | 0.09 |
| Observations | 3634 | 1193 | 3491 | 1156 |
| The table presents four models, every models is a logistic regression. The sample consists Dutch data. Robust standard errors are reported in brackets.  |
| \*, \*\*, \*\*\* Indicates a significance level of 10%, 5%, and 1%, respectively.  |

**Model 1**

The variable risk attitude is left out to increase the number of observations for model one. As is shown in the table, the variable education is significant at a one percent level. Even though the observations are relative high compared to the other models, only the variable education (*College*), *Gender* and *Age* is significant. Both results are smaller compared to model 2. The variable *Gender* is significant for this model, positively influencing entrepreneurship. The positive influence of gender supports the existing literature (Kourilsky & Walstad, 1998), since there are more male entrepreneurs than female. In this model, however, no effect is found for religion.

**Model 2**

Model 2 includes *Risk attitude*. Even though the observations are limited by the use of the variable about risk, this model shows several interesting findings. Firstly, the role of *College* seems to be important for entrepreneurship. The model shows at a significant level of 1 percent the influence of education to be relatively high (0.58). The positive association between education and entrepreneurship is supported by the literature (Hisrich, 1990; Van der Sluis et al., 2008; Nair & Pandey, 2006).

Secondly, model two shows that being *Protestant* has a positive influence on the probability of being an entrepreneur. This effect is significant at a five percent level and is 0.58. This is in line with the findings, which find relatively higher participation rates for *Protestant* entrepreneurs compared to *Non-religious* and *Catholic* entrepreneurs (Audretsch et al., 2007; Light, 2010; Dodd & Gotsis, 2007).

The third finding of model two is about the *Frequency of visiting* a religious place. This variable is negatively influencing the likelihood of being an entrepreneur by 0.70. However, this result is probably not trustful because non-religious participants also answer the question about the *Frequency of visiting*. This variable is significant at a ten percent level. Though this result is questionable because being Protestant is influencing entrepreneurship positively according to model two and the Protestants tend to visit religious places more often compared to others.

For this model *Age* has a positive influence of 0.32 at a significance level of one percent, which means that older people are more involved in entrepreneurship than younger people.

Finally, and not surprisingly, in this model the influence of the attitude towards risk is significant and positive (0.27) with a significance level of one percent. All these findings are in line with the literature (Cramer, Hartog, Jonker & Van Praag, 2002; Newman, 1999; Van Praag & Cramer, 2001; Nair & Pandey, 2006).

**Model 3**

For the third model all variables are included except for the variable risk attitude in order to add more observations. The effect of *College* (the dummy for higher or lower education) is still significant at a one percent level and this effect remains big (0.43). Even though over 3,000 observations are added by excluding risk attitude, there are less significant results. Another finding for this model is the effect of gender; it turns out to be positive (0.25) for this model at a five percent significance level. This is in line with the literature, which shows that being male lifts the probability to be an entrepreneur (Kourilsky & Walstad, 1998). The variable *Age* is significant at 1 percent level in this model, although the influence is small (0.02).

**Model 4**

The behaviour of parents is shown to influence the environment and choices that are made, while most of the (social) values arise in the childhood. Therefore, the religion of the parents is included in model four. The religion of the parents may play a role because their religion may influence (social) values. In this model no evidence is found for this variable. Model four finds significant positive results for *Age*, education (*College*), *Protestants* and *Risk attitude*. These results are 0.03, 0.58, 0.66 and 0.27 respectively. All these findings are in line with the literature (Cramer, Hartog, Jonker & Van Praag, 2002; Newman, 1999; Van Praag & Cramer, 2001; Nair & Pandey, 2006; Audretsch et al., 2007; Light, 2010; Dodd & Gotsis, 2007). The influence of education is big (0.58) and significant at a one percent level. In this model the *Frequency of visiting* has a negative effect of 0.67 on entrepreneurship. This is remarkable since Protestantism is associated with entrepreneurship. Again, the effect of being Protestant has a significant positive influence on the probability to being an entrepreneur. The religious group of the parentsis not associated with entrepreneurship.

In general for these four models, the effect of education seems to be positively associated with entrepreneurship as well as the effect for Protestants and the attitude towards risk.

**4.4 Hypothesis 3**

To answer the question about the satisfaction concerning income, working hours, work type, the atmosphere, career and current job several ordered logistic models are used. The possible differences among religions are investigated, as well as the differences between entrepreneurs and others. The outcome of these models is presented in the tables 4 and 5. We distinguish two different general models, one with interaction terms and one without. Each general model is divided in 6 regressions with a different dependent variable for each. The dependent variables are income satisfaction, working hours satisfaction, atmosphere and colleagues satisfaction, career satisfaction and current job satisfaction respectively. The independent variables stay the same.

**Without interaction terms**

Table 4: Satisfaction levels without interaction terms

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Dependent variable:**  | **1. Income satisfaction** | **2. Working hours satisfaction**  | **3. Work type satisfaction** | **4. Atmosphere and colleagues satisfaction** | **5. Career satisfaction**  | **6. Current job satisfaction** |
| Entrepreneur | 0.21 \*[0.12]  | 0.03 [0.12] | 0.59 \*\*\* [0.12] | 0.18[0.15] | 0.44 \*\*\* [0.12] | 0.64 \*\*\*[0.12] |
| Age | 0.01 \*\*\*[0.00] | 0.02 \*\*\*[0.00] | 0.02 \*\*\*[0.00] | -0.01 \*[0.00] | 0.02 \*\*\*[0.00] | 0.02 \*\*\*[0.00] |
| College | 0.19 \*\*\* [0.07] | 0.23 \*\*\* [0.07] | 0.33 \*\*\* [0.07] | 0.11 [0.08] | 0.43 \*\*\* [0.07] | 0.18 \*\*[0.07] |
| Non religious | Base category | Base category | Base category | Base category | Base category | Base category |
| Protestant | 0.11[0.11]  | -0.05 [0.11] | 0.13 [0.11] | 0.11 [0.11] | 0.24 \*\*[0.11] | 0.19 \* [0.11] |
| Catholic | 0.14 [0.09] | -0.02 [0.09] | 0.14 [0.10] | 0.14 [0.10] | 0.21 \*\*[0.10] | 0.20 \*\*[0.10] |
| Living together | 0.21 \*\* [0.09] | 0.02 [0.09] | 0.03 [0.10] | -0.11 [0.10] | 0.08[0.10] | 0.09[0.09] |
| Born in the Netherlands | 0.38 \*\* [0.19] | 0.13 [0.18] | -0.06 [0.19] | 0.04[0.20] | -0.05 [0.19] | 0.06 [0.19] |
| Gender  | 0.05 [0.07] | -0.25 \*\*\* [0.07] | -0.12 [0.07] | -0.19 \*\* [0.08] | -0.05 [0.07] | -0.12 [0.07] |
| Constant |  |  |  |  |  |  |
| Chi-squared | 34.28 | 78.98 | 133.67 | 16.59 | 105.82 | 96.06 |
| Log-likelihood | -4739.70  | -4312.30 | -4149.29 | -3796.49 | -4170.88  | -4045.49 |
| Pseudo R-squared | 0.00 | 0.01 | 0.02 | 0.00 | 0.01 | 0.01 |
| Observations | 2383 | 2391 | 2389 | 2232 | 2373 | 2385 |
| The table presents four models, every models is an ordered logistic regression. The sample consists Dutch data. Robust standard errors are reported in brackets.  |
| \*, \*\*, \*\*\* Indicates a significance level of 10%, 5%, and 1%, respectively.  |

The significant findings of the models without interaction terms are discussed before moving on to the findings of the models with interaction terms.

Based on model 1 of table 4 the conclusion is made that *Entrepreneur, Living together*, *Age*, *College* (education) and *Born in the Netherlands* have a positive significant association on the income satisfaction level. The second model with working hours satisfaction as the dependent variable shows that *Age*, *Gender* and *College* have a significant positive association with the satisfaction level according to working hours. For model three the variables *Entrepreneur*, *Age*, *Gender* and *College* are significantly associated with the work type satisfaction. Model four, which investigates the effect on the atmosphere satisfaction, gives just a positive significant association for *Gender* and *Age*. Career satisfaction is significantly associated with entrepreneurship (*Entrepreneur*), being *Protestant* or *Catholic*, *Age* and *College*. All these independent variables are positive. The last model that is used without interaction terms is the model, which measures the satisfaction level for the current job. The following independent variables have a positive significant effect on the satisfaction level according to the current job: *Entrepreneur*, *Protestant*, *Catholic*, *Age*, *Gender* and *College*. Based on the models without interaction terms, it can be concluded that *College* and *Entrepreneur* have a significant positive association on the satisfaction levels,where *Protestant* and *Catholic* have a significantly positive association with career satisfaction and current job satisfaction. These findings point in the direction of an association between religion and employment satisfaction.

**With interaction terms**

Table 5: Satisfaction levels with interaction terms

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Dependent variable:**  | **1. Income satisfaction** | **2. Working hours satisfaction**  | **3. Work type satisfaction** | **4. Atmosphere and colleagues satisfaction** | **5. Career satisfaction**  | **6. Current job satisfaction** |
| Entrepreneur | 0.19 [0.15] | 0.06[0.15] | 0.60 \*\*\*[0.14] | 0.09[0.18] | 0.45 \*\*\* [0.14] | 0.64 \*\*\* [0.15] |
| Age | 0.01 \*\*\*[0.00] | 0.02 \*\*\*[0.000] | 0.02 \*\*\*[0.00] | -0.01 \*[0.00] | 0.02 \*\*\*[0.00] | 0.02 \*\*\*[0.00] |
| College | 0.19 \*\*\*[0.07] | 0.23 \*\*\* [0.07] | 0.33 \*\*\* [0.07] | 0.10[0.08] | 0.43 \*\*\*[0.07] | 0.18 \*\*[0.07] |
| Non religious | Base category | Base category | Base category | Base category | Base category | Base category |
| Protestant | 0.13[0.11] | -0.07[0.11] | 0.14[0.11] | 0.09[0.12] | 0.24 \*\* [0.11] | 0.18[0.11] |
| Catholic | 0.12 [0.10] | 0.01[0.10] | 0.14[0.10] | 0.11[0.10] | 0.22 \*\* [0.10] | 0.20 \*\*[0.10] |
| Living together | 0.21 \*\*[0.09] | 0.02[0.09] | 0.03[0.10] | -0.11[0.10] | 0.08[0.10] | 0.09[0.09] |
| Born in the Netherlands | 0.38 \*\* [0.19] | 0.13 [0.18] | -0.06 [0.19] | 0.03[0.20] | -0.05[0.19] | 0.06[0.19] |
| Gender  | 0.05[0.07] | -0.25 \*\*\* [0.07] | -0.12 [0.07] | -0.19 \*\*[0.08] | -0.05[0.07] | -0.12 [0.07] |
| Interaction Protestant & entrepreneur | -0.15 [0.35] | 0.15[0.34] | -0.04[0.33] | 0.17 [0.41] | 0.05[0.34] | 0.04[0.35] |
| Interaction Catholic & entrepreneur | 0.20[0.31] | -0.26[0.31] | -0.04[0.31] | 0.38[0.41] | -0.09[0.31] | -0.03[0.31] |
| Constant |  |  |  |  |  |  |
| Chi-squared | 35.02 | 80.06 | 133.70 | 17.54 | 105.95 | 96.09 |
| Log-likelihood | -4739.33 | -4311.76 | -4149.28 | -3796.02 | -4170.81 | -4045.47 |
| Pseudo R-squared | 0.00 | 0.01 | 0.02 | 0.00 | 0.01 | 0.01 |
| Observations | 2383 | 2391 | 2389 | 2232 | 2373 | 2385 |
| The table presents four models, every models is an ordered logistic regression. The sample consists Dutch data. Robust standard errors are reported in brackets.  |
| \*, \*\*, \*\*\* Indicates a significance level of 10%, 5%, and 1%, respectively.  |

Based on model one (with interaction terms) it can be concluded that *Living-together*, *Age*, *College* and *Born in the Netherlands* all have a positive significant association with the income satisfaction level. These influences are respectively 0.21, 0.01, 0.19, and 0.38.

Model two (with interaction terms) investigates the satisfaction level according to the working hours. In this case *Age* and *College* have a positive significant association, whereas *Gender* is negatively associated with the satisfaction about working hours. The effects are respectively 0.02, 0.23 and -0.25.

The third model, which is used to investigate the satisfaction of the work type, finds that *Entrepreneur*, *Age* and *College* are positively associated with this satisfaction level. The effects are respectively 0.60, 0.02 and 0.33 at a one percent significance level.

According to model four only *Age* and *Gender* are associated with the satisfaction about the atmosphere at the work floor. The effects are both negative -0.01 and -0.19 respectively.

Model five investigates the career satisfaction. It is shown that *Entrepreneur*, being *Protestant*, being *Catholic*, *Age* and *College* are positively associated with the career satisfaction level. Their effect is 0.45, 0.24, 0.22, 0.02 and 0.43 respectively.

The findings of model six are the same as the findings for model 5. The only exception is that *Protestant* in this case is not significantly associated with the satisfaction about the current job. The effects are 0.64, 0.20, 0.02, and 0.18 for respectively *Entrepreneurship, Catholic, Age* and *College.* The interaction effects do not show any significant effect for the dependent variables.

According to the findings presented in table four and five the hypothesis is partly confirmed, since entrepreneurship shows a positive association on almost all models concerning work satisfaction. The hypothesis about the effect of religion is partly supported by the outcome of the models, since religion shows a positive association with the satisfaction levels for current job and career satisfaction. On the other hand, education and age also show to be influencing the satisfaction levels.

**5. Conclusion & discussion**

This paper examines the effect of religion on entrepreneurship. The employment satisfaction is also studied for non-religious, Catholics and Protestants.

Three different sub-questions are used in this research. Firstly, the differences among religions according to the entrepreneurial participation are reviewed by looking at the entrepreneurial fractions among religion. Based on these findings the literature is not confirmed, since the Protestants and Catholics do not show significant results in the basic model, even though the fraction of the non-religious entrepreneurial people is higher compared to the Catholic people. The small model, which is used to answer hypothesis one, did not come up with significant results. However, the coefficients do not confirm the findings in the literature and therefore no conclusion can be made according to a possible difference in entrepreneurial participation rate.

Besides looking at the differences in the entrepreneurship participation rate, this study also looks at the independent variables, which are influencing entrepreneurship. Therefore, hypothesis two expects influences of the religious groups, risk attitude, education, the religion type of the parents, and several demographic factors. Hence, it seems that education has a big influence on the dependent variable *Entrepreneur*. This is in line with the literature. Van der Sluis, Van Praag & Vijverberg (2008) find that Education has a significant positive effect on entrepreneurship and the success of an entrepreneur. Glaeser & Sacerdote (2001) find education and religion to be negatively correlated. It can be concluded that religious people tend to be less educated and are therefore less likely to be an entrepreneur. However, the results are contrary to this logical reasoning, since Protestants are more entrepreneurial compared to non-religious people. The fact that religious people are less educated compared to non-religious people is confirmed by the statistics of the data, since the models, with risk attitude included, have shown a positive association between Protestantism and Entrepreneurship. These findings suggest that there are other important factors, which are influencing both the likelihood of becoming an entrepreneur as well as the influence of religion. Hypothesis two is confirmed by these findings. Besides this result, we suggest that history and culture play an important role on the background.

Another finding is the role of the risk attitude. During the investigation the risk attitude turns out to be an important variable because it gives the models more explanatory value as well as more significant results. Therefore, the risk attitude again shows a positive influence on the likelihood of being an entrepreneur. This is in line with the literature that determines the risk attitude as one of the most important predictors of entrepreneurship (Cramer, Hartog, Jonker & Van Praag, 2002; Newman, 1999; Van Praag & Cramer, 2001). Dohmen et al. (2012) find that the risk-attitude is a good predictor for religiosity. Based on these findings the both risk attitude and religiosity are influencing the probability to become an entrepreneur. This reasoning is reflected in the table, while the Protestants are more entrepreneurial compared to Catholics and non-religious people. What is interesting about both models that include risk-attitude, the variable *Protestant* is significant and positive. This seems to confirm the influence of risk attitude on both religion and entrepreneurship.

According to the satisfaction levels, which are tested by hypothesis 3, the following conclusions are made. Firstly the association between Entrepreneurshipand satisfaction is shown to be positive. The assumption that entrepreneurs are more satisfied is therefore assumed to be true. Only for the atmosphere and the working hours no effect is found for entrepreneurship. This finding is logical because most of the entrepreneurs do not care about working longer (and most of them do). Also, they can influence the atmosphere themselves and therefore no influence has been found. In addition, the models have shown that Protestants and Catholics are more satisfied about their career and current job. Hence, it seems legitimate that religion is associated with the satisfaction level. Probably the religious participants have other attitudes and measures for satisfaction. These findings are in line with the literature (Lim & Putnam, 2010).

Another logical finding according to the satisfaction levels is the finding of a significant positive association for living together. Logically, income is less important when the household consists of two members who both earn money. Living together, however, does not influence all other variables. Interestingly, the variable gender is also significant for several measures. Only the career and income satisfaction turned out to be not significant, which means that there is a difference between genders according to their satisfaction concerning working hours, work type, atmosphere and the current job. The role of education is also important for the satisfaction according to several job related variables. Only the atmosphere is shown to be not significant, while all the other variables turned out to be significant and positive. This means that higher educated people are more satisfied about their income, working hours, work type, career and current job.

Finally, we can conclude that this study has given more insights into the decisive variables according to entrepreneurship. The research questions are answered, since the entrepreneurial participation and satisfaction levels show to be different among religions.The sub questions are also confirmed, except for hypothesis one. Therefore, many theories of the literature are confirmed. One reason for the relative small role of religion according to entrepreneurial participation could be the underlying historical forces and traditional values. According to the findings of Cooper & Artz (1995) this seems to be legit; they find that there is no significant relationship between an entrepreneurs’ age, gender, or minority status, and their levels of expectation. These findings are confirmed by the quantitative results of this study. The (main) independent variables for entrepreneurship are education, risk attitude and religious group. Probably, the traditions and history are also playing an important role by influencing the independent variables. These findings imply and suggest religion to have an association on the entrepreneurial participation rate. Again, the social environment is shown to be influencing the entrepreneurial spirit and therewith the economy. All the findings are in line with the findings of Carswell & Rolland (2004) who suggest that the combination of Protestant work ethic has brought entrepreneurship and the western economy to a privileged status. This finding combines both history and religion to be partly explaining the positive effect of entrepreneurship. In line with the findings of Nunziata & Rocco (2011), we therefore conclude that cultural elements and religion should be taken into consideration when analyzing economic behavior.

**6. Limitations and recommendations**

This research is not without limitations. Due to the fact that this research is a raw study to investigate the association of religion and entrepreneurship, not all the specific details could be taken into account. The used database and sample size is relative small. By using general groups this problem is mostly eliminated, but by extending the database this research could show more causal results. This specificity will give more information about all different religious groups and provides a more trustful prediction for the major variables. Furthermore, this is a cross-sectional study, which makes the associations found less causal.

A finding that should be questioned is the negative association of frequently visiting on entrepreneurship, because non-religious participants also have answered this question about the frequency of visiting and therefore the outcome of this question may be incorrect. Therefore, this result may not be correct since the absolute numbers show that Protestants visit relatively more religious places compared to non-religious and Catholics, even thought they are shown to be positively associated with entrepreneurial participation compared to the other groups.

A recommendation for further research is the distribution of the religions. The database contains several general groups at this moment, but the separation is not correct because in some cases the religious groups differ too much to be in the same religious group.

In order to get more specific details and information it is needed to extend the database with questions and observations. This extension is needed to get more information about both religious and non-religious participants. Besides adding observations and variables, the already existing variables should be improved in some cases. Non-religious participants, to avoid wrong associations, should not answer the question about the frequency of visiting a religious place. Another improvement can be made by adding observation to be able to investigate the different religions more specific. By also adding people living in the Netherlands, but who do not speak Dutch (rather than only Dutch speaking participants), the sample would be more in line with the society.

To use this research as a starting point, further research can be done on the combination of culture, religion and entrepreneurship. By comparing different countries, cultures and religions their effect on entrepreneurship is easier to measure. In some cultures religion may play an important role as well as the status of an entrepreneur. By comparing these differences, and the differences among religions, a complete picture can be created about the (main) independent variables. According to the satisfaction level differences, further (panel) analysis is needed to discover and disclose the impact of these satisfaction differences on entrepreneurship and religion. Another improvement would be to use several control groups as well as interaction effects for education, risk-preference and entrepreneurship.

Besides a panel study, a qualitative research will also improve this investigation. The possibility to ask for the major underlying reasons that make them choose for entrepreneurship will improve the insight into entrepreneurship. Furthermore, it will work out the best if every religious group is also compared by a qualitative research.

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**Appendices**

Table 6: List of dependent variables with description and category

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Description** | **Mean** | **Minimum** | **Maximum** | **Standard Deviation** |
| Entrepreneur | Dummy variable, equals 1 if someone is self-employed and 0 if not | 0.10 | 0 | 1 | 0.30 |
| Satisfied about income | Satisfaction about income measured in 11 categories | 6.60 | 0 | 10 | 2.01 |
| Satisfied about working hours | Satisfaction about working hours measured in 11 categories | 7.62 | 0 | 10 | 1.69 |
| Satisfied about work type | Satisfaction about work type measured in 11 categories | 7.67 | 0 | 10 | 1.64 |
| Satisfied atmosphere colleagues | Satisfaction about atmosphere with colleagues measured in 11 categories | 7.68 |  0  | 10 | 1.53 |
| Satisfied about career | Satisfaction about career measured in 11 categories | 7.26 | 0 | 10 | 0.03 |
| Satisfied about current job | Satisfaction about current job measured in 11 categories | 7.48 | 0 | 10 | 0.03 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Table 7: List of independent variables

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable** | **Description** | **Mean** | **Minimum** | **Maximum** | **St. Error** |
| Age | Age of the participants | 45.86 | 16 | 108 | 16.08 |
| College | Dummy variable, with 1 for higher educated (HBO and higher) and 0 for lower educated | 0.37 | 0 | 1 | 0.48 |
| Religious group | 3 categories 1 stands for non-religious, 2 stands for Protestant, 3 stands for Catholic | 1.61 | 1 | 3 | 0.83 |
| Frequent visiting | Dummy variable, 1 for frequent visitors (at least once a week) of religious places and 0 for not frequent visitors of religious places | 0.11 | 0 | 1 | 0.31 |
| Living together | Dummy variable, with 1 for living together (wedded or unwedded) and 0 if not | 0.80 | 0 | 1 | 0.40 |
| Born Netherlands | Dummy variable, with 1 for born in the Netherlands and 0 if not | 0.94 | 0 | 1 | 0.24  |
| Gender | Dummy variable, with 1 for male and 2 for female | 1.51 | 1 | 2 | 0.50 |
| Risk attitude | Risk attitude measured in 11 categories, 0 = highly risk avers | 4.80 | 0 | 10 | 2.30 |
| Religious group parents | 3 categories 1 stands for non-religious parents, 2 stands for Protestant parents, 3 stands for Catholic parents | 1.99 | 1 | 3 | 0.86 |
| Entrepreneur | Dummy variable, equals 1 if someone is self-employed and 0 if not | 0.10 | 0 | 1 | 0.30 |
| Interaction Protestant & entrepreneur | Interaction between entrepreneur and Protestants | 0.03 | 0 | 1 | 0.16 |
| Interaction Catholic & entrepreneur | Interaction between entrepreneur and Catholics | 0.04 | 0 | 1 | 0.19 |
| Interaction non religious & entrepreneur | Interaction between entrepreneur and non-religious | 0.03 | 0 | 1 | 0.17 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

 Table 8: Spearman correlation coefficients

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Entrepreneur | Age | College | Non-religious | Protestant | Catholic | Frequent visiting | Living together | Born in the Netherlands | Gender | Risk attitude | Non-religious parents | Protestant parents | Catholic parents  | Satisfied about income | Satisfied about hours | Satisfied about work type | Satisfied about atmosphere | Satisfied about career | Satisfied about current job |
| Entrepreneur | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Age | 0.16 \*\*\* | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| College | 0.05  | -0.04 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Non-religious | 0.03 | -0.08\*\* | 0.00 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Protestant | -0.02 | 0.05 | 0.02 | -0.49\*\*\* | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Catholic | 0.00 | 0.09\*\* | 0.02 | -0.64\*\*\* | -0.20\*\*\* | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Frequent visiting | -0.08\*\* | 0.02 | 0.06 | -0.34\*\*\* | 0.41\*\*\* | -0.07\* | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Living together | -0.01 | 0.04 | 0.01 | -0.01 | 0.03 | -0.01 | 0.04 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |  |
| Born in the Netherlands | 0.02 | 0.06\* | 0.04 | 0.07\* | 0.08\*\* | 0.04 | -0.03 | 0.06 | 1.00 |  |  |  |  |  |  |  |  |  |  |  |
| Gender | -0.05 | -0.07\* | 0.04 | -0.05 | -0.01 | 0.04 | 0.00 | 0.02 | -0.01 | 1.00 |  |  |  |  |  |  |  |  |  |  |
| Risk attitude | 0.09\*\* | -0.08\*\* | 0.04 | 0.13\*\*\* | -0.09\*\* | -0.07\* | -0.08\*\* | -0.08\*\* | 0.04 | -0.11\*\*\* | 1.00 |  |  |  |  |  |  |  |  |  |
| Non-religious parents | 0.01 | -0.17\*\*\* | -0.15\*\*\* | 0.51\*\*\* | -0.25\*\*\* | -0.34\*\*\* | -0.19\*\*\* | 0.03 | 0.09\*\* | 0.02 | 0.16\*\*\* | 1.00 |  |  |  |  |  |  |  |  |
| Protestant parents | 0.04 | 0.08\*\* | 0.06\* | -0.16\*\*\* | 0.62\*\*\* | -0.27\*\*\* | 0.19\*\*\* | -0.00 | 0.11\*\*\* | -0.02 | -0.05 | -0.38\*\*\* | 1.00 |  |  |  |  |  |  |  |
| Catholic parents | -0.02 | 0.16\*\*\* | 0.09\*\* | -0.26\*\*\* | -0.28\*\*\* | 0.63\*\*\* | -0.13\*\*\* | -0.03 | 0.05 | -0.02 | -0.09\*\* | -0.54\*\*\* | -0.42\*\*\* | 1.00 |  |  |  |  |  |  |
| Satisfied about income | 0.08\*\* | 0.13\*\*\* | 0.11\*\*\* | -0.07\* | 0.03 | 0.04 | 0.08\*\* | 0.06 | 0.10\*\*\* | -0.05 | 0.07\*\* | -0.07\* | 0.02 | 0.04 | 1.00 |  |  |  |  |  |
| Satisfied about working hours | -0.03 | 0.13\*\*\* | 0.10\*\*\* | -0.03 | 0.02 | 0.02 | 0.07\* | 0.04 | 0.02 | 0.07\* | 0.01 | -0.07\* | 0.05 | 0.02 | 0.33\*\*\* | 1.00 |  |  |  |  |
| Satisfied about work type | 0.08\*\* | 0.15\*\*\* | 0.10\*\*\* | -0.10\*\*\* | 0.04 | 0.05 | 0.11\*\*\* | -0.02 | -0.04 | 0.04 | 0.02 | -0.12\*\*\* | 0.06 | 0.03 | 0.33\*\*\* | 0.41\*\*\* | 1.00 |  |  |  |
| Satisfied about atmosphere | -0.01 | 0.01 | 0.08\*\* | -0.06 | 0.05 | 0.02 | 0.06 | -0.05 | -0.00 | 0.06 | 0.01 | -0.06 | 0.08\*\* | -0.01 | 0.23\*\*\* | 0.37\*\*\* | 0.52\*\*\* | 1.00 |  |  |
| Satisfied about career | 0.08\*\* | 0.14\*\*\* | 0.19\*\*\* | -0.09\*\* | 0.04 | 0.05 | 0.11\*\*\* | 0.00 | 0.02 | -0.02 | 0.08\*\* | -0.12\*\*\* | 0.04 | 0.06 | 0.42\*\*\* | 0.38\*\*\* | 0.68\*\*\* | 0.47\*\*\* | 1.00 |  |
| Satisfied about current job | 0.09\*\* | 0.12\*\*\* | 0.08\*\* | -0.12\*\*\* | 0.04 | 0.08\*\* | 0.08\*\* | -0.01 | -0.01 | 0.03 | 0.05 | -0.12\*\*\* | 0.04 | 0.07\* | 0.42\*\*\* | 0.45\*\*\* | 0.83\*\*\* | 0.56\*\*\* | 0.74\*\*\* | 1.00 |
| \*, \*\*, \*\*\* Indicates a significance level of 10%, 5%, and 1%, respectively.  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |