

An empirical study on the relationship between commuting distance and job satisfaction.

Nick Janssen

411247

Abstract

This paper will investigate the relationship of travel time between home and the workplace of mostly short-distance commuters on the job satisfaction of these workers. The paper will start with a theoretical approach in which earlier literature will be evaluated to show the scientific and social relevance of the subject, as well as providing context on the variables that are used intensively in the paper. After this theoretical framework, the paper will continue with an empirical approach focus on a sample of Dutch commuters that filled in a questionnaire each month. Multiple aspects of job satisfaction from this questionnaire will be used as data in the empirical research. Ultimately the goal of this paper is to find out whether the commuting time of Dutch employees has a significant effect on their job satisfaction.

29-09-2017

Erasmus University Rotterdam

Erasmus School of Economics

Contents

Abstract 1

Introduction..... 3

Theoretical framework..... 4

Data 9

Methodology 11

Results 17

Conclusion 22

Discussion 24

Appendix..... 25

Bibliography..... 30

Introduction

Commuting from home to work is part of everyday life and is done by almost everyone. How an individual experiences this commute and how they are influenced is different however. The way an individual experiences their commute may influence the state they are in when they arrive at the workplace. This commuting time has been shown to be increasing over the years as daily commuting times increased in Germany by eight minutes between 1991 and 2001, by three minutes in the Netherlands between 1975 and 2000, and by twelve minutes in the United States between 1975 and 1994 (Gimenez-Nadal & Molina, 2014). Since this time spent traveling from home to work and back reduce the leisure time of individuals, this might impact them negatively overall and in the way they perceive their job. To find out if the commuting time has an effect on the job satisfaction, in this paper we will research the relationship between these two variables. Several different aspects of job satisfaction will be taken into account as well as the overall job satisfaction. Therefore the following research question will be tested:

“What is the relationship between commuting time and the different aspects of job satisfaction of workers in The Netherlands?”

The data will be collected from the Netherlands and the commuting times go from 0 minutes up to 240 minutes. First a theoretical framework will be constructed in order to evaluate previous literature and to show the importance of this research. Then using the data from the LISS Panel, this paper will research the effect of commuting time on six different aspects of job satisfaction. These aspects are satisfaction with salary, working hours, type of work, atmosphere among colleagues, the career so far, and satisfaction with current work. Then a fixed effects regression will be used to find the results of this research over time. After finding the results, the research will draw a conclusion and identify what this conclusion implies for employees and firms as well as give an advice on how to deal with commuting time.

Theoretical framework

First of all it is important to look at the independent variable of this research; the job satisfaction, and show why this variable is important for companies to pay attention to. Job satisfaction is defined as the level of contentment a person feels regarding his or her job and is mainly based on the perception of an individual.

Job satisfaction in itself is a very important variable for firms. To show another example of the importance of this variable in our research we have to look at a paper by Judge et al. (2001) on the relationship between job satisfaction and job performance. In this paper, titled "The Job Satisfaction-Job Performance Relationship: A Qualitative and Quantitative Review" they first evaluate seven earlier presented models on job satisfaction and performance and conclude that the results of these models are inconsistent. An explanation given for the inconsistency of these results is that the models have been proposed but not have been thoroughly tested.

Judge et al. then performed a meta-analysis on 312 studies concerning job satisfaction and performance and a total of 54.417 observations, which was a much larger sample size than earlier conducted meta-analysis. Job satisfaction is measured on a 10 point scale as reported by the employee and job performance is measured by a performance rating of the employee by the supervisor. The results of this meta-analysis showed that the true correlation between job satisfaction and job performance was 0.30, this means that for every 1 point that an employee rated their job satisfaction higher, their job performance as reviewed by their supervisor went up 0.3 points, which is a moderate positive and significant outcome. What this means is that a higher reported job satisfaction by the employee correlates with a higher performance rating given by the supervisor.

These results show that job satisfaction as perceived by individual employees can be an important part of a business' overall performance. This supports the research done in this paper as it gives extra incentive to research the factors of job satisfaction. One of these factors is the relationship between commuting distance and job satisfaction which will be reviewed in this research and this is important to research because it can bring insights on how to increase the overall performance of a business if a significant correlation is found.

Previous research on the effect on the relationship between commuting time and job satisfaction has been done in a paper by V. van Sprakelaar (Commuting Time, a Must or a Pleasure?, 2016). This research tests the relationship between commuting time and job satisfaction in Europe and also

looks at the effect that tax-deductibles might have on the job satisfaction. This paper focuses on the job satisfaction in general, the satisfaction with atmosphere among colleagues, and the relationship between worker and supervisor. To test the relationships Three Ordinary Least Square models are used. To measure the effect of tax deductibles, the variable tax deduction on travel expenses is added to these models. The outcome found by running these OLS regression models is firstly that there is a negative and significant relationship between commuting time and job satisfaction, which supports the hypothesis of the paper. It also showed a negative and significant correlation between commuting time and satisfaction with atmosphere among colleagues, as well as satisfaction of worker-supervisor relationship. The relationship that is found on between tax deduction on travel expenses and all three aspects of job satisfaction turns out not to be significant. The findings of this paper by Van Sprakelaar are very useful for this paper because they show us that the relationship that is central in this paper is significant and negative when using a sample of European countries. In this paper we will look at a sample of the Netherlands and also include other factors of job satisfaction that have not been researched in this paper.

Earlier research on the relationship between commuting time and job satisfaction has been done by Mattias Spies in the paper "Distance between home and workplace as a factor for job satisfaction in the North-West Russian oil industry". The research conducted by Spies differs from the research in this paper on several aspects. First of all, the research is done in Northern Russia, where commuting distance is considerably greater than in the Netherlands. Secondly, employees have accommodation provided at the place of work instead of commuting daily, like is done by the sample of Dutch workers.

First, the study tests the immediate correlation between commuting time and job satisfaction by using a Spearman correlation. In the second approach three groups are classified based on distance between home and workplace. A Kruskal-Wallis test is performed in order to analyze the average job satisfaction of these three groups.

The outcome of the Spearman correlation shows a slightly positive and significant outcome of 0.144, indicating that job satisfaction is higher for individuals with longer commuting distance. The Kruskal-Wallis test shows that it is possible to conclude that average job satisfaction increases significantly with distance in the three mean groups. The majority of results indicate a positive linear correlation between commuting distance and job satisfaction (Spies, 2006).

The research performed by Spies was based on long distance commuting with accommodation

provided at the workplace. These results cannot be extrapolated to daily commuting of shorter distances without accommodation at the workplace. Therefore this paper will focus on how daily, relatively short commuting distance can have be correlated with the job satisfaction.

Earlier research was done on the influence of commuting on the overall happiness of workers. This research was conducted by Olsson et al. (Happiness and Satisfaction with Work Commute, 2012) and it researched how the satisfaction that people have with their work commute contributes to their overall happiness. The paper used data on work commuters in the three largest urban areas in Sweden. The data on travel distance was separated into three groups, short (under 20 minutes), medium (between 20 and 35 minutes) and long (more than 35 minutes) commute time. The research used nine seven-point satisfaction scales to determine the satisfaction of the commuters. Looking at the averages of the different groups showed that the satisfaction with commute was higher for the groups with shorter commute time than for the groups with longer commuting time.

Multiple linear regression was performed by Olsson et al. with overall happiness as the independent variable and commuting time as dependent variable. This multiple regression with respect to overall happiness showed that satisfaction with the commute itself directly and substantially influences the overall happiness of an individual. What this research shows is that routine activities play an important role in the overall happiness. The research assumes a causal direction from satisfaction with work commute to overall happiness but it can't rule out reverse causality. What is important to take away from this paper is that work commute has a high correlation with happiness, which means that it could possibly have a high impact on job satisfaction as well.

The Office for National Statistics of the United Kingdom conducted research on the relationship between commuting to work and personal well-being. The research used data on over 60.000 respondents and used different models to capture the different aspects of commuting. These models include commuters versus non-commuters, commuting time in minutes, commuting time in banded periods, travel mode, travel mode with travel time. All models included control variables such as age, sex, ethnicity, etc. Ordinary Least Square regression was performed for these models.

The first result showed that commuters have an overall lower life satisfaction, level of happiness, and more anxiety than non-commuters, which is in confirmation with Olsson et al. Research on commuting time showed that for each additional minute of commuting time the life satisfaction, the sense that one's activities are worthwhile, and happiness level decreased with 0.002 in how people

rate their life on a 10 point scale (UK Office for National Statistics, 2014). This is an important result to interpret, because it shows a negative impact of commuting time. Research on travel time bands showed the same negative impact of commuting time starting from a minimum of 30 minutes travel time.

The results of this paper by the Office for National statistics show that travel time can have a significant negative impact on personal well-being, but it does not mean that long travel time also negatively impacts job satisfaction, as there might be other variables that can compensate this negative impact. Therefore in the research on commuting time and job satisfaction variables that can compensate for longer commuting time and lower personal well-being such as higher income or more suitable working conditions have to be taken into account.

Previous research on how negative effects of lengthy commutes can be minimized or even offset has been done by Jachimowicz et al (Jachimowicz, Lee, Staats, Menges, & Gino, 2016). Their research focused on the transition from home- to work-roles and the how this role transition can be influenced. They presented three hypotheses in their work to research this subject. Another factor that the paper focused on was the trait self-control of individuals and whether this trait influenced the role transition. The first hypothesis that was formalized was that “the negative relationship between commute time and job satisfaction is less pronounced for employees that have high trait self-control, than for those that have low trait self-control”. The method used for testing this hypothesis was sending out two surveys, one regarding individual’s trait self-control and one regarding commuting time and job satisfaction. The results of these surveys concluded that employees with high trait self-control were less affected by the commuting time than employees with low trait self-control when it comes to job satisfaction. The second hypothesis presented was that “employees with high trait self-control were more engaged in work related prospection”. Work related prospection refers to “the ability to represent what might happen in the future”. A survey regarding work related prospection was sent out and using a logistic regression, it showed that trait self-control was positively related to the employees’ likelihood in engaging in prospection. The third hypothesis formalized was “Work-related prospection attenuates the negative effect of commute time on job satisfaction”. The method used to research this hypothesis was a survey done over time in which the respondents first participated in a survey concerning commute, trait self-control, job satisfaction, and demographics. In the second phase, individuals received text messages with a question regarding the extent to which they engaged in work related prospection during their commute. In the third phase individuals were allocated into four experimental conditions: (1) work-related prospection, (2) gratification, (3) mixed, or (4) control. Then respondents received a text before commuting and were asked to engage in (1) work-related prospection, (2) relaxing activities,

(3) mixed conditions, or (4) do what they normally would do. In the end individuals filled in the first survey again. The outcome of this survey was that work-related prospection was higher in the condition that of work-related prospection and lower in the condition that prompted gratification. There was no difference in the mixed condition. For employees that engaged in work-related prospection, job satisfaction was significantly higher, and for employees in the gratification it was lower at the 10% significance level. These findings tell us that negative effects of lengthy commutes can be lowered by engaging in work-related prospection, as it helps with the role transition from home to work. This finding is important for the research in this paper, because it can tell us how to negate the effects of commuting time if a negative effect is found for the sample used in this paper.

This theoretical framework on job satisfaction shows the importance of job satisfaction, namely it's influence on the job performance and in turn, it's influence on the overall performance of a business. It shows a negative correlation of long commuting distance with the job satisfaction in a Russian oil company, which gives us a possible indication of the same negative correlation in short distance commuting. The positive relationship of the commuting distance on the overall happiness is showed by Olsson et al. and provides us with an insight on the overall happiness, which could be related to job satisfaction.

None of the reviewed papers present short time commuting as an influencer of job satisfaction. The reason that this research will investigate job satisfaction as the independent variable is firstly because no such research can be found in earlier literature and thus this has not been thoroughly researched. Secondly short distance commuting could in fact be a driver of job satisfaction because of the mental and physical state upon arrival at the workplace. As shown by the UK Office for national statistics, the commuting time has an influence on the health and mental state of the commuter (UK Office for National Statistics, 2014). Immediately after commuting, the commuter will arrive at the workplace and therefore the possible stress can influence the perception of the individual's job satisfaction and in turn the motivation to work. Therefore the research question of this paper is centered around job satisfaction and will be as followed; what is the relationship between commuting time and the different aspects of job satisfaction of workers in The Netherlands?

As shown in the theoretical framework, previous literature has found a negative impact of commuting time on both health and happiness of workers. These findings lead us to believe that the influence of commuting time on the job satisfaction will be a negative one. In the rest of this paper, this hypothesis of negative impact will be tested using fixed effects regression with the data that will be explained in the upcoming section.

Data

The data used in this empirical study is data from LISS (Longitudinal Internet Studies for the Social sciences) panel administered by CentERdata. The data is collected from a panel of almost 8000 individuals that complete online questionnaires and in this paper we will use the yearly panel data that has been collected over the years 2008 to 2016. The first data obtained is data on commuting time and distance. Commuting is defined as recurring travel between work and residence. In this case, the amount of minutes traveled between home and work (one way) as reported by the individual, the crow distance between home and work in kilometers, and the distance in kilometers traveled as reported by the individual are obtained. If we look at a summary of this data we can see that there are only 313 observations for the distance traveled in kilometers and 3024 observations on time traveled in minutes. Therefore we will use the time traveled in minutes as the variable for commuting in this paper. In Stata, we will refer to this variable as Commuting Time. The time traveled in minutes has a mean of 27.3 minutes and shows a minimum value of 0 and a maximum value of 240 minutes. When looking at the data for crow distance, we see that the data is skewed because of some observations with values of -8, -9, and -10. This is because when an individual responded with "I prefer not to say" it was represented with -8, "I don't know" was represented by -9, and "I work abroad" by -10. In order to use this data values of -8, -9, and -10 are eliminated from the dataset. This gives us a total of 2637 observations for this variable with a mean of 14.2 kilometers, a maximum of 0, and a maximum of 243.3 kilometers. The variable for crow distance is referred to in Stata as Crow Distance.

Secondly, data on the dependent variable of this paper, job satisfaction has to be obtained. The LISS panel data provides us with several variables related to job satisfaction, as well as overall job satisfaction.

The first variable we will use for this is the overall job satisfaction of current work (or overall job satisfaction), the question posed to the individuals in the questionnaire was: How satisfied are you with your current work? 0 means that you are not at all satisfied with your current work; 10 meaning that you are fully satisfied.

The second variable that is collected is the satisfaction of individuals with wages or salary of the job of the current work and the question that was asked in the questionnaire was: We would first like to know how satisfied you are with your wages or salary or profit earnings. 0 means that you are not at all satisfied with your wages, salary or profit earnings; 10 means that you are fully satisfied.

The third variable is concerned with the satisfaction of working hours and the question posed to the individuals was How satisfied are you with your working hours? 0 means that you are not at all satisfied with your working hours; 10 means that you are fully satisfied.

The fourth variable that is collected is data on the satisfaction with the type of work an individual does and in the questionnaire this question was posed as: How satisfied are you with the type of work that you do? 0 means that you are not at all satisfied with the type of work; 10 means that you are fully satisfied. The fifth variable is on the satisfaction of the atmosphere among colleagues and the question individuals had to answer is How satisfied are you with the general atmosphere among your colleagues? 0 means that you are not at all satisfied with the atmosphere among colleagues; 10 means that you are fully satisfied. Choose 'I don't know' if you don't have any colleagues. The final question asked to individuals was about their satisfaction with their career so far, this question was asked in the following way: How satisfied are you with your career so far? 0 means that you are not at all satisfied with your career so far; 10 means that you are fully satisfied. These variables on satisfaction are based on a scale from 0 to 10, with 0 meaning that an individual is not at all satisfied and 10 meaning an individual is fully satisfied. If an individual responded with "I don't know" on these questions, this is represented by the value of 999. These variables with value 999 will misrepresent the data and therefore they will be eliminated.

Methodology

Cross sectional data studies usually face the difficult challenge of omitted variable bias. This means that there are variables that are not defined in the model that are correlated with both the dependent and independent variable. These variables could bias the outcomes of such regressions and can therefore lead to incorrect results and conclusion. In order to make sure that no such omitted variable bias takes place in the research in this paper we will not use a simple OLS regression approach.

To investigate the effect of commuting time on the several aspects of job satisfaction, this paper will perform a fixed effect (FE) approach on the panel data. A fixed effect analysis allows us to control for variables that are stable over time, such as individual characteristics that do not change over time but may affect the predictor variable. By using fixed effects we remove the effect of those time-invariant characteristics so we can assess the net effect of the predictors on the outcome variable. In this case it allows us to investigate whether individuals that have changed their place of work or their place of home during the 8 years of observation, or changed their means of transportation, and therefore have a different travel time between home and work, have changed in the amount of satisfaction they perceive in the different aspects of their work.

In order to perform a fixed effect regression, the data that has been collected has to be reshaped. The data collected has for a different variable for every characteristic and every year for each individual (for example: JobSatisfaction2008, JobSatisfaction2009, etc.). This data will be reshaped long such that we will have a new variable year and a single variable for every characteristic (for example: JobSatisfaction). First we will rename each variable to make reshaping easier. We will give the variables the following new names. We will also rename the variable which indicates the ID of the individual to UniqueID

New variable name	Meaning
A	Satisfaction with salary
B	satisfaction with working hours
C	Satisfaction with type of work
D	Satisfaction with atmosphere among colleagues
E	Satisfaction with career

F	Satisfaction with current work
G	Travel distance in minutes
H	Crow distance
I	Travel distance in kilometers
UniqueID	Id for the questioned individual

We will give descriptive statistics of the variables used in this paper in table 1. In this table, it shows that variable I has 8,326 observations, which is a lot less than the observations for variables G and H. For this reason we will not choose variable I, which is travel distance in kilometers, as our independent variable. Variable G has the most observations with an amount of 32,123. Travel distance in minutes is more likely to affect the job satisfaction than the crow distance, because crow distance does not tell us too much about the inconvenience and time spent of traveling. For this reason and because variable G also has more observations we will use variable G as the independent variable in this paper.

To reshape the data correctly the following command is used: `reshape long A B C D E F G H I, i(UniqueID) j(year)`. Now the data has been transformed correctly in order to perform fixed effects analysis. In order to handle panel data in Stata we will first have to define that the data is a panel data by using the command `xtset UniqueID year`. In this case UniqueID represents the entities or panels and the variable year represents the time variable.

The first relationship that we will investigate is the relationship between the travel distance in minutes or commuting time (variable G) and the satisfaction with current salary (variable A). What this regression can show us is whether individuals that have to travel longer to get to work actually feel compensated in terms of salary for the extra time they travel each day. In this case the dependent variable of the equation is the satisfaction with salary and the independent variable is the commuting time. The equation of this fixed effects regression will be as follows:

$$A_{it} = \alpha_i + \beta_1 G_{it} + \epsilon_{it}$$

Where:

A is the dependent variable satisfaction with salary where i=individual and t=time

α is the intercept for individual i

G represents the independent variable commuting time

β_1 is the coefficient corresponding to that independent variable

ϵ is the error term

After defining the fixed effect equation of this regression we can run this fixed effects regression. We run this regression by using the command: `xtreg A G, fe`.

The results of this regression can be seen in figure 1.

The next relationship to be investigated is the relationship that commuting time (variable G) has on the satisfaction with working hours (variable B). The hypothesis for this relationship is that individuals that have to travel longer to get to work are less satisfied with their working hours. The fixed effects regression can show us whether this is true. This might be the case because the individuals with a long commuting time have to leave the house earlier and arrive home later than an individual with short commuting time and the same working hours. So in this regression we will have satisfaction with working hours (variable B) as the dependent variable and commuting time (variable G) as the independent variable. The equation corresponding with this regression is as follows:

$$B_{it} = \alpha_i + \beta_1 G_{it} + \epsilon_{it}$$

Where:

B is the dependent variable satisfaction with working hours, where i=individual and t=time

α is the intercept for individual i

G represents the independent variable commuting time

β_1 is the coefficient corresponding to that independent variable

ϵ is the error term

The command that we use for performing this regression is: `xtreg B G, fe`. The results of this regression will be shown in figure 2 in the appendix.

The third relationship that will be tested is the relationship between the commuting time and the satisfaction with the type of work that the individual is doing. The hypothesis that we present here is that individuals that have to travel further from home to work will be more satisfied with the type of work that they do. We therefore predict a significant and positive relationship between commuting time and the satisfaction with the type of work. The reason for this hypothesis is that individuals that have to travel further to get to work might choose to do so because they were able to find the type of work that they enjoy further away from home. In addition, it might be the case that some individuals chose a type of work that they are less satisfied with because the travel time to this type of work was shorter. This fixed effects regression will have satisfaction with type of work (variable C)

as the dependent variable and the commuting time (variable G) as independent variable. We define the equation of this type of regression as follows:

$$Cit = \alpha_i + \beta_1 Git + \varepsilon_{it}$$

Where:

C is the dependent variable satisfaction with the type of work, where i=individual and t=time

α is the intercept for individual i

G represents the independent variable commuting time

β_1 is the coefficient corresponding to that independent variable

ε is the error term

This fixed effects regression will be run in stat by using the command: xtreg B G, fe. The results obtained from Stata of this regression can be seen in figure 3 in the appendix.

The next relationship to be tested is the relationship between commuting time and the satisfaction with atmosphere among colleagues. The paper by the UK National Office of Statistics showed us that longer commuting time can lead to higher anxiety and a lower personal well-being (UK Office for National Statistics, 2014). In addition, Olsson et al. showed that longer commuting time could lead to a lower level of happiness of the individual. These results could in turn lead to a worse relationship between colleagues because of the mental state upon arriving at the workplace (Olsson, Gärling, Ettema, Friman, & Fujii, 2012). This negative relationship was indeed found to be significant for commuters in Europe (Sprakelaar, 2016). Therefore we propose the hypothesis that commuting time has a significant and negative relationship with the satisfaction with atmosphere among colleagues in The Netherlands. The relationship tested in this regression could give us more insights whether this hypothesis can be accepted or has to be rejected. In this regression we have as dependent variable the satisfaction with atmosphere among colleagues (variable D) and as independent variable we have the commuting time (variable G). The fixed effects regression equation can be written as follows:

$$Dit = \alpha_i + \beta_1 Git + \varepsilon_{it}$$

Where:

D is the dependent variable satisfaction with the atmosphere among colleagues, where i=individual and t=time

α is the intercept for individual i

G represents the independent variable commuting time

β_1 is the coefficient corresponding to that independent variable

ε is the error term

To run this regression in Stata we use the command `xtreg D G, fe`. The results as produced by Stata can be found in figure 4 in the appendix.

The next relationship to be tested is the relationship between the commuting time and the satisfaction with the career so far of the individual. The hypothesis associated with this relationship predicts that some individuals have made the choice to work further from home in order to advance their career. Other individuals may have chosen to work closer to home but have had to give up on a more promising career for this reason. Therefore the hypothesis predicts a significant positive relationship between commuting time and the satisfaction with the career so far. In this fixed effects regression we will use satisfaction with career as the independent variable and the commuting distance again as independent variable. The equation that corresponds to this regression can be defined as follows:

$$E_{it} = \alpha_i + \beta_1 G_{it} + \varepsilon_{it}$$

Where:

E is the dependent variable satisfaction with career so far where i=individual and t=time

α is the intercept for individual i

G represents the independent variable commuting time

β_1 is the coefficient corresponding to that independent variable

ε is the error term

To run this regression in Stata the following command is used: `xtreg E G, fe` and the results are given in figure 5 in the appendix.

The last relationship that will be tested is the main relationship to be tested in this paper; the relationship between commuting time and the job satisfaction of the current work. Job satisfaction in this case means the overall job satisfaction. This relationship will show what the effect of travel time from work to home is on how an individual perceives his or her job. The findings of this relationship can lead to insights for employers in improving the overall job satisfactions of their employees, for example by training the employees in work-related prospection (Jachimowicz, Lee, Staats, Menges, & Gino, 2016). Because in previous by van Sprakelaar the effect is found to be negative (Sprakelaar, 2016), we expect that this will lead to individuals having a lower satisfaction with their current work as the travel time increases. Therefore we propose the hypothesis that the commuting time will have a significant negative relationship with the satisfaction with current work. The regression in this case will have overall job satisfaction (variable F) as dependent variable and commuting time (variable G) as independent variable. The regression equation will be as follows:

$$Fit = \alpha_i + \beta_1 Git + \epsilon_{it}$$

Where:

F is the dependent variable satisfaction with the current work where i=individual and t=time

α is the intercept for individual i

G represents the independent variable commuting time

β_1 is the coefficient corresponding to that independent variable

ϵ is the error term

To run the fixed effect equation in Stata the command `xtreg F G, fe` will be used. The results as produced by Stata can be found in figure 6 in the appendix.

The fixed effects regression shows us how commuting time is related to each of the different aspects of job satisfaction, but it does not show us how much the amount of variance of our dependent variables can be explained by our independent variable. To find this value, it is necessary to find the adjusted R-squared of the model. In the case of fixed effects we can use the `areg` command for each of the models. First we determine the adjusted R-squared of the fixed effects in the model by using the command `areg G, absorb(UniqueID)` and this gives us a value of 0.4450. By using `areg A G, absorb(UniqueID)` we find the adjusted R-squared value for the fixed effects plus the commuting time of the first model. By subtracting 0.4450 from this outcome we can calculate the adjusted R-squared of commuting time. We do the same calculations for all the other models and the results are produced in table 2 in the appendix.

Lastly, we will also test for a possible linear relationship between the main variable Commuting time and Satisfaction with current work. For this we will run a regular regression, which has the following equation:

$$Fi = \alpha_i + \beta_1 Gi + \epsilon_i$$

Where:

Fi is the dependent variable satisfaction with the current work where i=individual

α_i is the intercept for individual i

Gi is the independent variable commuting time

β_1 is the coefficient corresponding to that independent variable

ϵ is the error term

Results

Now that we have run fixed effects regressions to find the relationship between commuting time and the different aspects related to job satisfaction it is time to look at the results from these regressions and interpret those results. We will look at each aspect separately and determine how these outcomes can be extrapolated to the real world and what their implications are.

The relationship between commuting time and the satisfaction with salary

Earlier in this paper we proposed the possibility of the satisfaction with salary being higher because individuals would have an incentive to accept a job that is located further from home if the salary was significantly higher than jobs available closer to home, and we thus predicted a positive significant relationship between these two variables. Now we will investigate the results of the regression to see whether this is actually the case. The outcomes of the regression corresponding to this relationship can be found in figure 1. Looking at these results, the first thing that is important to observe is the coefficient of the independent variable. This coefficient gives us a value of 0.0009939. What this means is that for each additional minute that it takes an individual to travel between their home and the workplace, the satisfaction with their salary goes up by 0.0009939 on a scale of 10. This may indicate that there is a possible relationship between the two variables. However, when we take a look at the P-value of the regression it gives us a value of 0.286. This value of 0.286 is greater than 0.05 and thus it indicates that the relationship between the commuting time and the satisfaction with salary is not proven to be significant.

The hypothesis that there is a significant effect of commuting time on the satisfaction with salary can therefore be rejected for this panel. This outcome may be significant for Human Resource departments within firms. The reason for this is that it may not be necessary for firms to significantly compensate employees in order to improve their satisfaction. With this in mind, the firms can reduce their employee costs. To show why this is significant we can look at a manufacturing firm, whose payment to employees generally exceeds 20 percent of the total expenditure and for service firms it can even exceed 80 percent of the total expenditures (Belcher & Atchinson, 1987).

However, the regression in this paper is done with data collected from the Netherlands, a relatively

small and country, and a mean commuting time of approximately 25 minutes, which is quite a low mean. This means that there might be differences with larger countries, where the commuting time of individuals might be greater. It might prove that for longer travel time the compensation with salary might significantly affect the satisfaction of employees.

The relationship between commuting time and the satisfaction with working hours

In this paper we brought forward the possibility of commuting time being negatively correlated the satisfaction that employees feel with their working hours. The reason being that the extra time spent traveling to work increased the total time spent away from home. This is because individuals with a longer commuting time have to leave their house earlier and arrive home later compared to individuals with a shorter commuting time and this could lead to them perceiving their working hours as a larger burden.

The result of the regression on satisfaction with working hours is presented in figure 2. When we look at the coefficient of commuting time we see that it has a value of -0.0031968. This indicates that for every additional minute spent traveling between home and work the satisfaction with working hours decreases with approximately 0.0032 on a 10 point scale. Looking at the P-value of this regression we can see that it has a value of 0.000 which is smaller than the threshold of 0.05 and we can therefore conclude that the commuting time has a significant negative relationship with the satisfaction with working hours of an individual. The constant provided by the regression outcome gives a value of 7.47021. If we want to know the amount of variance in satisfaction with working hours can be explained by the commuting time we have to look at the adjusted R-squared value and we can find this in table 2. Table 2 gives us an R-squared value of 0.0062 for this model, which means that only 6.2 percent of the variance can be explained by the commuting time.

The results that this regression has provided can be of significant importance for firms dealing with employees that have to travel for a long time to get to the workplace. For example, if an individual has to travel an hour longer to work than the average employee, this individual will on average perceive their working hours $0.0031968 * 120 = 0.383616$ lower than the average employee. Human Resource departments of a firm can use this result to find ways to improve the satisfaction workers have with their working hours by helping them reduce the travel time. This for example could be done by providing lease cars to employees that have to travel a long time if they use public transport. This decision has to be made by every company individually, while keeping in mind the value they attach to the satisfaction of their employees.

The relationship between commuting time on the satisfaction with the type of work

As previously brought forward, the satisfaction with the type of work might differ with the travel time. The hypothesis that we connect to this relationship is that the travel time is positively and

significantly related to the satisfaction with the type of work. The reason for this is that an individual looking for a job might be more willing to take a job offer that requires a longer time to travel if the job offer is more suitable to the type of work that the individual prefers. On the other hand, some individuals might be more inclined to accept a job offer which does not perfectly suit their preferred type of work if the travel time is shorter and they attach a significant value to shorter travel time. If we look at the coefficient corresponding to commuting time in figure 3 we can see that this coefficient is -0.0009461 . In contrast to our hypothesis, this coefficient, although relatively being small, shows a negative relationship. This means that for every additional minute spent traveling between home and workplace their satisfaction with type of work decreases by this small amount. If we look at the P-value corresponding to this regression, however, we see that it has a value of 0.222 , which is greater than 0.05 and therefore the relationship is not significant. This means that we cannot say that the commuting time significantly influences the satisfaction with the type of work. The insights that this outcome gives us is that individuals may not let their decision depend on the type of work be influenced by the time it will take them to travel. To see whether this is true, more research could be done on the decision making of individuals with regard to job search.

The relationship between commuting time and the satisfaction with the atmosphere among colleagues

In the paper “Commuting and Personal Well-being” by the UK Office for National Statistics, they showed that the happiness level of short-time commuters was significantly higher than those of long-time commuters as well as that the anxiety level of long-time commuters was significantly higher (UK Office for National Statistics, 2014). These two factors can have a big effect on how an employee is able to socialize and work with their co-workers. In previous literature this has been confirmed as negative relationships have been found (Sprakelaar, 2016). Therefore the hypothesis we brought forward in this paper concerning this relationship said that we predict a negative relationship between commuting time and the satisfaction with the atmosphere between colleagues.

In figure 4 we can find the results of the regression that investigates the relationship. What we find is that the coefficient of commuting time, in contrast to our prediction, actually shows a relatively small positive value of 0.0021808 . This means that for every additional minute spent traveling, the average satisfaction with the atmosphere among colleagues goes up by this amount. To see whether this positive relationship is significant we look at the P-value and this shows us that with a P-value of 0.021 the relationship is indeed significant, because it is smaller than 0.05 . The amount of variance explained by our independent variable is 1.36 percent, which is shown by the R-squared value of 0.0136 in table 2.

This result is in contrast with previous literature and begs the question how it can be explained that a

longer time traveling to work significantly increases the satisfaction with atmosphere among colleagues. One possible explanation that can be provided is the value that an employee attaches to social contact. If we assume that the average employee travels to work on their own and does not have any significant contact with other passengers, then an employee that has traveled longer will have a longer period without social interaction. When this employee arrives at the workplace this lack of social interaction might incentivize him or her to engage in social interaction with colleagues. Because of this extra social interaction, the individual may perceive the atmosphere among colleagues as better and therefore be more satisfied. To analyze whether this is the reason for the increase in satisfaction, further research can be done by performing a survey on the factors that are related to the atmosphere among colleagues.

By evaluating the results of this regression, firms are able to see that there is no reason to be worried about the satisfaction with the atmosphere for employees that have a long travel time. This is also supported by the fact that the constant of this regression shows a value of 7.224847, which can be interpreted as a relatively high level of satisfaction. Of course we don't want to give the impression that firms should not pay attention to the atmosphere among colleagues. For every firm it is important to investigate whether this also holds on their own work floor, as the results may vary between firms

The relationship between commuting time and the satisfaction with the career so far

The hypothesis corresponding to this relationship predicted that there would be a positive relationship between commuting time and the career satisfaction. The reason for this was that individuals are more inclined to accept a job that is located further away from their home if this job helps them improve their career. On the other hand an individual might be less reluctant to accept a job that does not improve their career if the travel time is significantly lower.

To see whether this hypothesis holds, we will take a look at figure 5. In this figure we see that the coefficient of the independent variable commuting time is -0.0003323, which indicates a small negative relationship. This would mean that the satisfaction with an individual's career is lower if they have to travel longer to work. Looking at the P-value of the regression, we can see that this relationship is not significant as the P-value is 0.650, which is greater than 0.05. This tells us that we cannot say that there is a significant effect of the commuting time on the satisfaction with the career so far.

An explanation for why there is no significant relationship between the two variables could be that individuals are very considerate about their career moves and therefore will not let their decisions depend on other factors such as the time they have to travel to work. In his book "Career choice and Development", Duane Brown indeed does not mention the commuting time as a factor that is

considered in a wise choice of vocation (Brown, 2002). Instead he brings forward three broad factors; The understanding of ones aptitudes, capabilities, interest, ambitions, resources, limitations; a knowledge of the requirements, conditions of success, advantages and disadvantages, compensation, opportunities, and prospects in different lines of work; and third the relationship between these two groups of factors. These factors will provide a better insight in the career choice of individuals then the factor of commuting distance, since we have shown that its relationship is insignificant.

The relationship between commuting time and the satisfaction with current work

As the last aspect of job satisfaction we have performed a regression on the satisfaction with current work. This is the most import regression of all because it gives the broadest view of the job satisfaction of an individual. The hypothesis that we proposed for this relationship was that it will be a significant negative relationship.

Looking at figure 6 shows us the outcome of the regression that we have performed. The coefficient that we are interested in is the coefficient of the independent variable commuting time, which is - 0.0016185. This indicates a relatively small and negative relationship between commuting time and the job satisfaction. What this means is that, on average, for every additional minute that an individual travels between home and work their satisfaction decreases with 0.0016185 on a 10-point scale. When we look at the P-value of this regression we can see that it is 0.032 and because this is smaller than 0.05 this means that the relationship between the two variables is significant. If we take a look at the adjusted R-squared value from table 2, we can say that merely 0.1% of the variance in current job satisfaction can be explained by the commuting time, because of the adjusted R-squared value of 0.0001.

This outcome that the relationship is significant and negative supports the prediction that was made in the hypothesis for this relationship and is in line with the findings of previous literature (Sprakelaar, 2016). This outcome is very important for the main research of this paper as the main research question was formalized as: What is the relationship between commuting time and the different aspects of job satisfaction of workers in The Netherlands? In the conclusion will further dive into the possible explanations for the outcomes that were found.

Linear relationship Commuting time and satisfaction with current work

When we take a look at table 5 we see that a linear regression gives a negative correlation of - 0.0006031. This is a negative correlation which is in line with what we saw in the fixed effects regression. However, in this case the P-value is 0.167 which is greater than 0.05 and therefore we can conclude that a significant linear relationship between commuting time and satisfaction with current work cannot be found in this panel data.

Conclusion

Now that we have performed regressions for all the different aspects of job satisfaction that were available to us and for the overall job satisfaction it is time to combine the results obtained, draw a conclusion, and look at the implications of these findings. We have seen that for three of the regressions a significant relationship between commuting time and the job satisfaction factors was found. The satisfaction with working hours had a negative relationship with commuting time, the satisfaction with atmosphere among colleagues had a positive coefficient for commuting time, and lastly the overall job satisfaction was also had a negative coefficient for commuting time. It has to be kept in mind that each of these findings has quite a small coefficient, and therefore the effect of commuting time can be said to be moderate.

When we look at the implication that the findings on satisfaction of working hours may have for firms, we think that there is a potential to increase the satisfaction of employees. Because of the indication that commuting time is negatively related to this variable, we think that there is an opportunity for firms to improve this satisfaction by offering flexible working hours to individuals that have to travel a long time, or even to all employees. Previous research done by T.A. Scandura and M.J.Lankau has shown that there is a significant effect of offering flexible working hours on the job satisfaction. In their research, those employees who perceived that they had flexible work hours were more satisfied (mean = 82.63) than those who did not have flexible working hours (mean = 77.38) (T.A.Scandura & M.J.Lankau, 1997). Their research also found that this was especially the case for female employees. By combining the findings of the research done by Scandura and Lankau with the findings of this paper, we advise companies to offer flexible working policies to their employees and especially cater and signal the importance of these policies towards their employees that have a relatively long commuting time. This way the problem of the dissatisfaction of long-commuting employees with their working hours may be solved. It has to be kept in mind though, that the R-squared value of this relationship is only 0.62%, which means that there likely be other variables that have a bigger explanatory power. So before focusing on the relationship with commuting time, employers may first explore other possible determinants of satisfaction with working hours. This low explanatory power does not, however, change the fact that there is still a significant relationship between commuting time and working hour satisfaction.

The results that were found on the satisfaction with atmosphere among colleagues were contradictive to the outcomes predicted to the hypothesis. It showed a positive instead of negative

relationship for commuting time. This relationship is only very moderate as the coefficient was reported to be only 0.0009461. However, while being very small, this outcome might still have minor implications on the satisfaction of overall job satisfaction. An empirical analysis on US teachers and the effect workplace characteristics have on their job satisfaction showed that there was a strong association between these two variables and the report particularly mentions a positive school atmosphere as a factor that positively influences job satisfaction of teachers (Perie & Baker, 1997). These outcomes may indicate that the overall job satisfaction of an individual is affected by commuting time through its relationship with satisfaction of atmosphere among colleagues. This result should not be a too influential factor to keep in mind for businesses that are concerned with their employee's atmosphere on the workplace because the relationship is very moderate. In this research on the social factors that have an effect on an individual's performance, Donald C. Pelz showed that the important social factors that a business should focus on are; having the freedom to pursue original ideas, and making contributions to basic knowledge, frequent contact with colleagues that work in a different setting, contact with a colleague with similar values, being able to make their own decisions, Motivation and sense of progress toward scientific goal, and working under a laissez-faire leadership (Pelz, 1956). We believe that these factors are of more importance when improving the atmosphere among colleagues. This is also reflected by the R-squared value of this relationship, as it has only an explanatory power of 1.36%

The final significant relationship that was found in the research of this paper was that commuting time had a negative effect on the satisfaction with current work of an individual. One reasonable explanation for this relationship concerns the satisfaction with working hours. As we have seen, the commuting time had a negative relationship with this variable. Together with the other significant outcome, the satisfaction with colleague atmosphere these two variables might explain the negative relationship that commuting time has with the overall job satisfaction. Seeing as the coefficient in the regression with working hours was considerably larger than the coefficient in the regression on colleague atmosphere, it is not surprising to see that the coefficient of commuting time on overall job satisfaction is a negative one.

This outcome can be relevant for firms looking to hire new workers, as they know that hiring workers that have a longer commuting time increase the possibility of having less satisfied employees. Firms may therefore be incentivized to hire workers that live closer to the workplace and be deterred from hiring workers living further away.

These findings may also give rise to firms training their employees on how to engage in work-related prospection as work related prospection positively affect the home- to work role transition (Jachimowicz, Lee, Staats, Menges, & Gino, 2016). As shown by Jachimowicz et al. this role transition

plays an important role in how employees determine their job satisfaction. Training employees in such a way may thus offset the negative effects of commuting time that were found in this research. However, even though this relationship may have a significant correlation, there are likely other variables that can explain the variance in current work satisfaction better than the commuting time, since the R-squared value is only 0.001.

We can conclude that there is relevance in the findings of the fixed effects regressions concerning the relationship of commuting time with the several aspects of job satisfaction, as significant relationships were found. Therefore employers might take these results into account, but should primarily focus on finding what other factors influence the job satisfaction, as only a small part of the variance can be explained by the variance in commuting time.

Discussion

There are certain limitations in this paper that have to be addressed. First of all, it should be noted that the conclusion that are drawn in this paper cannot easily be extrapolated to other geographical areas. This is because the panel data used in this paper is collected from the Netherlands, which can be described as a relatively small and densely populated geographical region. This means that with the mean commuting time of 25.8 minutes it cannot be compared in the same way to, for example, the region of North-West Russia, where the travel time is so long that accommodation is even provided at the workplace (Spies, 2006). However, when we take a look at the mean commuting time in the United States we see that the average is 25.4, which is very similar to The Netherlands. Therefore it might be possible to extrapolate these results to the United States. The decision of whether this extrapolating should be made for every region individually, as regions can differ greatly in their characteristics.

Secondly, this paper has given some insights on the relationship between commuting time and the different aspects of job satisfaction, but more research can be done on the different ways that that relationship arises. Does commuting time influence the satisfaction through mental health, social interaction, or maybe the time wasted of an individual. A survey can be done on long-distance commuters that investigates in what way the commuting time makes them overall less satisfied with their current work.

Lastly, with the increasing availability of panel data, the possibility is presented to cover longer periods of time and include a larger variety of individuals from different geographical areas to see whether the outcomes of this paper also hold in other settings. Future research dedicated to answer these questions can use this research as a baseline and extend its reach. This research could also be concerned with finding what other influences are important in determining job satisfaction. The explanatory power of those variables could then be compared with the R-squared values in this paper to see what variables are most important in determining job satisfaction.

Appendix

Table 1: Descriptive statistics

```
. summarize A B C D E F G H I
```

Variable	Obs	Mean	Std. Dev.	Min	Max
A	32,433	6.555514	2.104306	0	10
B	32,434	7.371709	1.881979	0	10
C	32,433	7.442574	1.835331	0	10
D	30,117	7.278746	2.116564	0	10
E	31,122	7.122261	1.824625	0	10
F	31,123	7.319956	1.75329	0	10
G	31,132	25.84945	22.61944	0	240
H	28,109	14.05041	22.18058	0	268.2046
I	8,326	19.02641	41.36553	0	1000

Table 2: Adjusted R-squared values

Regression	Adjusted R-squared:	Adjusted R-	Adjusted R-squared:
------------	---------------------	-------------	---------------------

	fixed effects and commuting time	squared: fixed effects	commuting time
Amount of variance in satisfaction with salary	0.4520	0.4450	0.007
Amount of variance in satisfaction with working hours that can be explained by commuting time	0.4375	0.4313	0.0062
Amount of variance in satisfaction with type of work that can be explained by commuting time	0.4923	0.4853	0.007
Amount of variance in satisfaction with atmosphere that can be explained by commuting time	0.5182	0.5046	0.0136
Amount of variance in satisfaction with career that can be explained by commuting time	0.5492	0.5492	0.0000
Amount of variance in satisfaction with current work that can be explained by commuting time	0.4709	0.4708	0.001

Figure 1: Fixed effect regression of commuting time on satisfaction with salary

```
. xtreg A G, fe

Fixed-effects (within) regression      Number of obs   =   31,122
Group variable: UniqueID              Number of groups =    8,503

R-sq:                                  Obs per group:
    within = 0.0001                    min =          1
    between = 0.0032                   avg =         3.7
    overall = 0.0019                   max =          9

corr(u_i, Xb) = 0.0432                  F(1,22618)     =    1.14
                                          Prob > F       =    0.2859
```

	A	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
	G	.0009939	.0009313	1.07	0.286	-.0008315 .0028193
	_cons	6.52945	.0256399	254.66	0.000	6.479194 6.579706
	sigma_u	1.8943398				
	sigma_e	1.5588209				
	rho	.59625415	(fraction of variance due to u_i)			

```
F test that all u_i=0: F(8502, 22618) = 4.01          Prob > F = 0.0000
```

Figure 2: Fixed effects regression of commuting time on satisfaction with working hours

```
. xtreg B G, fe

Fixed-effects (within) regression      Number of obs   =   31,123
Group variable: UniqueID              Number of groups =    8,504

R-sq:                                  Obs per group:
    within = 0.0006                    min =          1
    between = 0.0005                   avg =         3.7
    overall = 0.0010                   max =          9

corr(u_i, Xb) = -0.0082                 F(1,22618)     =   14.37
                                          Prob > F       =    0.0002
```

	B	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
	G	-.0031968	.0008433	-3.79	0.000	-.0048498 -.0015438
	_cons	7.47021	.0232179	321.74	0.000	7.424701 7.515718
	sigma_u	1.6890715				
	sigma_e	1.4116015				
	rho	.58877613	(fraction of variance due to u_i)			

```
F test that all u_i=0: F(8503, 22618) = 3.84          Prob > F = 0.0000
```

Figure 3: Fixed effects regression of commuting time on satisfaction with type of work

```
. xtreg C G, fe

Fixed-effects (within) regression      Number of obs   =   31,122
Group variable: UniqueID              Number of groups =    8,504

R-sq:                                  Obs per group:
    within = 0.0001                    min =          1
    between = 0.0007                    avg =          3.7
    overall = 0.0000                    max =          9

corr(u_i, Xb) = -0.0220                F(1,22617)      =    1.49
                                        Prob > F         =    0.2216
```

C	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
G	-.0009461	.0007741	-1.22	0.222	-.0024633 .0005712	
_cons	7.502859	.0213115	352.06	0.000	7.461087 7.544631	
sigma_u	1.7060411					
sigma_e	1.2956418					
rho	.63421417	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(8503, 22617) = 4.55          Prob > F = 0.0000
```

Figure 4: Fixed effects regression of commuting time on satisfaction with the atmosphere among colleagues

```
. xtreg D G, fe

Fixed-effects (within) regression      Number of obs   =   28,844
Group variable: UniqueID              Number of groups =    8,197

R-sq:                                  Obs per group:
    within = 0.0003                    min =          1
    between = 0.0097                    avg =          3.5
    overall = 0.0040                    max =          9

corr(u_i, Xb) = 0.0491                F(1,20646)      =    5.36
                                        Prob > F         =    0.0206
```

D	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
G	.0021808	.0009422	2.31	0.021	.000334 .0040276	
_cons	7.224847	.0265095	272.54	0.000	7.172887 7.276808	
sigma_u	2.0697295					
sigma_e	1.4576693					
rho	.66844451	(fraction of variance due to u_i)				

```
F test that all u_i=0: F(8196, 20646) = 4.76          Prob > F = 0.0000
```

Figure 5: Fixed effects regression of commuting time on satisfaction with career so far

```
. xtreg E G, fe

Fixed-effects (within) regression           Number of obs   =    31,121
Group variable: UniqueID                   Number of groups =     8,503

R-sq:                                     Obs per group:
    within = 0.0000                        min =           1
    between = 0.0032                       avg =           3.7
    overall = 0.0015                       max =           9

corr(u_i, Xb) = -0.0517                    F(1,22617)      =     0.21
                                           Prob > F        =     0.6498
```

E	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
G	-.0003323	.0007319	-0.45	0.650	-.0017669	.0011022
_cons	7.130886	.0201502	353.89	0.000	7.091391	7.170382
sigma_u	1.727203					
sigma_e	1.2250204					
rho	.66531967	(fraction of variance due to u_i)				

F test that all u_i=0: F(8502, 22617) = 5.45 Prob > F = 0.0000

Figure 6: Fixed effects regression of commuting time on satisfaction with current work

```
. xtreg F G, fe

Fixed-effects (within) regression           Number of obs   =    31,122
Group variable: UniqueID                   Number of groups =     8,504

R-sq:                                     Obs per group:
    within = 0.0002                        min =           1
    between = 0.0001                       avg =           3.7
    overall = 0.0001                       max =           9

corr(u_i, Xb) = -0.0168                    F(1,22617)      =     4.58
                                           Prob > F        =     0.0324
```

F	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
G	-.0016185	.0007566	-2.14	0.032	-.0031015	-.0001354
_cons	7.363949	.0208312	353.51	0.000	7.323118	7.40478
sigma_u	1.6106905					
sigma_e	1.266445					
rho	.61796	(fraction of variance due to u_i)				

F test that all u_i=0: F(8503, 22617) = 4.26 Prob > F = 0.0000

Figure 7: Linear regression of commuting time on satisfaction with current work

. reg F G

Source	SS	df	MS	Number of obs	=	31,122
Model	5.78294156	1	5.78294156	F(1, 31120)	=	1.91
Residual	94333.9701	31,120	3.03129724	Prob > F	=	0.1672
				R-squared	=	0.0001
				Adj R-squared	=	0.0000
Total	94339.753	31,121	3.03138566	Root MSE	=	1.7411

F	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
G	-.0006031	.0004367	-1.38	0.167	-.001459 .0002528
_cons	7.337707	.0149923	489.43	0.000	7.308322 7.367093

Bibliography

- Belcher, D., & Atchinson, T. (1987). *Compensation Management*. New Jersey: Prentice- Hall.
- Brown, D. (2002). *Career Choice and Development*. Jossey-Bass.
- Gimenez-Nadal, J. I., & Molina, J. A. (2014). Commuting Time and Labour Supply in the Netherlands A Time Use Study. *Journal of Transport Economics and Policy*.
- Jachimowicz, J. M., Lee, J. J., Staats, B. R., Menges, J. I., & Gino, F. (2016). *Commuting as Role Transitions: How Trait Self-Control and Work-related Prospection Offset Negative Effects of Lengthy Commutes*. Harvard Business School.
- Judge, T. A., Thoresen, C. J., Bono, J. E., & Patton, G. K. (2001). The Job Satisfaction-Job Performance Relationship: A Qualitative and Quantitative Review. *American Psychological Association*.
- Olsson, L. E., Gärling, T., Ettema, D., Friman, M., & Fujii, S. (2012). *Happiness and Satisfaction with Work Commute*. Springerlink.
- Pelz, D. C. (1956). *Some Social Factors Related to Performance in a Research Organization*. Administrative Science Quarterly.
- Perie, M., & Baker, D. P. (1997). *Job Satisfaction among America's Teachers: Effects of Workplace Conditions, Background Characteristics, and Teacher Compensation*. Statistical Analysis Report. US National Center for Education Statistics.
- Spies, M. (2006). *Distance between home and workplace as a factor for job satisfaction in the North-West Russian oil industry*. University of Joensuu.
- Sprakelaar, V. v. (2016). *Commuting Time, a Must or a Pleasure?*
- T.A.Scandura, & M.J.Lankau. (1997). *Relationships of Gender, Family Responsibility and Flexible Work Hours to Organizational*. Journal of Organizational Behavior.
- UK Office for National Statistics. (2014). *Commuting and Personal Well-being, 2014*. UK Office for National Statistics.

