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Under-Utilisation of Holiday Entitlements as a Career Investment

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Contents

1 Introduction*

The empirical study of labour supply has not paid much attention to annual leave[1] entitlements. Yet, annual leave does not only make up a substantial proportion of the working year, but also makes a unique contribution to social welfare (Green and Potepan 1988) and takes up a social role that distinguishes it from other forms of less concentrated paid leisure (Green 1997).[2] From the employers' point of view, longer holiday entitlements may encourage loyalty, commitment and employment stability and yield a higher productivity. On the downside, longer annual leave reduces the firm's production and competitiveness and has the strongest impact on labour costs apart from the wage (Green 1997).

Historically, annual leave entitlements play an important role as employment benefits in both Germany and the United Kingdom (UK).[3] In Germany, entitlements are governed by the Federal Law on Annual Leave, which, after its most recent change in 1996, entitles workers to a minimum of 24 working days per year.[4] In the UK, a comprehensive legal minimum leave entitlement was not mandated until the 'Working Times Regulations' were enacted in 1998 and currently entitles employees to four weeks of annual holiday (DTI 2003). The data sets used for this study indicate that actual entitlements amount to an average of around 29 days per year in Germany and 24 days in the UK.

Empirical work on annual leave in the context of working times has so far concentrated on the questions of what might determine the different amounts of holiday entitlements across countries, firms and individuals and what the entitlements imply for firms and the economy. It has been almost entirely neglected that entitlements may actually not be taken up completely by the employee. This issue and thus the labour supply side of annual holidays and not the determinants and repercussions of entitlements as such will be made the subject of the discussion in this paper.

* This study was completed in September 2005 at the University of Essex, UK. Prior work on the topic was conducted during my stay at the German Institute for Economic Research (DIW). I wish to thank Mark Bryan, Mark Taylor and Gert Wagner for valuable advice. I am also grateful to Robert Blotevogel and Jordi Jofre Monseny who refereed my work.

[1] The expressions 'leave', 'vacations' and 'holidays' are used synonymously.

[2] On the social role of holidays see Walvin (1978).

[3] On the history of annual holiday entitlements in Europe see Green and Potepan (1988).

[4] Arbeitsgesetze (2005)

The particular nature of cumulative leisure distinguishes annual holidays from other forms of less concentrated paid free-time in the worker's leisure-income calculation. Holidays are likely to yield increasing returns to scale in terms of happiness and refreshment (Green and Potepan 1988). The entitlements represent a social benefit that, from a legal point of view, cannot involve any cost. We may thus infer that the decision not to make use of the entire entitlement and to supply the additional work for free implies a rejection of a free benefit without reward.

Taking the demand for additional work as given,[5] this study argues that the above notion is correct in the short run but neglects long-term expectations. It will provide strong evidence for the hypothesis that employees regard the decision to under-utilise their entitlement as an investment in their future career. In line with the forward looking labour supply model of Bell and Freeman (2001), employees work an additional and not directly rewarded amount of days to show work commitment and signal a higher productivity.[6] The expected long-term rewards may take the form of higher salaries, promotions, a better work environment or an increased job security.[7]

The analysis furthermore rejects the idea that these employees simply make some sort of a trade-off between annual weeks and weekly hours worked. It will show that workers, who under-utilize their holiday entitlement, are likely to work paid as well as unpaid overtime during the week. In terms of the cross-national comparison, I come to the interesting conclusion that the primary determinants of the under-utilization of holiday entitlements are very similar between the UK and Germany.

The above hypotheses will be confirmed by investigating the determinants of the under-utilization of annual leave entitlements in a cross-national study involving the UK and Germany. The data sets used originate from the UK Time Use Survey 2000 (TUS) and the German Socio-economic Panel Study (GSOEP). The remaining part of the work is organised as follows: I review the relevant literature in chapter 2. In the same chapter, I classify the under-utilisation of holiday entitlements as unpaid work. Chapter 3 then provides testable hypotheses for the analysis. Data sets and sample characteristics are discussed in chapter 4. The dis-

[5] This is a reasonable assumption. However, some employers may regard the amount of holidays as favourable and expect the employee to take it all.

[6] The signalling idea was first formalised by Spence (1973). Even after being recruited, the workers' productivity is only observable at strictly positive monitoring costs (Anger 2005).

[7] This hypothesis will be referred to as 'Investment Hypothesis'

cussion of the model specification in chapter 5 and the presentation of the regression results in chapter 6.1 are complemented by robustness checks in chapter 6.2. The final chapter 7 concludes and points out policy implications and issues requiring further research.

2 Related Work and Classification of Under-Utilisation as Unpaid Work

2.1 Related Studies on Annual Holidays and Unpaid Work

Very few economic analyses focus on annual leave entitlements. The ones that do almost exclusively concentrate on the determinants of entitlements as well as the relation to and the resulting effects on annual working hours.

Using individual household data, Green and Potepan (1988) find that union membership positively influences the amount of annual leave entitlement US workers receive. In a closely related work, Green (1997) studies the relationship between holiday entitlements and the unionisation of the workplace. Using data from the UK Quarterly Labour Force Survey, the author finds a substantial positive gap between entitlements of union-recognised workers and those who are not. Bryan (2005) uses the same survey to discover that annual work weeks, unlike weekly work hours, are not positively related to the annual wage. This contradicts the theory of compensating differentials. The author argues that weekly hours are determined by individual and firm preferences, while annual weeks worked are subject to external market structures. Hence, they do not attract compensating differentials in the expected form, if the labour market is not perfectly competitive. Altonji and Oldham (2003) use OECD data for various years between 1979 and 1999 in a cross-national analysis to regress annual hours worked on the number of weeks of the respective legal minimum holiday entitlements. The study suggests that an additional week of legal minimum entitlements is not offset by other dimensions of working time, but translates about one for one into a reduction in hours worked.

The only published empirical analysis that takes into account the gap between annual holiday entitlements and actual days taken, is the work by Saborowski, Schupp and Wagner (2004).[8] The authors consider data from the GSOEP to focus on the effect of unused holidays on the amount of annual hours worked in Germany. They do not consider the TUS as an additional

[8] An unpublished paper by Altonji and Usui (2005) tests some personal and job characteristics for their effect on the gap between weeks of entitlement and weeks taken. Yet, the paper is incomplete. Moreover, measuring the dependent variable in weeks is rather unprecise. Furthermore, the degree of comparability to the paper in hand is lowered by the fact that the individuals surveyed indicate an extensive use of unpaid holidays, which is not common in Europe. Also, the sample restriction procedure and the occupational classifications differ.

source of information. Using a simple Logit model, the authors find that the likelihood to under-utilise entitlements decreases for workers in low age-groups as well as with firm-size and increases with actual weekly working hours. The simple descriptive analysis neither considers the precise amount of unused holidays nor does it test a broader range of explanatory variables to establish a theoretical framework for the decision to under-utilise entitlements.

As the discussion shows, empirical analyses of annual leave entitlements have almost entirely neglected the gap between holiday entitlements and actual days taken. The only study that considers it, has concentrated primarily on the implications instead of the determinants of the under-utilisation of entitlements. However, further interesting studies have been conducted in the closely related field of unpaid work. There are striking similarities between the two phenomena. In fact, the under-utilisation of holiday entitlements itself may be interpreted as a form of unpaid work as argued in chapter 2.2.

The economic analysis of unpaid work in the labour supply literature is a rather recent phenomenon. Works in this field are few in number. They have so far particularly explored the determinants of the individual decision to supply unpaid overtime work as well as its investment character. Hart (2004) examines the empirical analyses conducted and integrates them into a framework of economic explanations for undertaking unpaid overtime work.

In one of the first studies on unpaid work Bell and Hart (1999) find various economic explanations for why people may undertake additional hours without being paid. Using a Tobit specification and data from the UK Labour Force Survey from 1993/94, the authors test these hypotheses empirically. They find that unpaid overtime is negatively associated with union coverage for males and the deviation of the standard hourly wage from the mean occupational wage as a productivity proxy. They also show that considering unpaid work leads to significantly reduced estimates for the influence of education, experience and tenure on hourly earnings and overtime hours.

Bell et al (2000) base their work on the UK Labour Force Survey and the GSOEP in 1993. They show that employees in Germany work substantially less unpaid overtime than in the UK and that the wage gap between the two countries widens, if one considers the unpaid hours in an ‘effective hourly wage rate’ comparison. They also test the link between promotions and unpaid work and find a significantly positive association between unpaid work and anticipated promotion prospects in the UK, while detecting no association for Germany.

Two studies focus primarily on the investment character of unpaid overtime. Pannenberg (2002) examines the long term effects of unpaid overtime in terms of advances in the wage distribution. Applying panel data models to data of the GSOEP for the years 1988-2000, he finds substantial real labour earnings effects for male firm stayers in West Germany. An additional hour of unpaid overtime per week ceteris paribus leads to an increase in hourly real earnings of 2%. Accounting for unobserved individual characteristics eliminates the significant effect for female employees.

Anger (2005) also investigates the investment character of unpaid overtime work using GSOEP data from 1991 to 2000. She examines whether individuals in Germany work more unpaid overtime in the face of a growing risk of job loss. She uses regional unemployment rates to proxy job insecurity and applies pooled Tobit and random effects Tobit specifications to the data. The results show a statistically significant positive relationship between regional unemployment rates and the supply of unpaid work for male employees only.

To sum up, the studies on unpaid overtime work have given considerable support to the investment hypothesis. Further results of the literature will be discussed in conjunction with theoretical explanations for the under-utilisation of entitlements in chapter 3.

The paper in hand adds to the existing literature on unpaid work and annual holidays by identifying the determinants of the gap between annual leave entitlements and actual days taken. It confirms the hypothesis that the supply of this form of unpaid work is governed by the investment hypothesis as well.

2.2 Classification as Unpaid Work

In order to relate this study to the relevant literature, I classify the under-utilisation of holiday entitlements as a form of unpaid work. For this purpose, I define unpaid work as the supply of labour in excess of the contractually specified amount without any form of direct reward. There appears to be only one concern that may challenge the above classification: some workers may in fact be rewarded directly for under-utilising their entitlements either by financial means or through working time accounts.

Intuition and personal experience tell us that the incidence of direct rewards for the under-utilisation of leave entitlements is rather uncommon. Moreover, I am aware of two surveys that asked for reasons, why people under-utilised their leave entitlements. One of them is the

GSOEP wave of the year 2005, for which only preliminary data for a limited sample is available at this stage. The other is an international GMI Poll survey conducted in 2005 on the holiday plans of 1000 consumers in each of the 18 countries surveyed.[9]

The latter survey can only be used as an indication for the purpose of this discussion, since its focus as well as the question asked seem to have lead people to concentrate on the issue of why they did not 'go on' vacation instead of why they did not 'take up' their entitlements.[10] However, the relevant finding to my discussion is that reasons such as financial rewards or the prospect of time-off during the week have not even been mentioned to a sufficient extent in any country to be considered as a response category.

In the GSOEP survey, employees were asked what they would do or had already done with holiday entitlements that were left over from the previous year. This question aims exactly at the issue of whether they received a direct payoff for the under-utilisation of their entitlements or not. The results show that only 2.5% of those who under-utilised their entitlements received a financial compensation, while 3.3% added the unused entitlement to their working time accounts. Being very small to begin with, the importance of this group further diminishes if one notes that the latter 3.3% will not necessarily work reduced hours in the future, although entitled to do so. Moreover, the 2.5% who received financial rewards did not necessarily receive them for the entire number of days that remained unused. The mutually exclusive categories in the questionnaire did not allow them to distinguish between a partial and a full compensation.[11]

The evidence hence invalidates the concern to a sufficient extent and suggests that the classification of the under-utilisation of holiday entitlements as unpaid work is valid. The reasoning is further strengthened by the results obtained in this study, which show that the determinants of the under-utilisation of leave entitlements are extremely similar to those found for the incidence of unpaid overtime work.

[9] GMI Poll (2005).

[10] The question asked was: What barriers prevent you from taking vacation?

[11] Note that 92% reported to be planning to take the unused entitlement in the subsequent year and 2.3% to neither do this nor to receive any direct reward. The high number of people in the former category is inconsistent with the low incidence of over-utilisation found in my work. This suggests that the decision not to take up entitlements at all is typically not planned and not made until the subsequent year.

3 Hypotheses and Expected Signs

I now examine more closely what the investment hypothesis implies for the determination of the under-utilisation of holiday entitlements. The expected impact of each of the variables later included in the regression analysis is summarised in Table 3-1.

The basic idea of the **Investment Hypothesis** is that people work additional days in excess of what is contractually specified and paid for because they want to improve their chances for long-term rewards. The under-utilisation of holiday entitlements should hence be positively related to promotion prospects, expected future wage increases as well as job insecurity. Increasing wage inequality and a greater mobility on the job market should have the same impact, since these factors increase the size and the likelihood of future returns to the respective investments (Bell and Freeman 2001). Moreover, the under-utilisation of entitlements should decrease with job tenure and therefore be negatively related to recent job changes, since increasing tenure implies that employers know the quality of their worker and less signals are needed. Anger (2004) found evidence for the negative association of unpaid overtime work and job tenure.

Economic theory moreover suggests that the following non-exhaustive list of hypotheses should be confirmable, if the investment hypothesis is true. They can thus be used as further indications for its validity. These hypotheses are based on theoretical considerations on the determinants of unpaid overtime work and applied to the under-utilisation of holiday entitlements.

First, **Workers in Leadership Positions** should be more likely to under-utilise their entitlements (Bell and Hart 1999). This idea is intuitive, if one considers the fact that these employees are usually required to perform more complex and less precisely defined work tasks and have a greater responsibility for the quality and the timing of their work. As the outcome of their work is easily observable, it is likely to have a direct effect on their reputation. Consequently, future rewards to signals in the form of labour supply decisions become more likely. We may hence expect the under-utilisation of entitlements to be more marked among professionals and managers. An identification of employees with ‘managerial status’ and particularly a classification of levels of autonomy on the job may provide an even more precise identification of workers in leadership positions. Bell et al (2000) find that ‘managerial status’ positively influences unpaid overtime work.

Second and distinct from the former, **Highly Qualified Workers** should tend to under-utilise their entitlements. They have the opportunity to reach extremely high and well-paying positions and may thus expect particularly high rewards to their career investments. In addition, promotions to these scarce senior positions are typically not automatic (Hart 2004). Workers are selected on the basis that they have signalled an extraordinary level of dedication and qualification for the job. Working entire days in addition to what is contractually specified may be a particularly visible signal. This trend may be even more pronounced for young employees with high qualifications, who draw additional motivation from the fact that they stand at the beginning of their career and need to make the right decisions to be set on a promising career path. To my knowledge, the interaction between youth and high qualifications has not been tested as a determinant of unpaid work. The positive association between unpaid overtime and the length of education is confirmed by Anger (2004).

Table 3-1
Expected Signs

Basic Investment Hypothesis	**Expected Effect**
Unemployment Rate	Positive
Recent Job Change	Positive
Tenure	Negative
Earnings Inequality	Positive
Workers in Leadership Positions	
Managerial, Supervisory Duties	Positive
Autonomy on the Job	Positive
Highly Qualified Workers	
High Education	Positive
Interaction of High Education with Low Age	Positive
Low Productive Workers	
Productivity Proxy	Negative
Gift Exchange	
Training	Positive

Third, **Low Productive Workers** should tend to under-utilise their entitlements. This idea is best illustrated in an auction framework (Bell and Hart 1999). Workers are chosen by employers on the grounds that they bid the minimum amount of paid hours necessary to execute the required work task. It is then a reasonable assumption that employers are indifferent towards the actual number of hours needed to execute the respective task (Hart 2004). Under the assumption of a not perfectly competitive job market, low productive workers may win jobs only by bidding an amount of hours lower than what they actually need to complete the job and provide the rest as some form of unpaid work. Bell et al (2000) confirmed the validity of this hypothesis in the context of unpaid overtime work by finding a negative association with productivity proxies such as the deviation between the wage and the mean occupational wage.

Fourth, the under-utilisation of holiday entitlements may be part of a **Gift Exchange** (Akerlof 1982) between the employer and the employee. The value of the employer's gift may be work related training or the wage paid given the employee's ability.[12] The value of the employee's gift may be work in excess of what is contractually specified and paid for without any change in work intensity.[13] This recognition of mutually favourable work conditions is Pareto optimal, if the firm is indifferent to the number of hours worked by the employee (Hart 2004). On-the-job training should thus influence the under-utilisation of entitlements positively. Bell and Hart (1999) found the expected positive association between unpaid overtime work and training. Pannenberg and Wagner (2001) showed that employees who work persistent unpaid overtime are significantly more satisfied overall than those reporting no overtime.

[12] For reasons discussed in chapter 6.1, I will test the gift exchange hypothesis only with respect to the training variable.

[13] The efficiency wage literature normally identifies the workers' gift with a higher level of per-hour productivity (Hart 2004).

4 Data and Sample Characteristics

The lack of empirical research on the under-utilisation of holiday entitlements is primarily due to the lack of adequate data sets. I have identified two surveys that comprise the information needed. These are the German Socio-Economic Panel Study (GSOEP) of the year 2000 and the UK Time Use Survey 2000 (TUS).

4.1 German Socio-Economic Panel Study (GSOEP)

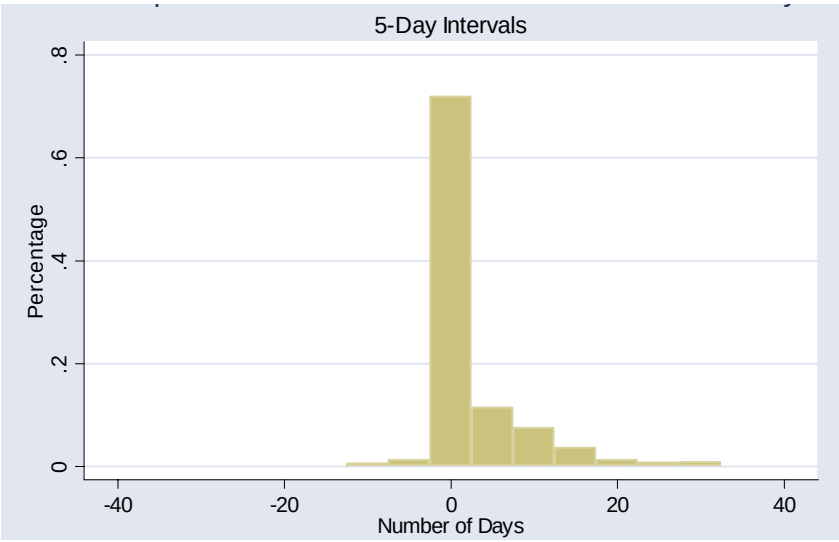
The GSOEP is a nationally representative longitudinal data set that comprises information on the socio-economic characteristics of currently 7500 households and the respective individuals in Germany. It was first conducted in 1984 (Wagner et al 1993). The GSOEP is the only representative survey in Germany that includes information on both holiday entitlements and actual days taken. The only wave released so far that contains the respective questions is the one of the year 2000.[14] The information on annual holidays hence refers to the year 1999.

The dependent variable for the regression analysis is given by the difference between the annual leave entitlement and the actual number of days taken per year. After making the restrictions discussed below, the sample contains 7873 individuals who have observations on the dependent variable. Table 4-3 shows that the average under-utilisation of holiday entitlements in Germany amounts to 2.48 days. The grouped distribution of the dependent variable is shown in Figure 4-2 and categorised in Table 4-3. It shows that 66% of the respondents took up their entire holiday entitlement, while 3% reported negative and 31% reported positive values. The higher the absolute value of the under-utilisation, the smaller is the size of its density. Positive values imply that the respective individuals did not take all of their entitlement. Negative values are observed for individuals who took more days of vacation than they were entitled to. This may be, if employees take up days left over from the previous year's entitlement. This is legally possible in both countries of interest. Apart from the increase in the variance of the coefficients in the regression analysis, this procedure does not affect the descriptive statistics, since both data sets contain a representative sample of workers at differ-

[14] The respective questions are (A) How many days vacation did you take last year? (B) How many vacation days can you take according to your contract?

ent stages of their work life.[15] The few extreme negative values may refer to employees in problematic personal circumstances which the employer acknowledges with days off in addition to the entitlement.

Figure 4-1
Distribution of Under-Utilisation in Germany



The GSOEP further contains a range of variables that may contribute to explain the individual decision to under-utilise holiday entitlements. Important sample characteristics are presented in Appendix A. First, the data set comprises a set of conventional labour supply preference indicators such as gender, age, marital status and household composition. These indicate that 61% percent of the individuals are males and the average age is 41. The data also comprises job-related variables such as firm-size, training on-the-job[16] and job tenure as well as a range of working time measures. The average contracted weekly hours are reported to amount to 39 with an additional 2.6 hours of average overtime work, which in 13% of the cases is not compensated. The educational classification I chose for the analysis is ISCED-1997. Occupation and industry dummies are categorised with respect to the Standard Industrial Classification (SIC) and Standard Occupational Classification (SOC) at one digit level. To identify precisely the highest managerial positions, the measure is complemented by dummies indicating the degree of autonomy on the job.

[15] This implies that not only employees who take some of the previous year's entitlement in the current year are contained in the data sets, but also those who will take some of the current year's entitlement in the subsequent year. The resulting effects on the average under-utilisation should cancel out. Nevertheless, longitudinal data is preferable as it would allow to analyse the actual behaviour of each individual separately and decrease the variance in the regression coefficients.

[16] This variable indicates that the individual has participated in professional training during the last 3 years.

In addition, I computed an hourly wage measure, using annual earnings and bonuses and dividing it by the contractual working time. Moreover, I constructed an earnings inequality indicator that takes the value of the standard deviation of the earnings distribution within each SOC category. I then computed a proxy for each individual's productivity by subtracting the mean occupational wage from the individual wage (Bell and Hart 1999). To compare employees in equivalent positions only, I used a classification scheme that allocates individuals to categories in hierarchical order of the respective positions on the job[17]. As a proxy for job insecurity, I matched the average state unemployment rates of 1999 to the employees, given their state of residence.[18] Finally, I computed an interaction dummy for the lowest age-group, i.e. between 16 and 24 years, and the highest educational qualification to account for possible interaction effects.

The sample is restricted to workers who were continuously employed in 1999. This restriction was made, since the survey questions ask for the annual holiday entitlement and employees will respond accordingly, even if they were not continuously employed during the entire year. Employees who were continuously employed but changed jobs are included in the sample. These individuals do have a higher than average under-utilisation of about 4 days. Yet, this finding is in line with the signalling theory as part of the investment hypothesis and does not need to be ascribed to incorrect responses resulting from the job change. This view is supported by the fact that the regression results do not change in any noteworthy way, if the respective employees are excluded.

Furthermore, teachers were dropped from the sample. Their reported average entitlement of 38 days both strictly exceeds the actual legal entitlement of about 30 days[19] and lies below the reported average of 41 days actually taken. These responses suggest that the legal nature of school vacations is subject to an incorrect interpretation as holidays, while some, but less, teachers even regard it as their legal entitlement. The study moreover includes employees between 16 and 65 years of age only to account for self-selected groups of workers, who continue working after reaching the retirement age. Workers in self-employment were excluded from the sample, because they do not possess a legal holiday entitlement at all.

[17] The STIB classification scheme.

[18] Source: Bundesagentur für Arbeit (2005). Zip-code information is prohibited in the GSOEP for reasons of data protection.

[19] Bispinck, R. (2005).

4.2 United Kingdom Time Use Survey 2000 (TUS)

The TUS is a cross-sectional representative data set containing socio-economic information on about 6400 households and their members in the UK. The survey was administered between June and September 2001. It is the only representative survey in the UK that includes information on both holiday entitlements and actual days taken.[20]

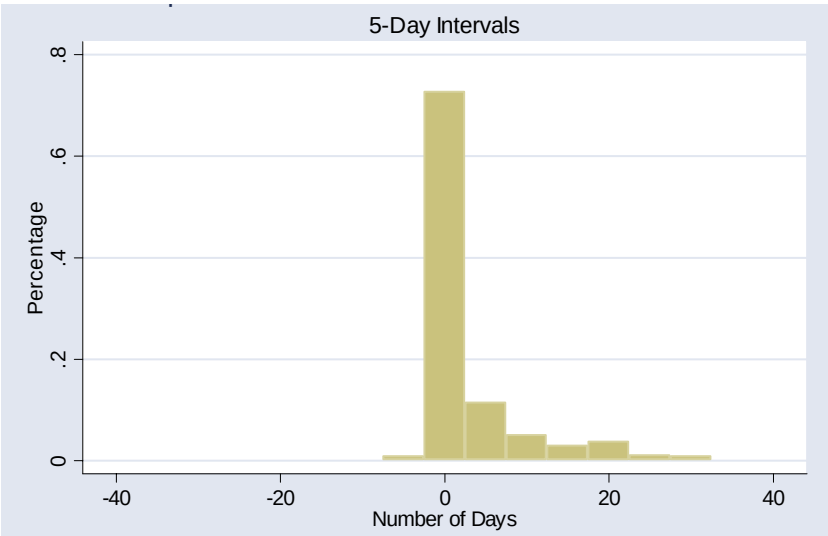
Although the TUS comprises a different set of variables than the GSOEP, the information is essentially comparable. A first look at the data reveals that 62% of the respondents are male and the average age is 38. The data set has the advantage that it already includes information on the regional unemployment rate at the postcode sector level for each individual. As opposed to the GSOEP, it contains information on paid and unpaid overtime hours separately. The respondents report an average contracted weekly working time of 40 hours as well as 2 hours of unpaid overtime. An indicator variable on managerial and supervisory duties allows for an alternative way of identifying employees in leadership positions. The hourly wage measure was computed in a rather similar fashion as in the GSOEP. Yet, I excluded individuals who reported banded earnings information only, since particularly the productivity proxy requires precise information.

There are important limitations to the data set, which may make the GSOEP model the preferred specification. First, the TUS does not contain a hierarchical order of positions on the job. The productivity proxy had hence to be computed using the SOC, which implies that wages of employees are compared, whose positions on the job are not necessarily equivalent. Moreover, the available indicator for on-the-job training refers to professional training during the past four weeks only, which certainly undermines the validity of the measure. Finally, important determinants of the under-utilisation of holiday entitlements such as job tenure and an indicator for job changers are completely missing in the data set. They could constitute a source of missing variable bias. However, running the GSOEP regression under the exclusion of variables, which are not contained in the TUS, does not change any of the coefficients' signs and even leaves most of the absolute values unchanged. It therefore appears unproblematic that the TUS does not comprise the variables mentioned.

[20] The respective questions were: (A) How many days of paid holiday are you entitled to per year? and (B) And how many days of paid holiday did you actually take last year?

I restricted the TUS sample in an almost identical fashion as the GSOEP. A few changes had to be made. I included men until 65 years but women until 60 years of age only, since the state pension age differs between genders in the UK. Due to a lack of information on the issue, I could not restrict the sample to employees, who were continuously employed during the period of interest. However, the magnitude of this problem for the regression analysis is limited. If I do not apply the restriction to the GSOEP sample, the regression results do not change in any notable way apart from the absolute values of a few coefficients. And if the determinants of the under-utilisation of entitlements in Germany do not depend on whether an individual was continuously employed or not, the same is likely to apply to the UK.

Figure 4-2
Distribution of Under-Utilisation in the UK



The restricted TUS sample contains 2959 individuals with observations on the dependent variable and thus substantially less than the GSOEP. However, Figure 4-2 and Table 4-3 show that the dependent variable is distributed in a strikingly similar fashion.[21] While 68% report to have taken all of their entitlement, 29% under-utilised it and 3% took more holidays than they were entitled to. Few observations differ substantially from zero. The average under-utilisation of 2.62 days is not significantly greater than in the GSOEP. If it was to be confirmed that the average under-utilisation is actually lower in Germany, the finding could be explained by the influential collective bargaining institutions, which may facilitate the transfer

[21] The under-utilisation distribution for the United States in Altonji and Usui (2005) is more symmetric than both distributions observed here. This may be due to the lower entitlements, which makes individuals likely to over-utilise by taking unpaid vacation.

of information and increase the pressure against the incidence of unpaid work (Bell et al 2000).

Table 4-3
Under-Utilisation of Holiday Entitlements*

	United Kingdom (TUS)	Germany (GSOEP)
Average (in Days)	2.62	2.48**
Standard Deviation	6.47	6.24
Zero Values (in %)	68	66
Positive Values (in %)	29	31
Negative Values (in %)	3	3

*Weighted data (weights only with marginal influence).
**Including not continuously employed workers in the GSOEP sample raises the average to 3.21 days.

However, it is rather likely that the opposite is true and the actual average under-utilisation in Germany is greater. If we apply equivalent restrictions to both samples and hence include not continuously employed workers in the GSOEP sample, the average under-utilisation rises to 3.21 days. This value is significantly greater than the average of 2.62 days in the UK. The fact that entitlements are on average 5 days higher in Germany may explain this finding. Intuitively, higher entitlements should be more likely not to be taken up completely. The higher variation[22] of entitlements and the greater number of jobs with very low entitlements in combination with the individual bargaining mechanism in the UK should support this effect. UK employees with a low preference for annual leisure, may easier self-select into jobs with very low entitlements. Since these individuals would otherwise be likely to under-utilise their entitlements, a decreasing effect on the average under-utilisation in the UK can be expected.

[22] The Standard Deviations are 7.51 and 4.39 in the UK and Germany respectively.

5 Model Specification

The design of this study aims to identify the determinants of the individual decision of how much of the holiday entitlements to take up. Table 4-3 in the previous chapter indicates that both samples essentially contain observations on the dependent variable that are either positive or zero. This is due to the fact that the majority of the employees cannot take more holidays than they are entitled to. The distribution shown in Figure 4-1 and Figure 4-2 is essentially left censored. Respondents with zero observations use up their entitlement completely. The few individuals with negative values do so as well, but additionally use up entitlements that are left over from the previous year. Both negative and zero values may hence be labelled limit observations.

The key insight when choosing the appropriate model for the regression analysis is that there is a qualitative difference between limit observations and non-limit observations (Greene 2003). Non-limit observations are precisely the result of the individual labour-leisure decision, this study is meant to analyse. In contrast, the information on this decision provided by limit observations is insufficient. We only know that the respective individuals took all of their entitlement. We do not know, how much they would have taken if they had not faced an upper limit represented by their entitlements.

A conventional linear regression model estimated by Ordinary Least Squares (OLS) fails to account for this problem and the parameter estimates are biased (Gourieroux 2000). In fact, the classical assumptions of an OLS specification do not continue to hold since the disturbance terms are no longer continuously distributed. The probability of observing a value of zero is no longer equal to zero. The distribution of the dependent variable is essentially a mixture of discrete and continuous distributions (Greene 2003) The bias is not removed by restricting the sample to positive observations on the dependent variable. Since some observations are omitted, the sample is truncated and it cannot be guaranteed that the classical assumptions, particularly $E(u_i) = 0$, hold (Gourieroux 2000).

The appropriate regression model for the analysis is the censored regression model, better known as the Tobit model (Tobin 1958). The formulation of the model is normally given by an index function that takes the form

$$y_i^* = x_i'\beta + \varepsilon_i$$

$$\begin{aligned} y_i &= 0 \qquad if\ \ y_i^* \le 0 \\ y_i &= y^* \qquad if\ \ y_i^* > 0 \end{aligned} \tag{1}$$

(Greene 2003), where y_i^* is the latent variable, y_i is our dependent variable, x_i is a vector of explanatory variables, β is a vector of unknown coefficients and ε_i is an error term, which is identically and independently normally distributed with zero mean and variance σ^2, $\varepsilon_t \sim N(0,\sigma^2)$. The latent variable represents the individual labour-leisure decision of interest in this study. It is only observable in the dependent variable for individuals who have indeed under-utilised their entitlements and reported a non-limit observation.

I estimate the Tobit model using a Maximum-Likelihood approach, which is more efficient than the two-step estimator (Greene 2003). Although the dependent variable is of a non-standard type, Amemiya (1973) shows that maximising the log likelihood in the usual fashion produces an estimator with the desirable properties of Maximum-Likelihood Estimators.[23] The Likelihood function is constructed to take account of the fact that the distribution of the dependent variable is censored. It models the probability that an individual has a limit observation in addition to the density of the precise amount of unused entitlement days given that the respective individual has a non-limit observation.

$$L = \prod_{i=1}^{n} \left[f\left(y_i^* \middle| x_i, y_i > 0\right) \Pr\left(y_i^* > 0 \middle| x_i\right) \right]^{d_i} \Pr\left(y_i^* \le 0 \middle| x_i\right)^{1-d_i} \tag{2}$$

(Greene 2003), where $d_i = 1$ if the dependent variable for individual i is greater than zero and $d_i = 0$ otherwise. Hence, the first and second term represent the likelihood contributions for non-limit and limit observations respectively. Assuming a standard normal distribution with the distribution function $\Phi(\bullet)$ and taking logs, we obtain the log-likelihood function

$$\log(L) = \sum_{y_i>0} -\frac{1}{2}\left[\log(2\pi) + \ln\sigma^2 + \left(\frac{y_i - x_i\beta}{\sigma}\right)^2\right] + \sum_{y_i=0} \ln\left[1 - \Phi\left(\frac{x_i\beta}{\sigma}\right)\right] \quad (3)$$

The first summand represents the classical regression of the non-limit observations, while the second part corresponds to the probability for having a limit observation (Greene 2003).

The Tobit model is the appropriate and an easily implementable specification choice. The interpretation of the dependent variable as censored implies to assign the full density in the censoring region to the censoring point zero (Greene 2003). As examined before, the interpretation of negative values on the dependent variable as limit observations is consistent with theoretical considerations. Yet, the procedure may constitute a problem in terms of a specification bias for the estimation if the individuals formerly reporting negative observations should have particular characteristics. Using cross-tabulations and Chi-squared tests, I find that the respective individuals cannot be distinguished significantly from the rest of the sample. The regression results do not substantially change if they are excluded completely from the analysis. To conclude, I consider the censoring of the dependent variable as reasonable and unproblematic in the context of this study.

[23] Concerns regarding the properties of the Tobit-estimates in the context of Heteroskedasticity and Non-Normality are stressed by Greene (2003).

6 Empirical Analysis

6.1 Regression Results

The majority of the coefficients obtained in both Tobit[24] regressions confirm the investment hypothesis and are therefore completely in line with the theoretical considerations presented in chapter 3.

The **Investment Hypothesis** suggests that the under-utilisation of entitlements is positively related to the regional unemployment rate and earnings inequality, while it should be negatively related to job tenure. The results of the GSOEP regression presented in Table 6-1 show the expected signs of all these indicators. The coefficients on the indicator for job change and tenure are significant at the 1% level. They confirm the notion that the shorter workers are with their employers, the greater the pressure to signal their ability via the under-utilisation of entitlements. It appears that the under-utilisation of holiday entitlements increases by 5 days after a recent job change and decreases by about one day for every ten years of tenure. Earnings inequality is confirmed to have a positive influence on the dependent variable. This shows that increasing reward prospects are in fact an incentive for employees to make an investment in their career. If occupations feature a high earnings inequality, advances in the wage distribution should be particularly substantial. The only one of the indicators mentioned that fails to reach the 10% significance level by a few percentage points is the state unemployment rate. A possible explanation is the low precision of the measure due to the aggregation at the state level. The high regulation of the German job market may further decrease job insecurity and thus attenuate the effect.

In the TUS regression, the regional unemployment rate indicator and the earnings inequality measure are significant at the 5% level as shown in Table 6-2. There is a striking similarity between the coefficients of the TUS and the GSOEP regression on the indicator of job insecurity. The coefficient implies that a 10% increase in the regional unemployment rate translates

[24] After including the respective variables in the regressions, the GSOEP sample contains 7065 observations, 5051 of which are left censored. The respective numbers in the UK regression are 2200 and 1513. Due to the small number of non-limit observations, it does not appear reasonable to run separate regressions for women and men. Moreover, the Chow test could not reject the null hypothesis of equal coefficients at the 10% level of significance in either of the samples.

into about 2 more days of under-utilisation. The coefficient on earnings inequality is substantially higher in the UK than in Germany. Less regulation of the job market may facilitate transitions and hence additionally promote the incentive to under-utilise evoked by a higher earnings inequality. However, the difference in the coefficients may simply be caused by the different sets of variables included in the regressions. In fact, the gap vanishes, if I run the regressions using only those variables, which are contained in both surveys.

Furthermore, the hypothesis that **Workers in Leadership Positions** tend more to under-utilise their entitlements was confirmed for Germany. The dummies for different levels of autonomy on the job are all highly significant. The respective coefficients indicate that the under-utilisation of holiday entitlements increases with the level of autonomy on the job. This categorisation appears to better identify workers in leadership positions than the SOC. It is a striking finding that the SOC dummies are jointly insignificant and excluded from the regression. In the TUS regression the SOC dummies were jointly insignificant as well. Although I do not report their coefficients, I left them in the regression as control variables, since the autonomy classification is not available in the TUS and the dummies indicating managerial and supervisory duties were jointly insignificant as well. These results suggest that a more precise identification of leadership positions as in the GSOEP regression is necessary to explain the under-utilisation of entitlements. Confirming this prediction would imply that leadership and not other occupational particularities is precisely the effect driving the results. The hypothesis would be further strengthened. Yet, it cannot be ruled out with certainty that leadership simply does not drive the decision to under-utilise entitlements in the UK.

The hypothesis that **Highly Qualified Workers** tend to under-utilise holiday entitlements was only partly confirmed. Since both surveys contain a classification of the highest educational degree obtained, I used this measure to test the hypothesis. In fact, the indicator for the highest educational degree has a negative sign in both regressions and is significant in the GSOEP. There are various possible explanations for this surprising finding. Highly educated individuals may have very particular interests, which they like to pursue during annual holidays and for which they are willing to work long hours during the week. Alternatively, they may have particularly secure jobs. However, the coefficient on the interaction of the lowest age group and the highest educational degree is strongly positive and highly significant in both data sets. It is likely that young employees are particularly motivated by a high educational degree,

since their window of opportunities is wide open and unpaid work may be crucial in setting them on an extremely promising career path.

Furthermore, the hypothesis that **Low Productive Workers** tend to under-utilise their entitlements is confirmed in both regressions. The productivity proxies are highly significant and the coefficients are negative. The respective individuals appear to sacrifice vacation time in order to make up for their low productivity levels. Due to the limitations of the productivity proxy in the TUS, this result is even more impressive.

The regression analysis also gave some support to the **Gift Exchange** hypothesis. The indicator for on-the-job training was highly significant in the GSOEP regression. Having received such training during the previous 3 years increases the individual's under-utilisation by about one day. The indicator for job related training in the TUS sample was insignificant, most likely due to the limitations discussed. The hourly wage rate was not included into the regressions to test the gift exchange hypothesis.[25] Its effect on the dependent variable is ambiguous and difficult to interpret. In line with the gift exchange hypothesis the under-utilisation of entitlements should increase with earnings. On the other hand, employees with low wages should be particularly eager to improve their position and provide unpaid work. In addition, the variable is likely to be endogenous as discussed in chapter 5.2.

[25] If it is included, it is insignificant.

Table 6-1
Regression Results GSOEP****

	Tobit		OLS		Poisson	
Dependent: Under-Utilisation	Coeffi-cient	Std. Err.	Coeffi-cient	Std. Err.	Coeffi-cient	Robust Std. Err.
Autonomy (Ref. Level 1-3)						
Level_4	1.315**	0.524	0.157	0.179	0.091	0.071
Level_5	2.440***	0.740	0.275	0.261	0.155*	0.096
Level_6	3.930***	1.353	0.606	0.501	0.272*	0.159
Entitlement (days)	0.430***	0.057	0.222***	0.019	0.044***	0.006
Changed Job	5.279***	0.636	2.166***	0.239	0.650***	0.071
Job tenure	-0.104***	0.027	-0.036***	0.009	-0.013	0.004
Training	0.979**	0.437	0.031	0.152	0.069	0.054
Inequality	0.222*	0.128	0.092**	0.045	0.027*	0.016
Productivity	-0.066*	0.037	-0.030**	0.013	-0.007	0.005
Unemployment-Rate	0.201	0.143	0.085	0.047	0.025	0.020
Age	-0.139	0.153	-0.037	0.053	-0.020	0.021
Age-Squared	0.002	0.002	0.001	0.001	0.000	0.000
Education (Ref. Middle Vocational)						
In School	0.464	7.836	0.006	2.470	-0.354	0.908
Incomplete	-3,305*	1.917	-1.036*	0.576	-0.487**	0.247
General Elementary	1.091*	0.644	0.340	0.220	0.146*	0.084
Vocational/Abitur	-0.691	0.843	-0.270	0.294	-0.122	0.108
Highest Vocational	-0.311	0.702	-0.131	0.244	-0.059	0.087
Highest Education	-1735***	0.641	-0.559**	0.221	-0.181**	0.077
Interaction low age/high education	9.086*	4.949	3.824*	1.966	0.962*	0.605
Firmsize (Ref.>199 employees)						
1-4 employees	4.439***	0.942	1.098***	0.341	0.432***	0.113
5-19	3.565***	0.610	1.148***	0.216	0.409***	0.075
20-99	2.333***	0.529	0.540***	0.184	0.238***	0.068
100-199	2.195***	0.653	0.413*	0.228	0.205**	0.083
Overtime	0.455***	0.052	0.158***	0.019	0.045***	0.005
Overtime is Unpaid	2.863***	0.635	1.060***	0.236	0.337***	0.073
Regular Second Job	2.317**	1.040	0.420	0.378	0.243*	0.130
Female	-0.596	0.471	-0.201	0.161	-0.101	0.063
Married	-1 329	0.443	-0.388**	0.154	-0.160**	0.058
Observations = 7065 Left censored = 5051 Uncensored = 2004	Pseudo R2 = 0.032		Adj R2 = 0.080		Pseudo R2 = 0.105	

* Significant at 10% level
** Significant at 5% level
*** Significant at 1% level

**** Dummies for State of Residence and Industry are Included

It can be concluded that this study has presented strong evidence for the investment hypothesis and its implications. The results moreover significantly reject the hypothesis of a trade-off between the take-up of holiday entitlements and weekly hours worked. Particularly in Germany, individuals who under-utilise their entitlements typically also work paid and unpaid overtime. This finding is confirmed by Saborowski et al (2004).

Table 6-2
Regression Results TUS****

	Tobit		OLS		Poisson	
Dependent: Under-utilisation	Coeffi-cient	Std. Err.	Coeffi-cient	Std. Err.	Coeffi-cient	Robust Std. Err.
Entitlement	0.217***	0.057	0.147***	0.020	0.027***	0.005
Inequality	0.764**	0.381	0.098	0.140	0.045	0.044
Productivity	-0.294**	0.136	-0.130***	0.048	-0.039**	0.018
Unemployment-Rate	0.233**	0.108	0.112***	0.041	0.031**	0.012
Age	-1.237***	0.233	-0.532***	0.088	-0.138***	0.026
Age-Squared	0.014***	0.003	0.006***	0.001	0.002***	0.000
Education (Ref. O-level)						
Highest Education/Degree	-1.541	1.858	-1.378**	0.695	-0.289	0.208
Higher Education	-2.361	1.841	-1.568**	0.685	-0.423**	0.202
A-level	-2.957*	1.775	-1.556**	0.658	-0.379*	0.199
LT GCSE C	-2.514	1.698	-1.263**	0.630	-0.360*	0.184
Other	-1.314	2.561	-1.034	0.949	-0.131	0.286
No qualification	-3.773**	1.693	-1.640***	0.621	-0.471**	0.190
Interaction low age/high education	5.549**	2.417	3.517***	0.994	0.474**	0.201
Firmsize (Ref.>24 employees)						
1-24	2.022**	0.830	0.780**	0.308	0.264***	0.091
Unpaid Overtime	0.141*	0.076	0.029	0.029	0.008	0.008
Female	-0.922	0.817	-0.448	0.300	-0.074	0.089
Married/Cohabiting	-2.586***	0.880	-1.279***	0.328	-0.314***	0.092
Observations = 2200 Left censored = 1513 Uncensored = 687	Pseudo R2 = 0.027		Adj R2 = 0.099		Pseudo R2 = 0.114	

* Significant at 10% level
** Significant at 5% level
*** Significant at 1% level

**** Dummies for SOC, Region and Industry are Included

Besides the confirmation of the investment hypothesis some control variables revealed interesting relationships. For instance, the intuition that the under-utilisation of holidays entitlements is positively related to the entitlements themselves is confirmed. Since the variable is

likely to be endogenous, the direction of causality cannot be determined. The age variable is only significant in the TUS regression, where it shows a significant U-shaped profile with a turning point at 44 years, implying that the under-utilisation of entitlements first decreases and later increases with age. The result is in line with the notion that employees need less signals to promote their career the older they get. However, increasing financial commitments for property and family later reverse the direction of the relationship. Furthermore, both regressions confirm the result of Saborowski et al (2004) that employees are more likely to under-utilise their entitlements in smaller firms. The more structured work arrangements in bigger firms may make paid work more likely than unpaid work as a response to unforeseen fluctuations in demand (Bell et al 2000). Finally, indicators for gender and dependent children were insignificant in both regressions, while being married decreases the under-utilisation significantly. [26]

6.2 Robustness Checks

The rationale for using the Tobit model was explained in chapter 5. To confirm the validity of the results, robustness checks need to be undertaken. In addition to the ones already mentioned in chapter 4, I will account for endogeneity and discuss the outcomes of the OLS and Poisson regressions presented in Table 6-1 and Table 6-2.

There are two variables, which are likely to be endogenous and may possibly bias the estimators. First, the dependent variable was computed on the basis of the entitlement variable. Hence, factors influencing the entitlement determine the dependent variable directly as well. This may result in a correlation between the covariate and the error term such that the entitlement variable would be endogenous. Second, the hourly earnings measure is likely to be endogenous in the above regression analysis. The variable not only determines the dependent variable but is also directly determined by it itself, since career investments are likely to result in wage increases.

In a separate regression intended to account for the endogeneity issue, I thus excluded not only the entitlement variable but also the productivity proxy and the inequality of earnings indicator, which were computed on the basis of the hourly earnings variable. The results give an indication that the potential endogeneity of the variables does not constitute a serious prob-

[26] TUS: married or cohabiting.

lem for the analysis. Compared to the Tobit regression, the signs and even the size of the coefficients of almost all significant variables remain essentially unchanged. Only the coefficients for the high autonomy dummies increase substantially in the GSOEP regression, which is explainable by the fact that I do not control for entitlements anymore. These are particularly high for workers in leadership positions.

To avoid the endogeneity problem associated with the inclusion of the entitlement variable in the Tobit model, one could alternatively run two separate regressions with the entitlement and actual days taken as the respective dependent variables. The entitlement would simply not be needed as a control variable anymore. This specification could be interpreted by examining, whether the coefficients on each control variable differ in interesting ways. A variable may for instance clearly be said to influence the under-utilisation of entitlements positively, if its coefficient is significantly positive in the entitlement regression and significantly negative in the regression of actual days taken. A preliminary analysis of this approach confirms the above results. However, a careful discussion of the determinants of holiday entitlements would be necessary to analyse the results in more detail.

I have argued in chapter 5 that an OLS specification is not the appropriate choice for this analysis. The results are likely to be biased due to the censoring of the dependent variable. In fact, Table 6-1 and Table 6-2 confirm the general finding that OLS specifications yield bigger in the OLS estimation, but the signs of all coefficients remain unchanged. The results of a further OLS estimation excluding the censored values are not presented here. The substantial decrease in the number of observations made it difficult to interpret the mostly insignificant results.

An important limitation to the use of the Tobit model in the present analysis is the fact that it considers the dependent variable to be continuous, while it is actually discrete. To account for this limitation to the model of choice, I use a Poisson regression as an additional specification. Whether the Poisson regression is appropriate for this analysis is questionable, but will not be further pursued in this study. The Poisson regression is merely a specification check of whether the fact that the dependent variable is not actually continuous changes the results in any notable way. Using robust standard errors, the absolute values of the coefficients are

substantially smaller in the Poisson regression. However, for both countries the signs of all coefficients are identical to the ones obtained in the Tobit specification.[27]

Finally, a Generalised Tobit specification could be used to distinguish between the determinants of the decision to under-utilise entitlements and the decision of how much to under-utilise. However, the reliability of the results crucially depends on the inclusion of a range of variables, which affect the latter decision, but not the former (Greene 2003). And it appears unreasonable to believe that this is true for any of the variables at hand.

I conclude that the results are robust to reasonable changes in the specification of the model.

[27] Apart from one for the analysis rather unimportant education dummy in the GSOEP.

7 Discussion

This study has presented strong evidence in favour of the investment hypothesis for the UK and Germany. It appears that employees under-utilise their holiday entitlements because they regard this form of unpaid work as an investment in their career. Leaving over entire days of the entitlement may be regarded a particularly visible signal and hence explain the strength of the results. These employees may be ambitious, young and highly qualified, but may also be of low productivity and afraid of losing their job. The better the reward prospects, the stronger is the incentive to invest. It have further shown that these employees represent a self-selected group of hard working individuals, who do not under-utilise entitlements to make a trade-off with weekly hours. Instead, they work paid and unpaid overtime as well.

Although the analysis has concentrated on labour supply side reasoning, the significance of the industry and firm-size dummies suggests that important determinants of the take-up of annual leave can be found on the demand side as well.[28]

The above results have strong implications for the labour market. First, they may contribute to policy formation by providing information about how much of their entitlement employees take up and what factors drive this decision. Particularly the similarities between the determinants of unpaid overtime and the under-utilisation confirm that the latter is used as an additional form of unpaid work and thus relevant to policy debates regarding the issue. It may not only be undesirable that workers do not receive any remuneration for their labour supply. The size of the entitlement may also be regarded efficient in terms of the well-being of the employee and the society as a whole.

Furthermore, Bell and Hart (1999) showed that adjusting the wages for unpaid overtime reduces significantly the returns to experience, tenure and education. Taking into account the under-utilisation of entitlements may strengthen this result. In terms of the cross-country comparison, a confirmation of a higher average under-utilisation in Germany would attenuate the finding that the incidence of unpaid overtime work is more frequent in the UK and

[28] Altonji and Oldham (2003) confirm that restrictions on the employee's choice of hours have become an important issue for the analysis.

weaken the hypothesis that the UK's competitive labour cost advantage is greater than previously realised (Bell et al 2000).

The under-utilisation of holiday entitlements is far from being investigated to a sufficient extent. The main factor driving this trend is the lack of adequate data. The data sets used here are cross-sections with a limited number of observations and no longitudinal dimension. Longitudinal data would be necessary to control for unobserved heterogeneity in the regressions and examine other urgent issues such as whether the investments actually lead to the expected long-term rewards and whether they lead to changes in life satisfaction. A preliminary analysis of the correlation between the under-utilisation of entitlements and earnings increases would already be possible at this stage using the GSOEP. One could regress the wage growth between 1999 and 2000 on the under-utilisation of entitlements and changes in control variables. Longitudinal data would moreover allow to analyse, whether the under-utilisation of entitlements is pro- or countercyclical (Altonji and Usui 2005). It could also help to better control for the transfer of parts of the entitlements from year to year.

Appendix

Sample Characteristics

GSOEP		**TUS**	
Variable	Mean	Variable	Mean
Years of Education	12.2		
Age (years)	41.0	Age (years)	37.8
Tenure (years)	11.4		
Unemployment-Rate	11.9	Unemployment-Rate	6.60
Overtime (weekly hours)	2.6		
		Unpaid Overtime (weekly hours)	2.02
Highest Education	Percentage	Highest Education	Percentage
Highest Education	21.6	Highest Education/Degree	17.0
Higher Vocational	9.5	Higher Education	12.0
Vocational/Abi	5.7	A-level/voc.-level 3	14.3
Middle Vocational	50.9	O-level/GCSE A-C/voc-level 2	17.9
General Elementary	10.9	LT GCSE C, GSE, voc.-level 1	6.7
In School	0.1	Other qualification	5.4
Inadequately Completed	1.3	No qualification	26.7
SIC-1-Digit		SIC-1-Digit	
Agriculture	1.3	Agriculture	1.4
Energy	1.2	Social care	11.5
Mining	0.7	Mining	0.59
Manufacturing	32.7	Manufacturing	24.2
Construction	8.8	Construction	6.9
Trade	10.9	Utilities	1.2
Transport	4.3	Retail	11.9
Bank/Insurance	4.5	Hotel	4.1
Services	34.4	Communications	9.4
Other	1.2	Finance	5.6
		Property	9.6
		Administration	8.4
		Education	2.2
		Private HHs	0.1
		Extra territorial	0.1
		Other	3.0

SOC-1-Digit	
Manager	5.3
Professional	14.5
Technician	21.8
Clerical	11.3
Personal Services	7.5
Agriculture	0.9
Craftsman	21.5
Plant, Machine Operator	11.8
Other	5.4

SOC-1-Digit	
Manager	18.9
Professional	9.1
Technician	12.6
Clerical	15.5
Personal Services	5.3
Sales	4.3
Craftsman	14.2
Operatives	10.1
Other	9.9

Married	
No	33.9
Yes	66.1

Married/Cohabiting	
No	29.6
Yes	70.4

Gender	
Male	69.1
Female	30.9

Gender	
Male	62.3
Female	37.7

Firm-size	
1-4 Employees	5.1
5-19	14.8
20-99	20.4
100-199	10.1
200-1999	24.9
GE 2000	24.6

Firm-size	
1-24 Employees	32.0
25-99	25.1
100-499	22.6
GE 500	20.3

Autonomy in the Job	
1 (Lowest)	0.1
2	15.7
3	28.0
4	30.8
5	21.8
6	3.7

Duties of a	
Manager	23.7
Foreman/Supervisor	15.8
Neither	60.4

Overtime Unpaid	
No	67.0
Yes	13.0

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