Fixed-term contract jobs: An analysis of employee effort and wellbeing

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Abstract

Fixed-term contracts have become a common tool for employers to screen new employees. There has been widespread debate about the use of this type of contract. However, previous research established that fixed-term contracts can serve as a stepping stone into permanent employment. Consequently, fixed-term employees have the incentive to exert more effort than permanent employees. Using overtime hours and absenteeism as effort measures taken from the Dutch LISS panel, we present evidence that female fixed-term employees indeed work more overtime hours. Moreover, we show that female fixed-term employees have lower job satisfaction. There is no evidence in our sample for such effects for male fixed-term employees.

Keywords: fixed-term contracts; temporary work; overtime; absenteeism; job satisfaction; contract-related incentives

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1. Introduction

In most European countries the labor market is characterized by high degrees of employee protection. Employees with permanent contracts have a high degree of job protection and receive redundancy payments if they are fired. These protective instruments lead to a stiff labor market with low separation rates and very long spells of unemployment (Blanchard and Landier, 2001). Since the economic downturn of the 1970s a lot of European countries introduced instruments to increase flexibility on their labor markets. New legislation made it possible for employers to hire workers under flexible or fixed-term contracts in order to create new jobs.

Initially fixed-term contract jobs were authorized for special groups of workers such as young or old people and the long-term unemployed. As a consequence, countries with traditionally high levels of employee protection like France and Spain witnessed a large increase in people working under fixed-term contracts (Cahuc and Postel-Vinay, 2000). During the 1990s 33 percent of Spain's labor force worked under flexible contracts (Dolado et al, 2002). Countries with little employee protection like Switzerland and the United Kingdom have seen a more stable rate of fixed-term contracts. The increase in the percentage of people working under fixed-term contracts in several countries leads to believe that there are serious benefits for employers.

The literature has established two potential reasons for the use of fixed-term contract by employers. First, fixed-term contracts reduce firing costs for employers and enables them to adjust their workforce to the economic situation. Second, fixed-term contracts can serve as a screening tool for employers in order to improve the job matching process. In this scenario fixed-term employees are expected to exert more effort in order to increase the probability of obtaining a permanent contract. Booth et al (2002) confirmed the hypothesis that fixed-term jobs can serve as a stepping stone into permanent work. If fixed-term employees could potentially earn a permanent contract by performing well we expect there to be contract related incentives present.

The aim of this thesis is to verify if there are contract related incentives for employees with fixed-term contracts. Moreover, we examine if fixed-term employees incur costs in terms of job and life satisfaction. Fixed-term contracts are becoming more popular in most European countries but remain controversial at the same time, which raises the questions whether it's

an efficient tool or should be used with reluctance. This thesis will look at the different dynamics at play with fixed-term contracts and provides information for policy makers and companies about the potential costs and benefits.

Using data from the LISS panel, we compare the behavior of employees in fixed-term and permanent employment. The LISS panel contains information on the type of contract and the effort proxies overtime hours and absenteeism. Furthermore, the panel contains information on job and life satisfaction. We examine if fixed-term employees work more overtime hours and reduce their absenteeism. Moreover, we investigate if fixed-term employment leads to less job and life satisfaction. Special attention is given to potential gender differences in the examined relationships.

Our results show that women with fixed-term contracts are significantly more likely to work overtime hours. For men there is no significant relationship between fixed-term employment and overtime hours. There is no significant difference in absenteeism between fixed-term and permanent employees noticeable in our sample. Furthermore, women working under fixed-term contracts have significantly lower levels of job satisfaction whereas men report lower levels of life satisfaction.

The structure of this thesis is as follows. First, we start with an overview of the related literature in the field of fixed-term contracts. After the overview of the literature we will discuss the hypotheses, data, and empirical strategy. Subsequently, the results will be presented and afterwards we will discuss the results and we end with a conclusion, describing the main results.

2. Related literature

2.1 The rise of fixed-term contracts

Deregulation of the labor market has occurred throughout Europe in order to reduce persistent and high unemployment. Traditionally, many European countries had policies in place that protected employees from being fired in order to create job-stability. The permanent or indefinite contract under which most employees were working offered a lot of protection and faced firms with high firing costs in the case of dismissal. As of consequence of labor market deregulation, many European countries witnessed an increase in fixed-term contracts with less stringent rules. The rise of fixed-term contracts has received a lot of

attention in the literature with a strong emphasis on macro-economic data concerning unemployment.

Kahn (2010) used data from several European countries to study the effects of labor market deregulation on unemployment and the incidence of temporary work in Europe. The study shows that temporary work has indeed become more prevalent in countries that deregulated their labor markets in favor of temporary contracts. However, aggregate unemployment was not lower in countries with less stringent laws regarding temporary contracts. These findings indicate that companies might benefit from substituting permanent jobs for temporary jobs. An earlier study by the same author already confirmed that stronger employee protection laws resulted in greater unemployment or a larger incidence of temporary contracts (Kahn, 2007).

Fixed-term contracts have become increasingly popular since the eighties in Europe but there are large differences between countries. It appears that countries with strong employment protection laws for permanent contracts in combination with increasing possibilities for temporary contracts witnessed the largest growth in fixed-term contracts. For example, Spain and France witnessed a very large increase in people working under fixed-term contracts. In contrast, the United Kingdom and Switzerland, countries with very weak employment protection laws saw no significant growth in temporary contracts. Booth, Dolado and Frank (2002) argue that there is a positive relationship between the percentage of temporary contracts and employment protection laws for permanent contracts. Moreover, they describe that there is a negative relationship between the prevalence of temporary contracts and employment protection laws for temporary contracts. The authors find that the former positive relationship is a lot stronger than the latter. The strength of the first relationship can be interpreted as a sign that temporary contracts are being used by firms to create flexibility in countries with strict employment protection laws.

Most empirical research has focused on countries with large proportions of the population working under fixed-term contracts like France and Spain. Spain is an interesting case when we look at the prevalence of fixed-term contracts. Since the Spanish government introduced legislation to increase flexibility the composition of the labor force shifted. During the peak of the deregulation over a third of all employees in Spain were working on temporary contracts. Fixed-term contract jobs are responsible for this enormous increase as

the share of other temporary contracts jobs even declined during the same period (Dolado et al, 2002). The Spanish government has unsuccessfully tried to decrease the number of people working under fixed-term contracts by implementing new legislation. Dolado et al (2002) suggest that the increased flexibility of the Spanish labor market has led to a worsened situation for people with fixed-term contracts and no clear effect on unemployment.

The institutional context is important to take into account when we study the prevalence of fixed-term contracts. Adam and Canziani (1998) compared the Spanish and Italian labor markets and the large difference in the amount of fixed-term contracts. Both countries faced high levels of unemployment and their labor markets were being characterized as highly rigid. However, in Italy the scope of fixed-term contracts was limited to young people and focused on participation on the labor market through providing strong incentives for training. The prevalence of fixed-term contracts in Italy is much lower than in Spain with roughly seven percent of the population having one. However, the likelihood of obtaining a permanent contract in Italy is substantial for young people with fixed-term contracts whereas in Spain it is very difficult to obtain one.

Blanchard and Landier (2001) investigated fixed-term contracts in France and also conclude that there are serious disadvantages for employees. Like Spain, France also saw the development where the rules for the use of temporary contracts were relaxed in order to create flexibility on the labor market. However, in France the use of fixed-term contracts remained subject to more rules compared to Spain. The reforms in both Spain and France can be qualified as partial because employee protection laws for permanent contracts remained at the same level. The reforms in France lead to a situation where predominantly young people were offered fixed-term instead of permanent contracts. The authors argue that there might be two effects at play with introduction of fixed-term contracts. First, fixed-term contracts could give firms the incentive to take more risk with hiring new employees because firing costs are low. This could lead to an efficient outcome where employers are able to find better matches for their jobs. Second, fixed-term contracts and low firing costs could lead to a situation where firms design their jobs in order for them to be routine and low productive. In this case employers could use fixed-term contracts to fill these positions and benefit from a reduction in costs. There is no compelling evidence presented for either of

the two cases but the authors did find that wages for fixed-term contracts are lower and young employees have higher turnover rates.

The French, Italian and Spanish studies are quite skeptical about the introduction of temporary contracts and their implications for the labor market. These southern European countries implemented new legislation in order to create flexibility on their labor markets with different outcomes per country. Holmlund and Storie (2002) establish a different viewpoint on the use of temporary contracts in their paper about the Swedish labor market. Sweden experienced a severe economic downturn in the beginning of the 1990s with unemployment quadrupling to 8.2 percent in 1993. The Swedish economy only recovered at the end of the decade after many people with permanent contracts lost their jobs. Unemployment declined fast when the economic situation improved but many of the added jobs where now on a fixed-term basis. The authors argue that changes in legislation played a minor role in the rise of fixed-term contracts in Sweden, in contrast to for example France and Spain. Fixed-term employment was already possible in Sweden before the economic downturn and spiked because collective agreements relaxed their stance on temporary work. Changes in labor demand were in large part responsible for the increased amount of fixed-term contracts in Sweden. Holmlund and Storie (2002) conclude that firms became more reluctant in offering permanent contracts because of the worsened economic conditions. Employers became more reluctant to hire and at the same time employees became more willing to accept fixed-term contracts. Finland faced the same economic downturn during the 1990s as Sweden and also shifted towards more fixed-term employment. The Scandinavian scenario suggests that macroeconomic shocks can cause employers to become more reluctant in permanently hiring employees even after the economic situation improves. The evidence from this paper supports the hypothesis that fixed-term contracts can be used to adjust the workforce to deal with macroeconomic fluctuations.

Until now the emphasis has been on understanding why temporary work has been on the rise in Europe. Governments have experimented with different kinds of new legislation with different outcomes. However, the trend towards more flexible labor markets seems to prevail all over Europe. Consequently, the emphasis of the literature has shifted towards understanding the effects of fixed-term contracts on labor markets and employees.

2.2 Fixed-term employment as a stepping stone to permanent employment

A large part of the literature on fixed-term contracts aims to evaluate if fixed-term contracts can serve as stepping stone into permanent employment. Güell and Petrongolo (2007) were one of the first to study the conversion of temporary contracts into permanent contracts in Spain. The goal of the paper was to determine whether fixed-term contracts can serve as a stepping stone for obtaining a permanent contract. They exploit panel data and are able to observe the timing of obtaining a permanent contract. The duration of fixed-term contracts is limited to three years in Spain, after which a permanent contract is granted or the employee is dismissed. Firms that are solely interested in reducing their labor costs might exploit this situation and hire the employee for the maximum legal period. After this period the employee is let go without a redundancy fee and another person is hired on a fixed-term contract to replace the previous one. On the other hand, firms could also use a fixed-term contract as a probation mechanism to screen the workers ex-ante unknown productivity in order to create better job matches.

The fact that an employer is not able to fully assess the quality of new employees creates certain problems (Lazear, 1995). The employer gathers as much information as possible through interviews and assessments but a probationary period is often used to screen the employee. It is argued that fixed-term contracts could be used as an extensive probation period in order to fully screen new employees. Firms that use fixed-term contracts as probation mechanism are likely to offer a permanent contract before the legal time limit is reached. Güell and Petrongolo find that there is a big spike in the offering of permanent contracts at the end of year three, when the legal limit for fixed-term contracts is reached. This indicates that firms do use fixed-term contracts in order to reduce costs and only offer a permanent contract when there are no options left. However, they also find that there is a spike in the offering of permanent contracts well before the legal limit is reached in the case of skilled or educated people. These results indicate that employers screen high skilled employees and offer a permanent contract before the legal limit of three years is reached.

Booth, Francesconi and Frank (2002) also conclude that temporary jobs can serve as a stepping stone towards a permanent job. They used data from Britain in order to study transitions on the labor market for employees in temporary jobs. Their data allows them to distinguish between seasonal jobs and fixed-term contract jobs and enables them to track individual career paths with transitions from temporary into permanent employment.

Temporary jobs in general are regarded as unfavorable with lower pay and less training. Overall job satisfaction indicators showed no significant difference between workers on fixed-term and permanent contracts albeit that fixed-term employees are less satisfied with career opportunities. The authors conclude that fixed-term employment often leads to permanent employment with little difference for men and woman. However, there is a wage penalty for men who started off with a fixed-term contract which persists throughout their career. Moreover, young men have the biggest chance of obtaining a permanent contract after a spell of fixed-term employment. Interestingly, there was no evidence found for an effort effect on the probability of obtaining a permanent for men. On the other hand, woman are able to increase their chance of a permanent contract if they exert more effort. Unpaid overtime hours were used as a proxy for effort in this study. It should be taken into account that Britain has very weak employment protection laws for permanent contracts and therefore has a relatively small proportion of people working with fixed-term contracts. One could argue that obtaining a permanent contract is relatively easy to obtain when there is less protection relative to a fixed-term contract.

De Graaf-Zijl et al (2011) argue that temporary work has a negative effect on the probability of obtaining a permanent contract. By analyzing data from the Dutch labor market they conclude that temporary jobs shorten unemployment but don't succeed in raising the fraction of workers with a permanent contract. The sample being used in the analysis consisted of people who became unemployed at least once in a period of twelve years. The absence of the stepping stone effect in this analysis might be explained by the definition of temporary work by the authors. Earlier studies confirmed that there is a large difference between temporary and fixed-term jobs and their probabilities of obtaining a permanent contract (Givord and Wilner, 2014). Nevertheless, de Graaf-Zijl et al don't distinguish between temporary agency work and fixed-term jobs. By treating these two types of jobs as being the same and the use of previously unemployed people the analysis falls short in explaining the stepping stone effect.

Gilvord and Wilner (2014) argue that aggregating temporary jobs and fixed-term jobs leads to spurious conclusions about the probability of obtaining a permanent contract for temporary workers. Working under a fixed-term contract proved to be significantly better for obtaining a permanent contract relative to being unemployed. On the contrary, temporary work spells seem to have a negative impact on the transition rate into permanent work. The

latter might indicate that (casual) temporary work is a bad signal of quality for future employers. Furthermore, in the French labor market, it seems that firms are not using fixed-term contracts as a flexibility device. Instead of fixed-term contracts, mainly temporary work agencies were used in order to create flexibility. Transitions from fixed-term contracts into permanent contracts increased during the recession after the 2008 financial crisis. During the recession the probability of obtaining a temporary contract significantly increased whereas the probability of fixed-term employment did not increase. These findings indicate that fixed-term contracts are used as a probation device rather than as a flexibility device. On top of that, there was no evidence found for increased transitions from fixed-term into permanent employment when overtime was being provided by the employee. However, temporary employees who provided overtime did have a higher chance of obtaining a fixed-term contract.

Gagliarducci (2005) argues that looking at only a single contract transition does not capture all the dynamics at play with fixed-term contracts. By looking at the duration of fixed-term contracts and especially at the amount of interruptions in between them certain things become clear. In general, the probability of transitioning from a fixed-term contract into a permanent one increases with the duration of the fixed-term contract. However, if there are interruptions in the temporary employment period the probability of obtaining a permanent contract decreases. Secondly, having more than on fixed-term contract in a certain period reduces the probability of obtaining permanent employment. Moreover, in accordance with Güell and Petrongolo (2007) the authors find that the duration of fixed-term jobs is not linear. Good matches are rewarded with a permanent contract after their value is revealed while prolonged fixed-term contracts see the probability of obtaining a permanent contract diminish over time.

Portugal and Varejão (2009) conclude that firms predominantly use fixed-term contracts as screening device in Portugal with the use of a job duration model. Firms that are more human capital intensive are more likely to promote fixed-term workers into permanent positions. Moreover, the firms with the most fixed-term employees are also the ones that offer the most permanent contracts. Skilled workers and older people in general have a higher probability of obtaining a permanent position. The transition rate of fixed-term into permanent employment spikes at the end of year one and two. In contrast to Güell and Petrongolo (2007) the authors don’t observe a spike in transitions at the end of year three;

the legal time limit for fixed-term contracts in Portugal. Furthermore, the length of fixed-term contracts is observed to be smaller in the case of educated skilled employees. These findings indicate that firms in Portugal are not exhausting the legal limit of fixed-term contracts in order to save costs.

Boockmann and Hagen (2008) investigate if fixed-term employment has a detrimental effect on career prospects in Germany. They find that in the first two years there is a large exit rate for fixed-term contracts. In this period the firing costs are still low and bad matches can be dissolved relatively easy. However, in the following years, permanent contracts of employees who started off on a fixed-term are less likely to be terminated than employees who started with a permanent contract. These results are consistent with the view that fixed-term contracts serve as a prolonged probation period. The prolonged probation period enables the employer to improve the job matching process.

2.3 Fixed-term contracts and employee effort

The literature in the previous section established the picture that fixed-term jobs can serve as a so called stepping stone into permanent employment. In this situation, fixed-term employees might have the incentive to exert more effort in order to increase their probability of obtaining a permanent contract. The behavioral effects associated with fixed-term contracts have received little attention in the literature so far. Riphahn (2004) found that employees in Germany in the public sector exert less effort after they reach a certain tenure-age condition. The tenure-age condition makes it almost impossible to dismiss public sector employees when they reach 15 years of public service and are over the age of 40. There is an increase in absenteeism of 32 percent after reaching the tenure-age condition for public service employees, corresponding to 3 sick days per year.

Similar evidence for an increase in non-effort is found in the case of an Italian bank by Ichino and Riphahn (2005). Newly hired employees are subject to a 3 month probationary period in which they can be fired with ease by the bank. After the passing the probation period, the employee is protected by Italian employee protection laws for permanent contracts, one of the most stringent in Europe. After the probation period ends there is a significant increase in absenteeism where the average number of absent days per week triples.

Engellandt and Riphahn (2005) find no evidence for a relationship between fixed-term employment and absenteeism in Switzerland. However, this might be related to the fact that Switzerland has very weak employment laws and there is more leeway to fire shirking workers. Additionally, their measure of absenteeism is a binary indicator indicating whether an employee stayed home sick a week prior to the survey. In contrast, there was a significant incentive effect noticeable for fixed-term employees. They have a 60 % higher chance of providing unpaid overtime, a proxy for effort, compared to their counterparts with a permanent contract. There exists significant heterogeneity for different kinds of temporary contracts. Interns and employees with fixed-term contracts provided more overtime than employees with seasonal and casual temporary contracts. There is no significant evidence found for a different response rate to contract incentives for men and woman.

So far the incentive effect on overtime for fixed-term employees is ambiguous (Booth et al., 2002; Engellandt and Riphahn, 2005). Meyer and Wallette (2005) take the same approach in the Swedish labor market and investigate if employees signal their qualities by reducing absenteeism and increasing overtime hours. Fixed-term employees prefer a permanent contract and would therefore be inclined to increase their probability of obtaining one by working more overtime and reducing absenteeism. A binary response to a question whether or not overtime has been provided is used to test if fixed-term employees work more overtime. Casual temporary workers report significantly lower probabilities of working overtime whereas there is no significant effect for fixed-term employees. However, fixed-term employees have significantly lower probabilities of being absent from work compared to permanent employees. These results indicate that fixed-term employees signal their ability by reducing their absenteeism from work. Nevertheless, the authors find no evidence that exit rates into permanent employment are affected by a reduction in absenteeism.

Givord and Wilner (2009) estimate a model of labor market transitions in France which confirms that fixed-term employment can serve as a stepping stone towards permanent employment. Fixed-term employees have a higher probability of obtaining a permanent contract relative to the unemployed. Moreover, the authors try to determine if employees on fixed-term contracts exert more effort in order to achieve permanent employment. Data on absenteeism was not available in this case so working hours is used as the single proxy for effort. Cross-sectional evidence shows that fixed-term employees who work overtime double the probability of obtaining a permanent contract. However, the average amount of

working hours differs per industry which could create problems in estimating extra effort by employees. A relative indicator is constructed which is based on the distributions of working hours for specific industries. This approach makes it possible to compare overtime hours for fixed-term contracts relative to their peers within the same industry. The relationship between providing overtime and obtaining a permanent contract becomes insignificant after this measure is applied.

3. Hypotheses

Employees without the security of a permanent contract are expected to exert more effort in order to achieve a permanent position. The difference between contracted and actual working hours will serve as a proxy for effort because it's not possible to directly measure effort. The measure of overtime hours includes both paid and unpaid hours of overtime. Overtime hours are not equal to effort but we believe that it is the best approximation possible considering the fact that people in the panel have no incentive to overstate their working hours. In order to test whether fixed-term contracts lead to more working hours in the short run we test the following hypothesis.

H1: *Employees work more overtime hours under a fixed-term contract compared to employees with permanent and other forms of temporary contracts.*

The data allows us to calculate the difference between contracted hours and the actual amount of hours the employee works on a weekly base. Moreover, the type of contract for every employee is reported. It is expected that fixed-term contract employees work more hours than people with other temporary contracts because for the latter group there is less incentive to do so because their work is often temporary by nature and a permanent contract is unlikely in their case.

In addition to overtime hours we use data on absenteeism from the LISS panel to create an additional proxy for non-effort. There exists evidence which suggests that temporary workers reduce their absenteeism in order to signal their abilities to employers (Meyer and Wallete, 2005; Riphahn, 2004; Ichino and Riphahn, 2005). In contrast, Engellandt and Riphahn (2005) find no relationship between absenteeism and the type of contract. In order to test if employees with fixed-term contracts reduce their absenteeism the following hypothesis has been formulated.

H2: Fixed-term employees are less often absent than employees with a permanent contract.

Fixed-term contracts are often regarded as undesirable for employees because they provide less job security and are sometimes associated with poor quality jobs. From the employers perspective it might be undesirable to attract temporary workers because of potentially low commitment due to the temporary nature of the job (Purcell et al, 1999). The employees' perspective on temporary jobs has received little attention in the literature but is essential in determining the potential pitfalls in working with fixed-term contracts.

Job satisfaction is an important tool in determining the employees' happiness and dedication relating to the job. Job satisfaction relates to several aspects of a job and was included in the LISS questionnaires. The LISS panel contains several questions about job satisfaction regarding current work. Employees with fixed-term contracts are expected to have lower job satisfaction compared to permanent workers especially regarding career opportunities and job security. In addition to job satisfaction the LISS data allows us to look at life satisfaction of people in the panel. Several questions about personal feelings were included in the questionnaires. Employees with fixed-term contracts face more uncertainty about their career and financial stability. We expect that people without permanent contracts are less satisfied in life as a consequence. In order to test the impact of fixed-term contracts on job and life satisfaction the following hypothesis has been formulated.

H3: *Fixed-term employees report overall lower job and life satisfaction than permanent employees.*

One of the biggest drawbacks for employees with fixed-term contracts is the uncertainty about their future career prospects. The lack of financial stability can create problems for people who are trying to get a mortgage or start a family. The general uncertainty that comes with working under a fixed-term contract is likely to affect people in different ways. Risk averse people are prone to suffer more from uncertain outcomes and might suffer more in terms of well-being. In 2010 there was a wave included in the LISS panel where respondents answered questions about their willingness to take risks. Besides a general question about taking risk there were questions about taking financial risk, occupational risk, and risk in leisure and sports. The willingness to take risks was measured at an 11-point scale where 0 means a respondent is risk averse and 10 means a person is willing to take a lot of risk. This allows us to create an alternative measure of risk aversion for the LISS panel instead of experimentally eliciting the risk aversion measure (van Huizen and Alessie,

2016). We can use this measure to determine if the relationship between type of contract and well-being is different for people with different risk preferences. We expect that people who are more risk averse suffer more from having a fixed-term contract in terms of well-being. In order to test this the following hypothesis has been formulated:

H4: *Risk-averse employees with fixed-term contracts report lower job and life satisfaction than their more risk tolerant peers.*

4. Data

The Dutch Langlopende Internet Studies voor de Sociale wetenschappen (LISS) panel will be used to test several hypothesis regarding the topic of fixed-term contracts. The LISS panel contains many topics and has been set up by the Dutch national statistics bureau and is a representative survey for the population of the Netherlands. The panel contains roughly 5,000 households which have been followed for a period of eight years starting in 2008 and is unbalanced. This setup allows us to track individuals over time which will be beneficiary to the analysis of fixed-term contracts. The sample is restricted to people who have paid work at the time of the questionnaire and is roughly equally divided between men and women. Observations with missing values for key variables have been dropped. After pooling the observations from eight annual surveys the total sample contains 14,379 observations, representing 2,088 different individuals with on average 6.9 observations.

The LISS data allows us to make the important distinction between permanent and fixed-term contracts. Moreover, the data allows us to distinguish between on-call employees, temporary employees, and the self-employed. The distinction between temporary and fixed-term jobs is important because fixed-term jobs are similar to permanent jobs whereas temporary jobs are fundamentally different. Temporary employees like temp-staffers or on-call employees are used by employers for peak hours or special events and are therefore temporary by nature. We consider fixed-term jobs as jobs that could be held on a permanent base in the sense that there is a stable demand for employees in these kinds of positions within a company. This distinction between different kinds of temporary contracts is important because we are mainly interested in the effects of fixed-term contracts, which falls in the broad spectrum of temporary contracts.

The hypotheses presented in the previous section will be tested by considering several dependent variables. We consider two proxies for effort which have been established in the

literature. Overtime hours and absenteeism are used as dependent variables in order to determine effort effects stemming from fixed-term contracts. Overtime hours are calculated by subtracting actual working hours from contract hours. We consider two different measures for absenteeism. The first measure describes if a person has called in sick for work in the past year and is a binary variable. The second measure describes the number of days a person was absent from work in the past year due to illness. Job and life satisfaction are used as dependent variables to test if fixed-term contracts reduce satisfaction in job and life. Both variables are measured on an 11-point scale where 0 means a respondent is not satisfied and 10 indicates a fully satisfied respondent.

Type of contract will serve as the key explanatory variable in this analysis. Table 1 presents the different types of contracts that have been included in the LISS panel. The top four rows describe the types of contract of interest for the analysis of fixed-term contracts. We are mainly interested in the effects of fixed-term contracts on our dependent variables relative to permanent contracts but also in comparison to other types of flexible contracts.

Table 1: Composition of the sample per year (in percentage of column total)

Year	2008	2009	2010	2011	2012	2013	2014	2015
Permanent contract	76.98	75.75	75.83	77.05	77.55	76.53	75.11	73.41
Fixed-term contract	8.16	9.55	9.93	8.58	8.66	9.94	10.13	11.91
On-call contract	2.45	2.87	3.06	2.80	2.50	2.34	2.34	2.58
Temp-staffer	2.14	1.70	1.56	1.82	1.61	1.66	2.10	2.01
Self-employed	7.15	7.23	7.09	7.36	7.49	7.46	7.51	7.73
Independent professional	1.53	1.32	1.19	1.02	0.63	0.64	1.23	0.80
Director of a company	0.56	0.64	0.49	0.53	0.44	0.44	0.36	0.40
Majority shareholder	1.03	0.94	0.86	0.84	1.11	0.98	1.20	1.17

The first wave of 2008 shows that 12.75 percent of the panel was working under some sort of temporary contract. Fixed-term contracts are the most popular form of temporary contract with 8.16 percent of the sample indicating having one. On-call employees are the second biggest group with 2.45 percent and a total of 2.14 percent of the panel consists of temp-staffers. Employees with permanent contracts are the most predominant in the sample with a prevalence of 76.98 percent. In the years following it is noticeable that permanent contracts seem to become less popular relative to fixed-term contracts. The share of other temporary contracts like on-call employees and temp-staffers remains stable at roughly 5

percent of the panel. In contrast, the share of fixed-term contracts has gradually increased to 11.91 percent. The share of the self-employed also grew in the same time-period but was a lot smaller than the growth of the percentage of fixed-term contracts. This strong growth indicates a shift from people working under permanent to fixed-term contracts.

Table 2: Worker characteristics by type of contract (means of the variables)

	Total	Permanent	Fixed-term
Demographic Characteristics			
Age	42.46	44.28	34.03
Female (0/1)	0.50	0.49	0.61
Married (0/1)	0.71	0.73	0.46
Children (0/1)	0.66	0.69	0.37
Life Satisfaction	7.52	7.56	7.28
Risk Aversion	4.92	4.68	5.21
Education-none or basic (0/1)	0.15	0.13	0.23
Education-vocational (0/1)	0.44	0.47	0.32
Education-applied university (0/1)	0.27	0.27	0.25
Education-academic (0/1)	0.14	0.13	0.19
Employment Characteristics			
Contract Hours	30.62	31.4	24.74
Actual Hours	30.34	31.07	25.46
Overtime Hours	-0.17	-0.34	0.72
Firm Size	257.98	296.18	207.66
Tenure	12.41	13.49	2.59
Manager (0/1)	0.28	0.29	0.13
Private Sector (0/1)	0.62	0.61	0.67
Absence (0/1)	0.46	0.48	0.51
Absence (days per year)	0.83	0.90	0.76
Job Satisfaction	7.46	7.48	7.08
Number of Observations	14,379	11,269	1,155

Table 2 present the characteristics of employees in permanent and fixed-term employment separated as well as the total sample. The table yields some interesting results at first sight. Fixed-term contracts are more likely for young people and especially for women. Fewer

people with fixed-term contracts are married and they have less children than people in permanent contracts. Employees with a fixed-term contract are also more likely to be in the lowest and highest category of education, indicating a non-linear pattern for education. Only 13 percent of the employees with a fixed-term contract is a manager and average tenure is much higher for permanent contracts.

Examining the variables of interest confirms the expectations about effort and satisfaction levels among fixed-term employees. Despite the fact that employees with fixed-term contracts work less hours they do provide overtime on average. Employees with a permanent contract do not provide overtime hours on average and are more days per year absent. Moreover, employees with fixed-term contracts report lower levels of job and life satisfaction. Additionally, it seems that the difference in job satisfaction between fixed-term and permanent employment is larger than the difference in life satisfaction.

Table 3: Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Fixed-term	1.00														
2. Female	0.07*	1.00													
3. Married	-0.15*	-0.02*	1.00												
4. Children	-0.17*	-0.02	0.43*	1.00											
5. Life Satisfaction	-0.06*	0.01	0.05*	0.06*	1.00										
6. Education-1	0.07*	0.00	-0.02*	-0.09*	-0.02*	1.00									
7. Education-2	-0.06*	0.03*	0.11*	0.11*	0.00	-0.32*	1.00								
8. Education-3	-0.01	-0.02	-0.06*	-0.01	0.02	-0.27*	-0.54*	1.00							
9. Education-4	0.03*	-0.05*	-0.05*	-0.04*	0.00	-0.14*	-0.29*	-0.20*	1.00						
10. Overtime	0.03*	0.00	-0.02	-0.01	0.00	0.01	-0.12*	0.07*	0.08*	1.00					
11. Firm Size	0.01	0.06*	0.02*	0.00	0.03*	0.02*	0.02	-0.03*	-0.02	0.00	1.00				
12. Tenure	-0.26*	-0.11*	0.25*	0.21*	0.06*	-0.02	0.09*	-0.02*	0.08*	-0.04*	-0.04	1.00			
13. Manager	-0.09*	-0.26*	0.04*	0.05*	0.04*	-0.04*	-0.05*	0.02*	0.07*	0.05*	0.05*	0.11*	1.00		
14. Private Sector	0.04*	-0.17*	-0.07*	-0.06*	-0.04*	0.10*	0.14*	-0.15*	-0.10	-0.01	0.03*	-0.15	0.07*	1.00	
15. Job satisfaction	-0.07*	0.02*	0.07*	0.07*	0.35*	-0.02*	0.02*	0.00	0.00	0.02*	-0.02	0.08*	0.06*	-0.07*	1.00

Standard errors in parentheses
*p<0.05

Table 3 provides the correlation matrix for fixed-term contracts[1]. Most noticeable is the fact that almost all the independent variables are significantly correlated with fixed-term contracts. Having a fixed-term contract is positively correlated with being a female and negatively correlated with being married or having children. The correlation table confirms that having a fixed-term contract correlates positively with the highest and lowest category of education. This indicates that being educated very well or poor increases the probability of having a fixed-term contract. Furthermore, there is a very strong negative correlation with tenure and a small positive correlation for overtime hours. As expected, job satisfaction and life satisfaction are negatively correlated with having a fixed-term contract. Finally, having a fixed-term contract is positively correlated with working in the private sector.

5. Empirical strategy

Two effort measures will be used as dependent variables in order to test the first and second hypothesis. The first one measures how many overtime hours an individual has worked. The second describes whether or not an individual was absent from work in the past 12 months. The absenteeism indicator is a binary variable and the overtime indicator is an integer variable. An alternative measure of absenteeism measures the number of days an individual was absent from work in the past year. Job and life satisfaction will be used as the independent variable for the third and fourth hypothesis. The job and life satisfaction measures are categorical variables measured on an 11-point scale, where 0 means that the respondent is not satisfied and 10 indicates the respondent is fully satisfied. An alternative measure of risk aversion will be used in order to test the fourth hypothesis.

The key independent variable in the analysis will be the type of contract for the employee. Based on information from the LISS panel on the type of contract, we distinguish between 4 types of contracts. The contract types are permanent employment, fixed-term employment, on call employment, and agency employment. We expect that employees with a fixed-term contract provide more effort in order to increase their probability of obtaining a permanent contract. This would result in more overtime hours and less absenteeism. Furthermore, we expect that people with fixed-term jobs report lower job and life satisfaction. Being risk averse is expected to have an additional negative effect on the variables of job and life satisfaction.

[1] Table 10 for permanent contracts is provided in the appendix

The LISS panel contains a lot of variables but can't take everything into account. In the case of fixed-term contracts it is important to take unobserved heterogeneity into account. Individual-specific heterogeneity could be responsible for the selection into fixed-term and permanent contracts. For example, more motivated or skilled people could obtain permanent contracts while the lower skilled will receive fixed-term contracts. The setup from the LISS panel allows us to estimate regressions with individual and time fixed effects in order to control for unobserved heterogeneity.

Individual fixed effects can only be used if there are enough people in the sample who switch between contract types. In order to test if there are enough switchers we created a dummy variable where 1 corresponds to a permanent contract and 0 to a fixed-term contract. The dummy variable allows us to examine the between and within variation for permanent and fixed-term employees in our panel[2]. The corresponding one way table indicates that the overall subsample consists of 9.52 percent fixed-term employees and 90.48 percent permanent employees. The amount of individuals in the subsample who had fixed-term contracts at least one time period of observation is 21.39 percent. Moreover, observed individuals with a fixed-term contract in at least one time period are observed in fixed-term contracts 60.90 percent of the time periods. These findings indicate that there are a sufficient amount of people who switch in our sample from fixed-term into permanent employment.

The first hypothesis will be tested by regressing the effort measure of overtime hours on the type of contract indicator. We assume that the unobserved time-invariant individual effects are correlated with the dependent variable. A linear fixed effects model will be used to control for unobserved time-invariant heterogeneity in the panel. The model is defined as:

$$\ddot{Y}_{it} = \beta' \ddot{X}_{it} + \ddot{\varepsilon}_{it} \qquad (1)$$

Where$(\, i = 1, \dots, N), (\, t = 1, \dots, T)$, where β is a vector of coefficients and x contains the individual characteristics.

The second effort indicator for absenteeism is a binary variable. Respondents answered with yes or no to the question whether or not they had been absent from work in the past 12

[2] One way tabulation table is supplied in the appendix.

months. Since the dependent variable is either 0 (not absent) or 1 (absent) we use a binary logistic regression. The model is defined as follows:

$$LN\left(\frac{\Pr(y_i = 1)}{\Pr(y_i = 0)}\right) = \alpha + \beta' X_i + \varepsilon \quad (2)$$

Where β and x have the usual interpretations. Data on absenteeism was unfortunately included in only one wave of the LISS panel. As a consequence it is not possible to exploit panel data regarding the second hypothesis.

The third hypothesis will be tested by regressing the variables of job and life satisfaction on the contract type indicator. The fixed effects model is defined as follows:

$$\ddot{Y}_{it} = \beta' \ddot{X}_{it} + \ddot{\varepsilon}_{it} \quad (3)$$

Where$(\, i = 1, \dots, N), (\, t = 1, \dots, T)$, where β is a vector of coefficients and x contains the individual characteristics.

Model (3) will be extended by adding the measure of risk aversion in order to test the fourth hypothesis. The interaction term θ will show if the degree of risk aversion has a strengthening (negative) effect on the dependent variables of job and life satisfaction.

$$\ddot{Y}_{it} = \beta' \ddot{X}_{it} + \gamma \ddot{C}_{it} + \delta \ddot{R}_{it} + \theta(\ddot{C}_{it} \times \ddot{R}_{it}) + \ddot{\varepsilon}_{it} \quad (4)$$

Where$(\, i = 1, \dots, N), (\, t = 1, \dots, T)$, where β is a vector of coefficients and x contains the individual characteristics. C_{it} is the contract type indicator for individual i in time period t and R_{it} is our measure of risk aversion.

6. Results

The purpose of this section is to test the hypotheses that were derived in section 3. Permanent contract will serve as the reference category in each of models that follow below. As a consequence, coefficients from the models will show the effects from the independent variables relative to the permanent contract type. The models include several control variables describing the individual employee (age, gender, marital status, children, and level of education), the job (private sector, tenure, manager, profession and sector), and yearly dummies. The variables age and tenure have also been included in squared form in order to allow for non-linear relationships.

Besides the observable control variables that are included in the models there are also unobserved individual characteristics present which might influence the dependent variable. This unobserved individual heterogeneity is likely to be present in the models that we are estimating. For example, one could argue that more able or ambitious employees obtain permanent contracts. These individual characteristics are not observable but are likely to influence the allocation of permanent or fixed-term contracts. The fixed effects approach that has been presented in the previous section is implemented in order to address the problem of unobserved heterogeneity. The critical assumption of unique time-invariant characteristics for the use of a fixed effects model has been tested (hausman p=0.00) which refrains us from using the alternative random effects approach.

Table 4 presents the results for the regressions with individual and time fixed effects with overtime hours as the dependent variable. All the control variables in the model except for age, firm size, and tenure are dummy variables. The categorical variable type of contract is split up and 8 dummy variables have been created to capture all the different kinds of employment relations. The same has been done in order to control for sector, profession, and education. A joint significant test has been run on the yearly dummies which suggests that time fixed effects should be included in the model. The coefficients of these dummies are not reported in the tables for clarity purposes.

The model in the first column depicts the results for the regression model of overtime hours with the use of the full sample with standard errors reported between brackets. The results suggest that working under a fixed-term contract does not increase the number of overtime hours. The fixed-term contract variable has a positive sign but the relationship is not significant. The dummy variable for temps is also positive and not significant. The coefficient for on-call contracts has a negative sign and is significant at the 1-percent level. The regression indicates that holding everything else constant the amount of overtime hours decreases with 1.45 hours per week for on-call employees. The results on the other variables indicate that overtime hours are higher for females, managers, and employees in the private sector. Moreover, the amount of overtime hours decreases with tenure and for individuals who are married or have children.

Table 4: Estimation results with Overtime Hours as the dependent variable

Overtime Hours	(1) Fixed Effects	(2) Fixed Effects (women)	(3) Fixed Effects (men)
Age	0.0509	0.00872	0.0154
	(0.126)	(0.144)	(0.222)
Age^2	-2.12e-05	-0.000293	0.000350
	(0.000926)	(0.00123)	(0.00156)
Children	-0.142	-0.129	-0.136
	(0.245)	(0.300)	(0.394)
Married	-0.549**	0.319	-1.480***
	(0.279)	(0.352)	(0.428)
Private Sector	0.745**	0.310	1.756***
	(0.329)	(0.371)	(0.590)
Firm size	5.37e-09	1.89e-07	-7.15e-07
	(3.90e-07)	(3.83e-07)	(9.57e-07)
Tenure	-0.0310	0.00278	-0.0610
	(0.0281)	(0.0361)	(0.0433)
$Tenure^2$	-0.000107	0.00110	-0.000417
	(0.000852)	(0.00123)	(0.00125)
Manager	1.006***	0.514*	1.275***
	(0.197)	(0.272)	(0.285)
Fixed-term Contract	0.324	0.717***	-0.248
	(0.240)	(0.275)	(0.413)
On-call Contract	-1.452***	-0.869	-3.029**
	(0.537)	(0.533)	(1.280)
Temp	0.442	-0.977	2.288**
	(0.558)	(0.659)	(0.942)
Constant	13.35***	3.996	15.30**
	(4.441)	(4.594)	(7.143)
Observations	9,326	4,619	4,704
R-squared	0.035	0.042	0.055
Number of groups	2,089	1,072	1,020
Occupation dummies (9)	YES	YES	YES
Sector dummies (15)	YES	YES	YES
Education dummies (28)	YES	YES	YES
Yearly dummies (7)	YES	YES	YES

*** p<0.01, ** p<0.05, * p<0.1

The second and third column of table 4 depict the same models but with subsamples of women and men. The women subsample yields some interesting results in comparison to

the full sample. The fixed-term contract indicator is positive and significant at the 1-percent level. The coefficient indicates that holding everything else constant overtime increases with 0.72 hours per week for individuals in fixed-term employment relative to permanent employment. In contrast, the model in column 3 suggests that for men there is no such effect present. The coefficient for fixed-term employment in model 3 has a negative sign but is not significant. Furthermore, the results from model 2 and 3 suggest that men produce significantly less overtime hours with an on-call contract but more when employed as a temp.

The results from the models presented above show that for women with fixed-term contracts there is an incentive effect noticeable in our sample. Women working under a fixed-term contract work on average 0.72 hours more than agreed upon in their contracts. Taking into account that fixed-term employees work less hours this corresponds to an 3.3 percent increase of total working hours These findings contrast with Engellandt et al (2005) who find that the incentive effects are stronger for men. Moreover, the results from our sample suggest that other forms of temporary work are not leading to an increase in overtime hours for women, in accordance with the first hypothesis. Interestingly, the majority of the people in our sample employed under a fixed-term contract were women. We can only partially confirm the first hypothesis because there is not an incentive effect noticeable in our subsample with men only.

In order to test the second hypothesis we regress the two absence measures on the indicator variable of fixed-term employment. Table 5 presents the results for the models with the absence indicator as the dependent variable. This indicator takes on the value 1 if an individual was absent at least once in the past year. Data on absenteeism was unfortunately included in only one single year for the LISS panel. As a consequence we are not able to utilize the panel structure which restricts us to cross-sectional analysis in the case of absenteeism. The first column in table 5 depicts the linear model for our absence indicator on the total sample. In contrast to the analysis of overtime hours above, the linear model does not show a significant relationship between absenteeism and the fixed-term contract type. Because the absence measure is a binary variable we also estimated a binary logistic regression which is presented in the second column of table 5.The results depicted in column 2 support the linear specification and also confirm that there is no statistically significant relationship between absenteeism and the fixed-term contract type. Running the

regressions on subsamples of men and women also yields no significant results for the fixed term contract type[3].

Table 5: OLS and Logit results with the absence indicator as dependent variable

Absenteeism (0/1)	(1) OLS	(2) Logit
Age	-3.73e-05	0.00303
	(0.00880)	(0.0380)
Age^2	-5.69e-05	-0.000277
	(0.000100)	(0.000436)
Female	0.0103	0.0450
	(0.0297)	(0.123)
Married	-0.00554	-0.0244
	(0.0327)	(0.135)
Private Sector	-0.0128	-0.0555
	(0.0386)	(0.160)
Firm size	9.10e-08	3.86e-07
	(6.02e-08)	(2.52e-07)
Tenure	-0.00489	-0.0208
	(0.00418)	(0.0174)
$Tenure^2$	0.000128	0.000548
	(0.000114)	(0.000476)
Children	0.0147	0.0583
	(0.0332)	(0.138)
Manager	-0.0394	-0.165
	(0.0316)	(0.131)
Fixed-term Contract	-0.0321	-0.138
	(0.0518)	(0.216)
On-call Contract	-0.204**	-0.908**
	(0.0996)	(0.450)
Temp	0.0376	0.166
	(0.106)	(0.451)
Constant	-0.229	-0.746
	(0.730)	(1.019)
Observations	1,767	1,762
R-squared	0.051	
Occupation dummies (9)	YES	YES
Sector dummies (15)	YES	YES
Education dummies (28)	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

[3] Table 12 presented in the appendix

Table 6 depicts the results for the regression results with absenteeism in days per year as the dependent variable. The first column shows the regression results for the total sample and column 2 and 3 show the subsamples with women and men only.

Table 6: OLS results with absenteeism in days per year as the dependent variable

Absenteeism (Days per year)	(1) OLS	(2) OLS-women	(3) OLS-men
Age	0.0372	0.0554	0.0597*
	(0.0273)	(0.0439)	(0.0359)
Age^2	-0.000563*	-0.000879*	-0.000752*
	(0.000314)	(0.000523)	(0.000401)
Married	0.0360	0.00715	0.0373
	(0.109)	(0.163)	(0.145)
Private Sector	-0.156	-0.0674	-0.247
	(0.127)	(0.177)	(0.184)
Firm size	2.52e-07	2.51e-07	4.87e-07
	(1.95e-07)	(2.43e-07)	(3.87e-07)
Tenure	-0.00866	0.0195	-0.0218
	(0.0139)	(0.0241)	(0.0171)
$Tenure^2$	0.000224	-0.000680	0.000614
	(0.000380)	(0.000739)	(0.000440)
Children	-0.105	-0.175	-0.0443
	(0.111)	(0.170)	(0.145)
Manager	0.0332	0.251	-0.133
	(0.106)	(0.183)	(0.124)
Fixed-term contract	-0.0454	-0.0814	0.132
	(0.161)	(0.223)	(0.241)
On-call Contract	-0.0344	-0.120	0.0805
	(0.286)	(0.365)	(0.504)
Temp	0.552*	-0.0719	1.369***
	(0.325)	(0.481)	(0.446)
Constant	0.168	6.654***	-0.764
	(1.842)	(2.001)	(1.827)
Observations	1,866	973	893
R-squared	0.050	0.101	0.073
Occupation dummies (9)	YES	YES	YES
Sector dummies (15)	YES	YES	YES
Education dummies (28)	YES	YES	YES

*** p<0.01, ** p<0.05, * p<0.1

Despite the fact that table 2 indicated that fixed-term workers report sick less days per year there is no significant relationship in all the models. We do observe a large effect for male

temp workers in our sample. Male temp workers are 1.37 times per year more absent than permanent workers holding everything else constant. The coefficient for male temp workers is significant at the 1-percent level but we should be careful with the interpretation of this result due to the low number of observation in this category.

From the data in our sample we can conclude that fixed-term employees differ from their peers in permanent employment with respect to overtime hours but not with absenteeism. There is no statistical significant relationship between the fixed-term contract type and absenteeism so the second hypothesis is rejected. One could interpret this results and argue that fixed-term employees are not signaling their ability by reducing their absenteeism. It could also be the case that absenteeism is already very low among permanent employees which could refrain fixed-term employees from reducing absenteeism. However, Lusinyan et al (2007) studied work absence across Europe and conclude that the Netherlands has one of the highest rates of work absence. Hence, we conclude that fixed firm employees don't view absenteeism as a way to signal their abilities.

Until now the emphasis of the analysis has been on the determination of incentive effects for employees with fixed-term contracts. The remainder of this chapter will analyze the impact of fixed-term contracts on employee wellbeing. In order to test the third hypothesis we will regress job and life satisfaction on the fixed-term contract type indicator. The forthcoming models will control for the same set of covariates as the previous models. Table 7 presents the results for the models with job satisfaction as the dependent variable. The first column depicts the results for the model with the full sample with standard errors reported between the brackets. The regression results suggest that working under a fixed-term contract does not reduce job satisfaction. The coefficients for other forms of temporary employment are negative but not statistically significant. The results on other variables suggest that job satisfaction decreases with age and is lower for married people and women. People employed in the private sector and managers report higher levels.

The second column in table 7 depicts the fixed effects regression with the women subsample. The coefficient of the fixed-term contract type indicator is negative and significant at the 5-percent level.

Table 7: Estimation results with Job Satisfaction as the dependent variable

Job Satisfaction	(1) Fixed Effects	(2) Fixed Effects (women)	(3) Fixed Effects (men)
Age	-0.0222	0.0193	-0.0446
	(0.0359)	(0.0486)	(0.0559)
Age^2	-5.68e-06	-7.63e-05	5.02e-05
	(0.000262)	(0.000419)	(0.000395)
Married	-0.0517	-0.355***	0.187
	(0.0831)	(0.121)	(0.116)
Private Sector	0.0573	0.152	-0.176
	(0.0999)	(0.128)	(0.163)
Firm size	-1.20e-05	-1.89e-05	-1.31e-05
	(2.21e-05)	(3.58e-05)	(2.84e-05)
Tenure	-0.0466***	-0.0722***	-0.0380***
	(0.00606)	(0.0124)	(0.00768)
$Tenure^2$	0.000481***	0.00115***	0.000368***
	(0.000107)	(0.000420)	(0.000119)
Children	-0.0197	0.0452	-0.0572
	(0.0715)	(0.101)	(0.103)
Manager	0.0826	0.0369	0.142*
	(0.0578)	(0.0935)	(0.0746)
Fixed-term Contract	-0.0377	-0.189**	0.0873
	(0.0709)	(0.0960)	(0.108)
On-call Contract	-0.286	-0.489**	-0.0202
	(0.177)	(0.203)	(0.371)
Temp	-0.251	-0.0857	-0.373
	(0.174)	(0.253)	(0.244)
Constant	7.001***	6.739***	7.448***
	(1.250)	(1.546)	(1.807)
Observations	9,038	4,359	4,676
R-squared	0.034	0.049	0.054
Number of groups	1,933	992	944
Occupation dummies (9)	YES	YES	YES
Sector dummies (15)	YES	YES	YES
Education dummies (28)	YES	YES	YES
Year dummies (7)	YES	YES	YES
Fixed Effects	YES	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

The regression results imply that female fixed-term employees report 0.19 lower job satisfaction levels compared to permanent employees holding everything else constant.

This corresponds to a decrease in job satisfaction of 2.54 percent for fixed-term employees in comparison to permanent employees. Female on-call employees report even lower levels of job satisfaction compared to permanent employees. Holding everything else constant this group reports on average 0.49 points lower on the job satisfaction scale corresponding to a decrease of 6.56 percent. The coefficient of the female temp indicator is also negative but not significant. The male subsample depicted in column 3 does not yield a significant coefficient for the fixed-term contract indicator.

The results depicted in table 7 are partially in line with the findings of Booth et al (2002). They don't observe a significant relationship between fixed-term employment and overall job satisfaction. Moreover, they find that both men and women in on-call and temp employment are less satisfied with their jobs than permanent employees. The regression results presented above indicate that only female fixed-term and on-call employees are less satisfied in our sample.

So far it can be concluded that the women in our sample are behaving according to our hypotheses. Fixed-term jobs are less desirable than permanent jobs and the women employed under a fixed-term contract work more overtime hours compared to other contract types. The men with fixed-term contracts in our sample behave differently and don't work more overtime hours compared to employees with permanents contracts. In addition, there is no evidence that male fixed-term employees have lower levels of job satisfaction.

Table 8 presents the results for the fixed effects regression with life satisfaction as the dependent variable. The first column depicts the model for the full sample and column two and three reports results for our subsamples. The models control for the same set of covariates as the job satisfaction models. The results for the full sample in the first column indicate that there are no differences in life satisfaction for the different kind of contract types. The coefficients for all contract types are very small and not significant. Furthermore, the regression results indicate that life satisfaction is lower for married individuals and women whilst employees from the private sector report higher levels of life satisfaction.

Table 8: Estimation results with life satisfaction as the dependent variable

Life Satisfaction	(1) Fixed Effects	(2) Fixed Effects (women)	(3) Fixed Effects (men)
Age	-0.0675**	-0.0237	-0.120***
	(0.0275)	(0.0382)	(0.0421)
Age^2	0.000583***	0.000441	0.000874***
	(0.000201)	(0.000329)	(0.000297)
Married	-0.131**	-0.250***	-0.0426
	(0.0635)	(0.0946)	(0.0870)
Private Sector	0.143*	0.207**	-0.0227
	(0.0764)	(0.101)	(0.123)
Firm size	3.11e-05*	1.89e-05	3.72e-05*
	(1.69e-05)	(2.81e-05)	(2.14e-05)
Tenure	-0.00209	0.00592	-0.00519
	(0.00463)	(0.00974)	(0.00578)
$Tenure^2$	5.29e-05	6.16e-06	7.87e-05
	(8.17e-05)	(0.000329)	(8.95e-05)
Children	-0.00420	0.00389	0.00903
	(0.0546)	(0.0795)	(0.0777)
Manager	0.0239	-0.0229	0.0628
	(0.0442)	(0.0736)	(0.0561)
Fixed-term contract	-0.0555	0.0309	-0.136*
	(0.0543)	(0.0755)	(0.0810)
On-call Contract	0.0604	0.105	0.0282
	(0.136)	(0.160)	(0.279)
Temp	-0.0315	-0.0227	0.0540
	(0.133)	(0.199)	(0.184)
Constant	9.908***	7.647***	11.46***
	(0.957)	(1.215)	(1.360)
Observations	9,034	4,356	4,675
R-squared	0.025	0.039	0.032
Number of groups	1,933	992	944
Occupation dummies (9)	YES	YES	YES
Sector dummies (15)	YES	YES	YES
Education dummies (28)	YES	YES	YES
Year dummies (7)	YES	YES	YES
Fixed Effects	YES	YES	YES

*** p<0.01, ** p<0.05, * p<0.1

Column two and three present the results for the fixed effects estimation of the subsamples with women and men. The coefficients for all the contract types in the women sample are not significant. These results indicate that there is no significant relationship between the type of contract and the life satisfaction measure. Coefficients for the on-call and temp contract indicator are also not significant in the male subsample. However, the coefficient for the fixed-term contract indicator is negative and significant at the 10-percent level. Holding everything else constant the fixed-term contract indicator yields a 0.14 drop in life satisfaction levels for men. This corresponds to on average 1.85 percent lower life satisfaction for men with fixed-term contracts. This result should be interpreted with care because of the low level of significance.

The regression results for the two satisfaction measures yields some interesting results. Women with fixed-term contracts report significantly lower levels of job satisfaction compared to women with permanent contracts. This negative effects is even greater for female on-call employees which is in line with the general view that on-call contracts are less desirable than fixed-term contracts. For men there is no evidence for a similar negative relationship among all contract types. However, male fixed-term employees do report lower levels of life satisfaction in our sample although this relationship is only significant at the 10-percent level. The female sample yields no significant relation between life satisfaction and the type of employment contract. The results allow us to partially confirm the third hypothesis.

In order to test the fourth and final hypothesis we construct a model for job and life satisfaction and add an interaction term with risk aversion. The results for these models are presented in table 9. The first column depicts the results for the model with job satisfaction as the dependent variable. The risk aversion variable is measured on an 11-point scale where 0 indicates a fully risk averse individual.

The regression results suggest that there are some lower levels of risk aversion where job satisfaction is significantly higher. Individuals who are moderately and above average willingly to take risk report respectively 1.17 and 1.53 higher levels of job satisfaction holding everything else constant. These results are significant at the 5-percent and 1-percent level.

Table 9: Estimation results with interaction between risk aversion and type of contract

Estimation method: Fixed effects	(1) Job Satisfaction	(2) Life Satisfaction
Age	0.0111	-0.0887***
	(0.0435)	(0.0339)
Age^2	-0.000179	0.000668*
	(0.000461)	(0.000355)
Married	-0.0538	-0.140
	(0.131)	(0.108)
Private	-0.302*	-0.0412
	(0.169)	(0.133)
Firm size	-1.63e-05	2.67e-05
	(3.33e-05)	(2.58e-05)
Tenure	-0.0551***	0.000619
	(0.0133)	(0.0104)
$Tenure^2$	0.00103***	-1.67e-05
	(0.000361)	(0.000266)
Children	0.181	0.0767
	(0.112)	(0.0859)
Manager	0.285***	-0.0351
	(0.0897)	(0.0681)
Fixed-term contract # 1.riskaversion	0.208	0.331
	(0.863)	(0.655)
Fixed-term contract # 2.riskaversion	1.062*	0.691
	(0.603)	(0.460)
Fixed-term contract # 3.riskaversion	0.117	0.871**
	(0.501)	(0.379)
Fixed-term contract # 4.riskaversion	0.872	0.740*
	(0.533)	(0.409)
Fixed-term contract # 5.riskaversion	1.172**	0.629
	(0.521)	(0.406)
Fixed-term contract # 6.riskaversion	0.791	0.588
	(0.493)	(0.370)
Fixed-term contract # 7.riskaversion	1.533***	0.879**
	(0.507)	(0.393)
Constant	4.115***	11.52***
	(1.467)	(1.137)
Observations	3,458	3,458
R-squared	0.073	0.042
Number of groups	612	612
Occupation dummies (9)	YES	YES
Sector dummies (15)	YES	YES
Education dummies (28)	YES	YES
Yearly dummies (7)	YES	YES

*** p<0.01, ** p<0.05, * p<0.1

The most important thing to take away from the results in the first model is the fact that there is no evidence for a negative strengthening effect for risk aversion on job satisfaction for employees with fixed-term contract. The model in the second column depicts the regression results with life satisfaction as the dependent variable. The results show that there is also no evidence for a negative strengthening effect from risk aversion on job satisfaction for fixed-term employees. The regression results indicate that more risk averse people are not suffering in terms of job satisfaction so the fourth hypothesis is rejected.

7. Discussion

The stated results show that the increasing trend towards fixed-term employment is not necessarily strictly positive. Employers are benefiting from a reduction in firing costs when they offer fixed-term contracts or other forms of temporary contracts. However, employees with fixed-term contracts have less certainty and seem to suffer from this in terms of lower job satisfaction (Booth et al, 2002). This research shows that women report lower job satisfaction levels when employed under fixed-term contracts. Interestingly, the regression results suggest that such an effect is not present for men. On the other hand we do observe an increase in overtime hours for female fixed-term contract employees. The latter is beneficial to employers and therefore someone could argue that fixed-term contracts are a good instrument to increase effort. However, since job satisfaction is also lower in the female sample there could some be disadvantages in the short run too. Job satisfaction is positively correlated to a lot of important job features like absenteeism, productivity, effort, and separations (Clark, 1996). In addition to potentially saving costs employers can also use fixed-term contracts as a probation mechanism. The regressions results indicate that employers can use fixed-term contracts as an extended probation period. Especially for employees with the highest levels of education it seems to be beneficiary for employers to refrain from offering a permanent contract right away. Motivated or highly skilled individuals will signal their abilities by exerting more effort although it comes at the cost of less job satisfaction in the short run. In this scenario the job matching process is more efficient which is beneficial to both employers and employees in the long run.

The analysis presented in the previous chapter yields some interesting results but some caveats can be made. The analysis of the incentive effects associated with fixed-term contracts depends on the two proxies for effort which have been well established in the

literature. However, the proxies that are used are not directly measuring effort and it is likely that there is a bias present. For example, employees could increase their overtime hours without actually increasing their output or productivity. Nevertheless, we believe that overtime hours is a decent proxy in this case because the data is collected by an independent research entity and employees have no incentive to overstate their working hours. Absenteeism might be a better proxy in determining non effort for fixed term employees. However, in the case of self-reported data it might be likely that people inaccurately report the amount of times they were absent from work due to illness. Data from employers on the absenteeism from their employees could improve the estimation of the relationship between type of contract and absenteeism. The data on absenteeism in our analysis was not ideal and was only available for certain individuals from the sample in one specific year. As a consequence there was no fixed effects estimation possible. Panel data on absenteeism could improve the analysis of the investigated relationship to a great extent. The lack of panel data might explain why the analysis of absenteeism yields no results in contrast to most of the literature (Riphahn, 2004; Ichino and Riphahn, 2005; Meyer and Wallete, 2005).

The fixed-term contract indicator has served as the key explanatory variable in this analysis. A potential problem is the endogenous selection into fixed-term contracts by the individuals in our sample. Individuals with fixed-term contracts might not be a random draw from the population which could affect the regressions estimates. It is unlikely that a selection on observable characteristics causes a bias in the estimates since we control for demographic and employment characteristics.

However, unobserved characteristics could influence the estimates if these characteristics influence the selection into fixed-term contracts. For example, one could argue that individuals with low motivation or lower ability are selected into fixed-term employment. In this scenario individuals would accept the disadvantages from fixed-term contracts and effort should not exceed that for permanent contracts. The estimates presented in the previous chapter indicate that this scenario is unlikely for women but might be the case for men. On the other hand, one could argue that fixed-term contract employees accept the disadvantages in the short run and are willing to be screened in order to qualify for better positions with more certainty in the future. This scenario is more in the line with the stated results which could mean that the true effect of fixed-term contracts might be exaggerated.

The panel structure of the data allows us to properly address the potential endogeneity problems associated with fixed-term contracts by running regression with individual and time fixed effects. With this approach we assumed that there are certain unobserved time-invariant characteristics that influence the selection into fixed-term employment. The hausman test showed that in our sample the time-invariant characteristics are unique to the individual without being correlated to other individual characteristics. The fixed effects approach was therefore the most suitable with these data and consequently the estimates presented are not likely to suffer from endogeneity bias.

This research expanded current literature by examining incentive effects stemming from fixed-term contracts. Moreover, the impact on employee wellbeing from fixed-term contracts has been examined. The analysis has been conducted with data from the Netherlands and the results are likely to be country specific in the case of fixed-term contracts. The differences in legislation among countries when it comes to fixed-term and temporary contracts could alter the stated results. Countries like the Netherlands are characterized by large differences between permanent and fixed-term employment which is an important factor that should be taken into account. In these kind of countries it seems more likely to find incentive effects for fixed-term contracts. For countries with smaller differences between fixed-term and permanent contracts like Switzerland and the United Kingdom it seems less likely to find an incentive effect. The established literature on fixed-term contracts is mainly focused on single countries resulting in different results. An analysis with multiple countries is necessary in order to find a generalizable result on the effects of fixed-term contracts and should be the focus of future research on this topic.

8. Conclusion

This paper analyzed the behavior and satisfaction of fixed-term and permanent employees based on eight years of survey data from the LISS panel. Fixed-term contracts are often regarded as less favorable than permanent contracts. Consequentially, we expected that the disadvantages of fixed-term contracts could serve as an incentive to exert more effort in order to increase the probability of obtaining a permanent contract. Moreover, we expected there to be costs associated with fixed-term employment in terms of job and life satisfaction. In order to test these hypotheses we looked at effort and satisfaction levels for fixed-term employees and compared them with permanent employees.

The results found partially confirm the expectations beforehand. There is a significant relationship between overtime hours and the fixed-term contract type indicator in the women subsample. Women with fixed-term contracts work 3.3 percent more hours per week compared to their peers in permanent employment. This incentive effect was not present for other forms of temporary contracts and only noticeable for fixed-term employees. The male subsample yields no significant relationship between overtime hours and the fixed-term contract type indicator.

In addition to overtime hours we also examined if fixed-term employees reduce their absenteeism compared to permanent employees. In our sample there is no significant relationship observable between absenteeism and the fixed-term contract type indicator. Examining the subsamples with men and women also yields no results. These results could be an indication that fixed-term employees don't view absenteeism as a dimension to signal their abilities or motivation. However, the data on absenteeism was limited and restricted to a single year in the panel which might be the reason for not being able to estimate a significant relationship.

Besides the analysis of behavioral incentives for fixed-term contracts we also analyzed job and life satisfaction measures. We find that women suffer in terms of job satisfaction from having a fixed-term contract. In our subsample of women there is a decrease of 2.54 percent in job satisfaction for fixed-term employees relative to permanent employees. Interestingly, there is no significant relationship between life satisfaction and the type of contract. In contrast, the male subsample shows that there is no significant relationship between job satisfaction and the type of contract. However, we do find an indication that male fixed-term employees report lower life satisfaction. Having a fixed-term contract corresponds to a decrease of 1.85 percent in life satisfaction for men. Furthermore, we don't find evidence for a negative strengthening relationship between the satisfaction measures and risk aversion for fixed-term employees.

In summary, we found that the women in our sample are behaving as predicted by the hypotheses. They work significantly more overtime hours under fixed-term contracts and have lower job satisfaction. On the other hand, we didn't find a significant relationship between fixed-term employment and overtime hours in the male subsample. Moreover, men don't report lower levels of job satisfaction when employed under a fixed-term contract. The

results support the hypothesis that fixed-term employees have incentives to invest in signaling behavior. The degree of signaling behavior is likely to be different among countries depending on the degree of labor protection for permanent contracts. However, this behavior was only noticeable in the female subsample in our data. It might be the case that men are competing in different ways which are not picked up by our overtime measure.

9. Appendix A

Table 10: Correlation table for permanent contract

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Permanent	1.00														
2. Female	-0.02*	1.00													
3. Married	0.11*	-0.02*	1.00												
4. Children	0.14*	-0.01	0.43*	1.00											
5. Life Satisfaction	0.05*	0.01	0.05*	0.06*	1.00										
6. Education-1	-0.09*	0.00	-0.02*	-0.09*	-0.02*	1.00									
7. Education-2	0.09*	0.03*	0.11*	0.11*	0.00	-0.32*	1.00								
8. Education-3	0.01	-0.01	-0.06*	-0.01	0.02	-0.27*	-0.54*	1.00							
9. Education-4	-0.04*	-0.05*	-0.05*	-0.04*	0.00	-0.14*	-0.29*	-0.20*	1.00						
10. Overtime	-0.05*	-0.01	-0.02	-0.01	0.00	0.01	-0.11*	0.07*	0.08*	1.00					
11. Firm Size	-0.03*	0.06*	0.02*	0.00	0.03*	0.02*	0.01	-0.03*	-0.02	0.00	1.00				
12. Tenure	0.20*	-0.11*	0.25*	0.21*	0.06*	-0.02	0.09*	-0.02*	0.08*	-0.04*	-0.04	1.00			
13. Manager	0.04*	-0.26*	0.04*	0.05*	0.04*	-0.04*	-0.04*	0.02*	0.07*	0.05*	0.05*	0.11*	1.00		
14. Private Sector	-0.06*	-0.17*	-0.07*	-0.06*	-0.04*	0.10*	0.14*	-0.15*	-0.10	-0.01	0.03*	-0.15	0.07*	1.00	
15. Job satisfaction	0.02*	0.02*	0.07*	0.07*	0.35*	-0.02*	0.02*	0.00	0.00	0.02*	-0.02	0.08*	0.06*	-0.07*	1.00

Table 11: One way tabulation table for permanent contract dummy

	Overall		Between		Within
permanent	Freq.	Percent	Freq.	Percent	Percent
0	1087	9.52	523	21.39	60.90
1	10331	90.48	2264	92.60	93.93
Total	11418	100.00	2787	113.99	87.73
			(n = 2445)		

Table 12: Subsample OLS and Logit results with the absence indicator as dependent variable

Absenteeism (0/1)	(1) OLS-women	(2) Logit-women	(3) OLS-men	(4) Logit-men
Age	0.0134	0.0610	0.000415	0.00253
	(0.0135)	(0.0583)	(0.0125)	(0.0538)
Age^2	-0.000238	-0.00107	-2.87e-05	-0.000132
	(0.000159)	(0.000688)	(0.000139)	(0.000598)
Married	0.0460	0.206	-0.0727	-0.311
	(0.0451)	(0.195)	(0.0484)	(0.202)
Private Sector	-0.0210	-0.0833	-0.00696	-0.0337
	(0.0501)	(0.214)	(0.0626)	(0.266)
Firmsize	7.03e-08	3.11e-07	1.31e-07	5.86e-07
	(6.90e-08)	(2.98e-07)	(1.36e-07)	(5.89e-07)
Tenure	-0.00340	-0.0132	-0.00357	-0.0161
	(0.00664)	(0.0288)	(0.00574)	(0.0240)
$Tenure^2$	-2.40e-06	-6.66e-05	0.000110	0.000496
	(0.000203)	(0.000887)	(0.000148)	(0.000620)
Children	-0.0333	-0.154	0.0523	0.225
	(0.0470)	(0.202)	(0.0486)	(0.206)
Manager	-0.0209	-0.0907	-0.0829**	-0.356**
	(0.0500)	(0.216)	(0.0417)	(0.175)
Fixed-term Contract	0.00196	0.0195	-0.0633	-0.288
	(0.0658)	(0.282)	(0.0880)	(0.377)
On-call Contract	-0.217*	-0.953*	-0.229	-1.081
	(0.120)	(0.537)	(0.184)	(0.890)
Temp	0.154	0.823	-0.0832	-0.342
	(0.155)	(0.745)	(0.154)	(0.667)
Constant	-0.338	-0.625	0.811	-1.161
	(0.645)	(1.590)	(0.505)	(1.507)
Observations	906	903	861	857
R-squared	0.099		0.066	
Occupation dummies (9)	YES	YES	YES	YES
Sector dummies (15)	YES	YES	YES	YES
Education dummies (28)	YES	YES	YES	YES

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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