

Personality and income – An empirical study

-Abstract-

In this research we take a look at the effect of personality on earnings of a person. The Big Five personality traits are used; they are measured by making use of the international personality item pool. These questions and traits have been proven to be a sufficient estimation for personality. We find that agreeableness and neuroticism have a negative effect on the earnings of a person. We also find that conscientiousness and openness have a positive influence on the earnings of a person. Extraversion shows no real relation. Overall we can conclude that personality has an influence on the earnings of a person. The same results are found for men and women, there does not seem to be a difference between genders. The same holds for the different origins, Dutch, western foreigner and non-western foreigners. All the different origins show the same relation as the main findings. Besides that it is shown that openness has the biggest positive impact on income, the biggest negative impact is divided between agreeableness and neuroticism.

Master Thesis – Economics of Management and Organization
Department of Economics
Erasmus School of Economics
Erasmus University Rotterdam

Supervisor: Prof. Dr. A.J. Dur

Name: J. J. Boers

Date: 31th of March 2015

Student no: 400690

Email address: 400690jb@eur.nl

Introduction

Why do some people have a higher salary than others, or why are they more successful in their jobs than other employees? Of course a lot of factors can influence the success people have in their career, however the main focus of this research is personality. Do different kind of personalities have a different effect on the career success and the earnings of a person? Does this effect differ between men and women? Is there any difference between non-western and western foreigners or Dutch employees? This thesis will investigate the effect that personality has on the income of an employee.

To get a clear overview of the different kinds of personality, the 'Big Five' personality traits (also called five factor model) will be used. The five factor model uses the following characteristics to differentiate between personalities; agreeableness, conscientiousness, extraversion, neuroticism and openness (Costa & McCrae, 1992). Besides Costa & McCrae (1992), Goldberg (1990) also shows that the five factor model can be successfully used to explain the influence that personality has on all kinds of aspects. Another study done by McCrae & Costa (1997) shows that the Big Five personality traits can be called universal. They showed the Big Five works for highly diverse cultures and different languages and is not interpreted in different ways. To find the 'Big Five' traits in the data, Goldberg, et al. (2006) developed a set of standardized markers. The markers consist of 50 self-rating scales of which each trait has ten different rating scales of its own. After Goldberg et al. (2006) had proven the markers to be sufficient in representing or measuring the Big Five, a lot of research has been done using these specific self-rating scales.

In this research I will also make use of the standardized markers, called the international personality item pool (IPIP).

Osborne (2000) finds that labor market outcomes are influenced by personality, for this research she uses the National Longitudinal Survey and the National Child Development Study, both conducted in the United States of America. Osborne also finds that the personality effect on career success does not differ between male and female, but shows the same effect. (Osborne, 2000) Research by Seibert & Kraimer (2001) also proved that extraversion is positively related to income, promotions and overall job satisfaction. Neuroticism, on the other hand, was found negatively influencing income, promotions and

job satisfaction (Seibert & Kraimer, 2001). Agreeableness and openness differ in their outcomes between job satisfaction, earnings and career success. However, it was found that these differences depended on the different occupations of the panel members. People-oriented occupations show a negative relationship between agreeableness and earnings. This relationship was not found for occupations with a low people-oriented component (Seibert & Kraimer, 2001). It is even stated by Salgado (1997) that conscientiousness is a very good predictor for different occupations and special job criteria. He states that the rest of the five personality traits is only partly valid to predict career success. His findings are consistent with the findings from Barrick & Mount (1991).

When looking at the difference in effect of personality on income between cultures, research shows that the different effect personality has on income can be explained by cultural differences. Comparing cultural dimension scores with the mean of personality scores from 33 different countries, it was found that these two scores were significantly and extensively correlated with each other (Hofstede & McCrae, 2004). A study done by Allik & McCrae (2004) shows that there are different results found on the effect culture has on the personality of a person. Employees from Europe and America are more extravert and open to experience and people from Asia and Africa are more agreeable. Angleitner, et al. (1999) show that there is a change in people their personality between collage age and middle adulthood. Extraversion, neuroticism and openness seem to decline, the other two traits were increased during these years. They examined the cross cultural generalization of these personality traits. They looked at five different countries namely; Germany, Italy, Portugal, Croatia and South Korea. All the countries show the same difference of effect between the ages, although there are big differences between culture and history of the countries (Angleitner, et al., 1999). More detailed information about the previous literature can be found in the upcoming chapter. Besides that table 1 in the appendix briefly summarizes all the previous literature with respect to the effect of personality on income.

Table 1

The goal of this research is to see whether the different personality traits have an effect on the income of a person. To measure this income the gross monthly income of the employee is used, for convenience called earnings. Besides that, the research takes a look at differences between men and women and the difference between Dutch, western

foreigners and non-western foreigners. To conduct this research data from the Dutch LISS panel has been used and to measure the personality traits I used the standardized markers from Goldberg, et al. (2006), called the IPIP.

This research starts with discussing some related literature, followed by an explanation of the data and method used. Third, the results will be shown and explained and these will naturally be followed by the conclusion and the limitations. At the end the reference list and the appendix, containing all tables referred to in the paper, can be found.

Theory

In the past there has been a lot of discussion about questions like: What kind of personality can you call a basic personality and which criteria can be characterized as basic criteria? According to Costa & McCrea (1992) the five factor model suits these criteria. In their research they used four lines of reasoning and evidence to prove the five factor model suits the basic criteria of personality. They showed that the different personality traits can be found all across different racial groups, ages, gender and so on. They also showed that all the five traits are observed in different patterns of behavior. Besides that they state that all the traits have some base in the biology. At last they prove that the traits are related to all kind of factors and they state the Big Five should be suitable for representing personality. Although there are a lot of different 'Big Fives' to be found in the literature, Costa & McCrae (1992) showed that there is overall agreement about the same phenomena. So, although some researchers used a different Big Five, the phenomena can still be called the same. One thing is clear, they all agree on these five traits to be the most suitable for representing the personality of a person. (Costa & McCrae, 1992).

Mueller & Plug (2006) made a description of the personality traits of the five factor model. Each trait is described by six different so called facets. The description of the personality traits can be seen in table 2 of the appendix.

Table 2

They also found that all the traits of the Big Five personality traits have a statistical significant effect on earnings. To conduct these results Mueller & Plug (2006) explored the

effect of personality on income of a large group of Wisconsin high school graduates. They were first interviewed at time of their graduation in 1957 and re-interviewed in 1992. (Mueller & Plug, 2006).

Several researches have been done on the effect of different kinds of personality on job performance and earnings. Barrick & Mount (1991) specified their research on job performance, to measure the job performance three different criteria were used, Job proficiency, training proficiency and personnel data. In this research they looked at the difference of the five traits between different occupations. They found that conscientiousness always has an effect on job performance but the rest of the outcomes differ between all kinds of occupations (Barrick & Mount, 1991).

Tett, Jackson & Rothstein (1991) also proved there is a ground to use personality measures, like the five factor model, for employee selection.

Welbourne, Cavanaugh & Judge (1998) found that leaders with low neuroticism and low conscientiousness were positively related to firm performances. For the remaining traits they did not find a specific effect on firm performance.

Judge, Heller & Mount (2002) looked at job satisfaction and they found especially neuroticism and extraversion of big influence.

Another research that is closely related to the research done in this paper is the one by Boudreau, Boswell & Judge (1999) for both European and American residents they found a positive relation between extraversion and career success. They found a negative relation between neuroticism and career success and also the traits conscientiousness and agreeableness were negatively related to a successful career. These findings were different from the results that Judge, Higgins, Thoresen & Barrick (1999) found. They found that conscientiousness was positively related to career success and for the trait neuroticism their results were the opposite, namely a negative relation with respect to career success.

And how about the differences between gender? Mueller & Plug (2006) looked at the difference between men and women and they found earning advantages for men that are more antagonistic, are emotionally stable and more open to experience. For women conscientiousness and openness to experience enhances the chance on earning advantages. In another research done by Gelissen & de Graaf (2006) it was found that Extraversion was only positive for men, and openness to experience was negatively related to earnings if you

are a male. They state that personality is of high importance and a big influence for career success and earnings (Gelissen & de Graaf, 2006).

Corcoran & Duncan (1979) looked at the difference between sexes and race on the income of employees. As hypothesized they found evidence of white men having higher income than black men and both types of women. They state that the difference can be explained by the fact that white men had more education and training and were less absent at school or at their work. White men found fewer restrictions in education, training or job opportunities than black men or women did. Women face the problem of raising kids besides their job, that causes the fact that women are more absent at work or need to accept a lower wage due to the fact that this particular job is closer to home. The difference between black and white men is explained by the pre-labor-market stage. Black people seem to have lower quality of schooling and the health of white people is stated to be better. Overall Corcoran & Duncan (1979) found the proportionate wage payoff to be identical for all four groups. So, although white men seem to have more job opportunities and better jobs, when comparing white and black men and women the in the same kind of jobs, the wage does not seem to differ that much. The rest of the difference between income cannot be explained and Corcoran & Duncan find it reasonable to argue that the labor market does not treat workers fairly, which should explain the remaining part of the difference between income (Corcoran & Duncan, 1979).

A study by Costa Jr., Terracciano & McCrea (2001) shows that the difference in personality is small between gender and the differences also seem to be consistent with gender stereotypes. When looking at the difference between individuals, within these genders, the differences seem to be bigger. They also found the gender differences to be the smallest in cultures where traditional gender-roles are maximized, something they did not expect to find as they expected it to be the other way around (Costa Jr., Terracciano, & McCrea, 2001).

Schmitt, Realo, Voracek & Allik (2008) did a research on the differences in the effect the five personality traits have on the income of people from different cultures. In their research they looked at 55 different nations and also used the Big Five personality traits to measure the personality of the people in the sample. They found that in almost all nations men reported lower levels of agreeableness, conscientiousness, extraversion and neuroticism than women reported. They also found that the differences between men and women in

less fortunate economic and social conditions, on so called native personality may be weakened (Schmitt, Realo, Voracek, & Allik, 2008).

In another study done by Schmitt, Allik, McCrea, & Benet-Martínez (2007) they showed that people from different cultures also rank different for the five personality traits. They showed that South-America and Europe are highly scaled in the openness trait and East-Asian cultures reported lower on the openness trait. Besides that, they also find that African people score low on neuroticism compared to people from other continents. With these results they conclude that there are differences between cultures with respect to the Big Five personality traits. They state that there are different explanations for this phenomena. The different cultures make people behave differently or maybe it even begins by filling in the questionnaire and the behavior of people with respect to the questions. They do not state which explanation is the right one, but they can conclude that people from different cultures show different results with respect to the Big Five personality traits (Schmitt, Allik, McCrea, & Benet-Martínez, 2007) .

All these studies used the five factor model to conduct and explain their results.

Data & Methodology

To conduct this research, data from the Dutch Longitudinal Internet Studies for the Social sciences (LISS panel) has been used. The LISS panel is an online survey that includes about 5000 households in the Netherlands and with that about 8000 people. The LISS panel consists of people of different gender, age, race, earnings and jobs. All the members were carefully selected to make sure the panel would consist of people with different background, education, income and so on. The LISS Panel Data Archive checks from time to time whether the panel still represents the Dutch society. So, it should be almost the mirror image of our society. The persons who do not have access to a computer are provided with one to make sure this will not influence the sample, as it was carefully selected. (LISS Panel Data Archive, 2008).

The members in the panel complete a survey every month and get compensated for their effort. The LISS core studies are repeated every year and are designed to follow the changes in the lives of the panel members. This also holds for our dataset, personality. The

background variables were even conducted every month (LISS Panel Data Archive, 2008). After integration of the data sets and dropping the panel members who did not fill in the whole survey, we were left with a panel of about 5000 members.

To investigate the different personality traits, the 50 self-rating scales from Goldberg, et al. (2006) will be used. Also called the international personality item pool (IPIP). In table 3 of the appendix can be seen which question belongs to which personality trait (International Personality Item Pool, 2014).

Table 3

So, the variable agreeableness consists of the ten markers as stated in table 3. These markers should give a good indication of the actual level of agreeableness of a person. The same holds for the other variables.

I also took into account the fact that the questionnaire also included reversed questions. In the data set, these questions are reversed back again, to make sure all the questions influencing the different traits in the same way and are interpreted the right way.

In this research two data sets from the LISS panel will be used. At first I will make use of the background variables from 2009, the data set of May has been used. The basic background variables, such as age, civil status, income and gender are provided here. Second, we use the data from the personality study, including the five personality traits. The data consist of 5 waves every May between 2009 and 2013.

The dependent variable we will use is the earnings of a person. The earnings are measured by the monthly gross income. It would have been ideal to take the hourly wage of an employee, but unfortunately this information was not available in our dataset. There was also no information on whether the employee worked full- or part-time. That is why looking at all the opportunities, the monthly gross income suited best.

The independent variables are the five different personality traits used. These five traits are agreeableness, conscientiousness, extraversion, neuroticism and openness. Each trait is measured by ten different questions from the international personality item pool (IPIP). The rest of the independent variables consist of the background variables.

Combining these variables gives the following formula. Where α is a constant and ϵ is the error term.

$$Earnings_i = \alpha + \beta personality\ trait_i + \gamma background_i + \epsilon_i$$

Of course we should take into account the effect that the background variables can have on the different personality traits. As gender, age, background or education could have been of big influence on the personality of a person and on the different personality traits. This could also hold for the other way around. This can influence the effect that personality has on the earnings of a person. Trying to overcome this problem we will make use of hierarchical multiple regressions. First the effect of the Big Five on the earnings of a person will be measured, followed by adding the background variables such as gender, age and occupation.

Supported by earlier research I expect the Big Five personality traits to be of influence with respect to the earnings of people. Agreeableness and neuroticism are expected to have a negative effect and the other three traits, conscientiousness, extraversion and openness are expected to have a positive effect on the earnings of a person. Supported by a lot of previous literature (Boudreau, Boswell, & Judge, 1999) (Gelissen & de Graaf, 2006) (Judge, Heller, & Mount, 2002) (Judge, Higgins, Thoresen, & Barrick, 1999) (Seibert & Kraimer, 2001) and (Welbourne, Cavanaugh, & Judge, 1998).

With respect to gender differences I expect to find no great differences in the effect of the Big Five on income. Although some previous literature shows otherwise, the different researches also find different results. Besides that some of these studies are conducted some time ago. I think the wage gap between men and women has become less and also differences in personality became smaller in my opinion. Taking all the results into account I expect the influence of the Big Five on income not too differ to much between male and female employees (Costa Jr., Terracciano, & McCrea, 2001) (Mueller & Plug, 2006) (Osborne, 2000) (Schmitt, Realo, Voracek, & Allik, 2008).

Looking at the difference between Dutch, western foreigners and non-western foreign employees, I expect the influence of the personality traits on income to be the same for non-western males and females and western males and females, the same holds for the Dutch males and females. So, there is no difference in the effect of the Big Five on income

expected between Dutch, western foreigners and non-western foreigners. This was also shown by Corcoran & Duncan (1979). Besides that I expect to find a bigger effect of the traits extraversion and openness with respect to the Dutch and western employees. I also expect to find a greater effect of agreeableness in the non-western employee group. As Allik & McCrea (2004) and also (Schmitt, Allik, McCrea, & Benet-Martínez, 2007) showed in their research.

Results

Before starting with the regression, a first check is needed. Every different trait consists of ten different components, namely the self-rating questions used in the survey, so I need to check whether all these items have internal consistency. It is important that all the questions are asked on measuring the same trait, so they should be correlated to be called reliable. To check for the reliability of the variables, the Cronbach's alpha is used. The variables are called reliable from a value 0.7 and higher. Lower numbers are sometimes allowed and for clinical research even a minimum of 0.9 is required. As this research is no clinical research a value of at least 0.7 is reliable (Bland & Altman, 1996). As can be seen in table 4 of the appendix, all the traits are reliable as the Cronbach's alpha is 0.7600 or higher for all the five traits.

Table 4

The results of the first regression can be seen in table 5 of the appendix. In this regression all of the five traits are regressed against the gross monthly income of a person. The gross monthly income is preferred over the net monthly income as the gross monthly income gives a better indication of the income as there are no taxes or other things influencing the income.

As can be seen in table 5 the relation of agreeableness and neuroticism with earnings is as expected, they both have a negative influence on the earnings of a person. If someone is one point more agreeable his or her monthly earnings will be €402.17 less than the average, with a standardized coefficient of -0.0556. The standardized coefficient is used to compare the different variables. The standard coefficient shows which of the variables has the greatest

impact on the dependent variable, in this case income. The smaller the number, the smaller the impact of this variable on the income of a person (Bring, 1992). For neuroticism this effect is €277.23 less than the earnings on average, with a standardized coefficient of -0.0524. The traits conscientiousness and openness show a positive relation with earnings, as expected. If you are one point more conscientious you will earn €296.78 more than the average, standardized coefficient is 0.0429. For Openness this is even a higher number, if you are one point more open you will earn €492.35 more than the average, with a standardized coefficient of 0.0673. However, the fifth trait shows the reversed association with earnings of what was hypothesized. Extraversion has possibly a negative influence on the earnings of a person. Findings show the indication that a person with one point more extraversion earns €45.74 less than the average, with a standardized coefficient of -0.0081. Besides the fact that this result is not what was expected, extraversion is also the only trait that is not statistically significant, taking $\alpha = 0.05$. So we should keep this in mind before drawing conclusions about the effect extraversion has on earnings.

When comparing all the standardized coefficients we can conclude that openness has the biggest positive impact on income and agreeableness has the biggest negative relation with earnings.

After this first regression we can state that agreeableness and neuroticism have a negative relation with the earnings of a person. For extraversion the possible results are the same, although this effect is not significant. Conscientiousness and openness have a positive effect on the earnings of a person. Note that the R^2 is very low, so this indicates that there is a weak relationship between the personality traits and earnings.

Table 5

At this point we only looked at the effect of the Big Five on earnings, without any influence of the background variables. As gender, occupation, age and all the other individual characteristics probably have a great influence on the earnings of a person we will repeat the same regression now including these background variables. It is important to look at the effect of the background variables as they have a big influence on the income of a person. A higher age probably raises the income, also a higher education will raise the income.

There is also a backside as these variables can also influence the different traits or each other, as ageing can change the personality of a person, also the education or background

and gender can influence the personality of a person. Although this is something we should keep in mind, it is still important to take a look at the influence of the background variables especially when comparing results with the regression where the background variables were not included. The results are shown in table 6 of the appendix.

After including the individual characteristics all the traits are not statistically significant anymore. Although not significant we can still take a look at the possible effect of the traits on the earnings of a person. Agreeableness and neuroticism have a possible negative effect on the earnings of a person; the earnings of a person will be €64.23 and €63.29 less than the average, with standardized coefficients of -0.0087 and -0.0118 respectively. This is in line with the first findings. Conscientiousness and openness both still have a positive relation with the earnings of a person. One point more conscientiousness gives you €193.87 higher earnings, with a standardized coefficient of 0.0272 and being one point more open gives a raise in the earnings of €204.64 on average, with a standardized coefficient of 0.0275. We can say that an indication of an actual effect of conscientiousness and openness is shown. This effect has shown to be positive. At last extraversion is still not statistically significant but the effect has changed. After including the individual characteristics of a person the trait extraversion showed a small positive association with earnings of €2.28 on average, with a standardized coefficient of 0.0004. At this point we can state that there is a possible positive effect of extraversion on earnings of a person.

When taking a look at the background variables we can see that age and age² (squared) have the expected effect. Age improves your income by €83.13 (standardized coefficient of 0.3829) on average, but it is proven to be a concave function, the older people get the influence of age on earnings will decline. These results are shown by age and age². What also is a striking result is that being a female makes you earn €811.35 less on average than being a male, with a standardized coefficient of -0.1085. Also marriage shows a possible positive effect on the earnings of a person. Although not significant, you possibly earn €41.23, more on average if you are married, standardized coefficient of 0.0194. Education, as expected, has a positive influence on earnings. Being one point more educated gives you €182.28 higher earnings on average.

When looking at the impact the different variables have on income it can be seen that age has the biggest positive impact on income and primary occupation the biggest negative

effect. When looking at the traits, the trait openness has the biggest positive impact and neuroticism the biggest negative one. As can be seen, the R^2 is very low again, so the relationship between the independent variables and earnings is still weak.

Table 6

As the first and main results of this paper are shown, it is interesting to do some additional research on the gender differences with respect to the different personality traits. I will take a look at the different traits and investigate whether the effect of these traits differs between male and female. After creating a dummy the effect of the Big Five on earnings is estimated, given you are male. The findings can be found in table 7 of the appendix.

As can be seen in the output agreeableness, extraversion and neuroticism relate negatively to the earnings of a male person. Agreeableness and extraversion are not statistically significant so only show the possible effect. Neuroticism is statistically significant and shows a loss in earnings of €330.06 on average if you are male, standardized coefficient of -0.1047. Both the traits conscientiousness and openness are found to be positively related to earnings, resulting in an increase of your earnings by €230.51 and €533.60, with standard coefficients of 0.0573 and 0.1303, respectively.

This standardized coefficients show a great positive impact of openness and a great negative impact of neuroticism. Although the evidence is weak due to the low R^2 , this still gives an indication of the effect that personality has on the earnings for males.

Table 7

Now we will take a look at the effect of the Big Five on the earnings of females. The results are shown in table 8 of the appendix. The first result that stands out is the low R^2 and the fact that all traits, except conscientiousness, are not statistically significant. So, we should note that in this case the evidence shows a weak relationship. Although the evidence is weak we can still take a look at the possible effect of the traits on earnings in the case of being female.

Agreeableness, extraversion and neuroticism all have a negative association with the earnings of female persons. In the case of agreeableness and extraversion this negative association is even worse than the relation these traits show on the earnings for men. In the

case of neuroticism the loss for females is less than for males, but the overall relation is still negative. The effect of conscientiousness, the only one that is statistically significant, is highly positive. One point increase in conscientiousness, if you are a female, will increase your earnings by €414.96 on average, with a standardized coefficient of 0.0485. This effect is much bigger for females than for males. The relation of openness on the other hand is bigger for males than for females, but it is still positive. Being one point more open if you are a female will lead to an increase of €175.66 on average, with a standardized coefficient of 0.0187.

When we compare the standardized coefficients again we can see that this time the greatest positive impact can be found for conscientiousness, the greatest negative impact can be found for agreeableness in this case.

Table 8

The relation found for men and women are in line with the main findings of this paper. Besides that there is not so much difference between males and females if we talk about the effect the Big Five has on earnings.

Another effect we should take a look at is the effect the origin of people has on the different traits and with that on the income of a person. In the sample we can investigate the different effect Dutch, western and non-western employees have on the big five personality traits and the effect they have on the income of a person. First we will take a look at the effect the personality traits have on income, given the employees origin is Dutch. The results can be found in table 9 of the appendix.

Looking at the low R-squared of 0.0101 we should say that our results show a weak relationship. All the traits show an effect that is in line with the main findings of the paper. Agreeableness, extraversion and neuroticism have a negative relation with the income of a person, given he is Dutch. Conscientiousness and openness show a positive association with the earnings of an employee for the Dutch group. Although agreeableness, conscientiousness, neuroticism and openness are statistically significant there is no statistical significant effect found for the trait extraversion. The negative effect extraversion seems to have on income is only an indication of the real results. The greatest positive

impact in this case can be found for openness again, agreeableness' impact is the most negative one.

Table 9

Table 10 in the appendix shows the results for the non-western foreigners of the sample. As can be seen the R-squared in this case is still low but much higher than in the other regression and only extraversion is not statistically significant. The results also show a similar effect and direction in this case. Again agreeableness, extraversion and neuroticism seem to have a negative effect on the income of a person, given that the employee comes from a non-western origin.

For the traits conscientiousness and openness a positive effect can be found for the non-western people. The greatest positive impact was found for openness again, the greatest negative impact was found for neuroticism in this case.

Table 10

In table 11 of the appendix the last regression can be found, the effect of the Big Five on income, given that the person is a foreigner from western origin. In this case the R-squared is again low, so the evidence should be called weak. This time only the traits agreeableness and openness can be called statistically significant, still using $\alpha = 0.05$. Also in this case the results are in line with the main findings. Again agreeableness, extraversion and neuroticism have a negative relation with the income of a person, given the person is a foreigner with a western origin. The traits conscientiousness and openness show a positive effect on the income of a western foreigner, of which the latest has the biggest positive impact on income when we compare the standardized coefficients. The biggest negative effect was found for agreeableness.

Table 11

In all the cases the different traits relate to earnings in line with the main findings of the paper. Looking at the differences between Dutch, non-western foreigners and western foreigners there is no big difference to be found. The effect of non-western employees is a little bit bigger than the effect Dutch employees have, but this holds for the positive and the negative relation with earnings. Besides that, there is some evidence found that the effect of

agreeableness is bigger for non-western employees, especially when you compare the standardized coefficients with non-western foreigners and Dutch employees, -0.1753 and -0.0545 respectively. For the hypothesis that the effect of extraversion and openness is bigger for the Dutch and western employees there is no real evidence found. What we can conclude is that overall openness seems to have the biggest positive relation to income when we compare the standardized coefficients. The biggest negative impact differs between neuroticism and agreeableness.

With these results there are some things we should take into account.

First, the problem of reversed causality. Especially in the regression with all the background variables included, education will influence income but income could also influence education. Having a higher income can give more possibilities for further education for example. Also the different traits can be influenced by income. Having a higher income could make you feel more self-assured so could raise your level of openness as people are now more open for new experiences or ideas as they feel more confident. The same holds in the case of extraversion. But as shown above, being more open also raises the income of a person and the question is; which causes which?

A second problem is the omitted variable bias. There are probably some important causal factors that are not included in the model. For example, age will probably influence income but will also influence education. Besides that, shown by previous literature, age can also influence the different personality traits, but age and the different traits both influence income. There is also a chance the different traits influence each other, as being more neurotic probably makes you less open and the other way around. Both these traits influence the income of a person.

Conclusion

In this paper research is done on the effect that personality has on the earnings of a person. To measure these earnings the gross monthly income has been used. The first thing we can conclude is the fact that the international personality item pool (IPIP) is an excellent instrument to indicate the different personality traits. Due to a high Cronbach alpha we can call the questions a great resemblance of the personality trait of a person, as the internal

consistency is high.

In the results of the regressions above it can be seen that, although we should call the relationship weak, there seems to be a relationship between personality and earnings. For four of the Big Five personality traits, namely agreeableness, conscientiousness, neuroticism and openness, the results show a clear effect on earnings. Only for the trait extraversion it is not proven that it has any effect on earnings.

Overall the effect of agreeableness and neuroticism on earnings is negative, in line with the hypothesis. The effect of conscientiousness and openness is positive and the effect of extraversion on earnings differs. So, we can conclude that being more agreeable or neurotic will lower the income of a person. On the other hand we can conclude that being more conscientious and open will raise the income on a person. For being more extravert there is no proven effect on the income of a person.

After the main findings were presented, we took a better look at the difference between male and female. Surprised to see no great differences between male and female, the results show the same relation as the main findings. Agreeableness and neuroticism influence earnings negatively, for both male and female participants. Earnings were positively influenced by conscientiousness and openness, for both male and female. Due to our findings we can say that the different personality traits are not influenced by gender.

When looking at the origin of an employee the effect of the different traits shows the same directions and results as the main findings. So whether a person comes from the Netherlands, another western country or is a non-western foreigner has no influence on the direction of the relation the different traits have with the earnings of a person. The expected difference in the size of the effect the traits agreeableness, extraversion and openness would have, depending on the origin of the person was only found for the trait agreeableness, which shows that being more agreeable was of a bigger impact for non-western foreigners compared to the other two employee types. There seem to be no big differences between Dutch, western and non-western employees if we talk about the effect the different personality traits have on the income of a person. This is opposite of what we expected to find.

Overall, comparing the impact the different variables have on the income of a person, it can be stated that being more open has the biggest positive impact on the income of a person. The biggest negative effect is found for two traits; neuroticism and agreeableness.

Although there are small differences in the outcome, the direction of these effects does not change. So, we can say agreeableness and neuroticism will always have a negative effect on the income of a person, regardless of being male or female and regardless of being Dutch, from another western country or a non-western foreigner. Conscientiousness and openness, on the other hand, will always have a positive effect on the earnings of a person, regardless of gender or the country a person comes from. The last trait, extraversion has no real proven effect.

Limitations

Of course there are a lot of limitations within this research, even besides the problem of reversed causality and the omitted variables bias. There is also a lot of room for further research on this topic.

At first, besides the background variables we used there are a lot more different characteristics that could influence earnings. The first one is the kind of job you have, is there a difference between private and public workers? This would be an interesting question for further research. Also the different kind of schooling, the different kind of race of a person, educational information about the parents or where people come from are interesting extensions for further research. Besides the fact that these factors can influence the earnings of a person it can also influence the kind of personality someone has. Different cultures have different values, so they find different things important.

One other big disadvantage is that the data only contains people from the Netherlands. It can very well be that people in other countries show different findings, although we took the origin into account, living in the Netherlands or somewhere else can make a difference. It was also not possible to make more of a distinction than Dutch, western foreigner and non-western foreigner. It could be the case that the different effects have more to do with religion or with a specific country or continent where the employees came from. Maybe the fact working in another country can also give some interesting findings. There could be a

difference in expectation from different companies, or the values companies find important for their employees could very well differ between countries or companies.

Another problem is the effect part-time workers have on the outcome of this research. It was not possible to exclude the part-time workers from the data and it was also not possible to take hourly wage instead of the gross monthly income of a person. So the income shown is not that realistic as we would like it to be.

Another interesting research is the fact of extraversion, as in this research no effect was found. Why was that the case? Maybe the importance of extraversion depends on the occupation you have. It could very well be that in the sales department extraversion is necessary where working in the IT-business does not require any extraversion.

Besides that also the fact of the negotiation with respect to your salary plays a role. It could very well be that being more agreeable and/or less extravert could result in a lower salary because of your behavior during a job interview or job performance interview.

So, there is a lot of room for further research on this topic.

Bibliography

- Allik, J., & McCrea, R. R. (2004). Toward a Geography of Personality Traits - Patterns of Profiles Across 36 Cultures. *Journal of Cross-Cultural Psychology*, 13-28.
- Angleitner, A., Barbaranelli, C., Bratko, D., Caprara, G. V., Chae, J.-H., Costa, P. T., et al. (1999). Age Differences in Personality Across the Adult Life Span: Parallels in Five Cultures. *Developmental Psychology*, 466-477.
- Barrick, M. R., & Mount, M. K. (1991). The Big Five Personality Dimensions and Job Performance: a Meta-Analysis. *Personnel Psychology*, 1-26.
- Bland, J. M., & Altman, D. G. (1996). *Satistic notes: Cronbach's alpha*. London: Department of Public Health Science, st. George Hospital Medical School.
- Boudreau, J. W., Boswell, W. R., & Judge, T. A. (1999). *Effects of Personality on Executive Career Success in the U.S. and Europe*. Ithaca: Cornell University.
- Bring, J. (1992). How to Standardize Regression Coefficients. *The American Statistician*, 209-213.
- Corcoran, M., & Duncan, G. J. (1979). Work History, Labor Force Attachment, and Earnings Differences between the Races and Sexes. *The Journal of Human Resources*, 3-20.
- Costa Jr., P. T., Terracciano, A., & McCrea, R. R. (2001). Gender Differences in Personality Traits Across Cultures: Robust and Surprising Findings. *Journal of Personality and Social Psychology*, 322-331.
- Costa, P. T., & McCrae, R. R. (1992). Four ways five factors are basic. *person. individ. Diff.*, 653-665.
- Gelissen, J., & de Graaf, P. M. (2006). Personality, social background, and occupational career succes. *Social Science Research*, 702-726.
- Goldberg, L. R. (1990). An Alternative "Description of Personaliy": The Big-Five Factor Structure. *Journal of Personality and Social Psychology*, 1216-1229.

- Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, R. C., et al. (2006). The International personality item pool and the future of public-domain personality measures. *Journal of Research in Personality*, 84-96.
- Hofstede, G., & McCrae, R. R. (2004). Personality and Culture Revisited: Linking Traits and Dimensions of Culture. *Cross-Cultural Research*, 52-88.
- International Personality Item Pool. (2014, December 15). *the International Personality Item Pool*. Retrieved January 27, 2015, from the International Personality Item Pool: www.ipip.ori.org
- Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-Factor model of Personality and Job Satisfaction: A Meta-Analysis. *Journal of Applied Psychology*, 530-541.
- Judge, T. A., Higgins, C. A., Thoresen, C. J., & Barrick, M. R. (1999). The Big Five Personality Traits, General Mental Ability, and Career Success Across the Life Span. *Personnel Psychology*, 621-652.
- LISS Panel Data Archive. (2008, January 1). *LISS Panel Data Archive*. Retrieved January 27, 2015, from LISS Panel Data Archive: www.lissdata.nl
- McCrae, R. R., & Costa, P. T. (1979). Personality Trait Structure as a Human Universal. *American Psychologist*, 509-516.
- Mueller, G., & Plug, E. (2006). Estimating the Effect of Personality on Male and Female Earnings. *Industrial and Labor Relations Review*, 3-22.
- Osborne, M. A. (2000). *The power of personality: Labor market rewards and the transmission of earnings*. Massachusetts: University of Massachusetts - Amherst.
- Salgado, J. F. (1997). The Five Factor Model of Personality and Job Performance in the European Community. *Journal of Applied Psychology*, 30-43.
- Schmitt, D. P., Realo, A., Voracek, M., & Allik, J. (2008). Why can't a man be more like a woman? Sex differences in Big Five personality traits across 55 cultures. *Journal of Personality and Social Psychology*, 168-182.

- Schmitt, P. D., Allik, J., McCrea, R. R., & Benet-Martínez, V. (2007). The Geographic Distribution of Big Five Personality Traits - Patterns and Profiles of Human Self-Description Across 56 Nations. *Journal of Cross-Cultural Psychology*, 173-2012.
- Seibert, S. E., & Kraimer, M. L. (2001). The Five-Factor Model of Personality and Career Success. *Journal of Vocational Behavior*, 1-21.
- Tett, R. P., Jackson, D. N., & Rothstein, M. (1991). Personality measures as Predictors of Job performance: a Meta-analytic Review. *Personnel Psychology*, 703-742.
- Welbourne, T. M., Cavanaugh, M. A., & Judge, T. A. (1998). *Does the Leader Make a Difference? Relationship Between Executive Leader Personality and Entrepreneurial Firm Performance*. Ithaca: Cornell University.

Appendix

Table 1: Summary of previous studies.

Researchers	Year	Summary	Results
Allik & McCrea	2004	Investigation of difference of personality between different cultures. They looked at the different continents.	Contract of American and European cultures with Asian and African culture. European and American employees are more extravert and open. Asian and African people are more agreeable.
Angleitner et al.	1999	Change in personality (big five) between college age and mid adulthood. Comparison made between Germany, Italy, Portugal, Croatia and South Korea.	Decline in neuroticism, extraversion and openness. Increase in agreeableness and conscientiousness. Same in all countries, difference can be explained by cultural differences.
Barrick & Mount	1991	Investigation of the big five on job proficiency, training proficiency and personnel data, within 5 occupational groups.	Conscientiousness showed a consistent relation with all kind of job performance criteria. The rest differs between occupations.
Boudreau, Boswell & Judge	1999	Study about the effect of personality on career success in America and Europe.	Extraversion is positively related, neuroticism negatively. Conscientiousness was unrelated to extrinsic career success and negatively related to intrinsic career success. Agreeableness was negatively related.
Corcoran & Duncan	1979	Investigates the influence of work history, on the job training, absenteeism and self-imposed restrictions on the income of black men and women and white men and women.	White men had more training and education, less absenteeism and fewer restrictions than women or black men. When taking this into account, there seems to be little difference in the wage payoff.
Costa Jr., Terracciano & McCrea	2001	Investigates gender differences and individual variation within gender. Looks at the effect on personality traits in different cultures.	Women report higher in neuroticism, agreeableness and openness to feelings. Men are more assertive and open to ideas. Gender differences varied between cultures. Differences were highest in American and European countries.
Costa & McCrae	1992	Investigate whether the five factor model represents the basic	Five factor model represents the basic dimensions of

		dimensions of personality.	personality, for different gender, age, culture and so on.
Gelissen & de Graaf	2006	Investigation relation between personality and income.	Direct relations between personality and career success found. Personality contributes importantly to income.
Goldberg	1990	Demonstration of the generality of the five factor model.	Shows potential utility for the big five o be used in further research.
Goldberg et al.	2006	Investigate the use of scale items for the five factor model and why this international personality item pool has been increasing so rapidly.	IPIP shows to be a sufficient estimator for the five factor model. Reasons of usage: for free, easy access, includes more than 2000 items, scoring keys are provided and the items can be presented in any order.
Hofstede & McCrae	2004	The influence of culture on personality of a person. Measured by the five factor model.	Personality scores were found to be correlated with cultural dimensions.
Judge, Heller & Mount	2002	Investigate the effect of the five factor model on job satisfaction.	Only the effect of neuroticism and extraversion on job satisfaction can be generalized across studies. Proven effect. Negative for neuroticism rest proven to have a positive effect on job satisfaction.
Judge et al.	1999	Research on the relationship between the five factor model and general mental ability with career success.	Conscientiousness is positively related to career success. Neuroticism is negatively related to career success. Adulthood measures of the big five were stronger related to career success than childhood measures.
McCrae & Costa	1979	Investigates whether the personality trait structure is universal.	Shows personality trait structure is universal.
Mueller & Plug	2006	How do different personalities effect earnings of men and women.	An effect is found. Men have earning advantages if they are less agreeable, less neurotic, and highly open. For women conscientiousness and openness were positively related to income. Agreeableness seems to have the biggest influence on the difference between men and women. Only men were rewarded for being less agreeable.

Osborne	2000	Investigates the influence of personality on economic success.	Personality is shown to be a significant determinant for higher income. Personality is important for both men and women with respect to income.
Salgado	1997	Investigation between big five and job criteria in America and Europe, between different occupations.	Conscientiousness and emotional stability important predictors for job criteria. Remaining traits were only important for some occupations.
Schmitt et al.	2008	Investigate difference of the big five between men and women.	Women are found to be more neurotic, extravert, agreeable and conscientious than men did. Overall large gender differences can mostly be explained by higher levels of human development.
Schmitt et al.	2007	Investigates whether the big five can be used across nations, how valid are the big five for this nations and how are the personality traits distributes across the world.	They show the big five can be used across the world and valid. South American people and East Asian people show a different effect to openness than the rest of the people in the world.
Seibert & Kraimer	2001	Relation between the big five and career success is investigated. Set of men and women from different occupations and organizations is used.	Extraversion was positively related to earnings, job satisfaction and promotions. Neuroticism was negatively related to career satisfaction. Agreeableness had a negative effect on career satisfaction and openness effects salary in a negative way.
Tett, Jackson & Rothstein	1991	Effect personality on job performance.	They find an effect between personality and job performance. Personality measures can be used as a good selection device for recruiting and selecting employees.
Welbourne, Cavanaugh & Judge	1998	Investigate effect personality on leadership and leader personality on firm performance.	Extraversion was negatively related to firm performance, where emotional adjustment was positively related to firm performance. Conscientiousness was not related to firm performance.

Table 2: Facets of the Big Five Personality Traits.

<i>Dimension</i>	<i>Facet (and correlated trait adjective)</i>
<i>Extraversion vs. Introversion</i>	<i>Gregariousness (sociable)</i> <i>Assertiveness (forceful)</i> <i>Activity (energetic)</i> <i>Excitement-seeking (adventurous)</i> <i>Positive emotions (enthusiastic)</i> <i>Warmth (outgoing)</i>
<i>Agreeableness vs. Antagonism</i>	<i>Trust (forgiving)</i> <i>Straightforwardness (not demanding)</i> <i>Altruism (warm)</i> <i>Compliance (not stubborn)</i> <i>Modesty (not showing off)</i> <i>Tender-mindedness (sympathetic)</i>
<i>Conscientiousness vs. Lack of Direction</i>	<i>Competence (efficient)</i> <i>Order (organized)</i> <i>Dutifulness (not careless)</i> <i>Achievement striving (thorough)</i> <i>self-discipline (not lazy)</i> <i>Deliberation (not impulsive)</i>
<i>Neuroticism vs. Emotional Stability</i>	<i>Anxiety (tense)</i> <i>Angry hostility (irritable)</i> <i>Depression (not contented)</i> <i>Self-consciousness (shy)</i> <i>Impulsiveness (moody)</i> <i>Vulnerability (not self-confident)</i>
<i>Openness vs. Closeness to Experience</i>	<i>Ideas (curious)</i> <i>Fantasy (imaginative)</i> <i>Aesthetics (artistic)</i> <i>Actions (wide interest)</i> <i>Feelings (excitable)</i> <i>Values (unconventional)</i>

Source: The Big Five Personality Traits (Mueller & Plug, 2006) page 5

Table 3: The International Personality Item Pool Questions

<i>Dimension</i>	<i>Facet (and correlated trait adjective)</i>
<i>Agreeableness</i>	<i>I am interested in people (+)</i> <i>I sympathize with others' feelings (+)</i> <i>I have a soft heart (+)</i> <i>I take time out for others (+)</i> <i>I feel others' emotions (+)</i> <i>I make people feel at ease (+)</i> <i>I feel little concern for others (-)</i>

	<p><i>I insult people (-)</i> <i>I am not interested in other people's problems (-)</i> <i>I am not really interested in others (-)</i></p>
<i>Conscientiousness</i>	<p><i>I am always prepared (+)</i> <i>I pay attention to details (+)</i> <i>I get chores done right away (+)</i> <i>I like order (+)</i> <i>I follow a schedule (+)</i> <i>I am exacting in my work (+)</i> <i>I leave my belongings around (-)</i> <i>I make a mess of things (-)</i> <i>I often forget to put things back in their proper place (-)</i> <i>I shirk my duties (-)</i></p>
<i>Extraversion</i>	<p><i>I am the life of the party (+)</i> <i>I feel comfortable around people (+)</i> <i>I start conversations (+)</i> <i>I talk to a lot of different people at parties (+)</i> <i>I don't mind being the center of attention (+)</i> <i>I don't talk a lot (-)</i> <i>I keep in the background (-)</i> <i>I have little to say (-)</i> <i>I don't like to draw attention to myself (-)</i> <i>I am quiet around strangers (-)</i></p>
<i>Neuroticism</i>	<p><i>I get stressed out easily (+)</i> <i>I worry about things (+)</i> <i>I am easily disturbed (+)</i> <i>I get upset easily (+)</i> <i>I change my mood a lot (+)</i> <i>I have frequent mood swings (+)</i> <i>I get irritated easily (+)</i> <i>I am relaxed most of the time (-)</i> <i>I seldom feel blue (-)</i></p>
<i>Openness</i>	<p><i>I have a rich vocabulary (+)</i> <i>I have a vivid imagination (+)</i> <i>I have excellent ideas (+)</i> <i>I am quick to understand things (+)</i> <i>I use difficult words (+)</i> <i>I spend time reflecting on things (+)</i> <i>I am full of ideas (+)</i> <i>I have difficulty understanding abstract ideas (-)</i> <i>I am not interested in abstract ideas (-)</i> <i>I do not have a good imagination (-)</i></p>

Source: (International Personality Item Pool, 2014)

Table 4: The Big Five and corresponding Cronbach's Alpha

Trait	Cronbach's Alpha
Agreeableness	0.8098
Conscientiousness	0.7844
Extraversion	0.8738
Neuroticism	0.8817
Openness	0.7600

Table 5: OLS Big Five on gross monthly income, $R^2= 0.012$

Gross monthly Income	Coefficient	Std. error	p-value	Standardized Coefficient
Agreeableness	-402.1735	111.6599	0.000	-0.0556
Conscientiousness	296.7775	104.5417	0.005	0.0429
Extraversion	-45.7472	87.6908	0.602	-0.0081
Neuroticism	-277.2272	77.68051	0.000	-0.0524
Openness	492.3468	111.4783	0.000	0.0673
Constant	937.3052	611.2615	0.125	

Table 6: OLS Big Five + background variables on gross monthly income, $R^2= 0.052$

Gross monthly Income	Coefficient	Std. error	p-value	Standardized coefficient
Agreeableness	-64.2330	121.2059	0.596	-0.0087
Conscientiousness	193.8698	110.0206	0.078	0.0272
Extraversion	2.2784	90.0025	0.980	0.0004
Neuroticism	-63.2928	81.4948	0.437	-0.0118
Openness	204.6422	121.6685	0.093	0.0275
Gender (1=female)	-811.3482	113.8196	0.000	-0.1085
Age	83.1340	19.5106	0.000	0.3829
Age2	-.6299	.1947	0.001	-0.2933
Civil status (1=married)	41.2346	35.6245	0.247	0.0194
Urban	-95.1915	41.8285	0.023	-0.0323
Primary	-114.6603	17.2448	0.000	-0.1188

occupation				
Education	182.2750	34.1157	0.000	0.0783
Origin	-.6040	1.0037	0.547	-0.0085
Constant	-751.8538	831.6744	0.366	

Table 7: OLS Big Five on gross monthly income, male $R^2= 0.040$

Gross monthly Income	Coefficient	Std. error	p-value	Standardized coefficient
Agreeableness	-91.7300	92.9308	0.324	-0.0222
Conscientiousness	230.5112	88.1051	0.009	0.0573
Extraversion	-36.6190	72.3346	0.613	-0.0115
Neuroticism	-330.0642	67.7206	0.000	-0.1047
Openness	533.6023	90.1559	0.000	0.1303
Constant	384.2791	516.7772	0.457	

Table 8: OLS Big Five on gross monthly income, female $R^2= 0.003$

Gross monthly Income	Coefficient	Std. error	p-value	Standardized coefficient
Agreeableness	-130.1689	213.5616	0.542	-0.0131
Conscientiousness	414.9580	177.8938	0.020	0.0485
Extraversion	-66.2252	151.7309	0.663	-0.0094
Neuroticism	-34.4556	131.8723	0.794	-0.0052
Openness	175.6567	201.2820	0.383	0.0187
Constant	-425.9965	1083.7660	0.694	

Table 9: OLS Big Five on gross monthly income, origin Dutch $R^2= 0.0101$

Gross monthly Income	Coefficient	Std. error	p-value	Standardized coefficient
Agreeableness	-426.0687	130.7868	0.001	-0.0545
Conscientiousness	251.4817	123.2863	0.041	0.0333
Extraversion	-14.7579	102.2185	0.885	-0.0025
Neuroticism	270.2021	90.7593	0.003	-0.0474
Openness	508.2000	128.7162	0.000	0.0656
Constant	1077.192	714.6641	0.132	

Table 10: OLS Big Five on gross monthly income, origin non-western $R^2= 0.1214$

Gross monthly Income	Coefficient	Std. error	p-value	Standardized coefficient
Agreeableness	-499.2049	219.7079	0.024	-0.1753
Conscientiousness	491.0061	211.9344	0.021	0.1771
Extraversion	-28.0878	174.1940	0.872	-0.0111
Neuroticism	-430.7354	156.1715	0.006	-0.1866
Openness	657.6392	250.4706	0.009	0.1910
Constant	240.3719	1145.335	0.834	

Table 11: OLS Big Five on gross monthly income, origin western $R^2= 0.0460$

Gross monthly Income	Coefficient	Std. error	p-value	Standardized coefficient
Agreeableness	-421.6647	199.4282	0.035	-0.1198
Conscientiousness	88.7034	194.0642	0.648	0.0263
Extraversion	-140.4964	162.6258	0.388	-0.0494
Neuroticism	-99.7587	134.1640	0.458	-0.0408
Openness	746.8301	218.9449	0.001	0.1977
Constant	703.0337	1127.3020	0.533	