ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Bachelor Thesis International Bachelor Economics and Business Economics

The effect of business cycles on the values of workers in the private and public sector

Name student: Timofey Kharitonov

Student ID number: 475116

Supervisor: Dur, A. J.

Second assessor: Kapoor, S. V.

Date final version:

ABSTRACT: This research concerns the patterns of cyclical variation of workers' preferences across different sectors of economy. With the use of the BHPS survey data for years 1991-2008 the OLS and Fixed Effects regression analysis of the relative importance of pay, job security, work itself and work hours in determining the job satisfaction is performed. Then, this analysis is extended by adding business cycle and sector of employment interaction effects. It is concluded that there is a statistically significant correlation between workers' preferences and business cycles in the private and in the public sector, but its magnitude is too low to make practical inferences. Apart from that it is also revealed the importance of job security has the strongest relation to business cycles of the four measures of workers' values and that booms and recessions affect workers' values in the same way.

Table of contents

Introduction

The reward system, which should account for all the possible incentives to which workers respond, is an important determinant of organizational success. However, in order to manage incentives effectively it is also important for the managers to know the composition of values of workers. Apart from the purely subjective differences in values, it is also likely that workers' preferences change systematically in different economic frameworks. The knowledge patterns of such a change are useful not only for employers, but also for policymakers. A lot of research has already been done to determine the general composition of private sector workers' values in different countries, but less attention is generally drawn to the public sector, where workers' values may differ significantly. Furthermore, as work environment is likely to change over time (and especially with the change in the business cycles), workers are also likely to adapt and change their valuation of various job characteristics accordingly. This time dimension of workers' preferences is frequently overlooked in existing research, while it is relevant both in the conduct of labor market policy and in the calculation of optimal compensation scheme for the private and private sector employers.

With the use of British Household Panel Survey data for years 1991-2008 the patterns of workers' preferences with respect to change in the sector employment and business cycles are evaluated in this paper. The relative contribution of various aspects of job to the overall job satisfaction is used as a proxy for workers' values and a series of regressions of overall job satisfaction on satisfaction with particular job characteristics is performed. My research output suggests that there are statistically significant correlations between sector employment and workers' values and business cycles and workers' values, but their magnitudes are not high enough to make practical inferences. Furthermore, the joint effect of the sector employment and business cycles on the composition of satisfaction is evaluated, but a sufficiently confident judgement could only be made about the satisfaction with job security. It is clear that in booms and recessions public sector workers attach slightly more value to job security than private sector workers, and in recession this gap contracts. Furthermore, the absolute effect of booms and recessions on the importance of job security is slightly negative in the private sector and ambiguous in the public sector. The private sector is more heavily affected by business cycle, but the size of effect is still very low. It is, therefore, concluded that companies both in the private and in the public sector should not adjust their compensation schemes to the cyclical variation, and the same is advised to the policymakers: labor market legislation, which concerns worker's values, does not need to account specifically for the sectoral or cyclical variation. However, the graphical analysis suggests that dynamic effects of business cycles on worker's preferences can also take place, and the further inquiry in this field is required.

The structure of the paper is as follows: First, the previous theoretical inquiries concerning the composition of workers' values are discussed with a particular focus on papers, where sectoral or cyclical differences in values are mentioned. After that follows a short description of data and methodology with which the theoretical expectations are analyzed. Then, series of OLS and Fixed Effects regressions are performed in order to determine the change in the worker's values in different economic frameworks. This part is also supplemented with a graphical analysis of the time-variation in worker's preferences relative to the other variation in the economy. Finally, the findings of this analysis are summarized in conclusion and their internal and external validity is evaluated.

Theoretical framework

Inquiries concerning the composition of job satisfaction are becoming more and more popular in modern economics. Even though the relationship between job satisfaction and productivity is rather complex, and there is no clear consensus whether satisfied workers exert more effort or do they gain satisfaction from working less for a higher pay, it is clear that the job satisfaction directly affects workers' organizational commitment, absenteeism, shirking and employee turnover that are no less important to managers than the productivity (Davis & Wright, 2001). The insight about the composition of job satisfaction is, therefore, particularly relevant in determining the optimal compensation scheme for the worker.

A lot of research on the relevance of various job characteristics in the composition satisfaction has already been performed in the economic literature. According to Desantis and Durst (1996), task variety, social importance of job, pleasant work atmosphere are important determinants of satisfaction; Wilczyńska, et. al (2015) reveals that the job security is the most important determinant of job satisfaction for the Polish workers; Gazioglu and Tansel (2006) also point to the importance of job security in determining satisfaction. Apart from that they argue that working hours negatively affect the job satisfaction and are also negatively related with satisfaction with pay, which means that the trade-off between working more and earning less is reflected by the job satisfaction.

Nevertheless, the job satisfaction is affected not only by job-specific characteristics, but also by broader structural economic characteristics, such as the sector employment. In this respect, DeSantis and Durst argue that reward system differs systematically in the public and private sector in terms of pay, benefits and psychic value, which entails the sectoral difference in the composition of satisfaction. According to them, it is more important for private sector workers that the pay is satisfactory, while public sector workers generally care more about the absolute level of compensation. Naff & Crum (1999) claim that private and public sector workers in the US have different values and respond to a different set of incentives. Karl & Sutton (1998) argue that private sector employees place more value on high wages, while public sector employees attach a higher value to work routineness. Heywood et al. (2002) reveal a significant sectoral difference in the job satisfaction, which, however, disappears completely after controlling for individual Fixed Effects. They link this tendency to the sorting of workers with particular preferences across sectors, so that workers who tend to be more satisfied are sorted to the public sector. The study by Heywood et. al is particularly important as it rests on the data from the British Household Survey that is also used in this paper. However, the time dimension of their dataset is quite limited compared to the one of this paper, and this may have consequences for research results. One of the aims of this study is to evaluate the effect of business cycles on worker's values, while the research of Heywood, et al (2002) covers only the recession of 1991 and a short period of post-recession recovery, which is not representative of the economic performance in general. Conclusions of Heywood, et al. are also confirmed by the estimates of DeSantis and Durst (1996), Steijn (2004), who also reveal statistically significant, but negligible in magnitude satisfaction differences across sectors. Therefore, the first hypothesis of this paper is formulated as follows:

H1: *There is a systematic difference in the sector compositions of job satisfaction, but the size of this difference is small.*

Furthermore, the composition of job satisfaction is affected by business cycles, as workers tend to value different job characteristics in recessions and booms. According to Artz and Kaya (2014), the positive effect of the job security on the job satisfaction is much stronger in recessions than in booms. Researchers claim that in recessions the number of alternative employment options

decreases and workers, therefore, care more about preserving their job, so that the value attached to the job security rises. This finding is also supported by Baruffini and Moreno (2014), who claim that the duration of the contract (which is one of the key measures of job security) becomes generally less important when the worker perceives a low risk of unemployment. The perceived risk of unemployment will rise in recessions and so the importance of job security should also rise in this period. Unfortunately, the cyclical variation in the value of other determinants of the job satisfaction such as pay, working hours and the work itself is not much discussed in the previous literature, but some general expectations can still be made. With the reference to the "work less-earn more" trade off revealed by the Gazioglu and Tansel (2006), it can be expected that the negative relationship between working hours and pay as determinants of the job satisfaction will be preserved with the cyclical variation. However, in accordance with the income effect of recession the workers are likely to sacrifice more of their leisure time to compensate forgone income, and so the importance of pay in determining the job satisfaction is likely to rise in recession, while the importance of working hours is likely to fall. In any case, there two hypotheses that clearly emerge from the discussion above:

H2: *The composition of job satisfaction is affected by business cycles.*

H3: *The importance of job security in the composition of job satisfaction is higher in recessions and relatively lower in booms.*

Finally, while it is expected that the composition of job satisfaction is affected both by the sector employment and by the business cycles, it is also reasonable to study the interaction of these effects. Some evidence in favor of fruitfulness of this research avenue is presented in the paper of Ravid, et al (2016). Using the real-effort laboratory experiment with the two-sector economy with business cycles, researchers reveal that the job satisfaction in the public sector is generally more strongly affected by business cycles than in the private sector. This finding is rather counterintuitive as working conditions are often assumed to be more stable in the public sector. Researches claim that, when economy is booming, working conditions in private sector more sharply than in the public sector and public sector workers feel relatively worse off. Therefore, economic growth increases the job satisfaction of workers in the private sector more strongly than in the private sector, and public sector workers feel relatively worse off even though their income improves. Overall, Ravid, et. al conclude that the job satisfaction is more countercyclical in the public sector, but little attention is drawn to the composition of job satisfaction in their paper. Since the satisfaction from job security of private and public sector workers is affected differently by business cycles, it is also reasonable to suppose that the relative value that private and public sector workers attach to the job security in the composition of satisfaction is likely to be affected differently by the cyclical variation. Therefore, the following two hypotheses are evaluated:

H4: *The composition of job satisfaction is differently affected by business cycles in the private and in the public sector*

H5: *The relative importance of job security in the composition of job satisfaction is differently affected by business cycles in the private and in the public sector*

Let us now discuss the data and methodology with which this set of hypotheses is analyzed.

Data and methodology

The main dataset of this study is the British Household Survey (BHPS), which covers years 1991 to 2008. Dataset consists of 114,144 observations, which belong to 18,928 employed individuals of working age. Unemployed people were excluded from the dataset as they have no job from which they could exert the job satisfaction. All job satisfaction variables, such as "job satisfaction: overall", "job satisfaction: pay", "job satisfaction: job security", "job satisfaction: work itself", "job satisfaction: work hours" measure the satisfaction on the scale from 1 to 7. The mean overall job satisfaction of British workers is 5.37, and the public sector workers are slightly (0.11 points of satisfaction) more satisfied than the workers of private sector. In this research a series of Ordinary Least Squares regressions of overall job satisfaction on satisfaction with particular job characteristics is performed in order to determine the relative importance of particular job characteristics in determining the overall satisfaction of worker. The basic regression equation has the following form:

$$\text{job satisfaction: overll} = \alpha + \beta 1 * \text{job satisfaction: pay} + \beta 2 * \text{job satisfaction: job security} + \beta 3 * \text{job satisfaction: work itself} + \beta 4 * \text{job satisfaction: work hours} + \varepsilon$$

Then, a series of control variables, such as continuous variable "age", dummy "gender" (which takes value 1 if the respondent is male and 0 if otherwise), categorical variable "education", dummy "sector of employment" (which takes value 1 if the respondent is employed in the public sector and 0 if in the private sector, other kinds of employment are disregarded). These variables are likely to affect both the overall job satisfaction and satisfaction with particular job characteristics and it is, therefore, important to include them into regression. Furthermore, in order to check how these valuations of job characteristics vary across sectors of employment, interaction effects of sector and job satisfaction are also estimated. The new regression equation is as follows:

$$\text{job satisfaction: overll} = \alpha + \beta 1 * \text{job satisfaction: pay} + \beta 2 * \text{job satisfaction: job security} + \beta 3 * \text{job satisfaction: work itself} + \beta 4 * \text{job satisfaction: work hours} + \beta 5 * \text{age} + \beta 6 * \text{gender} + \beta 7 * \text{sector} + \beta 8 * \text{education} + \beta 9 * \text{job satisfaction: pay} * \text{sector} + \beta 10 * \text{job satisfaction: job security} * \text{sector} + \beta 11 * \text{job satisfaction: work itself} * \text{sector} + \beta 12 * \text{job satisfaction: work hours} * \text{sector} + \varepsilon$$

In order to control for the unobserved individual variation that can also bias the estimates, Fixed effects are then added to this regression. All the time invariant characteristics within the individual are canceled down in the regression equation and, therefore, the part of the OVB is also eliminated. The Fixed Effects regression equation is as follows:

$$\text{job satisfaction: overall}_{t1} - \text{job satisfaction: overall}_{t0} = \alpha + \beta 1 * \Delta\text{job satisfaction: pay}_{t1,t0} + \beta 2 * \Delta\text{job satisfaction: job security}_{t1,t0} + \beta 3 * \Delta\text{job satisfaction: work itself}_{t1,t0} + \beta 4 * \Delta\text{job satisfaction: work hours}_{t1,t0} + [\text{Fixed OVB} - \text{Fixed OVB}] + \text{Time variant OVB}$$

Apart from the sector interaction effects, the time variation in workers' values is also analyzed in this paper. A substantive graphical analysis of the variation in the coefficients of satisfaction of particular job satisfaction from the previous regression equation is performed in order to form the expectations of regression results. The OECD Economic Outlook, containing the economic growth of Britain for years 1989-2010, is also added to the dataset of this paper. Further, on the basis of the volume GDP growth rate the categorical variable "business cycle" is created, which takes value 1 if the current year is recession, 2 if the current year is boom, and 0 if otherwise. It is clear from the economic growth time-plot presented on Figure 1 in Appendix that the business cycle from recession to recession has lasted in Britain from 1991 to 2009, while the length of the BHPS survey is almost one business cycle, and the only missing year is 2009. With the reference on the economic growth trends

from the same graph, the period from 1997 to 2007, which is also known in Britain is NICE (Non-Inflationary Continuous Expansion) decade can clearly be identified as the period of boom – economic growth fluctuates in this period around 3%, which is the highest growth for the period of the study. Years 1991, 2007 and 2008 represent a sharp decrease in economic growth (in these years the rate of growth falls below zero), and are, therefore, identified as recessions. The interaction effect of business cycles and job satisfaction is then estimated in order to evaluate how do worker's values vary over time. The regression equation is as follows:

$$\begin{aligned}\text{job satisfaction: overll} = {} & \alpha + \beta 1 * \text{job satisfaction: pay} + \beta 2 * \text{job satisfaction: job security} + \beta 3 \\ & * \text{job satisfaction: work itself} + \beta 4 * \text{job satisfaction: work hours} + \beta 5 * \text{age} \\ & + \beta 6 * \text{sector} + \beta 7 * \text{business cycle} + \beta 8 * \text{job satisfaction: pay} * \text{business cycle} \\ & + \beta 9 * \text{job satisfaction: job security} * \text{business cycle} + \beta 10 \\ & * \text{job satisfaction: work itself} * \text{business cycle} + \beta 11 \\ & * \text{job satisfaction: work hours} * \text{business cycle} + \varepsilon\end{aligned}$$

The same regression equation is then estimated with Fixed Effects. Other than that, the difference in the cyclical variation of worker's preferences by the sector of employment is estimated by adding job satisfaction*sector*business cycle interaction terms. And the final regression equation has the following form:

$$\begin{aligned}\text{job satisfaction: overll} = {} & \alpha + \beta 1 * \text{job satisfaction: pay} + \beta 2 * \text{job satisfaction: job security} + \beta 3 \\ & * \text{job satisfaction: work itself} + \beta 4 * \text{job satisfaction: work hours} + \beta 5 * \text{age} \\ & + \beta 6 * \text{sector} + \beta 7 * \text{business cycle} + \beta 8 * \text{job satisfaction: pay} * \text{business cycle} \\ & + \beta 9 * \text{job satisfaction: job security} * \text{business cycle} + \beta 10 \\ & * \text{job satisfaction: work itself} * \text{business cycle} + \beta 11 \\ & * \text{job satisfaction: work hours} * \text{business cycle} + \beta 12 * \text{job satisfaction: pay} \\ & * \text{sector} + \beta 13 * \text{job satisfaction: job security} * \text{sector} + \beta 14 \\ & * \text{job satisfaction: work itself} * \text{sector} + \beta 15 * \text{job satisfaction: work hours} \\ & * \text{sector} + \beta 16 * \text{job satisfaction: pay} * \text{business cycle} * \text{sector} + \beta 17 \\ & * \text{job satisfaction: job security} * \text{business cycle} * \text{sector} + \beta 18 \\ & * \text{job satisfaction: work itself} * \text{business cycle} * \text{sector} + \beta 19 \\ & * \text{job satisfaction: work hours} * \text{business cycle} * \text{sector} + \varepsilon\end{aligned}$$

Furthermore, a Fixed Effects estimation is also applied to this regression equation and year dummies are added in order to control for events other than economic growth that could influence the job satisfaction of all workers in particular year.

Results:

The composition of job satisfaction in the public and in the private sector

At first, the OLS regression of overall job satisfaction on satisfaction with particular job characteristics is conducted. The results are presented in Table 1 in Appendix as Model 1. All coefficients are statistically significant at a 5% level, and the adjusted R squared equals 0.61, which means that satisfactions from work itself, pay, job security and working hours explain 61% of variation of the overall satisfaction of worker. Concerning the magnitude of observed coefficients, it can be concluded that workers tend to attach substantially more value to the satisfaction with work itself than to other job characteristics. If the worker is completely satisfied with the nature of his job, his overall satisfaction is on average 3.5 points higher on the scale from 1 to 7, while the complete satisfaction with pay or with job security will only contribute to 1-point rise in the overall satisfaction. These results are in line with the findings of Desantis and Durst (1996), who also point on the high importance of characteristics that are connected to the nature of the employment, such as work environment and routineness. Furthermore, workers tend to value the pay and the job security equally and attach slightly more value to working hours. In order to improve the internal validity of the estimates and control for the factors that can influence both overall job satisfaction and particular job satisfactions, gender, age education and sector employment were added to the regression. It is likely that people of different age and gender have different valuations of particular aspects of their jobs. Educated and public sector-oriented people are also likely to choose different jobs than uneducated or private-sector oriented individuals and this difference in the choice of employment may also imply a different set of job preferences. This is why it is important control for these characteristics to alleviate the selection bias.

The results of the second model (Model 2) are also presented in Table 1. As we can see, public sector workers have on average 0.02 points higher job satisfaction than private sector workers, which is a very insignificant difference. On the contrary to the findings of Heywood et al. (2002), sectoral difference in the job satisfaction is very low even without controlling for individual Fixed Effects. Apart from that, males tend to have on average lower job satisfaction than females, but the magnitude of this difference is negligible (only 0.06 points on the scale from 1 to 7). Moreover, job satisfaction tends to decrease slightly with ageing (being 10 years older is associated with a 0.1-point decrease in the job satisfaction, which is a miserable change). There is also a negative correlation of education with job satisfaction. For instance, people with a higher education degree have on average 0.16 points lower job satisfaction than people without education. The likely reason for this tendency is that educated people are more demanded on labor market and, therefore, are more critical in assessment of the job quality. Education dummies “Commercial QF, “NO O levels” and “Other QF” are not statistically significant, which is probably because such qualifications are very rare among British workers. Furthermore, the R squared did not change substantially from adding these control variables. Let us now add interaction terms to regression and examine how do workers’ valuations of job characteristics differ by sectors of employment.

The results of new model with sector interaction effects are presented in Table 1 in Appendix as Model 3. Even though the overall satisfaction does not differ substantially across sectors, interaction effects of sector and particular job characteristics are quite significant. Considering the signs of interaction coefficients, it can be inferred that public sector employees attach less value to job security than private sector employees, which is against expectations. The possible reason for such a tendency is that there is a more or less the same level of job security in the public sector (because there is only one employer in public sector – the government), while the job security is likely to vary substantially across different occupations in private sector, and that is why private sector employees

may attach more value to job security when assessing job options. Furthermore, as expected, workers in the public sector attach more value to the satisfaction with work itself and less value to the satisfaction with pay than the employees of the private sector. The magnitude of these interaction terms is moderate, for example, 1-point rise in the satisfaction from work itself brings on average 0.057 more points of overall satisfaction to public sector workers than to the workers of private sector, and public servants, who are completely satisfied with the work itself, have on average 0.4 (0.057*7) points higher overall satisfaction than completely satisfied with the work itself private sector workers. Finally, the interaction coefficient of sector and satisfaction with working hours is very small, which means that the difference in the importance of working hours across sectors is ambiguous. Overall, even though the difference in the total satisfaction between sectors is negligible, its composition is different across sectors. Private sector workers tend to attach more value to pay and job security, while the workers of public sector gain relatively more satisfaction from work itself. There, however, can also be unobserved factors that influence both the satisfaction with particular job characteristics and the overall satisfaction and bias the estimates. In order to control at least for the time-invariant part of the unobserved heterogeneity in the data, the Fixed Effects regression was also conducted.

The p-value of the Hausman test is equal to 0.000 which implies that hypothesis “the difference in the coefficients is not systematic” is rejected and a Fixed effects model is, therefore, more suitable than a model with Random Effects. The results of the Fixed Effects regression of overall satisfaction on satisfaction with particular job characteristics is reported in Table 1 in Appendix as Model 4. On the contrary to the findings of Heyman, et. al, controlling for fixed effects have resulted in a slightly higher coefficient of sector variable, which, however, is still almost indistinguishable from zero, as they predicted. Nevertheless, considering the fact that people do not frequently move across sectors (only 2500 cross sector transitions were performed for 18 years of the survey) and all the observations where the sector does not change are cancelled down in the Fixed Effects regression equation, the interpretation of the sector coefficients is different in the new model. This coefficient now measures the amount of overall satisfaction gained after sector transition and its very small magnitude suggests that the satisfaction gained from the sector transition does not vary substantially across sectors. Yet the lower difference in the overall job satisfaction across sectors does not tell anything about the composition of job satisfaction by sector.

The Fixed effects regression with sector job*satisfaction interaction effects was also conducted. The regression output is summarized in the Table 1 in Appendix as Model 5. Signs and magnitudes of interaction terms did not change significantly in the Fixed Effects model, except probably for the coefficient of satisfaction with work itself. Now 1-point increase in satisfaction with work itself brings on average 0.029 points more satisfaction to public sector workers than to the workers of private sector, while previously the gap was 0.057 points, which is 2 times higher. So that when the initial sectoral distribution of workers who, in general, care more about the work itself is controlled for, the difference across sectors diminishes, and this is one more evidence in favor of the hypothesis of Heyman et al. Apart from that, the overall R squared of the model is 0.606, which is almost the same as for the OLS regression, hence controlling for unobserved time-invariant individual variation did not increase the explanatory power of the model significantly.

Overall, it can be concluded that workers in the private sector workers tend to attach more value to pay and job security than public sector workers, while public sector workers attach more value to the nature of the work itself in determining the overall satisfaction. The magnitude of these differences is, however, quite small, so the optimal incentive scheme (one that accounts perfectly for the values of workers) should not differ substantially across sectors. Nevertheless, the relative importance of

various job characteristics in determining worker's satisfaction is likely to change in the different states of economy and the extent of this change might also vary across sectors.

Cyclical patterns in the composition of job satisfaction

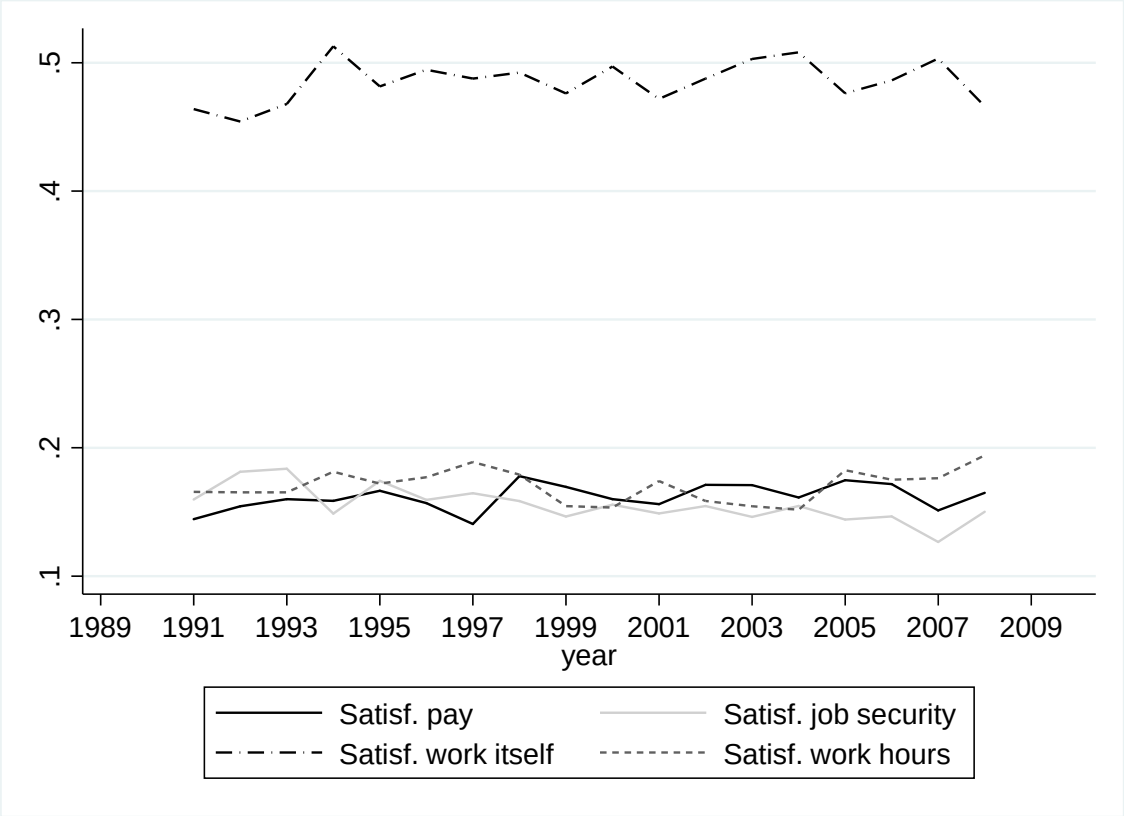

Figure 1. Time-plot of coefficients of satisfaction with particular job characteristics in determining the overall job satisfaction

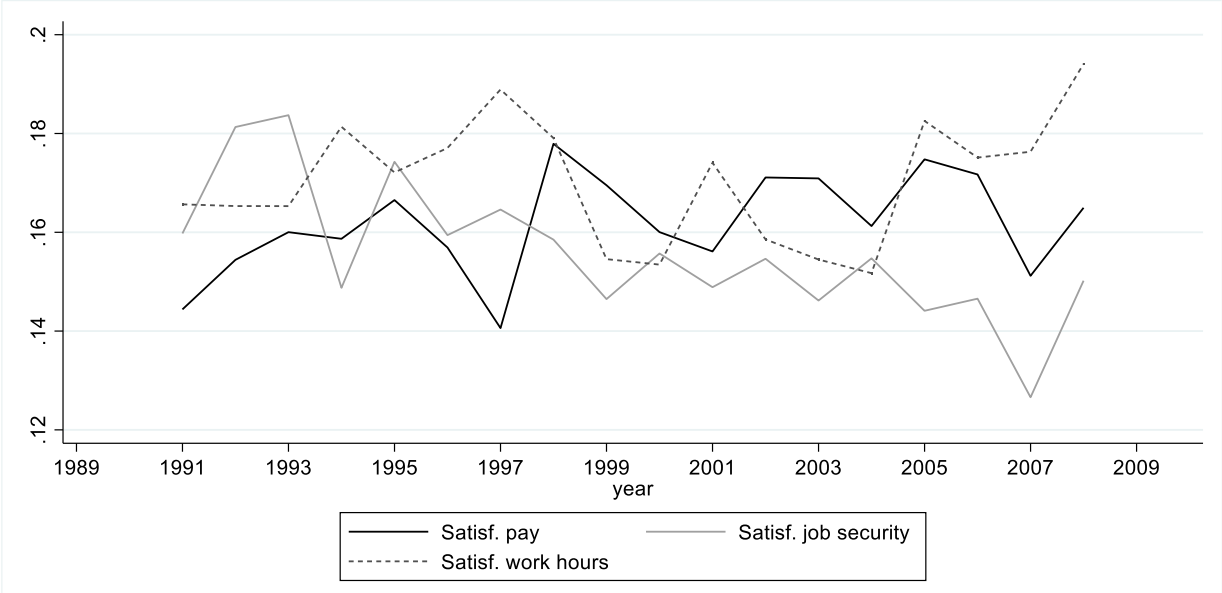

Figure 2. Time-plot of coefficients of satisfaction with pay, job security and work hours in determining the overall job satisfaction

First of all, the graphical analysis is performed. The time-plot of regression coefficients of satisfaction with particular job characteristics in determining the overall satisfaction is presented in Figure 1. The coefficients of satisfaction with job characteristics in this and all further mentioned graphs are taken from Model 5, which is reported in Table 1 in Appendix. The clearest feature of the first graph is that satisfaction with work itself has remained the most important satisfaction measure in determining the overall satisfaction for the whole length of the study. Whereas, the relative importance of other measures of satisfaction tends to fluctuate a lot over time and there is no clear hierarchy between them. Plot presented in Figure 2 gives a closer look at satisfaction with pay, job security and work hours. In the period 1992-1993 (which coincides with the recovery of the British economy), job security becomes the most important determinant of job satisfaction out of three, but then its importance starts to fall and follows a generally decreasing trend until 2008. In 1994 the leading position is taken by satisfaction with working hours, which remains the most important determinant of job satisfaction of three for the rest of the examined period, except for the years 1998-2000 and 2002-2004, when satisfaction with pay becomes more important. As expected, trends in the relevance of satisfaction with pay and satisfaction in working hours are strictly opposite, so "work less – earn more" trade off seems to be an important determinant feature of the composition of job satisfaction.

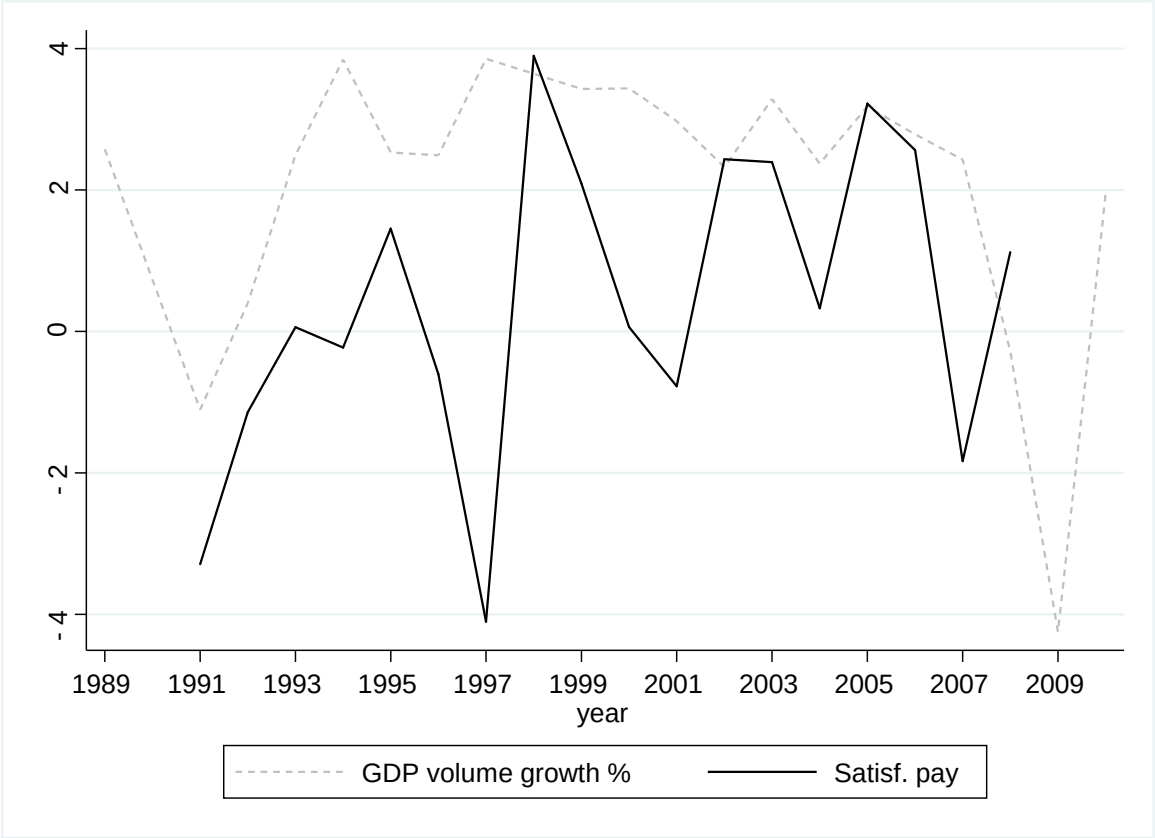

Figure 3. The normalized time plot of coefficients of satisfaction with pay in determining the overall job satisfaction and economic growth (measured as percentage growth of GDP volume)

Further, the trends in the importance of particular job aspects are normalized and plotted with economic growth in order to reveal the patterns of cyclical variation in worker's values. Figure 3 shows the normalized time-plot of coefficients of satisfaction with pay and the economic growth. As we can see, during the recovery period of 1992-1995 satisfaction with pay follows the same trend as economic growth. Then, in the first half of expansion period, the trend in importance of pay becomes

opposite to the economic growth, but starting from 2002 and until the recession of 2008, the relevance of pay in determining satisfaction again starts to follow the growth trend closely. The satisfaction with pay becomes more important in recession of 2008, which is probably because in times of economic hardships, when the unexpected expenses and debts are more common, people especially need money and heavily appreciate each additional pound of salary.

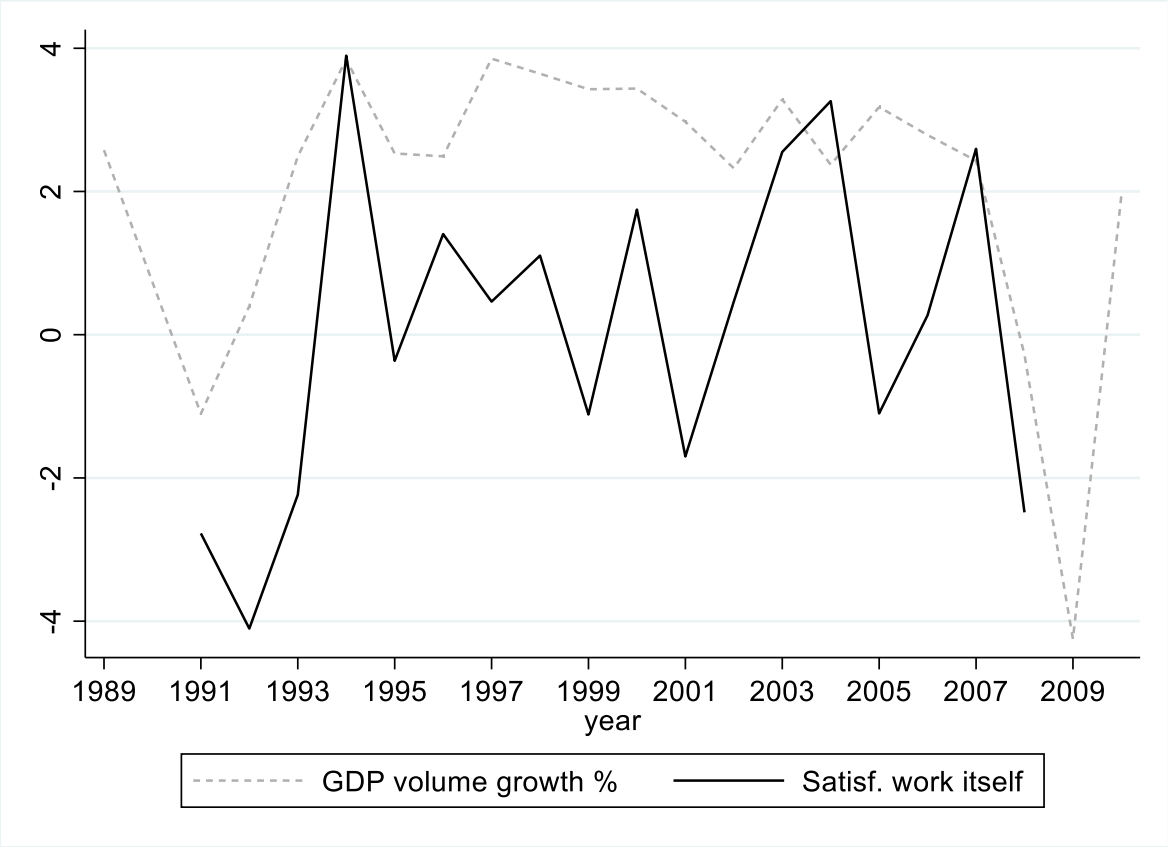

Figure 4. The normalized time plot of coefficients of satisfaction with work itself in determining the overall job satisfaction and economic growth (measured as percentage growth of GDP volume)

Figure 4 shows the normalized time-plot of coefficients of satisfaction with work itself and the economic growth. During the recovery period of 1992-1995 satisfaction with work itself follows the same trend as economic growth, then for the fluctuation is ambiguous, and from 2003 the trend in importance of satisfaction with work itself becomes opposite to the economic growth (and opposite to the trend in the relevance of satisfaction with pay). With the recession of 2008 the importance of satisfaction with work itself falls drastically, which is logical as the nature of the work, unlike many other job characteristics, should not change in recession substantially.

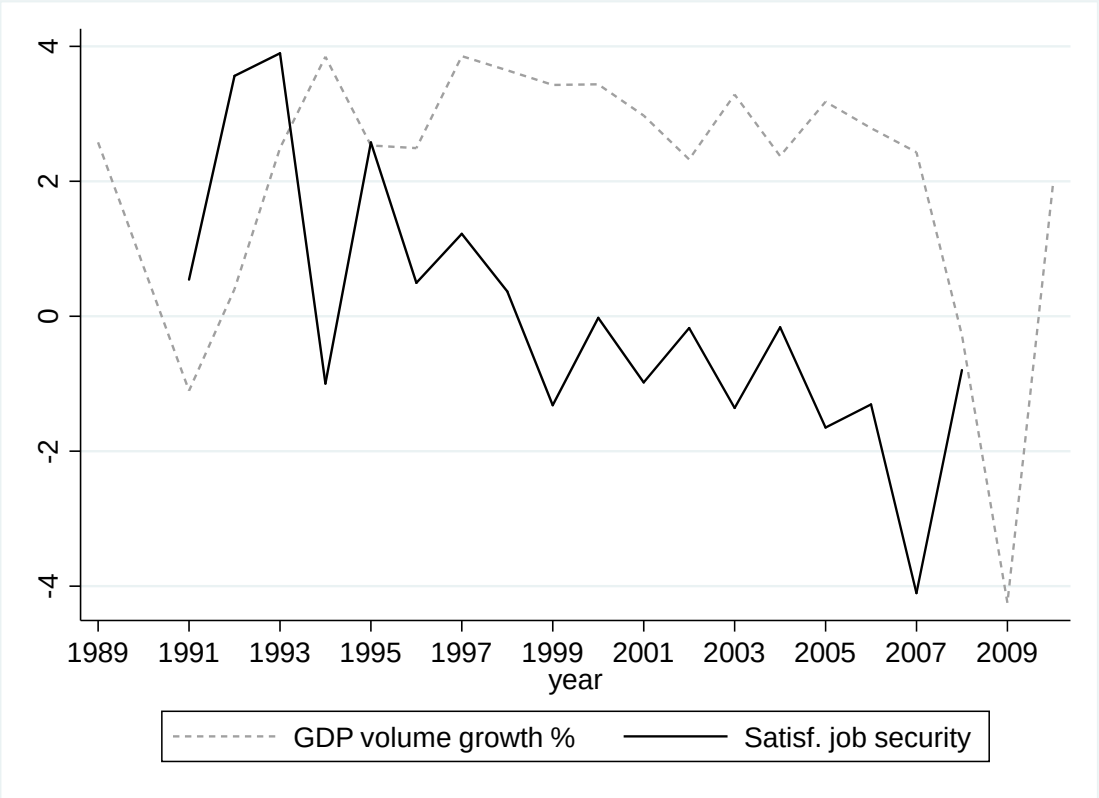

Figure 5. The normalized time plot of coefficients of satisfaction with job security in determining the overall job satisfaction and economic growth (measured as percentage growth of GDP volume)

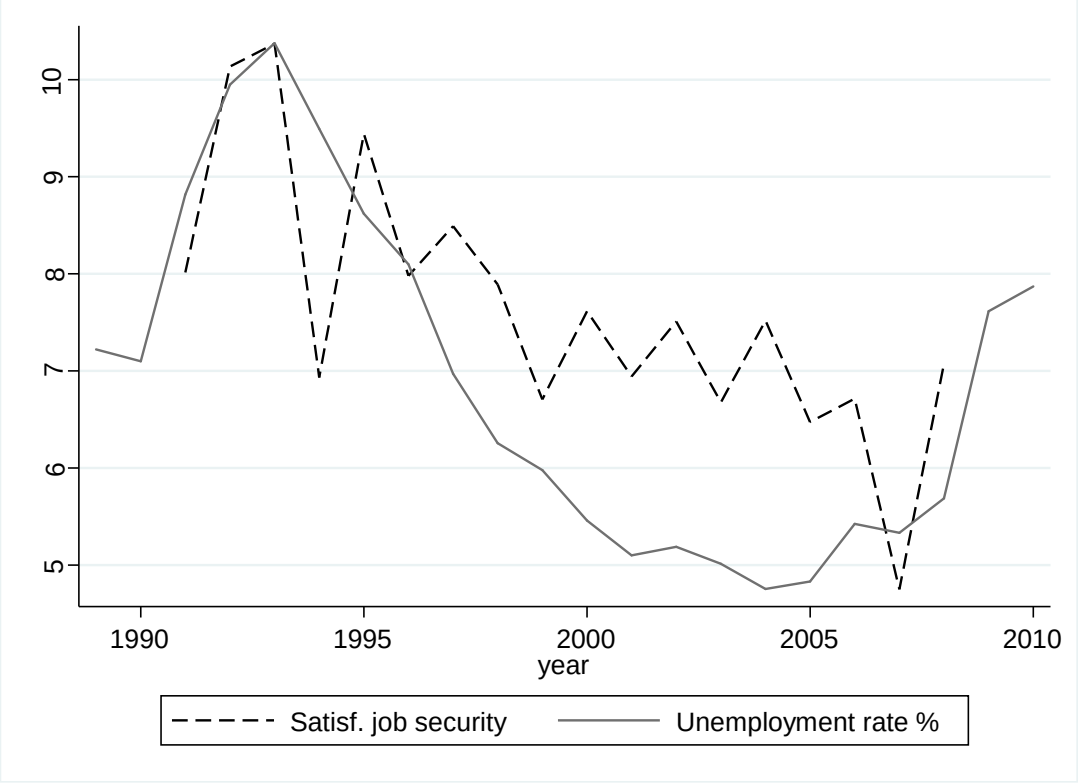

Figure 6. The normalized time plot of coefficients of satisfaction with job security in determining the overall job satisfaction and the unemployment rate

The trend in the satisfaction with job security, depicted on the Figure 5, is rather interesting. In the first 2 years after the recession of 1991, the importance of satisfaction with job security follows the same trend as economic growth, but after 1993 and for the rest of the examined period trend becomes strictly countercyclical. In general, all the changes in economic growth are reflected quite well by the satisfaction with job security, and this characteristic seems to be affected the most by business cycles. As expected, job security becomes relatively more important in recession of 2008, and relatively less important in the economic expansion of 1997-2007. The revealed tendency is perfectly in line with analogous findings of Artz & Kaya for US labor marker. Apart from that, independently from the cyclical change, the importance of job security follows a clear negative trend for the whole period of the study, which is very similar to dynamics of unemployment, depicted in Figure 6. The peak of unemployment in 1993 coincides with the point of highest importance of job security and the following trend of these factors is almost parallel. If it is not coincidence that the trend in importance of job security is responsive both to the economic growth and to unemployment, then there should either a be a common factor that influence all 3 trends (which is very unlikely) or the effect of unemployment and economic growth on the relevance of job security is conjoined. Such a joint effect is in line with the findings of Artz & Kaya as well, as they also explain the effect of business cycles on the importance of job security through the changes in availability of workplaces.

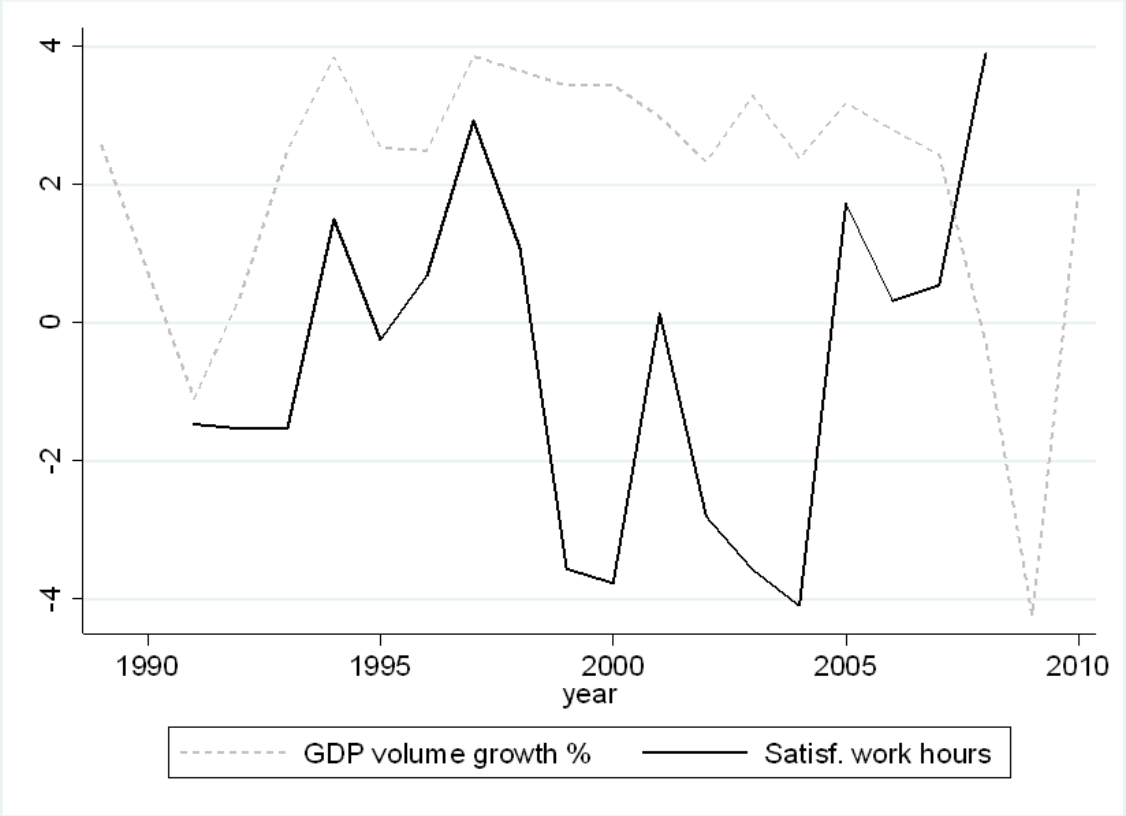

Figure 7. The normalized time plot of coefficients of satisfaction with work hours in determining the overall job satisfaction and economic growth (measured as percentage growth of GDP volume)

Finally, the trend in the coefficient of satisfaction with work hours is presented in Figure 7. As we can see, from 1991 satisfaction with work hours follows exactly the trend in the economic growth, but after 1996 the trend in the satisfaction with job security becomes exactly opposite to the economic growth. As it is unlikely that some event in 1996 could cause such a radical and sustained change in the values of workers, and if this trend is not a coincidence, then such a tendency could follow from

the recovery of economy, which took place in 1992-1996. It is possible that the importance of working hours is procyclical in recovery period and countercyclical in booms and recessions. The important implication of this analysis is that the relation between boom and recession in determining workers' values should not necessarily be antagonistic, as it is frequently described in the previous research.

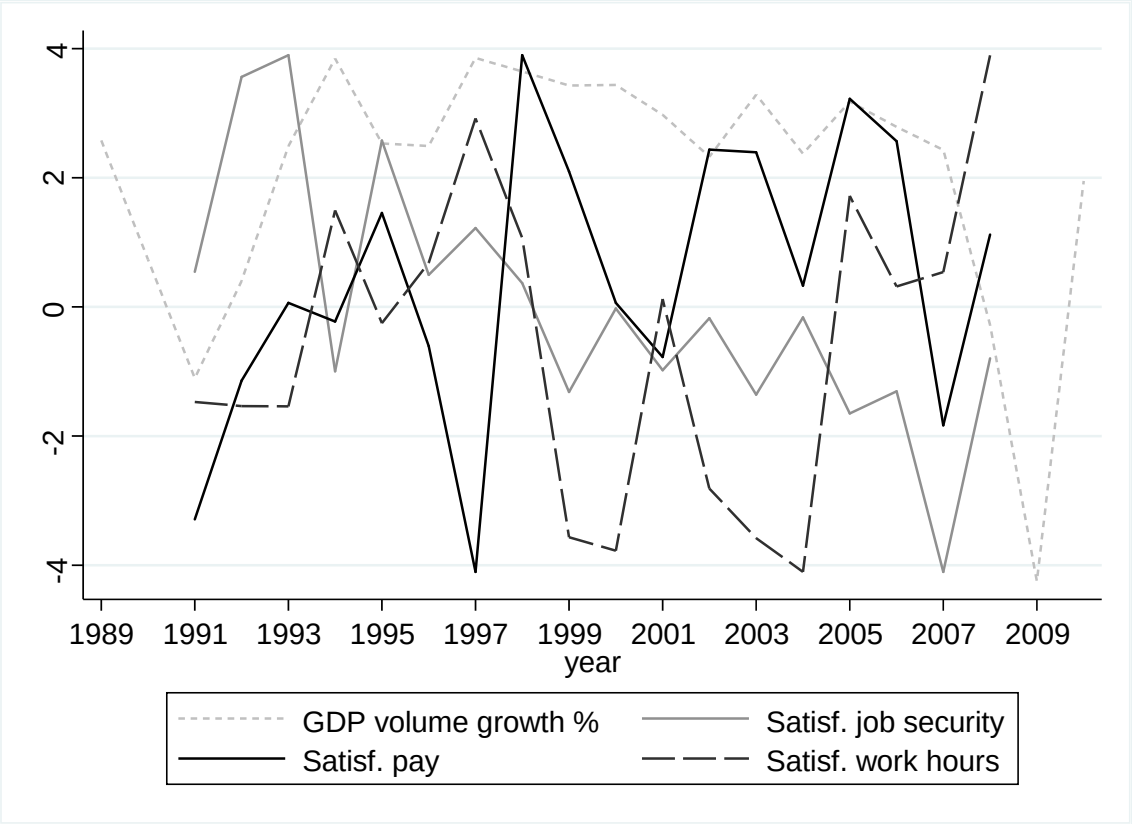

Figure 8. The normalized time plot of coefficients of satisfaction with pay, job security and work hours in determining the overall job satisfaction and economic growth (measured as percentage growth of GDP volume)

Furthermore, a plot of coefficients of satisfactions with particular job characteristics and economic growth is presented in Figure 8. Lines fluctuate a lot and the graph is rather unclear, but there are, however, two periods when the trend in the relevance of all three job aspects is more or less stable - these are years 1992-1993 (first two years after recession) and 2005-2008 (first three years before a new recession). In order to examine whether this variation in job satisfaction is actually connected to economic contraction, or these trends simply coincided in time, a Fixed Effects regression is applied in this research. However, the Fixed Effects regression assumes treatment to be a one-time event, while graph shows that dynamic effects of recession can also be present. Event studies are, unfortunately, inapplicable in this case as, even though individuals receive treatment in different times (some observations were affected by the recession of 1991 and some were affected by recession of 2008), there is no data for the period before 1991 and after 2008, so there is only one pre-treatment period (before 2008) and one post-treatment period (after 1991) and there is no way to compare the dynamics of 2 recessions. Therefore, the examination of dynamic effects of business cycles on worker's preferences remains to be a subject for future research, which would certainly benefit from a more time-extensive data. Nevertheless, the immediate effect of business cycles on preferences can be analyzed even within the limited time scope of this study.

First, an OLS regression with interaction effects of job satisfaction and business cycles is conducted, the model output is presented in Table 2 in Appendix as Model 6. The only statistically significant interaction terms of this model relate to the satisfaction with job security. Against expectations, workers tend to attach almost equally less value to job security in recessions and in booms, so the satisfaction with job security is clearly correlated with business cycles but the effect is neither pro- or counter- cyclical. The magnitude of these coefficients is, however, quite low and almost indistinguishable from zero. Workers get on average 0.02 points less satisfaction from satisfaction with job security in booms and recessions than in periods of the normal circulation of the economy, which is a negligible change.

Furthermore, in order to control for the possible unobserved factors that influence worker's valuation of job security and to check whether the revealed variation in values is not an effect of some other events that coincided with business cycle in particular year, the Fixed Effects estimation is applied. The results of the new model are reported in Table 2 and labeled as Model 7. The R squared of the model and coefficients of interaction terms did not change substantially after controlling for individual fixed effects and year dummies. It can now be concluded with greater certainty that worker's valuation of job security is almost unaffected by business cycles. While the coefficients of satisfaction from other job characteristics are not statistically significant and nothing can be said about their cyclical variation. It seems paradoxical that workers do not attach more value to job security in recession, when the risk to lose a job increases in whole economy, whereas, according to Artz and Kaya, the importance of job security should have risen. It is important to mention that Artz and Kaya intentionally exclude public workers from their estimation as they expected the change in importance of job security in recession to be opposite across sectors. This is why it is possible that the resulting small and negative coefficient of importance of job security is only an average of opposite by-sector effects that cancel each other out. From the previous inferences it is clear that worker's composition of job satisfaction is affected by sector employment, so it will certainly not be redundant to evaluate how does this relationship changes with business cycles and, vice versa, how does the effect of business cycle on worker's values differs by sector.

Patterns of cyclical change of the composition of job satisfaction in the public and in the private sector

First of all, the graphical analysis of relationships from the previous part is conducted separately for the private and public sector. There are periods (that coincide very well with business cycles) when trends in satisfaction with a job aspect are perfectly opposite across sectors and periods when they move in the same direction. Cross sectoral similarities and differences are the clearest on graph of satisfaction with job security.

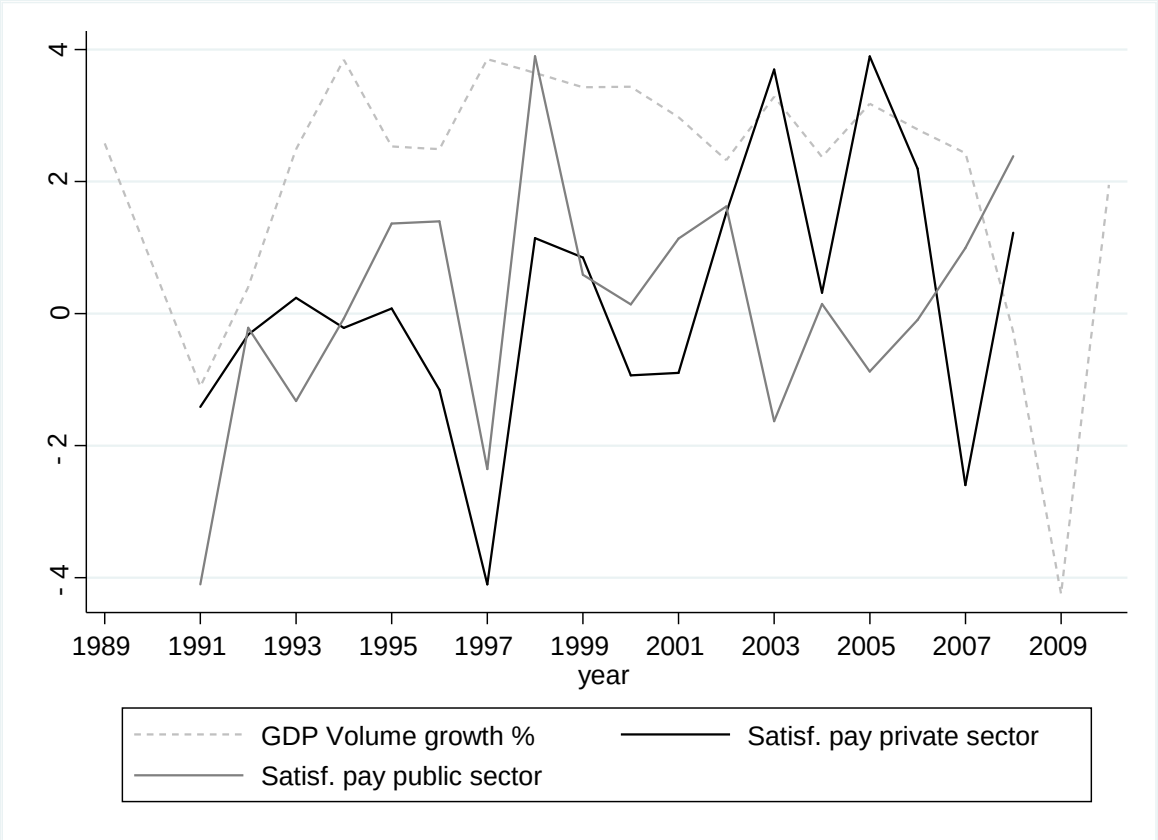

Figure 9. The normalized time plot of coefficients of satisfaction with pay in determining the overall job satisfaction in the private an in the public sector and economic growth (measured as percentage growth of GDP volume)

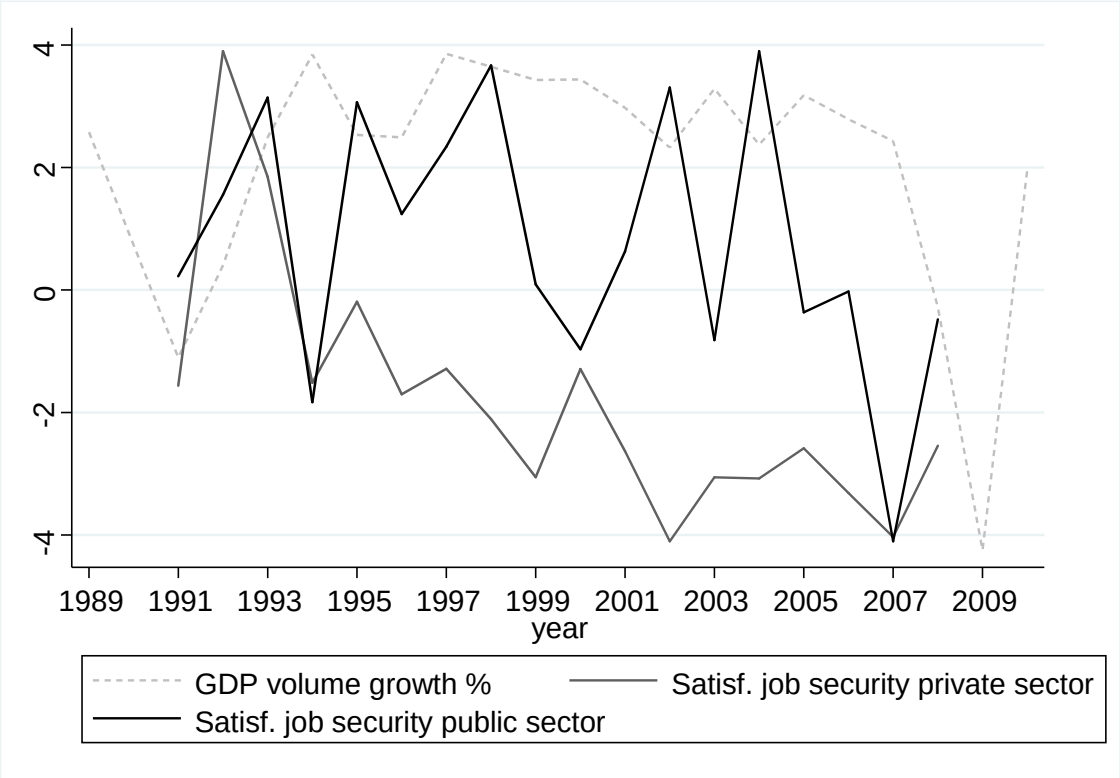

Figure 10. The normalized time plot of coefficients of satisfaction with job security in determining the overall job satisfaction in the private an in the public sector and economic growth (measured as percentage growth of GDP volume)

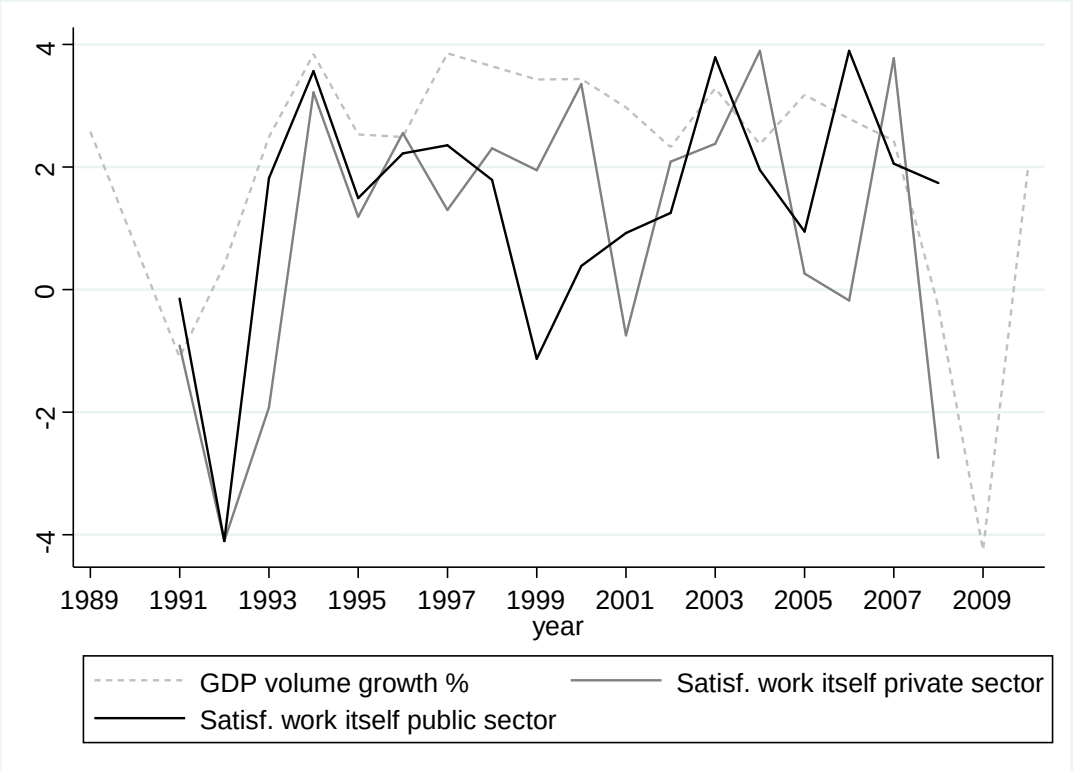

Figure 11. The normalized time plot of coefficients of satisfaction with work itself in determining the overall job satisfaction in the private an in the public sector and economic growth (measured as percentage growth of GDP volume)

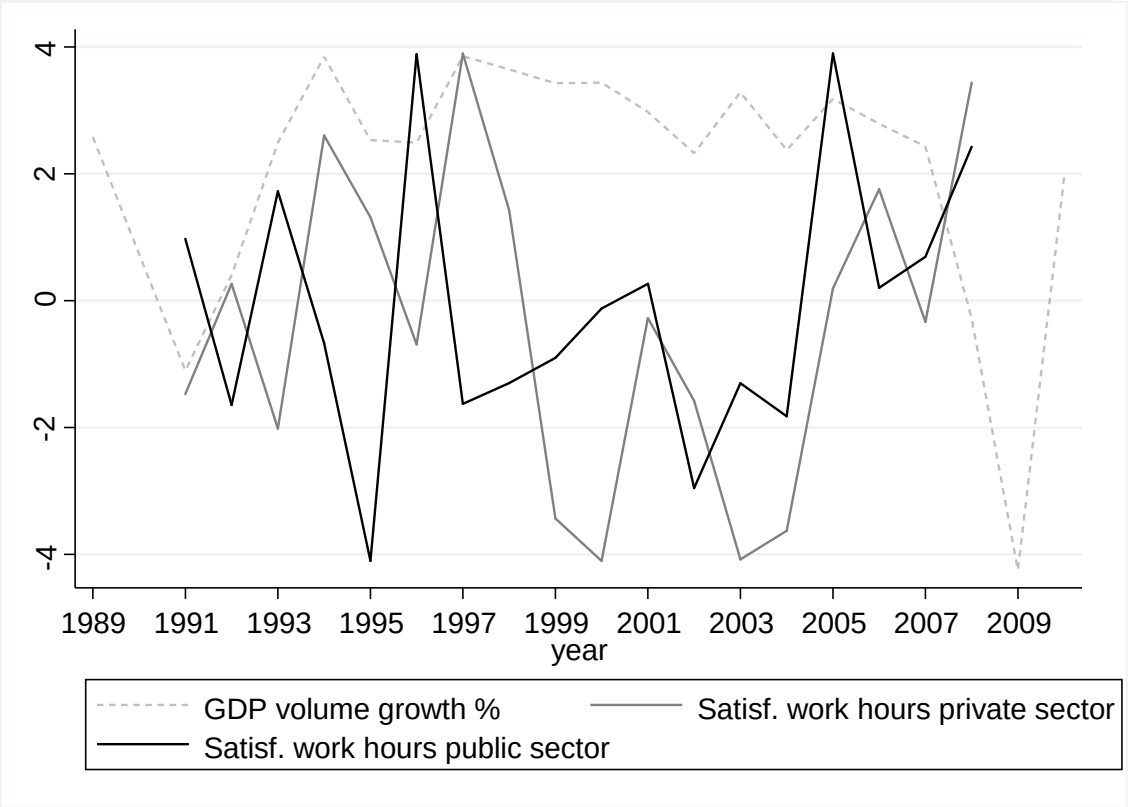

Figure 12. The normalized time plot of coefficients of satisfaction with work hours in determining the overall job satisfaction in the private an in the public sector and economic growth (measured as percentage growth of GDP volume)

The graph of satisfaction with pay in the public and in the private sector is presented in Figure 9. In this graph we can see that the trends in relevance of pay in the composition of satisfaction are almost opposite in the private and in the public sector except for the period 1995-1999. The trend of importance of pay is generally pro-cyclical in the private sector and counter-cyclical in the public sector, which is in line with the findings of Ravid, et. al. Furthermore, a particular attention should be drawn to satisfaction with job security, which is plotted on Figure 10. It is clear from this graph that trends in importance job security differ substantially across sectors. After recession of 1991 and in recession of 2008 trends follow the same direction, but in the time of boom the trends are exactly opposite. Moreover, the magnitude of fluctuation in importance of job security is much higher in public sector, which means that public sector workers are more affected by business cycles in this domain. Furthermore, the sectoral variation in the cyclical trend of importance of work itself is depicted in Figure 11. After the recession of 1991 and during the recession of 2008 the trends in importance of work itself follow the economic growth closely, but after 1996 and for the whole length of the NICE decade both trends deviate from the economic growth and follow the exact opposite directions. Similarly, trends in the importance of working hours, presented in Figure 12, are exactly opposite for the whole period of the study except for years 2007 and 2008, when both trends follow the same direction, which is opposite to the economic growth. It seems that valuations of work hours in the public and public sector are equally positively affected by recession of 2008 and do not correlate a lot with economy's circulation in other years. Overall, it can primarily be concluded that recessions affect the preferences of workers in the private and in the public sector in the same way, whereas during boom these effects are opposite across sectors.

A series of regressions was also conducted in order to verify the validity of graphical inferences. First, an ordinary least squares of job satisfaction on interaction terms of particular job satisfactions, sector and business cycle was estimated. The regression output is presented in Table 2 and labeled as Model 8. The joint significance of the interaction terms was estimated with the use of the Wilde tests for joint hypotheses. The only statistically significant triple interaction terms measure the relative importance of job security in boom and recession by sectors and the relative importance of work itself across sectors in boom. One additional point of satisfaction from job security in boom brings on average 0.021 points more overall satisfaction to the workers of public sector than to the workers of private sector, which is a miserable deviation. While one additional point of satisfaction from job security in recession brings on average 0.012 more points of overall satisfaction to workers of public sector than to the workers of private sector, which is an even smaller sectoral gap than in boom. Signs of estimated relationships suggest that in booms job security becomes less important both in the private and in the private sector, and in recessions, paradoxically, this trend for the workers of both sectors is not inverted. The only difference is that gap in importance of job security contracts in recessions, but the initial difference was also extremely low. Furthermore, the total decrease in the overall satisfaction from one-point rise in the satisfaction from work itself in recession is 0.023 points in private sector and 0.011 in the public sector, and these figures change to 0.038 and 0.21 in boom. Apart from that, the importance of satisfaction from work itself falls in recession in both sectors and the sectoral gap is equal to 0, while in booms the sector*business cycle*satisfaction with work itself interaction terms are not jointly statistically significant. In order to strengthen the validity of these inferences the regression with Fixed Effects was also conducted.

The results of the Fixed Effects estimation are presented in Table 2 in Appendix and labeled as Model 9. Model output has changed substantially after controlling for the unobserved time-invariant individual variation. Now the sectoral difference has sharpened. In recession, public sector workers gain on average 0.0391 points more overall satisfaction than private sector workers, whereas in booms this gap contracts to 0.0292 points. Now the transition to public sector is associated with a propensity to gain 0.27 (0.0391*7) more points of overall satisfaction from complete satisfaction with the job security in boom and 0.20 (0.0292*7) more points in recession. In recession one-point rise in the satisfaction with job security brings in total 0.029 points less overall satisfaction to private sector workers and 0.01 (-0.0294 + 0.0391) points more satisfaction to the workers of public sector, while in boom these figures change to 0.035 less points in private sector and 0.006 (-0.0349 + 0.0292) points less in the public sector. Signs of interaction terms in the private sector are again not inverted with the change of the business cycle, while the change in sign of the effect of recession on importance of job security for the public sector workers does not seem to be meaningful, as the -0.006 to 0.01 fluctuation is almost indistinguishable from zero. It can, therefore, be concluded that in the periods, when economy changes faster than normal, job security becomes less important for workers of private sector, while the values of public sector workers are almost unaffected by the cyclical fluctuation. Nevertheless, the magnitude of this cyclical change is rather small in the private sector as well. Other triple-interaction terms are not statistically significant and it also does not make sense to interpret the interactions of lower complexity (such as the interaction of sector and business cycle without the satisfaction). The R squared of the model is equal to 0.6143, which is slightly higher than the R squared of the previous model with Fixed Effects. The p-value of the F test is equal to zero, hence the hypothesis that all model's coefficients are equal to zero is rejected, which means that at least some estimates of this model are valid.

Conclusion and Discussion

Summarizing the findings of this paper, it can be concluded that there clearly is a difference in the composition of job satisfaction in the private and in the public sector, but it is not substantial enough to make practical inferences. Private sector workers in general attach more value to pay and job security, while public sector workers care more about the nature of the work itself. However, these differences diminish substantially after controlling for Fixed Effects, and, therefore the first hypothesis, stating that "There is a systematic difference in the sector compositions of job satisfaction, but the size of this difference is small" cannot be rejected. Furthermore, the composition of satisfaction also changes with the change of economy: job security in general becomes slightly less important in recessions and booms compared to the normal circulation of the economy. The importance of job security has the strongest relation to business cycles than other job characteristics: the importance of job security decreases both in recessions and in booms, which is against expectations. Therefore, the second hypothesis stating that "The composition of job satisfaction is affected by business cycles" cannot be rejected and hypothesis "The importance of job security in the composition of job satisfaction is higher in recessions and relatively lower in booms" is rejected. However, these tendencies reflect only an average change across sectors, and when the sectors are separated it becomes clear that in recessions and booms job security becomes more important in the public sector and less important in the private sector, but the magnitude of the variation remains very low. In any way this implies that the fourth hypothesis of this study stating that "The composition of job satisfaction is differently affected by business cycles in the private and in the public sector" and the fifth hypothesis "The relative importance of job security in the composition of job satisfaction is differently affected by business cycles in the private and in the public sector" both cannot be rejected. Probably, the most paradoxical finding of this research is that the value workers attach to the job security changes in the same direction in boom and in recession, while the previous literature predicted that boom and recession effects are opposite. In general worker's values tend to be quite consistent irrespective to the cyclical fluctuation or the sector employment. And even though workers with particular sets of values are indeed attracted to public and private sector, when this initial difference is controlled for, the correlation of the sector employment and the composition of job satisfaction becomes miserable. The practical implication of these findings is that employers in the private and in the public sector should not adjust the compensation schemes of workers specifically with respect to the standalone variation in business cycles. The same applies to the policy makers: it is sufficient for the labor market policy in boom or in recession to account for the preferences of workers under normal functioning of economy and there is no need for adjustment this view for the business cycles. At the same time, more attention should be drawn to the initial sectoral distribution of workers with particular values and non-economic factors (such as the demographic and cultural context) that inevitably result in the different set of job preferences.

Nevertheless, the validity of the estimates this research should also be discussed. First of all, this research relies on the self-reported measurements of job satisfaction, and there is no guarantee that they actually reflect worker's values, but not worker's mood at the day of an interview. However, the high degree of subjectivity is inevitable, when such abstract concepts as "values" and "satisfaction" are concerned in empirical research. Moreover, the complexity of measure of satisfaction, which draws distinction between various aspects of the job, and the time dimension of study assure with greater certainty that worker's responses are consistent and directly relate to the research question. Secondly, the research methodology is also subject to questions. Main inferences of this study are derived from the Fixed Effects model estimates, and the exogeneity assumption of this model cannot be tested. There can be unobserved time-variant factors that influence both the overall satisfaction

and the satisfaction from particular job characteristics, for example, workers may feel less satisfied with certain conditions of occupation if their personal relations with co-workers get worse. The future research should either incorporate more time-variant controls or imply a more complex methodology, such as difference in difference or IV estimation. Furthermore, considering that many coefficients that are crucial for the research analysis are not statistically significant, an alternative estimation would be especially useful. Further research should pay more attention to worker's valuation of pay and the work itself that, according to the graphical analysis and initial set of regressions, seem to play important role in the sectoral composition of satisfaction, but their coefficients in the final model are not statistically significant. Moreover, the graphical analysis suggests that dynamic effects of business cycles on the sector composition of satisfaction can also take place, but the limited time-range of the dataset of this study does not allow to evaluate them, so the future research will benefit substantially from event-studies analysis of a more time-extensive data.

Finally, it is important to reflect upon the external validity of the findings. Inferences of these research are strongly related to characteristics of British economy. Not only values of workers may by themselves differ in different cultural contexts, but also the sectoral composition of values is also likely to be dependent on the characteristics of public sector. Public sector in UK is generally quite big and wages there are generally higher than wages in public sector, which is a rather unusual feature. For instance, the application of inferences about the UK public sector to the American economy, where the public involvement in the economy is much lower, would require a certain degree of cautiousness. Apart from that, the effect of business cycles on worker's values is also likely to differ by countries depending on the government policy and other characteristics of the economy. For example, it is likely that worker's values change more substantially in recessions in developing countries, where the fluctuations of growth rate are more pronounced, than in developed countries, such as UK. It is also likely that cross-country differences in labor market policy, determining how easy it is to fire a worker, are associated with a different attitude of workers to job security. Therefore, the inferences of this paper are not ultimately externally valid, but they are still applicable to UK and economies that are similar to UK.

Bibliography

Artz, B., & Kaya, I. (2014). The impact of job security on job satisfaction in economic contractions versus expansions. *Applied Economics*, *46*(24), 2873-2890.

Baruffini, M., & Origo, F. (2014). Job satisfaction and flexicurity over the business cycle: evidence from Swiss individual-level data, 54th Congress of the European Regional Science Association: "Regional development & globalisation: Best practices", 26-29 August 2014, St. Petersburg, Russia, *European Regional Science Association (ERSA)*, Louvain-la-Neuve

DeSantis, V. S., & Durst, S. L. (1996). Comparing job satisfaction among public-and private-sector employees. *The American Review of Public Administration*, *26*(3), 327-343.

Gazioglu, S., & Tansel, A. (2006). Job satisfaction in Britain: individual and job related factors. *Applied economics*, *38*(10), 1163-1171.

Heywood, J. S., Siebert, W. S., & Wei, X. (2002). Worker sorting and job satisfaction: The case of union and government jobs. *ILR Review*, *55*(4), 595-609.

Karl, K. A. and C. L. Sutton. 1998. ‘‘Job Values in Today’s Workforce: A Comparison of Public and Private Sector Employees.’’ *Public Personnel Management*, 27(4): 515–527.

Naff, K. C. and J. Crum. 1999. ‘‘Working for America: Does Public Service Motivation Make a Difference?’’ *Review of Public Personnel Administration, 19*(4): 5–16.

Ravid, O., & Malul, M. (2017). The effect of economic cycles on job satisfaction in a two-sector economy. *Journal of Economic Behavior & Organization*, *138*, 1-9.

Steijn, B. (2004). Human resource management and job satisfaction in the Dutch public sector. *Review of public personnel administration, 24*(4), 291-303.

University of Essex, Institute for Social and Economic Research. (2018*). British Household Panel Survey: Waves 1-18, 1991-2009. [data collection]. 8th Edition.* UK Data Service. SN: 5151, http://doi.org/10.5255/UKDA-SN-5151-2

Wilczyńska, A., Batorski, D., & Sellens, J. T. (2016). Employment flexibility and job security as determinants of job satisfaction: the case of Polish knowledge workers. *Social Indicators Research*, *126*(2), 633-656.

Appendix

Figure 1. GDP volume percentage growth

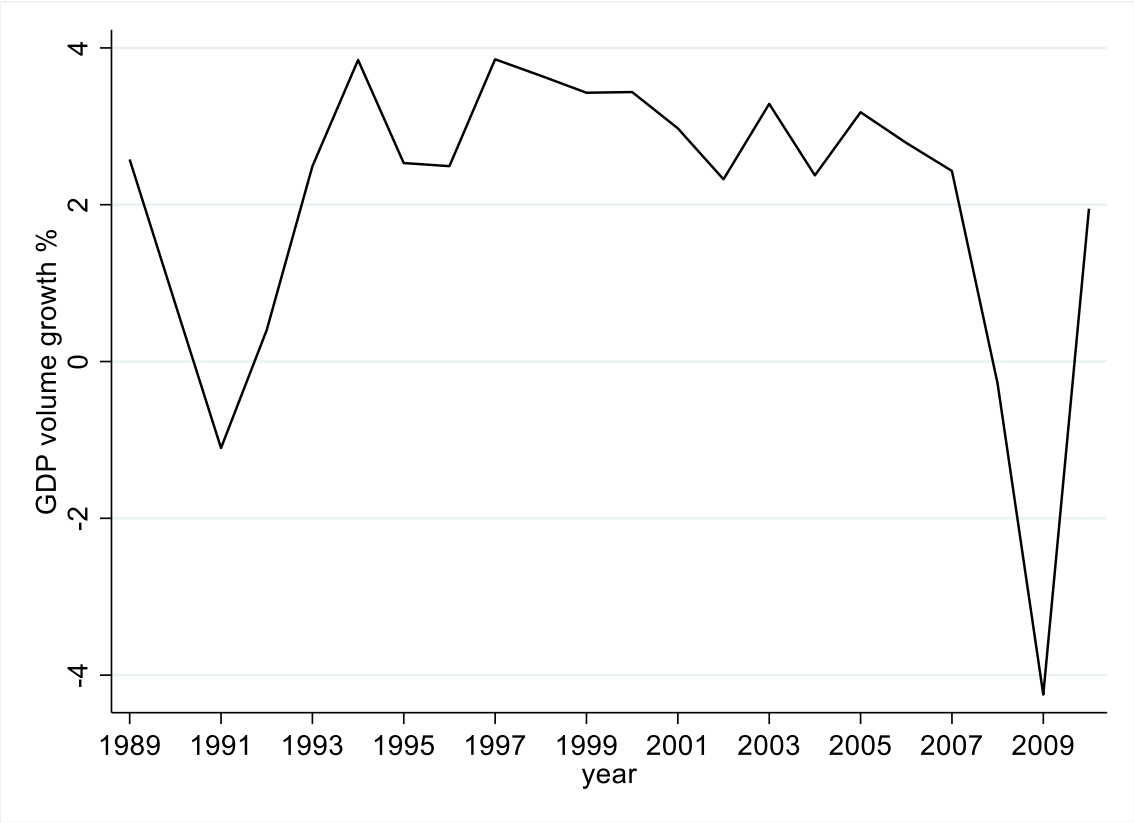

Table 1. OLS and Fixed Effects regression analysis of sectoral differences in the composition of job satisfaction

Job satisfaction: overall					
	Ordinary Least Squares			Fixed Effects	
	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	0.201***	0.400***	0.370***	0.807***	0.739***
	(0.013)	(0.019)	(0.021)	(0.031)	(0.033)
Sat1	0.158***	0.161***	0.176***	0.158***	0.173***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Sat2	0.155***	0.154***	0.166***	0.154***	0.166***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)
Sat3	0.486***	0.486***	0.468***	0.448***	0.439***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Sat4	0.174***	0.170***	0.167***	0.175***	0.172***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Sector		0.0238***	0.122***	0.075***	0.317***
		(0.006)	(0.031)	(0.013)	(0.041)
Age		-0.002***	-0.002***	-0.011***	-0.011***
		(0.000)	(0.000)	(0.001)	(0.001)
Gender		-0.053***	-0.054***		
		(0.005)	(0.005)		
Education 1		-0.161***	-0.157***		
		(0.016)	(0.016)		
Education 2		-0.144***	-0.141***		
		(0.012)	(0.011)		
Education 3		-0.101***	-0.104***		
		(0.019)	(0.019)		
Education 4		-0.119***	-0.122***		
		(0.009)	(0.009)		
Education 5		-0.111***	-0.123***		
		(0.024)	(0.024)		
Education 6		-0.130***	-0.132***		
		(0.011)	(0.011)		
Education 7		-0.071***	-0.073***		
		(0.010)	(0.010)		
Education 8		0.001	-0.001		
		(0.020)	(0.020)		
Education 9		-0.060***	-0.062***		
		(0.016)	(0.016)		
Education 10		-0.105***	-0.106***		
		(0.027)	(0.027)		
Education 11		-0.052	-0.054		
		(0.035)	(0.035)		
Sat1*Sector			-0.051***		-0.052***
			(0.004)		(0.005)
Sat2*Sector			-0.039***		-0.040***
			(0.039)		(0.005)
Sat3*Sector			0.057***		0.029***
			(0.005)		(0.006)

Sat4*Sector			0.009** (0.004)			0.011** (0.005)
Observations	107,665	97,069	97,069	99,937		99,937

*p-value < 0.1, **p-value < 0.05, ***p-value < 0.01. Abbreviations: Sat1 – Job satisfaction: pay; Sat2 – Job satisfaction: job security; Sat3 – Job satisfaction: work itself; Sat4 – Job satisfaction: work hours; Education 1 – Higher Degree; Education 2 – First Degree; Education 3 – Teaching Qualification; Education 4 – Other Higher Qualification; Education 5 – Nursing Qualification; Education 6 – GCE A Levels; Education 7 – GCE O Levels or Equivalent; Education 8 – Commercial Qualification; No O levels, Education 9 – CSE 2 -5; Scottish Grade 4-5, Education 10 – Apprenticeship; Education 11 – Other Qualification. In Model 2 and Model 3 category "No Qualification" is a reference category for the variable Education.

Table 2. OLS and Fixed Effects regression analysis of the cyclical change in workers' preferences

Job satisfaction: overall				
	Ordinary Least Squares		Fixed Effects	
	Model 6	Model 8	Model 7	Model 9
Intercept	0.179***	0.118***	0.502	0.441
	(0.031)	(0.038)	(0.338)	(0.338)
Sat1	0.160***	0.172***	0.160***	0.171***
	(0.004)	(0.005)	(0.005)	(0.005)
Sat2	0.175***	0.195***	0.172***	0.193***
	(0.004)	(0.005)	(0.004)	(0.005)
Sat3	0.480***	0.460***	0.441***	0.426***
	(0.005)	(0.006)	(0.005)	(0.006)
Sat4	0.181***	0.179***	0.175***	0.173***
	(0.181)	(0.006)	(0.005)	(0.006)
Sector	0.018***	0.090	0.074***	0.320***
	(0.006)	(0.070)	(0.013)	(0.080)
Age	-0.001***	-0.001***	-0.004	-0.004
	(0.000)	(0.000)	(0.010)	(0.010)
Sat1*Recession	-0.009	0.002	0.003	0.011
	(0.006)	(0.008)	(0.007)	(0.009)
Sat2*Recession	-0.019***	-0.023***	-0.015*	-0.029***
	(0.007)	(0.008)	(0.007)	(0.008)
Sat3*Recession	-0.015	-0.021**	0.007	0.013
	(0.008)	(0.009)	(0.009)	(0.010)
Sat4*Recession	0.001	-0.001	-0.004	-0.008
	(0.007)	(0.009)	(0.008)	(0.010)
Sat1*Boom	0.004	0.008	-0.001	0.003
	(0.004)	(0.005)	(0.005)	(0.006)
Sat2*Boom	-0.024***	-0.032***	-0.024***	-0.035***
	(0.004)	(0.005)	(0.005)	(0.006)
Sat3*Boom	0.007	0.011*	0.000	0.015*
	(0.006)	(0.007)	(0.006)	(0.007)
Sat4*Boom	-0.010*	-0.011*	0.000	-0.001
	(0.005)	(0.006)	(0.006)	(0.007)
Business cycle: Recession	0.173***			
	(0.051)			
Business cycle: Boom	0.029			
	(0.035)			
Year 1991		0.269***	0.102	0.124
		(0.060)	(0.075)	(0.082)
Year 1992		0.109***	0.127**	0.128**
		(0.026)	(0.048)	(0.048)
Year 1993		0.030*	0.034	0.032
		(0.018)	(0.035)	(0.035)
Year 1994		0.016	0.021	0.021
		(0.018)	(0.026)	(0.026)
Year 1995		0.013	0.013	0.014
		(0.018)	(0.020)	(0.020)

Year 1997	0.134***	0.110	0.117*
	(0.043)	(0.042)	(0.048)
Year 1998	0.054	0.030	0.037
	(0.043)	(0.046)	(0.051)
Year 1999	0.033	0.019	0.037
	(0.043)	(0.050)	(0.051)
Year 2000	0.050	0.036	0.044
	(0.043)	(0.056)	(0.061)
Year 2001	0.067	0.043	0.053
	(0.043)	(0.064)	(0.068)
Year 2002	0.046	0.017	0.028
	(0.043)	(0.073)	(0.076)
Year 2003	0.027	-0.002	0.011
	(0.043)	(0.082)	(0.084)
Year 2004	0.051	0.022	0.034
	(0.043)	(0.091)	(0.093)
Year 2005	0.027	0.004	0.016
	(0.043)	(0.010)	(0.102)
Year 2006	0.014	-0.003	0.008
	(0.043)	(0.109)	(0.111)
Year 2007	0.043	0.026	0.036
	(0.043)	(0.118)	(0.120)
Year 2008	0.152**	-0.012	0.015
	(0.060)	(0.133)	(0.137)
Sat1*Sector	-0.043***		-0.043***
	(0.009)		(0.010)
Sat2*Sector	-0.057***		-0.064***
	(0.008)		(0.009)
Sat3*Sector	0.069***		0.047***
	(0.011)		(0.012)
Sat4*Sector	0.004		0.005
	(0.010)		(0.011)
Recession*Sector	-0.003		-0.041
	(0.115)		(0.123)
Boom*Sector	0.045		-0.003
	(0.079)		(0.086)
Sat1*Recession*Sector	-0.010		-0.021
	(0.014)		(0.015)
Sat2*Recession*Sector	0.012		0.039**
	(0.014)		(0.015)
Sat3*Recession*Sector	0.001		-0.022
	(0.018)		(0.019)
Sat4*Recession*Sector	0.003		0.013
	(0.016)		(0.017)
Sat1*Boom*Sector	-0.007		-0.011
	(0.010)		(0.011)
Sat2*Boom*Sector	0.021**		0.029**
	(0.010)		(0.010)

Sat3*Boom*Sector		-0.017 (0.013)		-0.022 (0.014)
Sat4*Boom*Sector		0.005 (0.011)		0.007 (0.012)
Observations	99,937	99,937	99,937	99,937

*p-value < 0.1, **p-value < 0.05, ***p-value < 0.01. Abbreviations: Sat1 – Job satisfaction: pay, Sat2 – Job satisfaction: job security, Sat3 – Job satisfaction: work itself, Sat4 – Job satisfaction: work hours. In Models 7, 8 and 9, year 1996 is a reference category for the variable Year.