Understanding the entrepreneurial mind: Do Risk-Preference and Optimism influence Entrepreneurial-Intention?

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Abstract:

This paper examines the relationship between Risk-Preference and Optimism on Entrepreneurial-Intention. Results show that Risk-Preference is significantly and strongly related to Entrepreneurial-Intention, while Optimism does not have significant relationship. Family-View and Family-Job are also found to be significant in relation to Entrepreneurial-Intention. These findings provide insights for policymakers to encourage entrepreneurship trough understanding the. Influencing factors on individuals' Entrepreneurial-Intentions.

Contents

1. Introduction

The value of entrepreneurship is undeniable, especially for the well-being of our economy. According to Kane (2010), startup firms are responsible for almost all net job creation, while existing firms are usually net job losers. Therefore, it is of extreme importance to nudge people to start their firms. For policymakers, it is important to know what kind of people they are dealing with. Otherwise, it will almost be impossible to create policy which reinforces individuals to join entrepreneurship. Which people are you targeting and how should you target them? Furthermore, the research into the relationship between Entrepreneurial-Intention and personality variables is also of importance to psychology and sociology. What kind of people become entrepreneurs? Do personality traits predict real-life choices? Or is it just theoretical? Maybe becoming an entrepreneur could be a proxy for a and individual with a high Risk-Preference.

This will not be the first paper which there are more papers which go into detail about personality traits and entrepreneurial intention. But there

That's why in this paper I try to identify which variables influence, an individual's Entrepreneurial-Intention. According to current literature Entrepreneurial-Intention is highly correlated with the act of starting a business. This is why using Entrepreneurial-Intention is a good proxy. By using Entrepreneurial-Intention, no time-series analysis needs to be done. The whole focus of this paper will be on the variables which influence individuals' Entrepreneurial-Intention. The variables which are researched in this paper are Risk-Preference and Optimism.

In the paper I did the following. I used Risk-Preference and Optimism as the two main regressors and added control variables like Family-View, Family-Job and age, in a multivariate regression to understand how the relationship between the two main variables and Entrepreneurial-Intention evolves by introducing control variables. The research which I try to answer in the paper is:

What is the effect of Risk-Preference and Optimism on Entrepreneurial-Intention?

This paper is relevant because of the following: firstly, research into personality traits and entrepreneurship has been done to some extent. For example, Brandstatter (2011) who tried to identify which personality traits are found in entrepreneurs but not in managers or vice versa. He found some modest relationship between the propensity to take risk and starting a business. In the literature review, more papers will be mentioned in which similar research is done. But there has not been a paper which focusses primarily on Risk-Preference, which is what I will do in this paper. On the other hand, there is barely any research on the relationship between Optimism and Entrepreneurial-Intention. So, this paper is an addition to the current literature and its' results can be used for further research.

Furthermore, this paper is providing additional knowledge to the current literature because it uses a different dataset to check whether the relationship between Risk-Preference and Entrepreneurial-Intention does exist with a different sample. So, this paper is an addition to the literature.

The paper will have the usual structure of an economic paper. Firstly, the literature review. Secondly, the data and the methodology. Thirdly, the results will be shown, and lastly, the discussion and conclusion.

2. Literature review:

The field of entrepreneurship has been widely studied, also regarding factors that drive individuals to pursue entrepreneurial endeavors. One area of investigation has been the relationship between personality traits and entrepreneurial intention. Specifically the relationship between Risk-Preference, Optimism and Entrepreneurial-Intention. This literature review aims to examine the existing research on these topics and to determine whether there is a consensus on the relationship between Risk-Preference, Optimism, and Entrepreneurial-Intention. To answer the research question I made two hypotheses, the first of which explores the relationship between risk-preference and entrepreneurial intention and the second examines the relationship between optimism and entrepreneurial intention. The exact hypotheses are:

Hypothesis 1: Individuals with a high Risk-Preference have higher Entrepreneurial-Intention in contrast to individuals who are lower in Risk-Preference.
Hypothesis 2: Relatively Optimistic individuals, tend to have more entrepreneurial intentions.

Through a detailed examination of previous research, this literature review seeks to provide a comprehensive understanding of the variables that influence entrepreneurial intention. The main variables and the control variables will be defined in the next section. The next section is divided into variables and their previous research.

Previous Research (Main regressors):

Entrepreneurial-Intention:

What is Entrepreneurial-Intention? Esfandiar et al. (2019) gave the following definition: "The conscious state of mind that precedes action and directs attention toward entrepreneurial behaviors such as starting a new business and becoming an entrepreneur.". What is an entrepreneur? An entrepreneur organizes, manages, and assumes the risks of a business or enterprise. The process of setting up a business is known as entrepreneurship. Risk plays a fundamental role in entrepreneurship. One bears most of the risk, but on the other hand one enjoys most of its rewards.

In this section, I will highlight the most cited papers of the literature into personality and Entrepreneurial-Intention. After that, the discussed papers will be about the relation between Risk-Preference and Entrepreneurial-Intention or any of the other variables.

According to Turker & Selcuk (2009), educational and structural support systems influence Entrepreneurial-Intention. Ferreira et al. (2012), conclude that the need for achievement, self-confidence, and personal attitude positively affects Entrepreneurial-Entention. Ismail et al. (2009), conclude that Entrepreneurial-Intention is positively correlated with extraversion, openness, and close support. A lot of factors seem to influence Entrepreneurial-Intention. In this part, the focus is on the two main regressors: Risk-Preference and Optimism.

Risk-Preference:

In this section, the focus will be on the relationship between Entrepreneurial-Intention and Risk-Preference. What is Risk-Preference? Risk-Preference is one's tendency to choose either a risky or less risky option. In general, a risk-averse person is reluctant to take risks. Intuitively one could reason that a risk-averse individual, is less likely to become an entrepreneur due to the risk involved in entrepreneurship.

That is probably why a big proportion of papers hint at a positive influence of Risk-Preference on Entrepreneurial-Intention. Barbosa et al. (2007) show with their results that risk-seeking individuals have higher levels of Entrepreneurial-Intention. Individuals who can be defined as risk-averse have lower levels of Entrepreneurial-Intention. The sample from Barbosa et al. (2007), uses 528 international students from Finland, Norway, and Russia. Karabulut (2016) states that people who can tolerate risks have increased Entrepreneurial-Intention. Yortkuru et al. (2014) conclude the same, being a risk lover increases Entrepreneurial-Intention. Zhang et al. (2015) found that especially short-term risk preference positively influences Entrepreneurial-Intention. Moraes et al. (2018) also found a positive relationship between risk-taking and Entrepreneurial-Intention. Luthje & Franke (2003) found a positive link between risk-taking and Entrepreneurial-Intention.

Even though most papers show positive associations, some papers show a negative or no significant relationship between Risk-Preference and Entrepreneurial-Intention. For example, Altiney et al. (2012) found no connection between the propensity to take risks and Entrepreneurial-Intention. While, Dines et al. (2013) found a negative association between the propensity to take the risk and Entrepreneurial-Intention, which may have something to do with Lazear's Jack-Of-All-Trades theory. But these two papers are only exceptions, it seems that there is a general consensus that the propensity to take risks positively influences Entrepreneurial-Intention. Therefore, I added a few control variables. By doing this we can see how the variable risk-preference behaves in a model with more variables.

Background theory on Risk-Preference

Here I follow up with an example of risk adversity. In line with the expected utility theory, a risk-averse individual will choose a low-uncertainty situation over a high-uncertainty situation keeping everything else equal. An individual has two choices:

A coin flip with the following payoffs: when an individual wins, he/she receives 100 euros, but when the individual loses, he/she gets nothing or get 50 euros with 100% certainty.

In theory, the risk-averse person would choose the option which is certain while the risk-seeking individual would be more tempted to play the game. Neither choice is fundamentally irrational, so the choice just depends on an individual's preference. You can link this to the choice between entrepreneurship or working in a regular job. Choosing entrepreneurship means that there is a chance that the business will go bankrupt/ generate no revenue or it will be successful, and you will make a lot of money. Versus choosing for the regular job, which gives you a certain amount of money for your effort. If you reason in line with expected utility theory an individual who is risk averse will have a bigger chance of becoming an employee and a risk seeking individual would be more tempted to start his/her own business.

Another economic theory is Lazear's Jack-of-all-trades theory, Lazear (2004). Which states that an entrepreneur is an individual who is skilled in a variety of fields. The weakest link (the worst character trait) will define how successful his/her business can become. To be a successful entrepreneur one should be a jack of all trades. In general, individuals who are jack-of-all-trades are risk-averse. Risk averse individuals are the people who improve their weakest skills. While risk-seeking individuals are more likely to improve their best traits. In line with the jack-of-all-trades theory, risk-averse people are more likely to start a successful business. This is of course different then starting a business. But, it is important to mention that in the academic literature there is not per se a consensus, even though most papers, conclude that individuals with a high Risk-Preference are more likely to become entrepreneurs.

Optimism:

What is Optimism? Optimism is defined as the following: the belief that something good will happen and emphasizing the good parts of a situation. Take the example of low uncertainty versus high uncertainty. An optimistic individual will probably undervalue to possible risk/high uncertainty, and hence choose the more uncertain situation. Intuitively on could reason that an individual which is high in Optimism is more likely to become an entrepreneur.

The papers in the next two paragraphs are papers which have to do with optimism and some variable which is like Entrepreneurial-Intention. But not exactly, for example they use entrepreneurial-curiosity, which is different from Entrepreneurial-Intention. Peterson et al. (2009) and Ucbasaran et al. (2010) concluded that positive emotional states like Optimism have been reported as critical for successful leaders of high-technology new ventures. Furthermore, Gmieleski and Baron (2009) commented that an entrepreneur high in dispositional Optimism can cope better when faced with obstacles in the pursuit of a new venture.

Janssen et al. (2013) found that students who have a more optimistic attitude are more entrepreneurially inclined. Jeraj (2014) states that higher levels of Optimism lead to higher levels of pre-entrepreneurial curiosity and higher levels of pre-entrepreneurial curiosity led to higher levels of entrepreneurial curiosity.

The only paper which is interesting is the following: Roy et al. (2017) found that Optimism and risk-taking propensity to be significantly positive in relation with Entrepreneurial-Intention. This was done in a science and technology student sample in India. This is also important because this will cause multicollinearity if this is the case in the current paper. This paper is important because, it is the only credible paper which analyses the relationship between Optimism and Entrepreneurial-Intention.

There is not a lot of research on the relationship between Optimism and Entrepreneurial-Intention. Furthermore, there is just on credible articles, which examines the relationship of Optimism as a regressor with Entrepreneurial-Intention as the outcome variable. That's why it is relevant to add optimism to the model. Furthermore, the correlation between Optimism and risk-seeking behavior seems to be of importance as is seen in the paper of Roy et al. (2017). If that would be the case it could hinder the results

from the regression, due to multicollinearity. That happens when the explanatory variables are highly correlated with each other, which will be explained in much more detail in the methodology. Contrary to Puri & Robinson (2007) who only conclude a correlation coefficient of 0.10 between risk and Optimism. The result of the paper mentioned above is favorable. But I will still test how much Optimism and Risk-Preference are correlated.

Background theory on Optimism:

Extreme Optimism in markets causes, extreme economic conditions. Almost nobody predicted the dot com crisis. Tech ventures with extreme over valuations, which is a result of overconfidence or/and extreme Optimism about the future. Because of the good results the market was having, most people were expecting the market to keep rising. While some of the key indicators, signaled that the market was going down, most people were focused on the positive factors: previous growth and growth prospects. This is looking on an aggregate level, but when we look at an individual level we observe the following, an individual who is high in Optimism could undervalue the possible risk of investing in one of those overvalued tech ventures, because he/she overvalues the positive indicators. This example can also be applied to entrepreneurship. Individuals focusing on extremely successful entrepreneurs and thinking they can also achieve those results and undervaluing the extreme uncertainty those entrepreneurs have overcome. Furthermore, he/she undervalues how small the odds are that he/she will achieve the same results. That's why I expect individuals who are high in Optimism are also higher in Entrepreneurial-Intention.

Previous Research (Control Variables):

Gender

The first control variable is gender, Entrepreneurial-Intention may be influenced by gender. There is a chance that men are more entrepreneurial-minded than women. Westhead & Solesvik (2016) conclude that women with high Risk-Perceptions have a lower Entrepreneurial-Intention than men with a high Risk-Perception. Nowinski et al. (2017)

found by a gender comparison that women show overall lower Entrepreneurial-Intention. Haus et al. (2013) reveal that men have on average a higher Entrepreneurial-Intention compared to women. But these differences were extremely small and would not explain the difference in the significantly lower startup rate by women. Furthermore, Pruet et al. (2009) state that there is no difference between men and women when it comes to Entrepreneurial-Intention. Gender is an interesting control variable, because the current literature has no consensus on the gender variable in relationship with Entrepreneurial-Intention. That is why it is intriguing to observe the behavior of this variable in the regressions.

Age

The second control variable is age, which I think is an important factor because age is likely to influence Entrepreneurial-Intention directly and indirectly through Risk-Preference. Hatak et. Al. (2015) revealed that as employees age they are less inclined to act entrepreneurially and that their Entrepreneurial-Intention is lower the more they identify with the job. Which happens as individuals age. Kautonen et al. (2010), conclude that older individuals, those aged 50 years or older, who have spent their careers in industrial work, are less inclined towards entrepreneurship.

Risk-Perception

The third control variable I added is Risk-Perception. So, how risky does an individual view entrepreneurship? There was no previous research into this matter, except for one article by Zhou et al. (2021) that looked at Risk-Perception and Entrepreneurial-Intention during covid. This paper has no citations yet. So, the research into this relationship is still in the beginning phase, hence I added this control variable into the model. This variable is complicated and hard to quantify because there are individuals who see risk as an opportunity and others who see risk as scary.

Entrepreneurial-Necessity

The fourth control variable is an Entrepreneurial-Necessity. So, imagine an individual who wishes to become a farmer. The only option this individual has is by owning land, machines, crops, warehouses, etc. The individual has no choice but to become an entrepreneur, to pursue his/her dream occupation.

He/she may have a certain Risk-Preference, age, or gender, but these variables become insignificant when the individual has no choice whether to start entrepreneurship or not. There are studies done to examine the relation between Entrepreneurial-Nescessity and Entrepreneurial-Intention, but this is mostly done during periods of economic uncertainty. So, the hypotheses were not based on Entrepreneurial-Necessity, but on the factors of a crisis influencing individuals into entrepreneurship. So, adding this variable as a control variable would be an addition to the current literature.

Family-Job

The fifth control variable is Family-Job, which is a proxy for: the occupation close friends and family do. Altinay et al. (2012) show that there is a positive relationship between entrepreneurial family tradition and Entrepreneurial-Intention. This variable has a direct effect and an indirect effect through the propensity to take risks. The sample used in the paper of Altiney et al. (2012) were respondents in the hospitality and tourism industry.

Family-View

The final control variable I added is Family-View, which is how close friends and family view entrepreneurship. Pruet et al. (2009) state that family support is positively associated with Entrepreneurial-Intention. They used Chinese, American, and Spanish students as their sample. As a mentioned earlier I will use a Dutch student sample which may show different results. Falck et al. (2012) found that having an entrepreneurial friend group has a positive effect on an individual's entrepreneurial intentions.

3. Data:

The purpose of this data section is to present and analyze the data collected from the questionnaire taken by 150 Erasmus university students. The students were recruited from different faculties by various university requirement systems. The data is collected between May 2015 and April 2016. In the questionnaire, students answered statements on Risk-Preference, Optimism, Family-View, the work close friends and family members do, entrepreneurial education and personality. A set of variables where chosen from this questionnaire to use in this paper, which could have an influence on Entrepreneurial-Intention. The variables, which are used in this paper will be explained and listed below:

- Entrepreneurial-Intention: "A conscious awareness and conviction by an individual that they intend to set up a new business venture and plan to do so in the future.". 11 statements were given to the respondents to indicate their Entrepreneurial-Intention. All these statements could be answered from 1 to 7. Where 1 = completely disagree and 7 = completely agree.
- Risk-Preference: "One's tendency to choose either a risky or less risky option." 12 statements were given to indicate their Risk-Preference. All these statements could be answered from 1 to 7. Where 1 = completely disagree and 7 = completely agree.
- Optimism: "The tendency to be hopeful and to emphasize or think of the good part in a situation rather than the bad part, or the feeling that in the future good things are more likely to happen than bad things.". 10 statements were given to indicate their level of Optimism. All these statements could be answered from 1 to 5. Where 1 = completely disagree and 5 = completely agree.
- Family-Job: The occupation of your family, if the value is 0 then both your parents are not entrepreneurs. If it is 0,5, this means that your mother or your father is an entrepreneur. If it is equal to 1 then both parents are entrepreneurs.
- Family-View: How your close friends and family view entrepreneurship. If it is equal to 1 this means that your close friends and family are extremely positive, but if it is zero then they view entrepreneurship negatively.

- Entrepreneurial-Necessity: "Necessity-based entrepreneurs are those who may be faced with a job loss, dissatisfaction with their current positions, or lack of career opportunities.". This (Entrepreneurial-Necessity) is either the case, which would be equal to 1, or not be the case and be equal to 0.
- Age: Respondents filled in their age, which is not put into an age group. So, the coefficient of age will reflect 1 year of change in age.
- Gender: Respondents which were women filled in 0 and men 1.

In the data overview section, the variables will be explained in more detail. It is important to mention that the variables above are standardized, the data is converted, so that the range of the variables in question is between 0 and 1.

Data Overview:

Outcome variable,

Entrepreneurial-Intention is the only outcome variable used in the models. It is to answer both the hypotheses. In the questionnaire, individuals answered how much they agreed with some statements on their Entrepreneurial-Intention. A few examples of the statement which were given are the following: "I am determined to start my own company in the future." "I am prepared to do everything I can to become an entrepreneur." or "I wish to start my own company. "and "If I had the resources to start a company, I would.". The other statements on Entrepreneurial-Intention were like the ones above.

Explanatory Variables,

To explain a possible variation in Entrepreneurial-Intention, explanatory variables are needed. Risk-Preference is used in the first and third models, which will be explained in the methodology, as the main explanatory variable. As mentioned above, the data is extracted from a questionnaire. To measure Risk-Preference the following is done, extracting Risk-Preferences from normal daily activities. In other words, how an individual acts in daily

situations. Statements the questionnaire consisted of were like the following: "I like doing stuff, which is maybe, a little bit frightening." or "I like wild parties.".

The second explanatory variable is optimism, which is used as an explanatory variable in the second and third model. How optimistic an individual is, is also derived from the questionnaire in which individuals had to answer statements on their Optimism. The statements are like the following: "In moments of doubt and uncertainty, I have the best expectations."

Control variables,

The variables in this section are added increase the internal validity of the study. If one wouldn't add the variables in the model, the internal validity will be lower, because the explanatory variables are not the only variables that influence the outcome variable. By adding control variables, the internal validity can be increased, but more on this in the methodology. In the regression six control variables are added. The first is gender, Entrepreneurial-Intention may be influenced by gender. There is a chance of men are more entrepreneurial-minded than women. The second is age, which is an important factor because age probably influences Entrepreneurial-Intention directly and indirectly through Risk-Preference. An individual who is 50 years old has a higher probability of having a family in comparison to a 20-year-old. Which makes him less likely to bear the risk of entrepreneurship. The third control variable I added is Risk-Perception. In other words, how risky an individual view entrepreneurship. One would expect that this variable will negatively influence Entrepreneurial-Intention. The fourth control variable is Entrepreneurial-Necessity. The fifth control variable is Family-Job. In other words what kind of job do the close friends and family of the respondent do? One could intuitively reason that the work your family and friends do affects what you're going to do. The final control variable I added is Family-View. Which is how close friends and family view entrepreneurship. This effect is probably positive as well because people care what people think of them.

Descriptive statistics:

In Table 1 the summary statistics are given, which are the total observations, mean, standard deviation, minimum and maximum for all the variables. This is done for all the variables which are used in the regressions. This is important when we want to analyze the soundness of the dataset. When the dataset used has some skewness or other irregularities which can influence the outcome, is generally undesirable. The first interesting thing which can be observed in table 1 is that no one in the sample has zero Entrepreneurial-Intention. The lowest standardized value Entrepreneurial-Intention has in this sample is 0.14. Optimism has zero extreme values. So, no extremely optimistic people and no pessimistic people. Age is also important to note because in this sample the age ranges from 18 to 30, which is not a completely representative sample of the whole working class. Their age ranges from 16-70, so there is quite a bias in this sample. Furthermore, the 95% interval has only a range of ages between approximately 18,5 and 22,5 years of age. So, I expect age to have no effect or a modest effect on Entrepreneurial-Intention. While in a representative sample I would expect age to have a significant impact. When gender has the value 0 this is equal to being a woman. When Family-Job is equal to zero this means that no family member is an entrepreneur. Family-View is what close friends and family think about entrepreneurship with 1 being extremely positive. In this sample the mean of Family-View is on the positive side, it is 0,78. So, family and friends close to the respondents view entrepreneurship generally as a positive thing. As can be seen, entrepreneurship is generally viewed as being risky.

Table 1: Summary statistics for variables used in regression

Variable	*Obs/N*	*Mean*	*Std. Dev.*	*Min*	*Max*
Outcome variable					
Entrepreneurial-Intention	150	0.492	0.220	0.1423	1
Explanatory Variables					
Risk-Rreference	150	0.645	0.138	0.25	0.95
Optimism	150	0.617	0.068	0.429	0.771

Control Variables					
Age	150	20.64	2.06	18	30
Gender	150	0.447	0.499	0	1
Family-Job	150	0.187	0.315	0	1
Family-View	150	0.784	0.126	0.429	1
Risk-Perception	150	0.720	0.156	0.286	1
Entrepreneurial-Necessity	150	0.053	0.225	0	1

In table 2 one can observe all the correlations between the variables used in this paper. It is important to note that these correlations cannot be used for causal relationships. But these correlations are important, with the correlations one can interpret the strength of the association between variables, and even spot multicollinearity even before the regressions are done. The first interesting thing is the following: Risk-Perception is negatively correlated with Entrepreneurial-Intention. When individuals view something as risk-bearing, they try to avoid it. This is in line with expected utility theory, when the chances of the dream outcome decrease the expected utility decreases, which makes an individual less likely to take the risk. Entrepreneurial-Necessity is positively correlated with Entrepreneurial-IntentionWhen an individual has to become an entrepreneur in order to get into his preferred occupation, it is logical that their Entrepreneurial-Intention increases. Risk-Preference seems to be strongly correlated with Entrepreneurial-Intention, which was expected. In other words, an individual with high Risk-Preference is associated with higher Entrepreneurial-Intention. Optimism on the other hand is positively correlated with Entrepreneurial-Intention but with a small coefficient. The most notable coefficient in table 2 is the correlation between Optimism and Family-View. It could be detrimental to the model when the explanatory variables and control variables are strongly correlated with each other, because it is preferable for the model that multicollinearity is avoided. An individual's Optimism is strongly associated with how friend and family view entrepreneurship. It could be that Optimism is a subset of family view, which would explain why the coefficient between Optimism and Entrepreneurial-Intention is relatively small. Another explanation could be that it is difficult for individuals to assess their own level of optimism, which may be the reason why so few have studied the relation between Entrepreneurial-Intention and

Optimism. This is something which is impossible to know, so I will still use the results of optimism in the regression to see how the variable behaves in the regression models.

Table 2: Correlation matrix for all the variables used in the regression

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*
Age (1)	1.000								
Gender (2)	0.014	1.000							
Family-Job (3)	0.156	-0.171	1.000						
E-intention (4)	0.167	0.051	0.281	1.000					
Family-View (5)	0.153	-0.025	0.147	0.408	1.000				
Risk-Perception (6)	0.082	-0.064	-0.073	-0.198	-0.107	1.000			
E-necessity (7)	0.070	-0.047	0.001	0.228	0.240	-0.181	1.000		
Risk-Preference (8)	0.138	0.047	0.194	0.404	0.194	-0.130	0.110	1.000	
Optimism (9)	0.085	0.016	0.150	0.205	0.452	-0.024	0.135	0.312	1.000

4. Methodology:

In this section, the mathematical functions will be provided which are the regression formulas used for this study. To test the hypotheses, I will create 3 different multivariate regression models. Each of these models, contains 3 sub models, but the number of variables in each sub models differs.

<u>Testing the hypotheses:</u>

The first model examines the relationship between Risk-Preference and Entrepreneurial-Intention. In this model, there are 3 different regressions done. With the Entrepreneurial-Intention being the dependent variable and Risk-Preference being the regressor. The same is done in model 2. The only difference is that in model 2 the explanatory variable is Optimism instead of Risk-Preference. The mathematical expression for the two models:

$$Y = a + b_1 * X_1 + b_2 * X_2 \ldots\ldots + b_n * X_n \quad (1)$$

Where Y is Entrepreneurial-Intention, b_1 is Risk-Preference in model 1 and b_1 is Optimism in Model 2. B_2 till Bn are the added control variables.

In the third model, two regressors are used instead of one. Those being Risk-Preference and Optimism. The mathematical expression for model 3:

$$Y = a + b_1 * X_1 + b_2 * X_2 \ldots\ldots + b_n * X_n \quad (2)$$

Where b1 is Risk-Preference and b2 is Optimism. The formulas are approximately the same but differ in the number of regressors. B3 till Bn are the added control variables and Y is Entrepreneurial-Intention.

5. Results:

The results section is divided into three models. To give extra focus on both explanatory variables, which are Risk-Preference and Optimism. The first model contains, only Risk-Preference as an explanatory variable. The second model contains Optimism instead of Risk-Preference as an explanatory variable. The final model includes both explanatory variables. As mentioned above each model is divided into three sub-models. The first sub-model contains only the explanatory variable(s). The second sub-model contains the explanatory variable(s) and 5 control variables. The last sub-model contains the explanatory variable(s) and 6 control variables. The reason for this distinction is the following: By creating different models (in or excluding variables) we can observe how the variables behave in different models and check whether the coefficient of the variables is strongly reliant on other variables. For recollection, these are the 6 control variables: age, gender, Risk-Perception, Entrepreneurial-Necessity, Family-Job, and Family-View. Which are already extensively explained in the data section.

The most important results are firstly that age and gender seem to have small to zero influence on Entrepreneurial-Intention. Secondly, Optimism is in most cases not significant and is highly correlated with Family-View. When these variables are in the same model the coefficient of Optimism becomes insignificant and uninterpretable, while the coefficient of Family-View is significant in every model. Thirdly, Risk-Preference is a variable that has a strong and significant influence on Entrepreneurial-Intention. Lastly, family and friends seem to have a big influence on Entrepreneurial-Intention especially, notable in the

coefficient of Family-View. This control variable has an extremely high positive coefficient, even when compared to the explanatory variables.

Risk-Preference predicting Entrepreneurial-Intention

Variable	*(1.1)*	*(1.2)*	*(1.3)*
Risk-Preference	0.642***	0.498***	0.439***
	(0.119)	(0.118)	(0.114)
Gender		0.035	0.035
		(.032)	(0.030)
Age		0.009	0.005
		(0.007)	(0.007)
Risk-Perception		-0.157	-0.135
		(0.104)	(0.099)
Entrepreneurial-Necessity		0.170	0.112
		(0.072)	(0.070)
Family-Job		0.148***	0.128**
		(0.052)	(0.050)
Family-View			0.495***
			(0.127)
Observations	150	150	150
R-squared	0.163	0.266	0.337

Table 3 (model 1): Regression result for the relationship between Risk-Preference and Entrepreneurial-Intention. The dependent variable is Entrepreneurial-Intention. A multivariate regression is performed. The first model only regresses Risk-Preference with Entrepreneurial-Intention. The second model adds almost all the control variables. And. The final model uses all the control variables. Significance is denoted by *, **, and ***, which corresponds to 10%, 5%, and 1% significance intervals. All values are rounded at 3 decimals.

Model 1.1, (the first model in table 3) only the explanatory variable Risk-Preference is used. It has a coefficient of 0.642, which means that when Risk-Preference changes from 0 to 1, Entrepreneurial-Intention increases by 0.642. The R-squared of this model is 0.163, which means that 16,3 % of the variability observed in the model is due to the variables, that are

included in the model. In this case that is just the explanatory variable: Entrepreneurial-Intention.

In model 1.2, five control variables are added, which instantly decreases the coefficient of Risk-Preference to 0.498. Nevertheless, it is still a significant and strongly positive coefficient. The only added control variable which is significant is Family-Job. Age and gender seem to have almost zero impact on Entrepreneurial-Intention, which contradicts the current literature. Furthermore, Risk-Perception and Entrepreneurial-Necessity do not have any effect on Entrepreneurial-Intention. The R-squared increased to 0.266 in this model, despite only one control variable being significant. So, the regression model explains the variance of the dependent variable better in contrast with model 1.1.

Model 1.3, the last model, one extra control variable is added, which is Family-View. This coefficient is extremely strong (0,495), even stronger than the explanatory variable Risk-Preference, which decreased to 0,439. So, how friends and family view entrepreneurship seem to influence Entrepreneurial-Intention. All the other control variables stay insignificant except Family-Job, which was significant in model 1.2 as well. The R-squared increased to 0.337, which is a lot when taking in mind that only one extra control variable is added. So, in the final model, 33,7% of the variability is due to the variables in the model.

In model 1 it seems to be the case that there are three important variables for predicting Entrepreneurial-Intention. These are Family-View, Family-Job, and Risk-Preference. While age, gender, Risk-Perception, and Entrepreneurial-Necessity are insignificant.

Optimism predicting Entrepreneurial-Intention

Variable	*(2.1)*	*(2.2)*	*(2.3)*
Optimism	0.665**	0.414*	-0.015
	(0.261)	(0.250)	(0.263)
Gender		0.043	0.045
		(0.034)	(0.033)
Age		0.012	0.009
		(0.008)	(0.008)
Risk-Perception		-0.205*	-0.173
		(0.109)	(0.105)
Entrepreneurial-Necessity		0.181**	0.130*
		(0.076)	(0.070)
Family-Job		0.174***	0.160***
		(0.055)	(0.050)
Family-View			0.563***
			(0.146)
Observations	150	150	150
R-squared	**0.041**	**0.191**	**0.268**

Table 4 (model 2): Regression result for the relation between Optimism and Entrepreneurial-Intention. The dependent variable is Entrepreneurial-Intention. A multivariate regression is performed to get the following results. In model 1 only Optimism is used as an explanatory variable. In models 2 and 3 the control variables are added. Significance is denoted by *, **, and ***, which corresponds to 10%, 5%, and 1% significance intervals. All values are rounded at 3 decimals.

Model 2.1, in the first model the only variable used, is the explanatory variable Optimism. Which has a coefficient of 0.665, but the R-squared is just 0.041. The model has very low internal validity. So, even though Optimism is significant it has almost zero predictive power.

Model 2.2, in this model 5 control variables are added. One of the added variables is Risk-Perception, which has a significant negative coefficient. Entrepreneurial-Necessity and Family-Job are added as well and both have a significant positive coefficient. Age and gender are not significant again. The R-squared of model 1.2 increased to 0.191, which is a big increase compared to model 2.1. Furthermore, the Optimism variable decreased to 0,414.

Model 2.3, In the last model, only one extra control variable is added: Family-View. Which changes the outcome significantly. The coefficient of Family-View is 0.563. Optimism is not significant anymore, furthermore, it decreased to -0.015. As well as Optimism, Risk-Perception is not significant anymore. Entrepreneurial-Necessity and Family-Job are still significant and both have positive coefficients. The R-squared increased to 0.268. Which is lower than the R-squared of model 1, which is probably due to the absence of the Risk-Preference variable in model 2.

In model 2, age and gender have not been significant at all. It seems that those variables have very little impact on Entrepreneurial-Intention, contrary to previous research. This was the same in model 1 In this model one can observe that Optimism does not seem to have any relation with Entrepreneurial-Intention.

Risk-Preference and Optimism predicting Entrepreneurial-Intention:

Variable	*(3.1)*	*(3.2)*	*(3.3)*
Risk-Preference	0.599***	0.478***	0.470***
	(0.126)	(0.124)	(0.118)
Optimism	0.283	0.148	-0.270
	(0.257)	(0.249)	(0.259)
Gender		0.035	0.037
		(0.008)	(0.031)
Age		-0.009*	-0.006
		(0.008)	(0.008)
Risk-Perception		-0.160	-0.129*
		(0.105)	(0.100)
Entrepreneurial-Necessity		0.165**	0.115
		(0.073)	(0.070)
Family-Job		0.145***	0.132***
		(0.053)	(0.051)
Family-View			0.554***
			(0.139)
Observations	150	150	150
R-squared	0.170	0.268	0.342

Table 5 (model 3): Regression result for the relationship between Risk-Preference and Optimism on Entrepreneurial-Intention. The dependent variable in this regression is Entrepreneurial-Intention. A multivariate regression is performed to get the following results. In model 1 only Risk-Preference and optimism are used as explanatory variables. In models 2 and 3 the control variables are added. Significance is denoted by *, **, and ***, which corresponds to 10%, 5%, and 1% significance intervals. All values are rounded at 3 decimals.

Model 3.1, both explanatory variables are added: Risk-Preference and Optimism. Risk-Preference has a coefficient of 0.599 and significant, but Optimism is not even significant. The R-squared of the model is 0.170. It becomes obvious that in the models where Optimism is not the only variable in the model, Optimism loses its significance.

Model 3.2, in this model 5 control variables are added. With age being significant for the first time. Age has a negative coefficient of -0.009. Which is expected of the age variable. When an individual gets older his tendency to become an entrepreneur decrease. Entrepreneurial-Necessity has a coefficient of 0.165. Family-Job has a coefficient of 0.145. Lastly, Risk-Preference decreased a bit to 0.478. The R-squared has increased to 0.268.

Model 3.3, in the last model, one extra control variable is added, which is Family-View. Which has a positive coefficient of 0.554. Due to adding Family-View, Entrepreneurial-Necessity and age are now insignificant, but Risk-Perception is now signed with a coefficient of -0.129. The R-squared increased to 0.342 which is the highest R-squared in all the models.

Model 3 contains all the variables and has the highest R-squared of all the models. Another important thing to mention is that in model 3.2 age was significant. But lost its significance after adding Family-View. This dataset is biased in the age dimension, it is highly probable that when the age range increases, so by using a different dataset, it will be significant. More on this in the conclusion.

6. Discussion:

The reason for writing this paper was to examine the relationship between the explanatory variables: Risk-Preference and Optimism and the outcome variable: Entrepreneurial-Intention. For recollection the research question is:

What is the effect of Risk-Preference and Optimism on Entrepreneurial-Intention?

Table 3 instantly shows that Risk-Preference is significantly and strongly related to Entrepreneurial-Intention. When an individual has a high Risk-Preference his Entrepreneurial-Intention will be significantly higher. In all the models of that table, that is the case. In table 5, in which 3 regressions are done. Where Optimism is also added to the model, Risk-Preference is still strongly and significantly related to Entrepreneurial-Intention. So, hypothesis 1 is correct, individuals with high Risk-Preferences have higher a Entrepreneurial-Intention. This is in line with the papers mentioned in the literature review, even though some papers showed different results, the consensus was that there is a positive relation between Entrepreneurial-Intention and Risk-Preference, which this paper confirms.

Optimism has a different relationship with Entrepreneurial-Intention. Because in most cases it is not a significant variable at all. In Table 4 Optimism is significant when it's the only variable in the model. When other variables are added to the model the effect of Optimism disappears. This result is in contrast with the current literature, which states that Optimism is positively related to Entrepreneurial-Intention. So, hypothesis 2 is rejected. Optimism does not stay significant in models with added control variables.

Another extremely interesting result from the regressions is the control variable Family-View, which has an extremely strong and significant impact on Entrepreneurial-Intention. This coefficient is even stronger than Risk-Preference. Before doing the regressions, I did not expect Family-View to have such a big effect on Entrepreneurial-Intention. It seems that family and friends view on possible occupations is extremely important. There should be more research into this variable. I would advise, if anyone would do further research into this variable to combine Family-View with some variable which is a proxy for cultural influence. There has been some research into cultural influence and Entrepreneurial-Intention, which seems valuable. As one can observe from the Family-View variable, is that the people close to the individual in question do influence what kind of occupation he/she tends to. Family-Job was also significant and positively related to Entrepreneurial-Intention. In all the models where Family-Job was used it stayed significant. Whether Family-Job and Family-View are significant because of genetic influence, cultural influence, or social pressure needs further research.

Age and gender did not have any influence on Entrepreneurial-Intention. In none of the models did gender have any impact, which was consistent with the current literature. Even though there is a significant difference between actual startups between men and women, the Entrepreneurial-Intention generally seems to be the same between men and women. For age on the other hand, the result from this paper was contradicting the current literature. In the current literature there is a consensus that age has a negative relation with Entrepreneurial-Intention. So, when an individual gets older, his/her Entrepreneurial-Intention decreases. The reason that the analysis from this paper gives a different result may be due to bias in the sample which was used. Age in this sample ranges from 18 till 30, which is not representative for the working class, which age ranges from 16 till 70.

To answer the research question: What is the effect of Risk-Preference and Optimism on Entrepreneurial-Intention? Risk-Preference has a positive and significant effect on Entrepreneurial-Intention and Optimism had no observed significant relation with Entrepreneurial-Intention.

7. Conclusion:

The findings in this paper are noteworthy and are an addition to the current literature. For recollection the following hypotheses were used to answer the research question:

Hypothesis 1: Individuals with high Risk-Preference have higher Entrepreneurial-Intention in contrast to individuals who are lower in Risk-Preference.
Hypothesis 2: Relatively optimistic individuals, tend to have more entrepreneurial intentions.

Some of the results from the regressions correspond to the consensus in the literature. For example, the results from the variables: Risk-Preference and gender. On the other hand, the results from the age variable contradicts current literature. For the variables: Family-View, Family-Job and Risk-Perception I cannot state that it is in line or contradicts current literature because there is not a lot of research on these variables.

The results which are different from the consensus can be a result of a dataset that is too small because it consists of only 150 respondents. Furthermore, the dataset is skewed which is observable, especially in the age dimension. The age range is between 18 and 30 with 95% of the ages ranging between 20 and 22. This is of course not representative of the population of working people which ranges between 18 and 65. Above that, the respondents are all students, which is also likely to be a huge bias. Not all 18- to 30-year-olds are students. And students probably have a different view on entrepreneurship, in contrast with people who are already working at that age.

Optimism and Family-View are highly correlated in the sample. When Family-View is added to the model the effect of Optimism disappears. It seems as if Optimism is a subset of Family-View. The second hypothesis is rejected because optimism is not significant in any model with added control variables. It is only significant in absence of other variables, but the model has an extremely low R-squared in that case. Pruet et al. (2009) found that the strength of the Family-View variable depends on whether a country is moderated by prevailing values, namely individualism. So, culture seems to have an influence as well. This was not considered in this paper because the data set used is mainly Dutch students. But it is interesting for further research. Outside opinions and views on entrepreneurship seem to be of extreme importance, for the individual.

Another interesting variable is Risk-Perception, which was how individuals view the riskiness of entrepreneurship. This is different from the objective risk of entrepreneurship. So, personality traits are kind of considered, but there should be more extensive research on how personality traits influence Entrepreneurial-Intention, together with Risk-Preference, because there is limited research into this.

The (pre)recommendation I would give to policy makers, is to advertise entrepreneurship as something valuable to society, this would be in line with the finding of the relationship of Family-View with Entrepreneurial-Intention. A lot more research needs to be done to specify what kind of character traits the individuals have that want to become entrepreneurs. Another suggestion would be do more research into which entrepreneurs become successful and especially which do not and why.

Bibliography:

Altinay, L., Madanoglu, M., Daniele, R., & Lashley, C. (2012). The influence of family tradition and psychological traits on entrepreneurial intention. *International Journal of hospitality management*, *31*(2), 489-499.

Barbosa, S. D., Gerhardt, M. W., & Kickul, J. R. (2007). The role of cognitive style and risk preference on entrepreneurial self-efficacy and entrepreneurial intentions. *Journal of Leadership & Organizational Studies*, *13*(4), 86-104.

Brandstätter, H. (2011). Personality aspects of entrepreneurship: A look at five meta-analyses. *Personality and individual differences*, *51*(3), 222-230.

Díaz-García, M. C., & Jiménez-Moreno, J. (2010). Entrepreneurial intention: the role of gender. *International entrepreneurship and management journal*, *6*(3), 261-283.

Dinis, A., do Paco, A., Ferreira, J., Raposo, M., & Rodrigues, R. G. (2013). Psychological Characteristics and entrepreneurial intentions among secondary students. *Education+ Training*, *55*(8/9), 763-780.

Esfandiar, K., Sharifi-Tehrani, M., Pratt, S., & Altinay, L. (2019). Understanding entrepreneurial intentions: A developed integrated structural model approach. *Journal of Business Research*, *94*, 172-182.

Ferreira, J. J., Raposo, M. L., Rodrigues, R. G., Dinis, A., & Do Paco, A. (2012). A model of entrepreneurial intention: An application of the psychological and behavioral approaches. *Journal of small business and enterprise development* , *19*(3), 424-440.

Falck, O., Heblich, S., & Luedemann, E. (2012). Identity and entrepreneurship: do school peers shape entrepreneurial intentions?. *Small Business Economics*, *39*(1), 39-59.

Hatak, I., Harms, R., & Fink, M. (2015). Age, job identification, and entrepreneurial intention. *Journal of managerial psychology* , *30*(1), 38-53.

Haus, I., Steinmetz, H., Isidor, R., & Kabst, R. (2013). Gender effects on entrepreneurial intention: a meta-analytical structural equation model. *International Journal of Gender and Entrepreneurship* , *5*(2), 130-156.

Hmieleski, K. M., & Baron, R. A. (2009). Entrepreneurs' optimism and new venture performance: A social cognitive perspective. *Academy of management Journal*, *52*(3), 473-488.

Ismail, M., Khalid, S. A., Othman, M., Jusoff, H. K., Rahman, N. A., Kassim, K. M., & Zain, R. S.

(2009). Entrepreneurial intention among Malaysian undergraduates. *International Journal of business and Management*, *4*(10), 54-60.

Israr, M., & Saleem, M. (2018). Entrepreneurial intentions among university students in Italy. *Journal of Global Entrepreneurship Research*, *8*(1), 1-14.

Jeraj, M. (2014). The relationship between optimism, pre-entrepreneurial curiosity and entrepreneurial curiosity. *Organizacija*, *47*(3), 199.

Kane, T. J. (2010). The importance of startups in job creation and job destruction. *Available at SSRN 1646934*.

Karabulut, A. T. (2016). Personality traits on entrepreneurial intention. *Procedia-Social and Behavioral Sciences*, *229*, 12-21.

Kautonen, T., Luoto, S., & Tornikoski, E. T. (2010). Influence of work history on entrepreneurial intentions in 'prime age'and 'third age': A preliminary study. *International small business journal*, *28*(6), 583-601.

Lüthje, C., & Franke, N. (2003). The 'making'of an entrepreneur: testing a model of entrepreneurial intent among engineering students at MIT. *R&d Management*, *33*(2), 135-147.

Moraes, G. H. S. M. D., Iizuka, E. S., & Pedro, M. (2018). Effects of entrepreneurial characteristics and university environment on entrepreneurial intention. *Revista de Administração Contemporânea*, *22*, 226-248.

Nowiński, W., Haddoud, M. Y., Lančarič, D., Egerová, D., & Czeglédi, C. (2019). The impact of entrepreneurship education, entrepreneurial self-efficacy and gender on entrepreneurial intentions of university students in the Visegrad countries. *Studies in Higher Education*, *44*(2), 361-379.

Ozaralli, N., & Rivenburgh, N. K. (2016). Entrepreneurial intention: antecedents to entrepreneurial behavior in the USA and Turkey. *Journal of Global Entrepreneurship Research*, *6*(1), 1-32.

Peterson, S. J., Walumbwa, F. O., Byron, K., & Myrowitz, J. (2009). CEO positive psychological traits, transformational leadership, and firm performance in high-technology start-up and established firms. *Journal of management*, *35*(2), 348-368.

Pruett, M., Shinnar, R., Toney, B., Llopis, F., & Fox, J. (2009). Explaining entrepreneurial intentions of university students: a cross-cultural study. *International Journal of Entrepreneurial Behavior & Research* , *15*(6), 571-594.

Roy, R., Akhtar, F., & Das, N. (2017). Entrepreneurial intention among science & technology students in India: extending the theory of planned behavior. *International Entrepreneurship and Management Journal*, *13*(4), 1013-1041.

Turker, D., & Selcuk, S. S. (2009). Which factors affect entrepreneurial intention of university students?. *Journal of European industrial training* , *33*(2), 142-159.

Ucbasaran, D., Westhead, P., Wright, M., & Flores, M. (2010). The nature of entrepreneurial experience, business failure and comparative optimism. *Journal of business venturing*, *25*(6), 541-555.

Westhead, P., & Solesvik, M. Z. (2016). Entrepreneurship education and entrepreneurial intention: Do female students benefit?. *International small business journal*, *34*(8), 979-1003.

Yurtkoru, E. S., Acar, P., & Teraman, B. S. (2014). Willingness to take risk and entrepreneurial intention of university students: An empirical study comparing private and state universities. *Procedia-Social and Behavioral Sciences*, *150*, 834-840.

Zhang, P., Wang, D. D., & Owen, C. L. (2015). A study of entrepreneurial intention of university students. *Entrepreneurship Research Journal*, *5*(1), 61-82.

Zhao, H., Seibert, S. E., & Lumpkin, G. T. (2010). The relationship of personality to entrepreneurial intentions and performance: A meta-analytic review. *Journal of management*, *36*(2), 381-404.