universität wien

MASTERARBEIT / MASTER'S THESIS

Titel der Masterarbeit / Title of the Master's Thesis

„The Impact of Atypical Employment on Job Satisfaction of Airline Pilots“

verfasst von / submitted by

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angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree of

Master of Science (MSc)

Wien, 2019 / Vienna 2019

Studienkennzahl lt. Studienblatt / degree programme code as it appears on the student record sheet:	UA 066 914
Studienrichtung lt. Studienblatt / degree programme as it appears on the student record sheet:	Masterstudium Internationale Betriebswirtschaft
Betreut von / Supervisor:	Univ.-Prof. Dr. Oliver Fabel, M.A.

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I hereby declare that I have written the present thesis independently and without the aid of unfair or unauthorized resources. Whenever content was taken directly or indirectly from other sources, this has been indicated and the source referenced. This thesis has neither previously been presented for assessment, nor has it been published.

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List of abbreviations

ACMI	Aircraft, Crew, Maintenance and Insurance
CAB	Civil and Aeronautics Board
CLA	Collective Labor Agreement
EASA	European Union Aviation Safety Agency
FSNC	Full Service Network Carrier
FTL	Flight Time and Duty Limitations
HRM	Human Resource Management
LCC	Low Cost Carrier

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1. Introduction

Especially since the rise of the gig economy, atypical forms of employment such as part-time, freelance, or temporary jobs have become a generally accepted part of the labor market. While certain groups of society such as students or parents are commonly associated with these employment forms, other professional groups have not been a subject of this discussion. This thesis sheds light on atypical employment of airline pilots, a profession that is rarely associated in connection with unusual working conditions.

Only recently, atypical employment in aviation has started to gain researchers' interest. The same applies to research on job satisfaction among airline pilots. Both aspects are topics that are insufficiently researched. Therefore, the goal of this thesis is to analyze employment relationships between pilots and airlines, pilots' satisfaction with their job in general and different aspects of it, identify determinants of job satisfaction and analyze whether the type of employment has an impact on it. 475 pilots have answered to an online survey and provided information on their type of employment relationship as well as their levels of satisfaction. To answer the main research question, the satisfaction levels of two groups – pilots in an atypical employment relationship and those with a standard employment contract – are compared.

Atypical employment, also called precarious employment, often has a negative connotation and is frequently criticized as exploitation and a back door for employers to reduce costs. Particularly in the aviation industry, atypical employment relationships are mainly portrayed as involuntary and unwanted changes to standard full-time, open-ended contracts directly concluded with the airline. Only little attention is being paid to atypical employment as a way for pilots to flexibly plan their work around individual needs and preferences. Therefore, this thesis aims to take a neutral and objective approach.

It is structured as follows: the theoretical part begins with a brief overview of the particularities of human resource management in the aviation industry. To understand the employment relationships of pilots, it is important to take a closer look at the drivers of the demand for airline staff, the costs of airlines, the specific products they offer as well as the dynamics of the labor market for pilots.

The subsequent chapter traces back the emergence of atypical employment in general. It analyzes the demand for new forms of employment in response to changing economic

situations and evaluates the factors that lead to atypical employment in aviation. Major developments in the industry such as market deregulation, economic recessions, and the emergence of the low-cost airline model play an important part in explaining the existence of atypical employment forms in aviation. At the end of this chapter, the main types of atypical employment of pilots are discussed. The legal aspect of different types of employment relationships is not taken into account as it would go beyond the scope of this thesis and the questions addressed. A comprehensive overview of the legal situation concerning atypical employment is given by Jorens et al. (2015).

The second part of the theoretical background discusses the concept of job satisfaction. Firstly, different definitions, theories, and models are reviewed. Then the determinants of job satisfaction and the importance of its research are explained. Lastly, different ways of measuring satisfaction are briefly discussed.

The last part reviews previous research on job satisfaction of pilots and related occupational groups as well as research on the relationship between atypical employment and job satisfaction. The findings of this research are the basis for the hypotheses that will be tested in the analysis of the survey.

Chapter three describes the method of data collection and analysis. A survey on job satisfaction and employment types was sent out to pilots to which 475 have answered. By comparison of means, pilots in an atypical employment relationship and pilots with standard employment are compared with regard to satisfaction of the job in general and different aspects of it. To identify the determinants of pilots' job satisfaction, a regression analysis was carried out.

The last two chapters discuss the results of the empirical analysis, give a conclusion and answers to the research questions as well as suggestions for further research.

2. Theoretical analysis

2.1 HRM in aviation

Before analyzing the emergence of atypical employment forms in the aviation industry, it is important to understand some of the specific factors that affect human resource management of airlines.

Harvey and Turnbull (2002) have identified three factors that are specific to for the airline industry with regard to human resource management: the cyclical demand for air transport, the proportion and pliancy of labor costs, and the perishability of the airline product. The demand for air transport is pro-cyclical and linked to economic growth, i.e. demand for air travel increases and decreases along with the GDP (Harvey and Turnbull, 2002; Pierson and Sterman, 2013). The demand changes, however, at a faster rate than the economic fluctuations. This has a particularly significant impact on the demand for business class travel which is in turn a major source of revenue and profit for network carriers. Low-cost carriers are mainly affected by the seasonal nature of demand. Particularly low-cost carriers also face an increase in demand in the summer months and a downturn in the winter months (Harvey and Turnbull, 2002; Turnbull and Harvey 2016). This suggests that low-cost airlines have a higher demand for staff in summer and a decrease in winter. Unlike most low-cost airlines, many network airlines also fly long-haul routes and can, therefore, balance out the seasonality of demand. The pro-cyclical demand makes it difficult for airline management to create long-term and consistent HRM policies (Harvey and Turnbull, 2010). Secondly, the labor costs account for a large part of the airlines' costs: typically between one third and one fifth of the operating costs, depending on the geographical region the airline is located in (Alamdari and Morrell, 1997; Harvey and Turnbull, 2002, Doganis, 2006)). Besides the large proportion, labor costs are also one of the only costs that are not necessarily fixed in the short term, unlike other costs such as fuel, aircraft costs or landing charges (Holloway, 2017; Turnbull and Harvey, 2016). This means that labor is the first cost that airlines usually cut in response to a downturn in demand or a crisis (Doganis, 2006; Turnbull and Harvey, 2016). The third relevant factor is the airline product itself. It is a perishable product and can therefore not be stored as inventory. Seats on flights that have not been sold or seats on canceled flights cannot be stored in a warehouse and sold later. This gives airline crews considerable industrial power. Canceled flights, e.g. as a result of industrial action, have

a direct and significant impact on the airline's profitability. Even the mere announcement of a strike can lead to passengers switching to other airlines and thus to a loss in revenue (Harvey and Turnbull, 2002; Turnbull and Harvey 2016).

In addition to the above-mentioned factors, pilots are not easily substitutable during a strike because they have specific and general skills, depending on, inter alia, the type of aircraft, license, or commercial flight experience. Therefore, it is in an airline's best interest to give pilots incentives to keep their turnover low (Harvey and Turnbull, 2002). Moreover, pilots have an incentive not to leave their employer because their very specific skills are rarely transferable outside of the airline industry and changing airlines involves great effort such as additional airline-specific training. Another relevant factor is the seniority in airlines (Harvey and Turnbull, 2006). It typically takes pilots many years and flight hours within a specific airline to get promoted from First Officer to Captain. If a Captain changes the airline, it often involves starting again at the beginning of the career ladder as First Officer and getting promoted only after a few years. Depending on the demand, some airlines, however, offer direct entry Captain positions.

Harvey (2007) points out that pilots also have structural power due to a pilot shortage in the labor market. The European Cockpit Association (ECA), however, argues that pilot shortage in Europe is a myth. There are no comprehensive statistics on the unemployment rate of pilots in Europe. Reports from national pilot associations in Europe revealed an unemployment rate of approximately 15% in 2013 (ECA, 2018). In the lights of the recent bankruptcies of major airlines in Europe (Air Berlin, WOW, Germania, Flybmi, Monarch, and others), however, it can be assumed that pilot unemployment has increased since then.

Human resource management strategies in airlines also depend on the airline's business model. These are typically classified into two competing models: the low-cost carrier model (LCC) and the full-service network carrier (FSNC). Although there are also other business areas such as charter airlines, business/private airlines, or aircraft lease companies, this thesis will focus on the two models that are predominant in the industry. While LCCs' main strategy is to minimize costs, FSNCs focus on service as their differentiation strategy. Other characteristic features are that most LCCs operate only one type of aircraft so that all pilots are able to fly all aircraft without additional training. FSNCs mainly operate through a hub-and-spoke system while LCCs follow a point-to-point system (Hunter, 2006). Airlines that operate with the hub-and-spoke system "collect" passengers from their origin at a hub (e.g. Frankfurt Airport for Lufthansa) to

transfer them to connecting flights to their destination. Point-to-point systems, in contrast, fly directly from origin to destination airport (Cook and Goodwin, 2008). Hunter (2006) has found that LCCs are more flexible and therefore better prepared to industry shocks and crises than FSNCs. FSNCs, however, typically offer better pay and work conditions to their crews (Hunter, 2006).

The relationship between airline management and unions is an important factor and complex topic that needs to be considered when analyzing HRM in aviation. A thorough analysis would, however, extend the scope of this thesis and can therefore only be briefly presented here. Most airlines are heavily unionized (e.g. Lufthansa, Air France or most airlines in the USA) while some completely try to avoid unions (e.g. Ryanair). In aviation, they are typically organized according to crafts, e.g. pilot unions, flight attendant unions, or air traffic controller unions, and not according to specific airlines or airports (Gittel et al., 2009). Blyton et al. (2001) found that unions in aviation have great power resources and the ability to influence management strategy. The power of unions, however, can vary according to the current labor market situation of pilots (Harvey and Turnbull, 2012) and is increasingly challenged by the growingly international labor relations within airlines (Harvey and Turnbull, 2015).

To summarize, HRM in aviation needs to be considered in light of several factors specific to the industry. The cyclical demand for air transport, the proportion and pliancy of labor costs, and the perishability of the airline product play an important role in managing labor (Harvey and Turnbull, 2002). Management strategies further depend on the airline's business model and differentiation strategy. While network airlines focus on service, low-cost airlines primarily aim at cost-reduction. Another relevant factor is the mutual dependency of pilots and airlines. Human resource management in aviation, in particular in the cockpit, reveals a delicate balancing act for both pilots and airline management. On the one hand, pilots are among airlines' most important assets, giving pilots considerable bargaining power through strikes or the mere threat to strike. On the other hand, given that pilots have highly specialized education, they are dependent on airlines to employ them. The cyclical demand for the airline product as well as economic fluctuations have an impact on pilot demand as well. The bargaining power of pilots can therefore also be considered somewhat cyclical.

2.2 Atypical employment

2.2.1 The emergence of atypical employment

In the past decades, labor relations have experienced the emergence of new forms of employment. Until the 1970s, full-time wage employment has been the predominant and standard employment model on labor markets. The standard employment form is characterized by a relationship where a worker has only one employer for whom he typically works on the employer's premises indefinitely, full-time and in a subordinate relationship (Cordova, 1986). Other classifications of standard employment add that the employees are directly employed by their employer and not via a third party such as an agency. They are protected by social security systems such as health or unemployment insurance and receive direct instructions from their employers (Keller and Seifert, 2013). The newly emerged forms are commonly referred to as atypical employment or precarious work and differ from standard employment by lacking one or more of the above-mentioned features (Cordova, 1987; Keller and Seifert, 2013). The predominant new atypical forms of employment, among others, include self-employment, employment via temporary work agencies, subcontracting, part-time work, seasonal work, fixed-term work, telework, home-based work, employee sharing, and work on call (Cordova, 1987; Delsen, 1995). More forms such as crowd employment, collaborative employment, portfolio work, voucher-based work or job sharing have emerged in recent years (Eurofound, 2015)[1].

The emergence and increase of atypical employment can be regarded as a response to a call for deregulation of the labor market and the demand from both employers and employees for more labor market flexibility. One of the main reasons for this call was the need to adapt to market fluctuations and recessions (De Griep et al., 1995). Although flexible and atypical employment has already existed in some industries before the 1970s (e.g. shipbuilding and work in ports) and is therefore not an entirely new development, employers' request for more flexibility across industries has mainly increased since the 1970s (Delsen, 1995).

Cordova (1987) attributes the emergence of atypical employment on the one hand to slower economic growth and as a response to the inability to generate more full-time

[1] For a detailed description of new forms of work in Europe classified by country, see Eurofund (2015), p. 7ff.

wage jobs after an increase in unemployment caused by recessions. She explains that "unemployment has acted as a catalyst in the growth of atypical patterns" (p.646). On the other hand, it can also be seen as a development caused by different socio-economics factors, technological progress, changing lifestyles, and new attitudes towards work (Cordova, 1987).

A recent study by the European Parliament comes to a similar conclusion and identifies the last financial crisis and its aftermath as a reason for increased (involuntary) atypical work (Broughton et al., 2016). Crises, however, were not only a driver of the emergence of atypical employment forms. Workers in atypical employment relationships are also the first ones affected by economic crises by being at higher risk for changes to their employment status (Lang et al., 2013). Labor market flexibility and deregulation refer to multiple aspects. Organizations can hire and fire their employees more flexibly, easily change working hours and salaries and deploy their employees more flexibly with regards to different tasks (Delsen, 1995; Eurofound, 2015).

The new developments in the labor market have received both support and criticism and have become a prominent topic in the discussion around labor market policies in the European Union. Proponents regard the trend towards market flexibility and atypical employment as a sign that labor legislation has become more responsive to changing needs during recessions and argue that employers are more likely to hire new staff when they are given more flexibility. This increases employment and thus reduces social inequality (Cordova, 1987; Allmendinger et al., 2013). Critics, on the other hand, perceive the new forms of employment as an attempt of employers to bypass social security protection of employees and transfer business risks from the companies to their employees. They argue that atypical employment does not decrease but increase social inequality because underprivileged groups on the labor market are more likely to be employed in relationships that offer less social protection and lower pay. Moreover, atypical employment relationships might increasingly replace standard employment and worsen recessions in economically difficult periods (Cordova, 1987; Allmendinger et al., 2013). Until now, while some forms of atypical work can be beneficial, the major source of criticism are concerns about working conditions, the lack of social protection as well as social and personal isolation related to some forms of atypical work that employees might face (Eurofound, 2015). Moen (2017) argues, that employers adopt atypical

employment practices not only to meet requirements for flexibility but also to misuse them to reduce costs and increase competitiveness.

2.2.2 Atypical employment in aviation

To understand the emergence of atypical employment in aviation, it is important to trace back the major developments in the industry in the past decades. This chapter will briefly discuss the relevant events in recent aviation history and their impact on employment relations.

In 1977, the aviation sector in the United States was highly regulated. More than 95 percent of the industry revenue was generated by eleven trunk airlines and eight local airlines (Hendricks et al., 1980). Trunk airlines, or trunk carriers, were operating on interstate routes certified by the government's Civil Aeronautics Board (CAB), an agency that regulated the whole industry since the Civil Aeronautics Act in 1938, e.g. fares, the entry and exit of routes, agreements between airlines, new market entrants (Wensveen, 2007; Hendricks et al., 1980). In response to calls for a reform of the tight regulation by the CAB, the US Congress passed the Airline Deregulation Act which eventually lead to its dissolution at the beginning of 1985. The Deregulation Act had a major impact on the industry and great benefit for passengers who, from then on, received more service at a lower cost (Giemulla et al., 2011). As new airlines entered the market, tickets were sold at discounted rates, resulting in fare wars which significantly increased overall air traffic (Wensveen, 2007). According to Giemulla et al. (2011), the majority of tickets were not sold at regular but discounted fares and the price decreased by more than 15 percent between 1978 and 1985.

This unprecedented complexity and competition lead to turbulent times in the aviation industry. Many airlines entered and exited the market and major structural changes occurred. These turbulences have also significantly affected labor relations. Before the deregulation, the relationship between airline management and unions was relatively stable. However, unions were facing hostility and an unwelcoming attitude from the management. The fierce competition forced airlines to further cut costs (Wensveen, 2007). According to Meier (1989, as cited in Giemulla et al., 2011), the fare wars resulted in drastic wage cuts of up to 33 percent of the biggest airlines' employees.

Wensveen (2007) identifies more factors that lead to the significant wage cuts: the severe economic recession in the 1980s, strikes of air traffic controllers who subsequently got laid off, and the drastic increase in the oil price forced airlines to reduce costs. Combined with the strong competition on fares, employees, in particular pilots, experienced lay-offs, two-tier pay systems, the outsourcing of work to contractors with lower costs and the emergence of second-tier airlines with second-tier wages (Wensveen, 2007; Doganis, 2006).

The deregulation also facilitated low-cost airlines such as Southwest Airlines to grow and become highly profitable (Diaconu, 2012). While most airlines changed from the previously regulated point-to-point system that the former trunk airlines operated on to a hub-and-spoke, a great part of the airlines who stayed with a point-to-point system failed. Southwest Airlines, however, managed to achieve growth and profit with its point-to-point system. The airline, with its model of low "no-frill" fares and frequent flights is regarded as the pioneer of the low-cost business model and has served as an example for other low-cost carriers in the US and later in Europe[2] (Cook and Goodwin, 2008).

Soon after the deregulation of the US air transportation, legislation towards liberalization of the aviation sector reached the European Community. Prior to the beginning of deregulation in 1987, air transport was organized by bilateral agreements between EU Member States. Those bilateral agreements regulated, inter alia, route entry, capacity, and international routes. International routes were mainly 'single designation', i.e. only one airline was allowed to operate on them. Airlines agreed on fares among each other with the help of the International Air Transport Association (IATA) (Butcher, 2010).

In the wake of the Single European Act in 1987, air transport became part of the internal market within the European Economic Community (EEC). The First Aviation Liberalization Package was adopted in 1987, followed by the Second Package in 1990 and the Third Package in 1992. The three packages slowly removed restrictions on competition, fares, market access, market capacity, and route operations (Giemulla et al., 2011). Since 1992, air transport in the EU is considered fully liberalized. Further steps towards more liberalization in Europe have been taken by the European Common Aviation Area agreement between EU Member States and neighboring countries, signed in 2006.

[2] See Mason et al. (2016) for a detailed analysis of the emergence of low-cost airlines in Europe

Similar to the US, liberalization in Europe gave rise to low-cost airlines in the mid-1990s (Diaconu, 2012; Graham and Shaw, 2008) such as Ryanair and easyJet. The new competitive environment and market entry of new airlines, notably low-cost, forced both network and low-cost carriers to reduce costs. Because labor costs are one of the few pliable operating costs of airlines, measures of cost reduction consequently mainly focus on labor costs (Blyton et al., 2001). In this context, low-cost airlines, in particular easyJet, introduced a new form of employment relationship: sub-contracting (Turnbull and Harvey, 2016). Given that network airlines' differentiation strategies concentrate on service (as opposed to low-cost airlines' focus on efficiency and cost reduction), network airline cabin crew, on the other side, found themselves faced with higher requirements towards providing service while having to make concessions on employment conditions at the same time (Blyton et al., 2001).

As another consequence of the rise of low-cost carriers in Europe, network carriers established their own low-cost subsidiaries (Harvey and Turnbull, 2010) such as Transavia by Air France-KLM or Germanwings by Lufthansa. Francis et al. (2006) define these subsidiaries as "low-cost carriers that have been set up as subsidiaries of long-established major airlines to compete and gain a share of the low fare sector" (p.84). Turnbull and Harvey (2010) believe that these low-cost subsidiaries of network airlines are faced with labor-related difficulties in two ways: if airlines choose an employment relations strategy for their subsidiary that is aligned with the parent airline, it is likely not able to compete in the low-cost market due to higher labor costs. If their strategy is aligned with the low-cost business model, however, employees, particularly cabin crew, might be less motivated because they have a direct comparison to the working conditions of the parent airline. As a consequence, they might feel like "they must 'walk the low road' while their colleagues at the parent (full service) airline 'walk the high road'" (Turnbull and Harvey, 2010, p. 231).

The rise of low-cost airlines following the liberalization of air transport in both the US and Europe can be seen as an import turning point for employment relations in the airline industry. The previously highly regulated industry had to adapt fairly quickly to never seen before competition. Network airlines were challenged by low-cost carriers who could offer more passengers to buy tickets for lower fares. The increased competition and price war lead to the necessity to reduce labor costs, given that it is the only flexible part of the airlines' operating costs in the short term.

At the turn of the millennium, a cyclical downturn led airlines to suffer great losses and face a crisis. The growth of passenger and freight traffic, as well as business travel, turned out much lower than previously expected. But not only the profit went down, fuel and labor costs significantly increased. Within two years, from 1998 to 2000, the prices for fuel doubled and employees of several airlines were given significant wage increases. In the early to mid-1990s, airlines and unions had agreed on temporary concessions and sacrifices to withstand the previous crisis. Employees now wanted to redeem these wage cuts (Doganis, 2006; Turnbull and Harvey, 2016).

The events on 11 September 2011 were detrimental to the industry not only in the US but in most regions of the world. Traffic and demand immediately decreased significantly in the following months and returned to a pre-9/11 level only in 2005 (Doganis, 2006; Gittell et al., 2009). Some airlines declared bankruptcy while others needed to implement new cost-cutting strategies. This was particularly true for network airlines. Cost-reduction strategies mainly focused on labor costs (Gittell et al., 2009; Turnbull and Harvey, 2016) and included voluntary, later compulsory, redundancy and unpaid leave, temporary work contracts were not renewed, staff was not retained after their probationary period or training was reduced. The need for labor cost reduction was further exacerbated as the 9/11-crisis also revealed that network airlines had previously underestimated the competition from the low-cost airlines who survived the crisis much better than the network airlines (Turnbull and Harvey, 2016).

More contemporary labor relations in aviation are strongly shaped by globalization and increasing internationalization. Based on the developments in the European Union with regards to air transport liberalization and the single aviation market as well as the privatization of airlines, airlines can hire staff from different geographic regions who are subject to different labor laws and regulations. (Turnbull and Harvey, 2016; Bernaciak, 2012; Blyton et al., 2001). On a more global level, airlines have started to adopt the practice of "flagging out" known from the shipping industry, also referred to as "flag of convenience" (FoC). Shipowners register their vessels in a foreign country that offers more favorable taxation and labor laws as well as less stringent safety regulations such as Panama or Honduras. The practice is well established in the shipping industry up until now and is often regarded as synonymous with a regulatory race to the bottom (Snodgrass, 2015; Mendelsohn, 2014). The sourcing of labor across borders of national and

transnational airlines can be seen as an indication that airlines implement both flags of convenience and crews of convenience (CoC) especially (Blyton et al., 2001).

One good example of FoC is the case of Norwegian Air Shuttle (NAS) and Norwegian Air International (NAI). Norwegian Air Shuttle is a Norwegian low-cost airline, headquartered in Norway. NAS is the parent company of subsidiaries in Norway, Sweden, Denmark, Finland, Ireland, Spain, the United Kingdom and, most recently, Argentina. Currently, Norwegian has six air operator's certificates (AOC) in five different countries (Norwegian Air Shuttle, 2019). In 2013, NAS established their first subsidiary Norwegian Air International in Ireland and acquired an Irish AOC to make use of traffic rights and open-skies agreements with other countries such as the US, Canada, or Israel that are available only to carriers licensed in the European Union (Turnbull and Harvey, 2016; Snodgrass, 2015). However, the American Federation of Labor and Congress of Industrial Organizations (AFL–CIO), believes that "NAS is using the unique nature of EU aviation laws to effectively shop around for the labour laws and regulations that best suit its bottom line" (Transport Trades Department, 2013). Snodgrass (2015) believes that NAI was established to make use of Ireland's more favorable labor laws and low corporate tax. Although Norwegian Air International has an Irish AOC, it operates, next to their Irish base, from Denmark, Finland, Italy, Spain, and the UK (Norwegian Air Shuttle, 2019), eliminating all ties to Norway in their operations and benefiting from local labor laws. The parent company, NAS, does not operate from bases in Norway either but has established a Norwegian subsidiary instead, Norwegian Air Norway (NAN). NAS' bases are located in European Union countries, Bangkok, New York and Fort Lauderdale (Norwegian Air Shuttle, 2015). Norwegian Air Shuttle is, therefore, an excellent example for a transnational airline. Having a base in Bangkok, NAS hires staff via agencies in Singapore and Thailand. This practices allows NAS to save an estimated 50 percent on labor costs compared to the labor costs the airline would have entailed in Norway or other European countries (Turnbull and Harvey, 2016).

The CoC-practice is much criticized by pilot unions, accusing airlines of unfair competition on taxation and labor and predicting a further lowering of industry-wide labor standards (ECA, 2017). Due to the unavailability of sources and lack of accessible information, it is difficult to analyze the details of these kind of labor relations and investigate if these constellations are still in use. To assess whether they can be classified as atypical, as defined, would extend the scope of this thesis.

In summary, the emergence of atypical employment is closely linked to the liberalization of air transport in the US and Europe, eliminating market entry barriers and allowing for free competition. Deregulation also gave rise to previously rather insignificant low-cost airlines who have changed employment relations in the industry. Due to price wars, airlines were forced to cut costs, which invariably focused on labor costs. An economic downturn at the turn of the century, as well as the terrorist attacks on 11 September 2001, further fueled the necessity for airlines to cut labor costs. Cost-cutting measures focused, inter alia, on outsourcing labor and temporary contracts. More recently, the maritime practice of "outflagging" allows airlines to hire staff from countries with lower labor standards.

Several factors indicate that atypical employment might further increase. Increasing competition by new or growing low-cost airlines such as Wizz Air, Level, or Ryanair Buzz, the unclear outcome of the Brexit as well as the prospect of more airlines declaring bankruptcy in the near future might force airlines to further decrease labor costs. As a consequence of the grounding of the Boeing 737 Max, several airlines are now faced with overstaffing and both cockpit and cabin crew are at risk to lose their jobs. Ryanair, for example, has recently announced job cuts because the grounding of the aircraft has caused a surplus of 900 pilots and cabin crew (Sweney, 2019). The transnational structure of some airlines makes unionization particularly difficult. Unlike other TNCs, airlines are less embedded in national institutions, also because the staff's home base can be different from their actual home and the country the airline holds an air operator's license from (Harvey and Turnbull, 2015).

Harvey and Turnbull (2015) argue that due to the internationally complex constellation of labor relations, unions alone cannot improve working conditions of cabin and cockpit crew and only supranational strategies can effectively regulate the legal grey zones, some atypical employment relations fall into. Moen (2017) reports that legislation on EU level and across national countries has, however, aimed at boosting competition with the result that employment protection has been loosened and collective bargaining has been reduced. The amount of pilot and cabin crew strikes for better working conditions in recent years has, however, shown that employment relations are a balancing act for airlines. Strikes can cause airlines enormous losses so that even Ryanair, who has never recognized unions before, has entered union negotiations for both cabin and cockpit crew (Topham, 2018). However, the results of these negotiations and their impact on the use

of atypical employment relationships remain yet to be seen. Higher pilot unemployment resulting from airline bankruptcies or other factors such as the Boeing 737 Max grounding or the Brexit might further weaken the pilots' bargaining position on the labor market.

The current discussion on atypical employment of pilots is in need of more differentiation and shows a somewhat negative connotation. This could be partly due to the small number of research independent from trade unions, who mostly adopt a clear position against atypical employment. Little attention is being paid to pilots who voluntarily choose atypical employment contracts for various reasons such as childcare, the wish to improve flexibility and organize their own work schedule, to have additional sources of income, or other reasons.

2.2.3 Forms of atypical employment in aviation

Two recent studies have investigated the working conditions of pilots in the European Union. Jorens et al. (2015) and Brannigan et al. (2019) have surveyed 6,633 and 5,957 pilots, respectively. The research by Jorens et al. (2015) shows that 16.1 percent of pilots questioned are in an atypical employment relationship according to the definition used in the study. Jorens et al. (2015) define atypical employment as "every form of employment other than an open-ended employment contract" (p.XII) concluded with the airline directly and find that the prevailing forms of atypical employment are (bogus) self-employment, fixed-term/seasonal work, part-time work, zero-hours contracts, work via temporary work agencies, and pay-to-fly schemes. The most common forms will briefly be introduced in the following.

Part-time and fixed-term work

By definition, an employee with *a part-time work* employment relationship works fewer hours than a full-time worker on a weekly basis (Council of the European Union, 1997). Jorens et al. (2005) describe part-time work in aviation as a relationship in which "a cabin crew member for a given airline works 20 hours a week as opposed to the planned 40 hours per seven days, which constitutes full-time employment" (p.36).

In general, *fixed-term employment* refers to

> *a person having an employment contract or relationship entered into directly between an employer and a worker where the end of the employment contract or relationship is determined by objective conditions such as reaching a specific date, completing a specific task, or the occurrence of a specific event*
>
> (Council of the European Union, 1999).

The employment relationship between employer and employee is thus of temporary nature. In aviation, fixed-term work contracts are usually full-time contracts where staff his hired for a limited duration of a few months, typically only during the summer. This allows the airline to satisfy a temporarily higher need for staff without having to bear the costs of surplus staff in the months of lower demand (Jorens et al., 2015).

Work via temporary work agencies

Another way for airlines to serve their temporary need for staff is the cooperation with (temporary) work agencies. Temporary work agencies are private employment agencies who provide labor market services, including the hiring of workers to then hire them out to temporarily work at another company, the so-called user company. In this process, the worker and user company do not enter into an employment contract (ILO, 2019). The work via a third party is the most common form of atypical employment identified by Jorens et al. (2015). Temporary work agencies provide airlines with temporary staff to meet the short-time needs of airlines that arise from seasonal and market fluctuations. Airlines hire staff from work agencies for all positions: ground and terminal handling workers, cabin, and cockpit crew (European Parliament, 2016). The user airline pays the temporary work agency a fee that pays the wage to the hired worker, e.g. the pilot. In this case, the pilot and user airline do not have a direct employment relationship. Nevertheless, the pilot is bound by the rules and regulations of the airline and the airline is responsible for the health and safety of the pilot (Jorens et al., 2015). Jorens et al. (2015) identify an even more complex, quadrilateral, relationship that has been observed on the labor market for aircrews: temporary work agencies engage self-employed pilots and do not hire them directly. The payment to the pilot is sometimes made via a fourth party, an intermediary between the pilot and the work agency (Jorens et al., 2015).

Self-employment, bogus self-employment, and zero-hours contracts

The definition of 'self-employment' varies across most European Union countries. For reasons of simplicity, this thesis will follow the definition of self-employed-workers as "all persons pursuing a gainful activity for their own account, under the conditions laid down by national law" (European Parliament and the Council, 2010, Article 2). Jorens et al. (2015) analyze that self-employed aircrew does not fall in any category of the five categories, the Eurofound has classified (Pedersini and Coletto, 2009) and differentiate between three forms of self-employment schemes in aviation: self-employed pilots who directly provide their service to an airline, self-employed pilots who provide their service to the airline via one intermediary, or a constellation via multiple intermediaries, as described above (Jorens et al., 2015). All forms of self-employment in aviation leave the question open whether the pilots are genuinely self-employed or whether the relationship can be classified as bogus self-employment.

The OECD defines *bogus self-employment* as "people whose conditions of employment are similar to those of employees, who have no employees themselves, and who declare themselves (or are declared) as self-employed simply to reduce tax liabilities, or employers' responsibilities" (OECD, 2000, p. 156). Similar relationships apply in aviation. Jorens et al. (2015) describe this relationship as "identical to subordinate employment, yet disguised as autonomous work" (p.20). Most pilots who are registered as self-employed are bound to the same rules and restrictions as directly employed pilots. They do not, however, receive the same social safeguards (Jorens et al., 2015).

Zero-hours contracts refer to a number of employment arrangements with no single official definition. Adams and Prassl (2018) have collected key features and several definitions of the concept, the presence of which has increased in recent years due to the "gig economy". The main commonality of the definitions is that employers do not guarantee workers a minimum number of hours and workers are paid by the hour (Adams and Prassl, 2018). In aviation, zero-hours schemes refer to contracts in which crew members are only being paid for the duration of the flight and are often combined with temporary agency work and/or self-employment. The crew members are not entitled to paid annual leave, maternity leave or sick leave (Jorens et al., 2015; European Parliament, 2016).

Pay-to-fly

A *pay-to-fly scheme* is a practice unique to the aviation industry and has no legal definition. The European Cockpit Association explains the scheme as follows:

> *'Pay to fly' schemes are an aviation industry practice whereby a professional pilot, whether in training or not, operates an aircraft in commercial service, i.e. on a regular revenue-earning flight – as any other qualified crewmember – but instead of receiving a salary he/she pays for the cost of gaining flight experience. Such schemes also extend to pilots who do not have much flying experience (usually under 1500h) and want to gain experience on a specific aircraft type to increase their employability.*
>
> (ECA, 2015, p.2)

Pay-to-fly is undoubtedly the most controversial form of employment and is closely linked to the procedure to become a commercial airline pilot. It must, therefore, be analyzed in the context of the training process. A good summary of the training process is provided by Brannigan et al. (2019). Based on the requirements of EU legislation (Commission Regulation (EU) No 1178/2011), aspiring pilots need to go through several stages. After having finished a flying school (an Approved Training Organization, ATO), pilots receive a Commercial Pilot License (CPL) which equals a "frozen" Air Transport Pilot License (fATPL). The fATPL is followed by type rating training, a combination of theoretical training and training in simulators to fly a certain aircraft type, e.g. a Boeing B737, and base training, the training on an empty aircraft, accompanied by a Training Captain.

Subsequently, pilots gain practical experience during the so-called line training by flying as First or Second offers alongside a Line Training Captain. (Brannigan et al., 2019). Legislation requires pilots to have completed a minimum of 1,500 hours flying time to "unfreeze" the ATPL, 500 hours of which must be flown in multi-pilot operations (EASA, 2016). Many airlines, however, require young pilots who want to get employed as First Officers to have a minimum experience of 500 to 1000 flying hours in a multi-pilot environment[3]. This puts pilots in a dilemma situation or vicious circle where they cannot get employed by an airline because they lack the required minimum flying hours but cannot gain the hours because they are not flying for an airline.

[3] For examples, see job advertisements for First Officers, e.g. on career.aero: https://www.career.aero/site/en/job/list/category/10-first-officer, retrieved on August 8, 2019

A way out of this dilemma is for pilots to pay for flight hours to obtain the needed amount. Typically, these hours can be bought as packages of up to 500 hours or in combination with a type rating (Brannigan et al., 2019). One of the reasons for criticism results from the considerable amount of money pilots have to pay for their pilot training in flying schools and the line training hours paid for through a pay-to-fly scheme. According to the European Cockpit Association, the costs for initial flight training at flying schools varies between € 70.000 € and € 130.000 and for a pay-to-fly scheme between € 30.000 and € 50.000 (ECA, 2016). Some airlines have pilot cadet programs such as the European Flight Academy from the Lufthansa Group. However, only a small number of applicants get accepted to join the program (Turnbull and Harvey, 2016). The Lufthansa Group, for example, covers a part of the training costs and offers its cadets different financing methods, e.g. the training fee will be deducted from the pilot's future Lufthansa Group salary (European Flight Academy, 2019). Most pilots, however, pay for their training themselves and have no guarantee of employment afterward (Turnbull and Harvey, 2016).

The pay-to-fly-scheme further raises concerns about safety because it is believed to give pilots an incentive to fly even when there are not fit to fly, e.g. due to illness (ECA, 2015). Jorens et al. (2015) quote a pilot who expresses concern that the high debt pilots face at the beginning of their careers might distract them from flying with full concentration because they are worried about their financial situation (p.41). Another major criticism is that this practice resembles exploitation (ECA, 2015).

In the aviation industry, atypical employment can be defined as "every form of employment other than an open-ended employment contract" concluded with the airline directly (Jorens et al., 2015, p. XII). In a study with more than 6,500 pilots, Jorens et al. (2015) identified multiple forms of atypical employment and found that around 16% of the respondents in their study are atypically employed. The most common forms used are employment relations via an intermediary. Around 5% state that they work for a temporary work agency, 5 % are self-employed and have an agreement directly with the airline, and 5% work for the airline via a company (p. 101).

Similar results were found by Brannigan et al. (2019). 8% of the almost 6,000 pilots state to be employed by an intermediary company and around 9% to be self-employed, 88% of which are self-employed with an agreement with an intermediary and not directly the airline. There are no reliable numbers on the use of pay-to-fly schemes. According to

Brannigan et al. (2019), the lack of a generally accepted definition of the concept makes it difficult to gather information. They estimate, however, that 2.2% and 6.1% of the pilots responding to their study have participated in a pay-to-fly scheme.

In general, it is difficult to obtain a thorough overview of all employment types in aviation because an increasing number of employment relationships between pilots and airlines is unclear and lies in a grey area between direct employment and genuine self-employment (Jorens et al., 2015).

2.3 Job satisfaction

2.3.1 Concept of job satisfaction

Job satisfaction has received a lot of attention in the literature in recent decades and is an important aspect of research about organizational behavior. In their review of job satisfaction research of the past 100 years, Judge et al. (2017) show that the research interest in job satisfaction has been relatively consistent. Job satisfaction is one of the most researched topics in organizational psychology and plays an important role in the modeling of individual behavior and attitudes (Judge and Klinger, 2008). There are numerous definitions on what job satisfaction, or subjective "well-being at work" (Sousa-Poza and Sousa-Poza, 2000, p. 518) is. Researchers evaluate job satisfaction as either an affective or a cognitive concept. While advocates of the affective perspective commonly define job satisfaction as a subjective and emotional overall evaluation of the job (Thomson and Phua, 2002), proponents of the cognitive concept see job satisfaction as a rational evaluation of "conditions, opportunities, or outcomes of the job" (Moorman, 1993, p. 762).

One of the most commonly used definitions is by Spector (1997), who explains job satisfaction as "how people feel about their jobs and different aspects of their jobs" and as "the extent to which people like (satisfaction) or dislike (dissatisfaction) their job (p.2). Probably the best-known definition is by Locke (1976) who says that job satisfaction is a "pleasurable or positive emotional state resulting from an appraisal of one's job or job experiences (Locke, 1976, p. 1300, as cited in Weiss, 2002). A more recent definition by Weiss and Merlo (2015) describes job satisfaction as "a positive or negative evaluation one makes about one's job or job situation" (p.833). Job satisfaction is also often equated

with job attitude, which refers to a particular and specific source, in contrast to affective reactions (Judge et al. 2017). From that perspective, Weiss (2002) defines job satisfaction as ‘‘a positive (or negative) evaluative judgment one makes about one’s job or job situation” (p. 175).

There are numerous models of job satisfaction. One of the most prominent ones is Herzberg’s two-factor theory from 1959. Herzberg et al. (1959, as cited in Tietjen and Myers, 1998 and Smerek and Peterson, 2007) distinguished between two work dimensions: motivators and hygiene factors. While motivators are factors that lead to satisfaction and deal with the state of mind of a person, hygiene factors are characteristics that lead to dissatisfaction. Motivators include achievement, recognition, responsibility, advancement, growth, and the work itself. According to Herzberg, the absence of these factors does not lead to job dissatisfaction but not to satisfaction. The theory states that job satisfaction can only be increased by improving the motivators and not by eliminating the hygiene factors (Smerek and Peterson, 2007). The hygiene factors are salary, interpersonal relations with supervisors, subordinates, and peers, supervision, company policy and administration, working conditions, factors in personal life, status, and job security (Tietjen and Myers, 1998). Being predominant in research on job satisfaction in the 1960s, Herzberg’s theory is now regarded as obsolete and could not be empirically supported (Judge et al., 2017).

The two most recent theoretical approaches are the dispositional approach and the affective approach. The dispositional approach argues that job satisfaction is closely linked to the personality and predisposition of an individual towards satisfaction. Numerous studies have supported this view (Judge et al., 2017). The affective approach suggests that job satisfaction is an affective, i.e. emotional, response or reaction to one’s job “resulting from the incumbent’s comparison of actual outcomes with those that are desired” (Cranny et al., 1992, p.1, as cited in Weiss, 2002). This thesis will follow Spector’s (1997) definition of job satisfaction as “how people feel about their jobs and different aspects of their jobs” (p.2).

2.3.2 Importance of job satisfaction research

Economists have long viewed job satisfaction with skepticism, thinking that it is not a reliable variable to explain economic behavior. This perspective has later changed when research has first shown that job satisfaction is related to both employee turnover and economic behavior (Artz, 2008). In their work on the evolution of job satisfaction research, Judge et al. (2017) show that the concern about happiness has become as important and legitimate as the concern about efficiency. Judge and Klinger (2018) state that research on job satisfaction has "practical applications for the enhancement of individual lives as well as organizational effectiveness" (p.393). Clark (1996) reports a correlation between job satisfaction and labor market behavior such as absenteeism, employee turnover, or productivity. Also Spector (1997) lists reasons for the importance of job satisfaction research: people should be treated well and with respect, job satisfaction affects the organizational performance and can be a reflection of how well the organization functions. Moreover, job satisfaction is strongly related to subjective well-being and life satisfaction (Judge and Klinger, 2018) and influences the behavior of employees and organizations' productivity (Artz, 2008).

Surprisingly, research has found only a weak relationship between job satisfaction and employee performance. Satisfaction has the strongest relation to turnover intention, however only a weak relationship to actual turnover. A similar relationship has been found with *absence duration* and *absence frequency* (Weiss and Merlo, 2015). Job satisfaction has been found to be moderately correlated with Organizational Citizen Behavior (OCB), i.e. behavior that is not required by the job description but is useful for the organization, and Counterproductive Work Behavior (CWB), i.e. behavior that aims at harming the organization or coworkers (Weiss and Merlo, 2015; Spector 1997). Job satisfaction has furthermore been found to be related to physical health and psychological well-being (Spector, 1997). Research on this subject can reveal important information for managers. Although a relationship between job satisfaction and employee performance could not be verified, it has an impact on personal well-being, turnover intention, OCB and CWB.

2.3.3 Determinants of job satisfaction

It is widely accepted among researchers that global job satisfaction consists of multiple facets. A common distinction is being made between intrinsic factors such as coworkers, supervision, and the work itself and extrinsic factors of job satisfaction such as pay and promotion (Judge and Klinger, 2008). The most commonly used facets in job satisfaction instruments are appreciation, communication, coworkers, fringe benefits, job conditions, nature of the work itself, organization's policies and procedures, pay, personal growth, promotion opportunities, recognition, security, and supervision (Spector, 1997).

According to Clark (2001), the most important factors of job satisfaction are the satisfaction with pay and job security. Green and Tsitsianis (2005) support this and report a highly significant effect of job security on job satisfaction. Also the effect of promotion opportunities on job satisfaction has been empirically supported. Clark (1996) finds that workers with lower opportunities to get promoted also have lower levels of job satisfaction.

Job satisfaction also depends on personal characteristics: in a major analysis of job satisfaction in Britain with data from 5,000 employees, Clark (1996) has found relationships between job satisfaction and personal characteristics: women, older workers, and employees with lower levels of education are typically more satisfied with their jobs. Mitchell (1990) confirms this link between age and job satisfaction. The link between gender and job satisfaction is supported by numerous studies which found that women tend to report higher levels of job satisfaction than men (Clark, 1996; Sloane and Williams, 2000). However, Sloane and Williams (2000) found that the level of job satisfaction of women in male-dominated jobs declines and becomes similar to the level of men.

Empirical evidence on the relationship between pay and job satisfaction is mixed. Clark (1996) found that income has a strong and positive association with the satisfaction with salary but is only weakly correlated with overall job satisfaction. Groot and van den Brink (1999) explain that the missing effect of higher wages on job satisfaction might be related to a drift in preference, i.e. an adaption to higher wages. Sloane and Williams (2000), however, report positive significant effect of income on job satisfaction, for both women and men.

2.3.4 Measures of job satisfaction

There are numerous models and methods for the measurement of job satisfaction. Not all instruments, however, can be considered reliable and valid (Van Saane et al., 2003). The most common methods found in the literature are measures of *overall satisfaction*, e.g. the Job-in-General Faces Scale, and measures of *facet satisfaction*, e.g. the Job Descriptive Index or the Minnesota Satisfaction Questionnaire (Scarpello and Campbell, 1983). Overall job satisfaction and the sum of facet satisfaction are, however, not equivalent (Scarpello and Campbell, 1983). Spector (1997) differentiates between job satisfaction "as a global feeling about the job or as a related constellation of attitudes about various aspects or facets of the job" (p.2)

Commonly used facet measures are the Minnesota Satisfaction Questionnaire (MSQ), the Job Diagnostic Survey (JDS), and the Job in General Scale (JIG), all of which measure different job facets[4]. Spector (1985) examined and further developed existing scales and created the Job Satisfaction Survey (JSS). He identified the following nine aspects, or facets, of job satisfaction: pay, promotion, supervision, benefits, contingent rewards, operating procedures, coworkers, nature of work, and communication. Most instruments are based on the same previously mentioned determinants and use multiple items to assess the facets (Spector, 1997). Overall job satisfaction can be measured as a single-item or multiple-item question. A single-item question is commonly formulated as: *all things considered, how satisfied are you with your job?* Respondents are then typically asked to answer with the help of a Likert-Scale (Highhouse and Becker, 1993; Nagy, 2002). Multiple-item questions on overall satisfaction ask for the level of satisfaction respondents experience with different elements of their jobs (Oshagbemi, 1999).

There is no consensus on which instrument should be used to measure satisfaction. Both methods have advantages and disadvantages. While single-item measures are quicker and easier to use, they have been criticized for not being accurate, lacking validity and not being as reliable as multiple-items (Spector, 1997; Loo, 2001; Nagy, 2002). This conception has been challenged by researchers who justify and support the use of single-item measures (Scarpello and Campbell, 1983; Wanous et al., 1997; Oshagbemi, 1999; Nagy, 2002). Moreover, according to Wanous et al. (1997), the single-item is advised to use when space, time and costs are limited. Although single-item measures may reflect

[4] see Spector (1997) for a detailed examination of the different scales.

the overall satisfaction level of employees, they do not give a detailed insight into which areas employees may be satisfied or dissatisfied with (Oshagbemi, 1999). Oshagbemi (1999) suggests that both the single-item and multiple-item measures of job satisfaction should be combined in one study, if possible. While the former makes comparability to employees in different occupations easier, the latter is useful for comparing different aspects of the job.

Results of job satisfaction measurements have to always be treated with caution. Given the large number of different methods, many studies cannot be easily compared to each other. Moreover, previous studies have shown that employees in different countries have different levels of job satisfaction. Sousa-Poza and Sousa-Poza (2000) conducted a cross-national study on the levels and determinants of job satisfaction across 21 countries and have found that there are country-specific differences both in terms of satisfaction level and determinants of job satisfaction.

2.4 Previous research

Although job satisfaction is a widely researched topic, only a few researchers have analyzed the satisfaction of employees in aviation. While a few scholars have researched the job satisfaction of flight attendants and air traffic controllers (see Jou et al., 2013), the satisfaction of (airline) pilots is a clearly under-researched topic. This literature review will give – with no claim to completeness - a brief overview of the current state of research on job satisfaction in the aviation industry and research on the relationship between atypical employment forms and job satisfaction or well-being.

Job satisfaction in the aviation industry

Rast and Tourani (2012) and Yeh (2014) evaluated the job satisfaction of airline employees in general. Rast and Tourani (2012) found that airline employees have a moderate level of job satisfaction and did not find a difference between male and female employees. Yeh (2014) suggests that employee advocacy is positively related to the job satisfaction of flight attendants. Chen (2006) analyzed job satisfaction among flight attendants in Taiwan and found that job satisfaction, the underlying factors of which in this study are the satisfaction with the job itself, pay and promotion, and supervision, has a negative impact on turnover intention. In a later study, Chen and Kao (2011) confirm

previous results that job satisfaction has an impact on turnover intentions of flight attendants. Kim and Back (2012) researched the antecedents and consequences of job satisfaction among South Korean flight attendants and found a significant indirect effect of emotional dissonance on job satisfaction and a significant positive effect of job satisfaction on organizational commitment. Lee at al. (2012) identified four main factors of job satisfaction among flight attendants: the job itself, the job environment, organizational characteristics, and a social dimension. Ng et al. (2011) identify jetlag, emotional exhaustion, role overload, depersonalization, and personal accomplishment as antecedents of flight attendants' job satisfaction. Harvey and Turnbull (2006) compared the job satisfaction of flight crew between British Airways and their low-cost subsidiary Go as well as bmi and their low-cost subsidiary bmibaby and found that the bmibaby-crew was less satisfied with their jobs than the crew of their parent company bmi. They analyzed the satisfaction of various aspects of the job: salary, pension, leave entitlement, sickness benefits, access to flight manager, disciplinary procedures, status, job security, relationship (flight crew and management), management of human relations problems, management of industrial relations problems, and flight rosters.

Job satisfaction of pilots

One of the first studies on job satisfaction among pilots was conducted by Cooper and Sloan (1985) who analyzed the sources of stress among 442 British Airways pilots and found that a lack of career opportunities, poor organizational climate and morale, a lack of autonomy at work, and domestic stressors were causes of job dissatisfaction among pilots. Job satisfaction was measured with a summated job satisfaction score that considers intrinsic and extrinsic job satisfaction, satisfaction with the job itself, and a global satisfaction measure. In a study with 704 South African pilots on job satisfaction, Hoole and Vermeulen (2003) found that the level of job satisfaction significantly differs with respect to "pilot's flying duty, area(s) of operation, type(s) of licence and level of command" (p. 52).

In a comparative study of the differences in job satisfaction of pilots between airlines in six sample airlines in the UK, Harvey (2007) measured both overall job satisfaction and satisfaction with aspects of the work: salary, relationship with management, job security, flight rosters, and status. He found significant differences in the level of job satisfaction between airlines and found a strong link between the HRM style of the airline and the level of job satisfaction. In a study described by Harvey and Turnbull (2014), directly

employed pilots and pilots employed via an agency were asked to rate their satisfaction in terms of their type of employment, work-life-balance, and security. In all three categories, the respondents working through an agency reported lower levels of satisfaction.

Brannigan et al. (2019) have analyzed the satisfaction of cabin and cockpit crew with their working conditions and have found that both cabin crew and pilots who have a direct employment relationship with the airline appear more satisfied with their working conditions in comparison to those who are employed via an intermediary.

Relationship between atypical employment forms and job satisfaction

The literature on the relationship between atypical employment forms and job satisfaction is mainly inconsistent. While some researchers find an impact of different atypical employment contract types on job satisfaction others do not. However, this relationship has received attention only relatively recently and requires more research.

In their study on the relationship between individual well-being and atypical employment, Bardasi and Francesconi (2004) found that atypical employment relationships, in their study defined as temporary and part-time employment, did not have a long-lasting negative effect on the health of both male and female workers. Evidence by Bardasi and Francesconi (2004), however, suggest that job satisfaction is higher for part-time employees and lower for workers in a seasonal or casual contract. De Cuyper et al. (2008) found that previous research on the relationship between temporary employment and job satisfaction, organizational commitment, well-being, and behavior are inconsistent and inconclusive. According to Green and Heywood (2011), flexible contracts have only a weak or no influence at all on overall job satisfaction.

Millán et al. (2013) found that, compared to paid employees, self-employed individuals tend to be more satisfied with their jobs with regard to the work and less satisfied with regard to job security. According to Dawson et al. (2014) “individuals on temporary employment contracts, especially casuals, report lower well-being than their counterparts in permanent employment” (p.25). Van Aerden et al. (2016) found indications that wage workers in flexible and de-standardized employment relationships tend to have lower job satisfaction, general health, and mental health. Aleksynska (2018) found that a temporary

employment relationship has a direct and indirect negative impact on job satisfaction, compared to an open-ended contract.

Finally, Petilliot (2018) argues that differences in job satisfaction of agency workers, compared to works on a regular, permanent contract, cannot be explained by the contract type. However, agency workers on a permanent contract report significantly lower levels of job satisfaction than regular workers on a permanent contract. Petilliot (2018) did not find a difference in job satisfaction between agency workers on a fixed-term contract and regular workers in both fixed-term and permanent employment relationships. Similarly, Clark (1996) reports that temporary or contract work did not have a significant impact on job satisfaction.

2.5 Hypotheses

Following the research presented in the previously mentioned chapter, the following main hypotheses are stated:

$H_1$0: Overall job satisfaction of pilots in an atypical employment relationship does not differ from overall job satisfaction of pilots in a standard employment relationship.

H_1A: Overall job satisfaction of pilots in an atypical employment relationship differs from overall job satisfaction of pilots in a standard employment relationship.

Building on the results by Brannigan et al. (2019) that pilots with a direct employment seem to be more satisfied with their working conditions[5] than those who are employed via an intermediary, and building on Millán et al. (2013) who found that self-employed workers are less satisfied with regard to job security, the following second hypothesis is constructed:

$H_2$0: Pilots in a standard employment relationship are as satisfied across all job aspects as pilots in an atypical employment relationship.

[5] Directive 2008/104/EC: defines working conditions as "(i) the duration of working time, overtime, breaks, rest periods, night work, holidays and public holidays; (ii) pay" (European Parliament and the Council, 2008, Article 3, 1 (f)).

H_2A: Pilots in a standard employment relationship are more satisfied across all job aspects than pilots in an atypical employment relationship.

Based on the results by Brannigan et al. (2019) mentioned above as well as the actions taken by pilot unions to fight atypical employment, it can be assumed that most pilots who are in an atypical employment relationship did not choose this employment type by choice. This is leads to hypothesis three.

H_30: Pilots in an atypical employment relationship do not want to change their employment relationship.

H_3A: Pilots in an atypical employment relationship would like to change their employment relationship.

3. Empirical analysis

This chapter describes the results of the empirical analysis of the data collected for this thesis. The first subchapter deals with the research design and methodology and is followed by the limitations of the thesis. The second subchapter describes the data collected. To test the hypotheses, independent samples t-tests have been selected. Subchapter 3.5 Regression analysis aims to give additional insights to the determinants of job satisfaction among pilots with a regression analysis.

3.1 Methodology

The study is based on anonymous data collected with a pretested survey. It was created with SoSci Survey and was available to fill out online in one version for desktop and one for smartphones from May 1, 2019, until July 31, 2019. The link[6] and a short description have been distributed through various channels: personal contacts of the author, WhatsApp and Telegram groups of pilots and international pilot unions as well as their different social media channels. Moreover, the survey and description of the study have been posted on LinkedIn. In order not to reveal the whole subject of the study and to avoid

[6] https://www.soscisurvey.de/pilots/

biases as far as possible, the description only mentioned that the study dealt with job satisfaction of pilots. The text of the description can be read in annex 7.1 Survey

To also reach unemployed or retired pilots, pilots were asked to refer their answers to their last employment. In the first section of the survey, the pilots were asked whether they were airline pilots, about their airline, type of airline, activity, years of work experience as a pilot, annual gross salary, and rank. Some structures of questions were taken and some adapted from Jorens et al. (2015). The name of the airline was an optional question and is also not relevant to the study. However, this information was helpful to get an overview of the sample and assess whether the respondents were distributed over diverse airline backgrounds.

The second section asked questions on job satisfaction. First, the respondents were asked to rate their overall job satisfaction and then their satisfaction with different aspects of their job. To minimize the time expenditures of the participants and thus avoid a high termination rate of the survey, the study in this thesis uses a single-item measure to measure job satisfaction. The participants were asked to answer whether they agreed or disagreed with the statement "I experience job satisfaction with my present employer". Possible answers ranged from 1 - strongly disagree to 5 - strongly agree. As suggested by Oshagbemi (1999), both the single-item and multiple-item measures are combined in this thesis. Respondents were hence asked to rate how satisfied they are with different aspects of their work.

The aspects were chosen based on the facets identified by Spector (1997). However, to adapt the facets to the airline industry, some elements were changed, taking into consideration the research of Harvey (2007) and Jorens et al. (2015) who found that the three most common reasons for pilots to change their airline were: better terms and conditions, better general working conditions, and to get closer to their homes. The aspects of the job used in this thesis are thus *salary, relationship with management, job security, flight rosters, distance to base, promotion opportunities, benefits (e.g. discounts, standby tickets), communication within the airline, recognition for the work, and the working environment*. Distance to base refers to the way pilots need to commute from their homes to the airport they are based at. While many pilots live in the same city their base is located at, others commute to other cities or countries. Flight roster is the term used for the working schedule of aircrew.

The third section asked about the employment relationship the respondents have with the airline they currently work for (see appendix 7.1, question 10). To ensure comparability, the questions were taken and adapted from Jorens et al. (2015), the only study that has made an in-depth research on the employment relationships of pilots up to now, to the best of the author's knowledge. Due to the limited scope of this thesis, only the most common types of atypical employment relationships were considered. Using the definition of atypical employment by Jorens et al. (2015), respondents who answered that they have an open-ended employment contract directly with the airline were classified as employed in a standard employment relationship. All others were classified as atypically employed.

To assess whether the pilots were in their employment relationship by choice, they were asked if they would like to change the relationship. The last section was a collection of demographic data on the respondents' age, gender, and nationality. The final question was a text field with the option to add a comment. The whole survey can be read in appendix 7.1).

The link has received 1042 clicks in total. 552 participants have started to fill out the survey and 488 have finished it, resulting in a response rate of approximately 45 percent. After careful cleaning of cases that are not relevant to the study or that cannot be used for analysis, 475 valid surveys remain[7].

The hypotheses will be tested using this dataset and the appropriate statistical tests. In addition, regression analysis aims at identifying the determinants of job satisfaction among pilots. Comments made by some respondents in two sections are interpreted in the light of the results to gain further insights.

[7] 13 respondents have been excluded from the analysis: Some respondents were helicopter pilots. While certainly also interesting to research, they are not in the focus of this study. Some respondents stated that they were not pilots and did not provide any explanation in the comment section. Some respondents did not provide an answer to the question about their employment relationship because they stated to be retired or unemployed.

3.2 Limitations

The sample is not random and there is no guarantee that the respondents were actually pilots. Furthermore, many respondents have been contacted through pilot unions. It can be assumed that pilots who are in unions tend to be less satisfied with their working conditions.

Furthermore, not all types of atypical employment could be included in the survey and not all types have been covered in the thesis. There is, however, no publicly available and reliable information on the exact specifications of the agreements and relationships, which are also believed to be subject to rapid changes and revisions.

Although the sample size is large enough for the purposes of this study, the amount of female respondents (only 22 women responded) is too small to permit any statement with regard to gender. However, the percentage of female respondents within the sample is representative for the population (Brannigan et al., 2019).

Another problem encountered during the research for this thesis is the scarcity of availability of (objective) sources on atypical employment in aviation besides Jorens et al. (2015). Much information is distributed by pilot unions or passed by word of mouth among pilots and private forums on the internet as well as WhatsApp or Telegram groups.

3.3 Descriptive results

Type of airline

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Network airline	169	35.6	35.6	35.6
	Low-cost airline	184	38.7	38.7	74.3
	Charter airline	37	7.8	7.8	82.1
	Regional airline	25	5.3	5.3	87.4
	Cargo airline	29	6.1	6.1	93.5
	Business aviation	29	6.1	6.1	99.6
	Other	2	0.4	0.4	100.0
	Total	475	100.0	100.0	

Table 1: Frequency: Type of airline

Activity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	long-haul	102	21.5	21.5	21.5
	medium and short-haul	331	69.7	69.7	91.2
	mixed	42	8.8	8.8	100.0
	Total	475	100.0	100.0	

Table 2: Frequency: Activity

Work experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-1	20	4.2	4.2	4.2
	1-3	43	9.1	9.1	13.3
	3-5	42	8.8	8.8	22.1
	5-10	90	18.9	18.9	41.1
	more than 10	280	58.9	58.9	100.0
	Total	475	100.0	100.0	

Table 3: Frequency: Work experience

Salary

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<€ 40,000	21	4.4	4.4	4.4
	€ 40-69,999	112	23.6	23.6	28.0
	€ 70-99,999	94	19.8	19.8	47.8
	€ 100-149,999	148	31.2	31.2	78.9
	> € 150,000	81	17.1	17.1	96.0
	I prefer not to answer this question	19	4.0	4.0	100.0
	Total	475	100.0	100.0	

Table 4: Frequency: Salary

Rank

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	First Officer	159	33.5	33.5	33.5
	Senior First Officer	68	14.3	14.3	47.8
	Captain	189	39.8	39.8	87.6
	Training Captain (TRI/TRE)	57	12.0	12.0	99.6
	Other - please specify	2	0.4	0.4	100.0
	Total	475	100.0	100.0	

Table 5: Frequency: Rank

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	453	95.4	95.4	95.4
	Female	22	4.6	4.6	100.0
	Total	475	100.0	100.0	

Table 6: Frequency: Gender

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 20	1	0.2	0.2	0.2
	20-35	193	40.6	40.6	40.8
	36-45	133	28.0	28.0	68.8
	46-59	134	28.2	28.2	97.1
	> 60	14	2.9	2.9	100.0
	Total	475	100.0	100.0	

Table 7: Frequency: Age

Type of contract

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I have an employment contract with the airline directly	381	80.2	80.2	80.2
	I work for the airline via a temporary work agency with which I have an employment contract	45	9.5	9.5	89.7
	I work for the airline as a self-employed worker via a cooperation agreement concluded with the airline directly	24	5.1	5.1	94.7
	Other - please specify	25	5.3	5.3	100.0
	Total	475	100.0	100.0	

Table 8: Type of contract

Type of employment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Standard employment	369	77.7	77.7	77.7
	Atypical employment	106	22.3	22.3	100.0
	Total	475	100.0	100.0	

Table 9: Type of employment relationship

Out of the 381 respondents who stated that they have an employment contract directly with the airline, 369 indicated that they have a permanent employment contract.

According to the definition by Jorens et al. (2015) as cited in chapter 2.2.3, the number of respondents to this survey who have a standard employment relationship is 369 (77.7%) and 106 pilots (22.3%) are in an atypical employment relationship.

The percentage of pilots in an atypical employment relationship in this study is slightly higher (22.3% compared to 16.1%) than in the study by Jorens et al. (2015). There could be numerous reasons for this discrepancy: the sample size of their study is considerably larger than in this thesis. However, there is a difference of four years between the two surveys, which, in the fast-paced airline industry, is a long time.

The distribution of pilots across the type of airline also differs. 38.7% of respondents to this survey work for a low-cost airline, compared to 22% in the study by Jorens et al. (2019). Given their findings that most pilots who are atypically employed also work for a low-cost airline, the proportion of atypical and standard contracts might be distorted.

Overall job satisfaction

Among all respondents, the mean level of job satisfaction is 3.51 with a standard deviation of 1.113 (Figure 1).

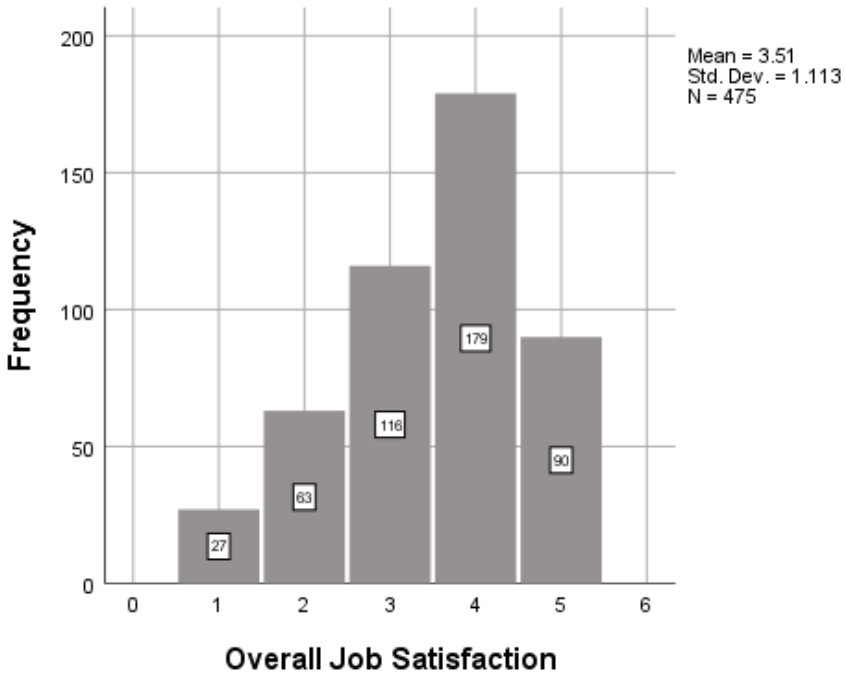

Figure 1: Frequency histogram of overall job satisfaction

The means of the satisfaction with the different aspects of the job as asked in the survey are shown in Table 10.

Job Satisfaction with different aspects

	N	Minimum	Maximum	Mean	Std. Deviation
Satisfaction: Salary	475	1	5	3.48	1.140
Satisfaction: Relationship with management	475	1	5	2.69	1.272
Satisfaction: Job security	475	1	5	3.50	1.230
Satisfaction: Flight rosters	475	1	5	3.25	1.197
Satisfaction: Distance to base	475	1	5	3.77	1.330
Satisfaction: Promotion opportunities	475	1	5	3.44	1.213
Satisfaction: Benefits (e.g. discounts, standby tickets)	475	1	5	2.70	1.290
Satisfaction: Communication within the airline	475	1	5	2.74	1.258
Satisfaction: Recognition for work	475	1	5	2.69	1.220
Satisfaction: Working environment	475	1	5	3.43	1.157
Valid N (listwise)	475				

Table 10: Mean of job satisfaction with aspects

3.4 Hypothesis testing

H_10: Overall job satisfaction of pilots in an atypical employment relationship does not differ from overall job satisfaction of pilots in a standard employment relationship.

H_1A: Overall job satisfaction of pilots in an atypical employment relationship differs from overall job satisfaction of pilots in a standard employment relationship.

The first hypothesis assumes that there is a difference in the levels of satisfaction between the two tested groups and that pilots in a standard employment relationship have a higher level of satisfaction than pilots in an atypical employment relationship.

Overall job satisfaction

Type of employment	Mean	N	Std. Deviation
Standard employment	3.53	369	1.118
Atypical employment	3.43	106	1.096
Total	3.51	475	1.113

Table 11: Mean and standard deviation of overall job satisfaction by employment type

The descriptive analysis (Table 12) shows a difference in means of overall job satisfaction by the type of employment. However, the independent samples t-test reveals that the difference is not significant (p = 0.428). Therefore, we cannot reject the null hypothesis that there is no difference in job satisfaction for pilots with standard and atypical employment.

H_20: Pilots in a standard employment relationship are as satisfied across all job aspects as pilots in an atypical employment relationship

H_2A: Pilots in a standard employment relationship are more satisfied across all job aspects than pilots in an atypical employment relationship

Satisfaction with job aspects

Type of employment		Satisfaction: Salary	Satisfaction: Job security	Satisfaction: Flight rosters	Satisfaction: Benefits
Standard employment	Mean	**3.46**	**3.67**	**3.30**	**2.75**
	N	369	369	369	369
	Std. Deviation	1.144	1.184	1.142	1.299
Atypical employment	Mean	**3.53**	**2.93**	**3.08**	**2.53**
	N	106	106	106	106
	Std. Deviation	1.131	1.221	1.364	1.251
Total	Mean	3.48	3.50	3.25	2.70
	N	475	475	475	475
	Std. Deviation	1.140	1.230	1.197	1.290

Table 12: Satisfaction with salary, job security, flight rosters & benefits by employment type

Table 13 suggests that pilots with standard employment are more satisfied in terms of job security, flight rosters, and benefits and that there is no difference in the satisfaction with their salary.

A t-test reveals (Table 15) that hypothesis *H_2A* needs to be partly rejected. In our sample, there is no significant difference between the levels of satisfaction with salary, flight rosters, and benefits. However, the t-test of job security by type of employment is significant ($p<0.001$). Thus, pilots in an atypical employment relationship are significantly less satisfied with job security. Figure 2 visualizes this difference.

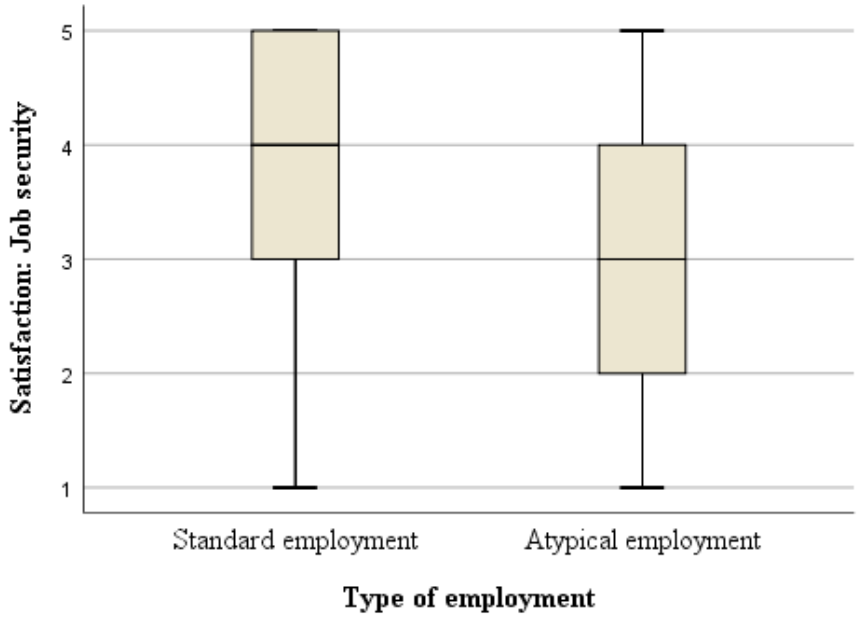

Figure 2: Boxplots: satisfaction with job security by type of employment

Table 14 suggests that pilots with standard employment are more satisfied in terms of distance to base, promotion opportunities, communication, and recognition for work and less satisfied with the relationship with management and the working environment.

Satisfaction with job aspects

Type of employment		Satisfaction: Relationship with management	Satisfaction: Distance to base	Satisfaction: Promotion opportunities	Satisfaction: Communication within the airline	Satisfaction: Recognition for work	Satisfaction: Working environment
Standard employment	Mean	**2.69**	**3.89**	**3.46**	**2.77**	**2.74**	**3.41**
	N	369	369	369	369	369	369
	Std. Deviation	1.283	1.248	1.200	1.258	1.250	1.151
Atypical employment	Mean	**2.71**	**3.34**	**3.36**	**2.66**	**2.53**	**3.52**
	N	106	106	106	106	106	106
	Std. Deviation	1.242	1.511	1.259	1.264	1.097	1.181
Total	Mean	2.69	3.77	3.44	2.74	2.69	3.43
	N	475	475	475	475	475	475
	Std. Deviation	1.272	1.330	1.213	1.258	1.220	1.157

Table 13: Satisfaction with relationship with management, distance to base, promotion opportunities, communication within the airline, recognition for work, and working environment by employment type

The result of the t-test, however, shows that only the difference in satisfaction with the distance to base is significant with $p < 0.001$ (Table 14). The difference of means is shown in figure 3.

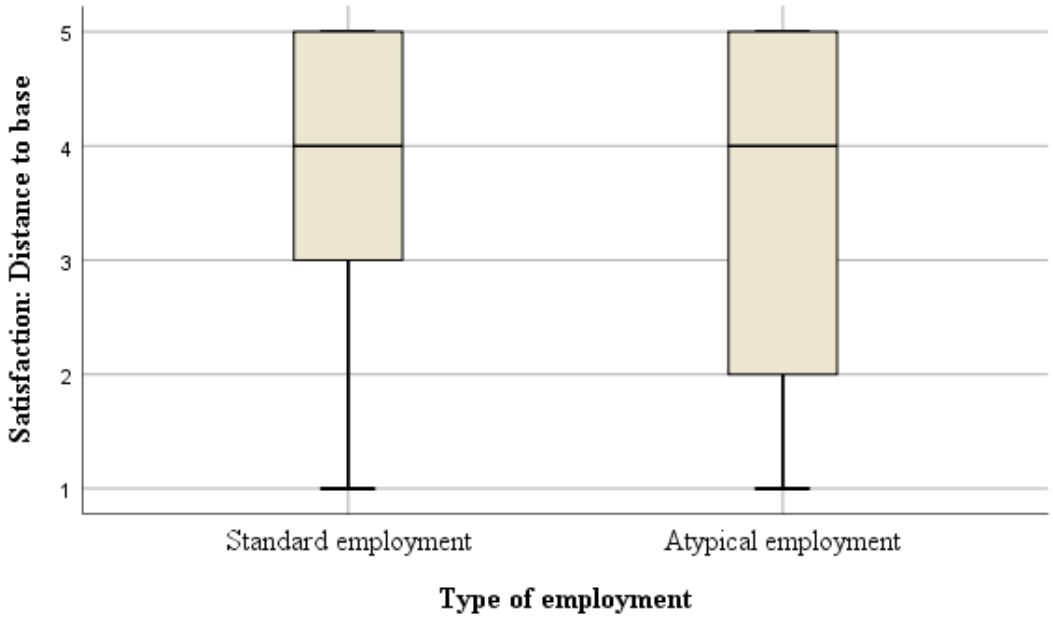

Figure 3: Boxplots: satisfaction with distance to base by type of employment

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Satisfaction: Job security	Equal variances assumed	0.063	**0.802**	5.576	473	**0.000**	0.733	0.131	0.474	0.991
	Equal variances not assumed			5.482	165.946	0.000	0.733	0.134	0.469	0.997
Satisfaction: Distance to base	Equal variances assumed	14.593	**0.000**	3.840	473	0.000	0.555	0.144	0.271	0.839
	Equal variances not assumed			3.456	148.526	**0.001**	0.555	0.161	0.238	0.872

Table 14: Independent Samples t-test: satisfaction with job security and satisfaction with distance to base by employment type

To summarize, the results show that, within this sample, the level of overall job satisfaction does not differ between pilots in a standard employment relationship and pilots in an atypical employment relationship. No significant difference can also be found with regard to the satisfaction with salary, relationship with management, flight rosters, promotion opportunities, benefits, communication within the airline, recognition for work, and the working environment. However, the levels of satisfaction with job security and distance to base differ significantly.

Although the t-tests do not find significant differences in the overall levels of job satisfaction between the two groups investigated in this thesis, the questionnaire did not consider the question whether the respondents were satisfied with their type of employment. A first tendency can be presumed by analyzing hypothesis 3.

H_30: Pilots in an atypical employment relationship do not want to change their employment relationship.

H_3A: Pilots in an atypical employment relationship would like to change their employment relationship.

The analysis shows that 63.2 % of the respondents in an atypical employment relationship would like to change the type of employment relationship with the airline they currently work for and 33.96 % do not. For pilots in a standard employment relationship, the majority of respondents (83.47 %) would like to remain in their current employment relationship while 15.72 % would like to change. A Chi-Square test reveals that there is a strong association between the type of employment and the willingness to change the employment relationship ($p<0.001$), in the sense that pilots with atypical employment want to change their employment relationship more often.

Type of employment * Change relationship Crosstabulation

		Change relationship			
		Yes	No	Other	Total
Standard employment	Count	58	308	3	369
	Expected Count	98.7	267.2	3.1	369.0
	% within Type of employment	15.7%	83.5%	0.8%	100.0%
Atypical employment	Count	69	36	1	106
	Expected Count	28.3	76.8	0.9	106.0
	% within Type of employment	65.1%	34.0%	0.9%	100.0%
Total	Count	127	344	4	475
	Expected Count	127.0	344.0	4.0	475.0
	% within Type of employment	26.7%	72.4%	0.8%	100.0%

Table 15: Cross table: type of employment by "change relationship"

3.5 Regression analysis

A regression analysis with all variables that are believed to have a potential influence on job satisfaction aims to give further insight into job satisfaction among pilots.

We start by including all potentially relevant variables in the regression as independent variables: type of employment, type of airline, activity, work experience, salary, rank, age, gender, and all the single aspects of satisfaction were included. Overall, the model predicts job satisfaction very well with an adjusted R-squared value of 0.645 The variables *type of employment, activity, salary, rank, satisfaction with distance to base, satisfaction with benefits, and satisfaction with communication within the airline* show high p-values (Table 19), and therefore appear to have no influence on the dependent variable *overall job satisfaction*. Given that the variable *satisfaction with distance to base* showed a significant result in terms of difference between satisfaction levels among the two tested groups but no significant effect on overall job satisfaction, a correlation matrix (Table 20) was created to check for multicollinearity. The matrix shows that all job satisfaction variables intercorrelate significantly.

In a next step, the regression model was therefore adapted with a reduction in variables to account for this problem. Variables with high p-values in the first model (*type of employment, activity, rank, satisfaction with distance to base, satisfaction with benefits, satisfaction with communication within the airline, and salary*) were removed. The improved model with less predictors (Tables 16-18) shows a higher adjusted R-squared

value of 0.648 and therefore improves the model. Overall, according to the R Squared, about 65% of the variance in overall job satisfaction can be explained by the independent variables.

It follows from the improved model that seven of the determinants of job satisfaction remain significant and positive even when controlling for other sociodemographic variables (which are not significant), as we would expect.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.810[a]	0.656	**0.648**	0.660

a. Predictors: (Constant), Rank, Satisfaction: Flight rosters, Gender, Satisfaction: Salary, Age, Satisfaction: Relationship with management, Satisfaction: Job security, Satisfaction: Promotion opportunities, Satisfaction: Working environment, Work experience, Satisfaction: Recognition for work

Table 16: Regression model summary

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	385.119	11	35.011	80.411	**0.000[b]**
	Residual	201.588	463	0.435		
	Total	586.707	474			

a. Dependent Variable: Overall Job Satisfaction

b. Predictors: (Constant), Rank, Satisfaction: Flight rosters, Gender, Satisfaction: Salary, Age, Satisfaction: Relationship with management, Satisfaction: Job security, Satisfaction: Promotion opportunities, Satisfaction: Working environment, Work experience, Satisfaction: Recognition for work

Table 17: Regression ANOVA

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	0.389	0.256		1.520	0.129
	Satisfaction: Flight rosters	0.089	0.031	0.095	2.846	**0.005**
	Satisfaction: Promotion opportunities	0.111	0.032	0.121	3.504	**0.001**
	Satisfaction: Salary	0.141	0.031	0.145	4.587	**0.000**
	Satisfaction: Relationship with management	0.179	0.037	0.205	4.839	**0.000**
	Satisfaction: Job security	0.102	0.029	0.113	3.510	**0.000**
	Satisfaction: Recognition for work	0.163	0.043	0.178	3.744	**0.000**
	Satisfaction: Working environment	0.240	0.038	0.249	6.337	**0.000**
	Age	-0.083	0.045	-0.067	-1.851	**0.065**
	Gender	-0.087	0.145	-0.017	-0.601	0.548
	Work experience	0.065	0.036	0.069	1.798	**0.073**
	Rank	-0.035	0.035	-0.034	-0.999	0.318

a. Dependent Variable: Overall Job Satisfaction

Table 18: Regression coefficients

4. Discussion of the results

Hypotheses

The testing of the first hypothesis revealed no significant difference in the level of overall job satisfaction between atypically employed respondents and those in a standard employment relationship. Therefore, the null hypothesis could not be rejected. With regard to satisfaction with different job aspects, H2 was only partly rejected because a significant difference could be found concerning the two aspects *satisfaction with job security and distance to base*.

These results are one more addition to the contradictory findings stated in chapter 2.4 and support the evidence by Green and Heywood (2001) who state that flexible contracts have a weak or no influence at all on job satisfaction. Also consistent with Petilliot (2018), the results do not show an impact of atypical employment on job satisfaction. The results are, however, aligned with the findings by Aleksynska (2018) who suggests that temporary employment has a direct and negative impact on the satisfaction with job security.

The results on the satisfaction with *distance to base* are highly interesting. Even though this variable was not found to have an impact on overall job satisfaction in the regression analysis, it is one of the two variables that showed a significant difference between the two groups when using t-tests, and therefore not controlling for any other variables. One explanation might be that distance to base significantly correlates with other variables. It negatively correlates with gender, and positively with salary, the satisfaction with job security, benefits, communication within the airline, recognition for work, work environment, relationship with management, and particularly with promotion opportunities and flight rosters - the partial impact of such a variable is therefore hard to measure.

A possible explanation could be that airlines that tend to employ pilots atypically independently change the bases of their crews or offer only a limited amount of bases to their staff to choose from. As reported by Jorens et al. (2015), 23% of respondents have changing bases they fly from and 23% do not live in the country their base is located in. The high correlation of distance to base with flight rosters might be explained by the ratio between work days and off days, that differs across airlines. While some airlines offer, e.g., a 5/4- roster with five work days and four days off, others plan less days off in

between the days the pilots fly or spread the statutory 7 days off throughout the rosters. Rosters with more days off in a row enable pilots to easily commute from their place of residence to their base. It is also possible that the distance pilots have to commute to their base is a fact that plays a role for the decision to accept the job but later does not influence the satisfaction.

The testing of hypothesis 3 showed that almost two thirds of respondents in an atypical employment relationship would like to change their relationship and that there is a strong link between the employment type and the willingness to change the relationship.

This result has to, however, be treated with caution. The comments (see appendix 7.4.2) made by pilots in response to the question reveal that the wording of the question might have been misleading. While 28 out of 49 comments refer to a change to direct, permanent, standardized, or local contracts, i.e. the employment or contractual relationship, most of the other comments refer to the relationship with the company with regard to, inter alia, respect, communication, and culture.

Determinants of job satisfaction among pilots

The participants of this study appear to be generally satisfied with their jobs. The regression model suggests a highly significant impact of the independent variables *satisfaction with flight rosters*, *promotion opportunities*, *satisfaction with salary*, *the relationship with management*, *job security*, *recognition for work*, *and working environment* on the dependent variable overall job satisfaction and can thus be regarded as determinants of job satisfaction among the pilots in this study. All factors have a positive and significant impact on overall job satisfaction.

Salary itself was found to have no impact on the overall job satisfaction. The satisfaction with it, however, does have a significant impact. These results support the findings described in chapter 2.3.3, in particular Clark (2001) who names the satisfaction with pay and job security as the most important factors of jobs satisfaction as well as previous research that did not find evidence for a relationship between higher salary and higher levels of job satisfaction as well as the importance of promotion opportunities as described by Clark (1996).

The findings are partly supported by the comments the respondents added to the comment section of the survey (appendix 7.4.1). The last question asked whether there was anything the respondent wanted to add. The 67 relevant responses provide further insight into the subjects that matter to the respondents. Most comments voice criticism of specific topics and mainly touch upon working conditions, flight rosters, fatigue, and flight time and duty limitations (FTL), the relationship with the management and the company culture, salary and training costs.

No relationship was found between overall job satisfaction and the type of employment, satisfaction with distance to base, satisfaction with benefits, satisfaction with communication within the airline. The insignificant relationship between overall job satisfaction and satisfaction with benefits and communication are inconsistent with previous research that identified these variables as facets of job satisfaction (e.g. Spector, 1997).

The results further do not show a significant impact of the variables *gender,* and *rank* on overall job satisfaction. A comparison of means did also not find a significant difference in the level of overall job satisfaction between female and male respondents. The insignificant relationship between gender and job satisfaction contrasts with previous studies that have found this kind of relationship and that women tend to be more satisfied than men (Clark, 1996; Sloane and Williams, 2000; Harvey, 2007). However, the results are in line with the findings by Sloane and Williams (2000) who state that women in male-dominated professions report similar job satisfaction to men. Unfortunately, due to the small number of women who participated in the study (4.6%, n=22), no robust statement can be made on this relationship.

The variable *age* shows a negative and weakly significant influence on overall job satisfaction with a p-value of 0.065 and a coefficient of -0.083. The result indicates that, e.g. every 12 years the respondents age, they will lose 1 point on the 1-5-scale of overall job satisfaction. This relationship is in contradiction with previous research that found evidence for a U-shaped or a linearly increasing relationship between satisfaction and age (Clark, 1996). The results also contradict the findings in the study by Harvey (2007). The overall satisfaction of the respondents to his survey increases with the age, whereas it linearly decreases in the results of this study. A possible explanation could be that older pilots have experienced the large changes the airline industry has gone through in the past decades that have led to deteriorating working conditions, as described in chapter 2 of

this thesis. The results of this study might also be less accurate given that the chosen age categories include a wide range of different ages. Interestingly, the variable work experience shows a weakly significant but positive influence on overall job satisfaction with a p-value of 0.073 and a coefficient of 0.065. The positive coefficient contrasts with the negative coefficient of the variable age. A possible explanation might be a difference in preferences.

5. Conclusion and suggestions for further research

Conclusion

This thesis aimed to identify the impact of atypical forms of employment on job satisfaction of airline pilots. The theoretical background first discussed HRM in aviation, the emergence of atypical employment in general and in aviation as well as atypical employment forms of pilots. Aviation is a very dynamic and fast-paced industry that is vulnerable to economic fluctuations.

Labor relations are strongly shaped by the internationalization and fare wars between airlines which have led to the necessity for major cost reductions, especially labor costs. The relationship between airlines and crew can be characterized as mutually dependent. Because of their highly specialized education, airlines cannot easily replace pilots in case of a strike or high turnover rate. However, pilots cannot quickly change employers as well. Therefore, employment relations are a balancing act for airlines between keeping the turnover rate low, avoid strikes, and staying competitive on the market.

In the second part, the concept of job satisfaction, theories and measures were examined. Previous research has shown that job satisfaction - the subjective perception of how content someone is with their jobs - is strongly related to turnover intentions, organizational citizen behavior, counterproductive work behavior, and health.

Based on a quantitative analysis of 475 responses to a survey sent out to pilots, it can be concluded that the employment type does not have an impact on their overall satisfaction. However, the employment type does influence the reported satisfaction with the distance to base as well as the satisfaction with job security. Pilots in an atypical employment relationship were found to have lower levels of satisfaction with regard to these aspects.

The main determinants of pilots' job satisfaction have been identified as the satisfaction with flight rosters, promotion opportunities, salary, relationship with management, job security, recognition for work, and the working environment. The results are supported by the comments made by the respondents in appendix 7.4 that provide further insight into what is relevant to the pilots. Culture, the relationship with management, working conditions, and working hours were especially highlighted by the commentators.

Even though the type of employment has not been found to influence overall job satisfaction, almost two thirds of the respondents who are atypically employed within this sample would like to change their employment relationship. A strong link between the employment type and willingness to change the relationship was found. To return to the remark in the beginning that little attention is being paid to pilots who choose to be atypically employed, it can be said that, even though some pilots certainly prefer to not have a direct and permanent employment relationship and work, e.g. freelance in the Middle East or Asia, the majority of atypically employed pilots appears to prefer a standard employment relationship.

Independent of its impact on job satisfaction, the importance of acceptable working conditions should not be neglected from both a human and economic perspective. The choice of research topic for this thesis has been met overly positive. Numerous respondents have thanked for the attention to this topic. The high response rate as well as the willingness of respondents to share the survey link with their networks show that the topic is both highly relevant and has clearly not received enough attention yet.

Suggestions for further research

Regardless of the employment type, job satisfaction among airline pilots is a topic that should be further researched to reduce tensions between airlines and crew. Judging by the comments from the respondents to the survey, further research should pay attention to the influence of company culture and fatigue/flight time limitations on the pilots' job satisfaction.

Furthermore, a longitudinal research throughout both changes in employment types and job satisfaction among pilots throughout changes to the industry, could be of great research interest.

Sousa-Poza and Sousa-Poza (2000) found that the determinants of job satisfaction and the level of overall satisfaction differ across countries. These findings have not been considered in the present study. However, national difference in job satisfaction among pilot would be a good addition to the literature.

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7. Appendix

7.1 Survey

Text posted on different platforms on the Internet:

Dear pilots,

I am a student at the University of Vienna, currently researching the job satisfaction of pilots in international aviation for my master thesis, a topic that has received too little attention in society and research so far.

To better understand current issues of your daily work, I would like to ask you to fill out the questionnaire below.

The time to fill this out will take no longer than 3-5 minutes. Every completed questionnaire will be a great help. The survey is entirely anonymous.

Please feel free to share the questionnaire with your international network of pilots.

https://www.soscisurvey.de/pilots/

Thank you very much in advance for your support!

Vera

Survey

Dear participants,

This survey was set up for research purposes within the framework of my Master thesis at the University of Vienna.

Your participation is completely anonymous.

It will take no longer than 4-5 minutes and it will be highly appreciated if you could share the link with other pilots you know.

Thank you very much in advance!

Vera

If you do not currently work as an airline pilot or you have been working as an airline pilot in the past, please refer to your last employment as a pilot.

1. Are you or have you been working as an airline pilot?

a. Yes
b. No

If no – please specify
[text field]

2. What airline do you work for? (optional)

If you do not want to answer this question, please proceed to question 3

[open question]

3. What kind of airline do you work for?

a. Network airline
b. Low-cost airline
c. Charter airline
d. Regional airline
e. Cargo airline
f. Business aviation
g. Other

If other – please specify (optional) [text field]

4. Your activity is

a. long-haul
b. medium and short-haul
c. mixed

5. How many years of work experience do you have as a pilot?

a. 0-1
b. 1-3
c. 3-5
d. 5-10
e. more than 10

6. What is your annual gross salary?

If your currency is not € please estimate your salary in euros.

a. <€40,000
b. €40-69,999
c. €70-99,999
d. €100-149,999
e. >150,000
f. I prefer not to answer this question

7. What is your current rank?

a. First Officer
b. Senior First Officer
c. Captain
d. Training Captain (TRI/TRE)
e. Other – please specify [text field]

8. "I experience job satisfaction with my present employer"

Please indicate how strongly you agree or disagree with the above mentioned statement by selecting a number from 1 (strongly disagree) to 5 (strongly agree).

1 strongly disagree
2 disagree
3 neither disagree nor agree
4 agree
5 strongly agree

9. Please indicate how strongly you agree or disagree with the aspects of your job mentioned below by selecting a number from 1 (very dissatisfied) to 5 (very satisfied).

	Very dissatisfied 1	Dissatisfied 2	Neither 3	Satisfied 4	Very Satisfied 5
Salary					
Relationship with management					
Job security					
Flight rosters					
Distance to base					
Promotion opportunities					
Benefits (e.g. discounts, standby tickets)					
Communication within the airline					
Recognition for my work					
Working environment					

10. What is your relationship with the airline you currently work for?

a. I have an employment contract with the airline directly

What kind of employment contract is this?

a. an open-ended employment contract
b. a fixed-term employment contract
c. a freelance contract / stand-by / on-call
d. a seasonal contract
e. other

b. I work for the airline via a temporary work agency with which I have an employment contract.

What kind of employment contract is this?

a. an open-ended employment contract
b. a fixed-term employment contract
c. a freelance contract / stand-by / on-call
d. a seasonal contract
e. other

c. I work for the airline as a self-employed worker via a cooperation agreement concluded with the airline directly

d. Other – please specify [text field]

Please specify the relationship with your employer

11. Would you like to change the type of employment relationship with the airline currently you work for?

a. Yes
b. No
c. Other

If yes or other – please specify (optional)
[text field]

12. What is your age?

a. <20
b. 20-35
c. 36-45
d. 46-59
e. >60

13. What is your gender?

a. Male
b. Female
c. Other / I don't want to say

14. What is our nationality?

[drop-down list of countries]

15. Is there anything you would like to add?

[text field]

Thank you very much for completing my questionnaire! You have helped me a lot!

Please share this questionnaire with your network :)

Your answers were transmitted, you may close the browser window or tab now.

7.2 Variables

*Overall job satisfaction: a*s described previously, job satisfaction refers to the extent to which people like their job (Spector, 1995). In this survey, it is measured by one single question. Respondents were ask to rate how strongly they agree or disagree with the statement “I experience job satisfaction with my current employer.

- 1 strongly disagree
- 2 disagree
- 3 neither disagree nor agree
- 4 agree
- 5 strongly agree

Satisfaction with aspects of job satisfaction was used as a dependent variable in the regression analysis and as independent variables in the t-test. The following job aspects are part of the study:

- Salary
- Relationship with management
- Job security
- Flight rosters
- Promotion opportunities
- Benefits
- Communication within the airline
- Recognition for work
- Working environment

All scaled 1-5 where 5 is the highest category

Type of employment: this variable distinguishes between two employment types: atypical employment and standard employment. The definition of atypical employment and answer options have been adapted from Jorens et al. (2015).

Standard employment refers to the combination of the answers:

- I have an employment contract with the airline directly + this is an open-ended employment contract.

Atypical employment refers to ”every form of employment other than an open-ended employment contract” (Jorens et al., 2015, p.XII)”

- Direct employment with the airline as a fixed-term employment contract, a freelance contract / stand-by / on-call contract, a seasonal contract, or other forms.
- Employment via a work agencies
- Self-employed workers

Type of airline: this variable distinguishes between the major types of airlines in the industry

- Network airline
- Low-cost airline
- Charter airline
- Regional airline
- Cargo airline
- Business aviation
- Other

Activity: assesses whether the respondents mainly fly on short-haul, long-haul or mixed routes.

Work experience: work experience of the respondents in years.

- 0-1
- 1-3
- 3-5
- 5-10
- more than 10

Salary: annual gross salary in euros.

- less than 40,000
- 40-69,999
- 70-99,999
- 100-149,999
- more than 150,000
- I prefer not to answer this question

Rank: the ranks the pilots currently have (in ascending order).

- First Officer
- Senior First Officer
- Captain
- Training Captain
- Other

*Age: a*ge range of the respondent at date of survey

- <20
- 20-35
- 36-45
- 46-59
- >60

Gender: gender of the respondent

- Male
- Female
- Other/I don’t want to say

7.3 Additional tables

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.811[a]	0.659	0.645	0.663

a. Predictors: (Constant), Type of employment, Gender, Satisfaction: Relationship with management, Rank, Type of airline, Satisfaction: Distance to base, Activity, Satisfaction: Salary, Satisfaction: Promotion opportunities, Satisfaction: Job security, Age, Satisfaction: Benefits (e.g. discounts, standby tickets), Satisfaction: Flight rosters, Salary, Satisfaction: Working environment, Work experience, Satisfaction: Communication within the airline, Satisfaction: Recognition for work

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	386.354	18	21.464	48.852	0.000[b]
	Residual	200.354	456	0.439		
	Total	586.707	474			

a. Dependent Variable: Overall Job Satisfaction

b. Predictors: (Constant), Type of employment, Gender, Satisfaction: Relationship with management, Rank, Type of airline, Satisfaction: Distance to base, Activity, Satisfaction: Salary, Satisfaction: Promotion opportunities, Satisfaction: Job security, Age, Satisfaction: Benefits (e.g. discounts, standby tickets), Satisfaction: Flight rosters, Salary, Satisfaction: Working environment, Work experience, Satisfaction: Communication within the airline, Satisfaction: Recognition for work

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.403	0.322		1.252	0.211
	Satisfaction: Salary	0.150	0.033	0.154	4.576	0.000
	Satisfaction: Relationship with management	0.193	0.043	0.220	4.467	0.000
	Satisfaction: Job security	0.103	0.030	0.113	3.388	0.001
	Satisfaction: Flight rosters	0.093	0.032	0.100	2.886	0.004
	Satisfaction: Distance to base	-0.010	0.026	-0.012	-0.403	0.687
	Satisfaction: Promotion opportunities	0.112	0.033	0.122	3.411	0.001
	Satisfaction: Benefits (e.g. discounts, standby tickets)	-0.023	0.030	-0.026	-0.747	0.455

Satisfaction: Communication within the airline	-0.012	0.045	-0.014	-0.280	0.779
Satisfaction: Recognition for work	0.175	0.047	0.192	3.728	0.000
Satisfaction: Working environment	0.241	0.039	0.251	6.250	0.000
Type of airline	-0.025	0.023	-0.033	-1.074	0.284
Activity	0.063	0.064	0.030	0.981	0.327
Work experience	0.077	0.040	0.081	1.945	0.052
Salary	-0.021	0.034	-0.024	-0.634	0.526
Rank	-0.037	0.039	-0.036	-0.962	0.337
Age	-0.077	0.046	-0.062	-1.674	0.095
Gender	-0.115	0.148	-0.022	-0.779	0.436
Type of employment	-0.018	0.080	-0.007	-0.230	0.818

a. Dependent Variable: Overall Job Satisfaction

Table 19: First regression model

Correlations

		WE	S	R	A	SJS	SFR	SDB	SPO	SB	SC	SRW	SWE	SS	SRM	G
WE	Pearson Corr.	1	0.574**	0.506**	0.636**	-0.050	-0.083	0.065	-0.206**	-0.063	-0.187**	-0.100*	-0.184**	0.041	-0.137**	-0.036
	Sig. (2-tailed)		0.000	0.000	0.000	0.277	0.072	0.158	0.000	0.167	0.000	0.030	0.000	0.373	0.003	0.430
S	Pearson Corr.	0.574**	1	0.505**	0.454**	0.119**	0.087	0.097*	0.058	0.053	-0.054	0.026	-0.073	0.250**	-0.001	-0.055
	Sig. (2-tailed)	0.000		0.000	0.000	0.009	0.057	0.034	0.207	0.253	0.241	0.579	0.110	0.000	0.975	0.232
E	Pear-son Corr.	0.506**	0.505**	1	0.407**	-0.095*	0.017	0.079	0.051	-0.180**	-0.158**	-0.080	-0.192**	0.032	-0.118**	-0.028
	Sig. (2-tailed)	0.000	0.000		0.000	0.038	0.719	0.086	0.270	0.000	0.001	0.080	0.000	0.493	0.010	0.550
A	Pear-son Corr.	0.636**	0.454**	0.407**	1	-0.014	-0.078	-0.019	-0.190**	0.000	-0.100*	-0.014	-0.139**	0.059	-0.065	-0.050
	Sig. (2-tailed)	0.000	0.000	0.000		0.759	0.091	0.686	0.000	0.994	0.030	0.766	0.002	0.199	0.159	0.279
SJS.	Pearson Corr.	-0.050	0.119**	-0.095*	-0.014	1	0.414**	0.218**	0.343**	0.243**	0.367**	0.397**	0.303**	0.298**	0.373**	-0.082
	Sig. (2-tailed)	0.277	0.009	0.038	0.759		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.074
SFR	Pearson Corr.	-0.083	0.087	0.017	-0.078	0.414**	1	0.321**	0.441**	0.215**	0.397**	0.440**	0.381**	0.369**	0.362**	-0.021
	Sig. (2-tailed)	0.072	0.057	0.719	0.091	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.641
SDB	Pearson Corr.	0.065	0.097*	0.079	-0.019	0.218**	0.321**	1	0.311**	0.172**	0.183**	0.184**	0.191**	0.242**	0.162**	-0.135**
	Sig. (2-tailed)	0.158	0.034	0.086	0.686	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003
SPO	Pearson Corr.	-0.206**	0.058	0.051	-0.190**	0.343**	0.441**	0.311**	1	0.279**	0.352**	0.438**	0.403**	0.329**	0.314**	-0.047
	Sig. (2-tailed)	0.000	0.207	0.270	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.311
SB	Pearson Corr.	-0.063	0.053	-0.180**	0.000	0.243**	0.215**	0.172**	0.279**	1	0.506**	0.514**	0.461**	0.370**	0.448**	-0.043

	Sig. (2-tailed)	0.167	0.253	0.000	0.994	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.355
SC.	Pearson Corr.	-0.187**	-0.054	-0.158**	-0.100*	0.367**	0.397**	0.183**	0.352**	0.506**	1	0.747**	0.601**	0.299**	0.784**	-0.043
	Sig. (2-tailed)	0.000	0.241	0.001	0.030	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.354
SR	Pearson Corr.	-0.100*	0.026	-0.080	-0.014	0.397**	0.440**	0.184**	0.438**	0.514**	0.747**	1	0.675**	0.412**	0.743**	-0.035
	Sig. (2-tailed)	0.030	0.579	0.080	0.766	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.449
SWE	Pearson Corr.	-0.184**	-0.073	-0.192**	-0.139**	0.303**	0.381**	0.191**	0.403**	0.461**	0.601**	0.675**	1	0.353**	0.603**	-0.039
	Sig. (2-tailed)	0.000	0.110	0.000	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.392
SS	Pearson Corr.	0.041	0.250**	0.032	0.059	0.298**	0.369**	0.242**	0.329**	0.370**	0.299**	0.412**	0.353**	1	0.346**	-0.066
	Sig. (2-tailed)	0.373	0.000	0.493	0.199	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.000	0.151
SRM	Pearson Corr.	-0.137**	-0.001	-0.118**	-0.065	0.373**	0.362**	0.162**	0.314**	0.448**	0.784**	0.743**	0.603**	0.346**	1	0.006
	Sig. (2-tailed)	0.003	0.975	0.010	0.159	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000		0.890
G	Pearson Corr.	-0.036	-0.055	-0.028	-0.050	-0.082	-0.021	-0.135**	-0.047	-0.043	-0.043	-0.035	-0.039	-0.066	0.006	1
	Sig. (2-tailed)	0.430	0.232	0.550	0.279	0.074	0.641	0.003	0.311	0.355	0.354	0.449	0.392	0.151	0.890	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

WE: Work experience
S: Salary
R: Rank
SJS: Satisfaction with job security
SFR: Satisfaction with flight rosters
SDB: Satisfaction with distance to base
SPO: Satisfaction with promotion opportunities
SB: Satisfaction with benefits
SC: Satisfaction with communication within the airline
SRW: Satisfaction with recognition for work
SWE: Satisfaction with work environment
SS: Satisfaction with salary
SRM: Satisfaction with relationship with management
G: Gender

Table 20: Correlations

7.4 Pilots' comments

7.4.1 Comments in response to question 15

The following comments made by respondents of the survey in question 15 of the survey (appendix 7.1) have been anonymized and airline names replaced by acronyms and numbers. LCC refers to low-cost airlines in general whereas LCC1, for example refers to a specific low-cost carrier mentioned by a respondent. NC refers to network carriers.

[1] "Aviation isn't anymore what it used to be years ago. Airlines like *LCC1* completely ruined the market. The pay 2 fly to start this career should be banished."

- CASE 167, First Officer at Charter Airline, self-employed worker via third party broker

[2] "They try to satisfy our requests as much as they can. Sometimes they don't and it seems like they don't care and other times someone has just planned things wrong."
"Aviation has changed.. let's just hope that the need of pilots will get our working conditions back to a higher standard that only a few airlines around the world nowadays can give."

- CASE 169, Senior First Officer at Charter Airline, self-employed worker via third party broker

[3]" The airline does not care about pilots. They only need a body with a pulse and a license to fill a cockpit seat."
"The airline industry and its employment relations follows the extreme outsourcing ambitions of the shipping industry. Terms & Conditions as well as the safety level suffers. But nobody will openly talk about [it] as EASA[8] is strongly influenced by airline lobbyists."

- CASE 174, Captain at LCC, employed through airline's majority owned resource company

[4] "Weakened terms of FTL[9] is one of the biggest threat to pilot health and industry"

- CASE 175, First Officer at LCC, permanently employed via work agency

[8] EASA = European Union Aviation Safety Agency
[9] FTL = Flight and Duty Time Limitations

[5] “The aviation industry sucks. Will leave as soon as I have got my own business up to a sufficient level”

- CASE 181, First Officer at LCC, employment via local resource company that is part of the group

[6] “I’m worried about the tendency to investigate towards minimizing/removing the human component from aviation”

- CASE 185, Training Captain at LCC, permanently employed via work agency

[7] “I would love to feel like a part of the solution, not part of the problem!”

- CASE 189, Captain at LCC, permanently employed via work agency

[8] “Unions are recognised and union membership is encouraged by airline and employer, good industrial relations”

- CASE 200, Captain at LCC, permanently employed via work agency

[9] “Current European standards for flight time limitations are in direct conflict with flight safety”

- CASE 201, Captain at LCC, permanently employed via work agency

[10] “Contracts and conditions should be the same for every country a pilot is a pilot”

- CASE 213, Captain at LCC, permanently employed via local subsidiary of the airline with a local contract.

[11] “FTL must change. Max hours should be less and days should be shorter”

- CASE 227, Captain at LCC, permanently and directly employed by airline

[12] “The flight time limitations are passed the limit of safe operations. Working 5 days in a row with potential 13 hours days are too much or 10,5 h with 6 flights”

- CASE 237, First Officer at LCC, permanently employed via work agency

[13] “The job is barely worth it with the amount of money you need to loan to get started.”

- CASE 239, First Officer at LCC, permanently and directly employed by airline

[14] “Aviation is 50% useless“

- CASE 262, Captain at Charter Airline, permanently and directly employed by airline

[15] “Very happy at *LCC1*. Good luck with your Thesis”

- CASE 296, First Officer at LCC, self-employed and direct cooperation with airline

[16] “I DO THE MOST WONDERFUL JOB IN THE WORLD. BUT THE WORKING ENVIROMENT AND DUTIES ARE DESTROYING ALL THE MAGIC...”

- CASE 349, Training Captain at LCC, permanently and directly employed by airline

[17] “I worked for *LCC1* before and I had many reasons to leave: lack of respect from the management at ALL levels, high pressure on crews (even higher for cabin crews to boost their sales on board), contract though agencies, no unions, « take it or leave » mentality, constant lies of the management to the media, to name a few.”

- CASE 363, Captain at LCC, permanently and directly employed by airline

[18] “The long term effect of training costs not being covered by the airlines. Massive loans lead to reduced income in first 5-10 years of employment“

- CASE 373, Training Captain at LCC, permanently and directly employed by airline

[19] I am very dissatisfied with *LCC1* because their contract design (bogus self-employment) resulted in a charge by the public prosecutor’s office for social security fraud. *LCC1*, however, does not care at all. They created the problem and we have to pay for it”

(own translation from German)

- CASE 380, Captain at LCC, self-employed and direct cooperation with airline

[20] “I love my job, I’m more than dissatisfied with my employer“

- CASE 387, Captain at LCC, permanently and directly employed by airline

[21] “Employment - as is common with US carriers, I am directly employed by the airline but labor terms are as negotiated by ALPA”

- CASE 403, First Officer at LCC, permanently and directly employed by airline

[22] “Management should realize how lucky they are to have their present pilot force and act accordingly to reduce turnover to a minimum”

- CASE 404, Training Captain at Cargo Airline, At will employment

[23] “The 2 most important points in regards to job satisfaction as a pilot are: duty roster (work/off-days) and salary. In this regard *NC1* offers the best duty plans with lowest salary within the *NC2* Group”

- CASE 423, First officer at Network Carrier, permanently and directly employed by airline

[24] “Reduction in benefits over time is what hurts quality of life”

- CASE 429, Training Captain at Network Carrier, permanently and directly employed by airline

[25] “It is a great profession with a lot of opportunity, but not all are as satisfied with work as I was/am”

- CASE 490, Captain at Cargo Airline, permanently and directly employed by airline

[26] “Please never become a pilot...”

- CASE 494, First Officer at Business Airline, permanently employed via work agency

[27] “Holiday arrangements are also very important”

- CASE 501, First Officer at Network Carrier, permanently and directly employed by airline

[28] “Contract terms are by choice, direct employment was also offered”

- CASE 512, Senior First Officer at LCC, permanently employed via work agency

[29] “I think we [work] way waaaay too much! I cannot keep working like this until I retire”

- CASE 521, First Officer at LCC, permanently employed via work agency

[30] “Happy with lower pay because of base in home city and satisfaction of working for local airline”

- CASE 522, First Officer at Cargo Airline, permanently and directly employed by airline

[31] “I hate *LCC1*”

- CASE 539, Captain at Cargo Airline, fixed-term employment via work agency

[32] “Part time options very important“

- CASE 544, Captain at LCC, permanently and directly employed by airline

[33] “A change of senior management would make this one of the best airlines to work for”

- CASE 545, Captain at LCC, permanently and directly employed by airline

[34] “Management bullying and intimidation is ruining this airline”

- CASE 551, Captain at LCC, permanently and directly employed by airline

[35] “Thank you for taking the time to study this “

- CASE 552, Senior First Officer at LCC, permanently and directly employed by airline

[36] “*LCC1* treat all pilots and cabin crew with no respect”

- CASE 566, Captain at LCC, permanently and directly employed by airline

[37] “*LCC1* and all other airlines and companies in the airline industry must respect workers' rights and not strive to make tickets cheaper by using atypical employment practices”

- CASE 572, First Officer at LCC, permanently and directly employed by airline

[38] “Wages are driven ever lower as is the experience levels in flight decks across the globe. There will be a breaking point. Sadly only the front line staff realise and accept this. From a degradation in skills to degradation in remuneration, while the ever growing big players line the pockets of the 1%’ers”

- CASE 573, Training Captain at LCC, permanently and directly employed by airline

[39] “Thank you for your attention to the pilot community”

- CASE 607, Senior First Officer at Network Carrier, permanently and directly employed by airline

[40] “History showed that rotten management can lead to torn shirt”

- CASE 621, Captain at Network Carrier, permanently and directly employed by airline

[41] “Neurosciences and coaching for pilots would be valuable and that doesn’t exist yet in our professional cursus”

- CASE 630, Captain at Network Carrier, permanently and directly employed by airline

[42] “This airline sucks....management at pilot level is just a mafia”

- CASE 636, Captain at Network Carrier, permanently and directly employed by airline

[43] “Thanks for your study. Please take note in your study about tiredness of airliner pilots”

- CASE 639, First Officer at Network Carrier, permanently and directly employed by airline

[44] “Look at technology whose purpose is hostile to pilots and to human bodies in general”

- CASE 646, Training Captain at Network Carrier, permanently and directly employed by airline

[45] “The CLA[10] negations with *LCC1* continue as we speak”

- CASE 671, Captain at LCC, permanently and directly employed by airline

[46] “I’m lucky to work for a legacy airline, hopping You’ll receive answers from low cost carrier employees”

- CASE 679, First Officer at Network Carrier, permanently and directly employed by airline

[47] “Some questions about fatigue would have been relevant”

- CASE 689, Training Captain at Network Carrier, permanently and directly employed by airline

[48] “Social relation management-pilot are not good at all”

- CASE 697, Captain at Network Carrier, permanently and directly employed by airline

[49] “I wouldn’t recommend this career choice to anyone”

- CASE 710, Captain at Cargo Airline, permanently and directly employed by airline

[50] “Fatigue and no proper rest”

- CASE 732, Captain at LCC, permanently and directly employed by airline

[51] “Fantastic subject. In my case more resources, equipment and especially respect would improve my satisfaction enormously. Salary is ok, but not in line with competition and needs to be adjusted”

- CASE 733, Captain at LCC, permanently and directly employed by airline

[10] CLA = Collective Labor Agreements

[52] “Fatigue is a problem today, but that is just general t&c brought to an extreme. My salary is below the national average, and I work 10 hrs more/week than what is normal in Norway without overtime. I’m also away from my family all the time with little opportunity to plan ahead. All this even though I work for a national/legacy carrier. I’m currently reeducating myself to change career”

- CASE 768, First Officer at Network Carrier, permanently and directly employed by airline

[53] “I regret that I started a pilot career”

- CASE 796, Senior First Officer at LCC, permanently and directly employed by airline

[54] “There is a trend for seasoned pilots to work reduced hours and accept a small pay cut as time off is becoming more precious. Last minute changes in rosters and not respecting working conditions also plays a part in job dissatisfaction.”

- CASE 865, Senior First Officer at Network Carrier, permanently and directly employed by airline

[55] “Very bad roster, no listening to crew needs, only 8 days off per month guaranteed by contract, even cheating by company when counting days for vacation (double counting as day off and vacation), usually very long turnarounds that makes long duty periods”

- CASE 867, Training Captain at Network Carrier, self-employed and direct cooperation with airline

[56] “On some of the bases agreements are poor like Vilnius and Tallinn because of no CLA”

- CASE 911, Training Captain at Regional Airline, permanently and directly employed by airline

[57] “The EU should regulate the aviation market also from the employment / taxation and social aspects affecting the crews working on aircraft. Currently there are plenty of legislative gray areas which are exploited by the companies at the detriment of the workers.”

- CASE 921, Training Captain at LCC, employed via resource company owned by the airline

[58] “Fix *LCC1* and the rest will follow...”

- CASE 941, Captain at LCC, permanently and directly employed by airline

[59] “Part-time would be a plus”

- CASE 952, Captain at Network Carrier, permanently and directly employed by airline

[60] “Scheduled Roster according FTL should be planned as a maximum, not on a regular basis, airlines should be penalised for doing so.”

- CASE 956, Captain at Network Carrier, permanently and directly employed by airline

[61] “Salary has not changed in 15 years ...”

- CASE 964, Captain at LCC, permanently and directly employed by airline

[62] “It is hard to envision staying in this profession until retirement. I am constantly exhausted from being on the road for 5-6 days at a time with 10-11 hour days and minimum rest in between. The time away from family is also not sustainable”

- CASE 1007, Captain at Regional Airline, permanently and directly employed by airline

[63] “*LCC1* low cost employment model must change to get in line with improved terms in all aspects. Respect, job recognition, Salary, promotion possibilities and just culture”

- CASE 1028, Captain at LCC, permanently and directly employed by airline

[64] “FTL are conceived for long haul, when limits are applied to short haul it becomes exhausting”

- CASE 1062, First Officer at Network Carrier, permanently and directly employed by airline

[65] “Bullying issues exist. also 12 hour working days with NO break due to abuse of weak EASA legislation”

- CASE 1085, First Officer at Network Carrier, permanently and directly employed by airline

[66] “Bureaucracy and statistics are killing airmanship”

- CASE 1098, First Officer at Network Carrier, permanently and directly employed by airline

[67] “I would like to see legal actions against the abusive, criminal behaviour of the airlines, especially the low costs. The ridiculous security background checks should be simplified as well to ease the burden on employees when changing employers. Direct contact between former and future employers should be prohibited, so that employees cannot be mistreated by former employers”

- CASE 1166, Captain at LCC, self-employed via a temporary work agency

7.4.2 Comments in response to question 14

These comments were made in response to question 14 of the survey "Would you like to change your employment relationship? If yes or other – please specify (optional)"

[1] "I'd like them to pay our taxes, care about our preferences, care about our status. We're pilots and not taxi drivers"

[2] "Taxes paid by them would be nice. A more stable roster would be awesome but it's almost impossible with an ACMI company"

[3] "Directly employed by the airline"

[4] "Permanent employment directly with the airline"

[5] "Would like stronger ties and communication with the AOC management."

[6] "Should be direct employment"

[7] "Directly employed by the AOC holder"

[8] "To directly with the AOC holder, not an agency.

[9] "Directly with airline"

[10] "Contract with the airline directly"

[11] "Directly employed by airline"

[12] "Have a common contract and CLA for all the pilots working for *LCC2*"

[13] "To be employed with the airline directly"

[14] "It would be great to have employment directly with the AOC holder"

[15] "directly employed by airline"

[16] "Resignation"

[17] "Direct contract with the airline"

[18] "work freelance in china"

[19] “Because I am feeling a bit unwell actually in that company“

[20] “Better salary better work life balance better station”

[21] “Higher salary and more than only 7 off days”

[21] “I want to have an unlimited contract with the airline directly”

[22] “Contract with the airline core company itself”

[23] “Direct employment”

[24] “Change for a local contract instead of an Irish contract”

[25] “I would like management to know more of what we do”

[26] “permanent direct contract”

[27] “Would like to be under contract with *the airline* directly”

[28] “Better regulate pilot status”

[29] “I would like to be employed directly by the airline”

[30] “Permanent contract”

[31] “Permanent contract”

[32] “More respectful”

[33] “I would like to change to a contract based on the national legislation of the country where my home base is located.”

[34] “I would like a management team that have an interest in staff satisfaction and wellbeing not just a focus on profit and cost”

[35] “Better HR and managers that listen and work with front line crew”

[36] “They should stop their bullshits”

[37] “Relationships of trust, compliance with agreements” (*own translation from French*)

[38] “Employer has been condemned 3 times including for discrimination and harassment against me.”

[39] “Proper CLA”

[40] “we are too anonymous”

[41] “Complete culture change from the top down. A management group that respects its employees.”

[42] “Permanent contract in a base close to home”

[43] “employed by the airline directly”

[44] “More opportunities”

[45] “directly employed”

[46] “more pilot manager in fly ops”

[47] “Look for better relationships”

[48] “Direct link with management for improvement”

[49] “I want a legal direct employment with proper cover. Social security, pension, health care, union etc.”

7.5 Abstract in English

Atypical employment is a new form of employment relationship that has emerged in the past decades in result of a call for more labor market flexibility, in aviation and in other industries. Using data collected with a survey, this paper investigates the impact of atypical forms of employment on job satisfaction of airline pilots. Results show that the levels of overall satisfaction of atypically employed pilots do not differ from those in a standard employment relationship within this sample. However, both the satisfaction with job security and distance to base show a significantly lower level for pilots in an atypical relationship. Further results indicate that the majority of atypically employed pilots would like to change their employment relationship. The determinants of pilot job satisfaction have been identified as satisfaction with flight rosters, promotion opportunities, satisfaction with salary, the relationship with management, job security, recognition for work, and working environment.

7.6 Abstract in German

Atypische Beschäftigung ist eine neue Form des Arbeitsverhältnisses, welches sich in den letzten Jahrzehnten entwickelt hat, um mehr Arbeitsmarktflexibilität zu gewähren, darunter auch in der Airline-Industrie. Auf Grundlage von Daten aus einem Fragebogen, untersucht diese Arbeit den Einfluss von atypischen Beschäftigungsformen auf die Arbeitszufriedenheit von Verkehrspiloten. Die Ergebnisse zeigen innerhalb dieser Stichprobe keinen Unterschied zwischen dem allgemeinen Zufriedenheitsgrad von atypisch beschäftigten Piloten und Piloten in Normalarbeitsverhältnissen auf. Bei der Zufriedenheit mit den Aspekten „Entfernung zum Heimatflughafen“ und „Dienstplan“ sind die Piloten im atypischen Verhältnis jedoch signifikant unzufriedener. Weitere Ergebnisse zeigen, dass die Mehrheit der Piloten im atypischen Verhältnis dieses gerne ändern würden. Faktoren, die in dieser Studie einen Einfluss auf die Arbeitszufriedenheit von Piloten haben, sind die jeweilige Zufriedenheit mit dem Dienstplan, Beförderungsmöglichkeiten, Gehalt, Verhältnis zum Management, Jobsicherheit, Anerkennung der Arbeit und Arbeitsumfeld.