



TECHNISCHE UNIVERSITÄT MÜNCHEN
TUM School of Management
Lehrstuhl für Unternehmensführung

**Challenges in Recruitment and Incentive Management –
Empirical Studies on the Effects of Informational Asymmetries,
Monetary and Non-Monetary Job Characteristics**

Sabrina Falk

Vollständiger Abdruck der von der Fakultät für Wirtschaftswissenschaften der
Technischen Universität München zur Erlangung des akademischen Grades eines
Doktors der Wirtschaftswissenschaften (Dr. rer. pol.)
genehmigten Dissertation.

Vorsitzende: Univ.-Prof. Dr. Isabell M. Welp

Prüfer der Dissertation: 1. Univ.-Prof. Dr. Alwine Mohnen
2. Priv.-Doz. Dr. Arndt Werner (Universität Siegen)

Die Dissertation wurde am 17.04.2014 bei der Technischen Universität München
eingereicht und durch die Fakultät für Wirtschaftswissenschaften am 15.06.2014
angenommen.

ACKNOWLEDGEMENTS

Several years ago, I read an article, where a doctoral student compared the ups and downs during writing her dissertation with the ups and downs of running a marathon. Now, as my finished dissertation lies in front of me, I can only agree with this comparison. For this reason, I would like to take this opportunity to thank those persons who supported me during the last years and helped me reach the finish line.

First of all, I want to thank my dissertation advisor Alwine Mohnen for her support, advice and guidance during the last years – in particular I appreciate the opportunities you offered me to realize my ideas and to continually learn something new and improve my work.

My thanks also go to my colleagues and all those people who helped me with inspiring discussions as well as useful comments and suggestions during this exiting and great time, in particular Sven Asmus, Nadine Bernklau, Dominik Doll, Laila El-Kady, René Gassen, Andrea Greilinger, Andrea Hammermann, Sarah Holly, Sebastian Ihrig, Axel Minten, Petra Nieken, Andreas Ostermaier, Renate Rast, Maximilian Rupprecht, Dominik Schall, Hanna Sittenthaler, Arne-Kristian Schulz, Nevena Toporova, Martina Wayand, Arndt Werner and the student assistants of the chairs in Aachen and Munich.

Deserving of particular thanks are also my parents, who always encouraged me to keep learning and developing further – without your support I would not be writing these lines! And not to forget by sister and my brother who reminded me not to lose my positive attitude and motivation.

Finally, my biggest thanks go to Daniel – with your support, motivation and patience you incredibly helped me on this journey. Thank you for always being there for me!

I TABLE OF CONTENTS

I	TABLE OF CONTENTS.....	I
II	LIST OF FIGURES	II
1	INTRODUCTION.....	1
	1.1 Recruitment and motivation of qualified employees as a core challenge of Human Resource Management	1
	1.2 Research questions and methodological approaches	4
2	THEORETICAL CONSIDERATIONS	8
	2.1 Asymmetric information and signaling theory	8
	2.2 The importance of job attributes in recruitment.....	13
	2.3 Monetary and non-monetary incentives and their impact on employee behavior.....	16
3	DIFFERENT DEGREES OF INFORMATIONAL ASYMMETRY ON JOB MARKETS AND ITS IMPACT ON COMPANIES' RECRUITING SUCCESS.....	23
4	WHY THE CAREER FAIR APPEARANCE OF COMPANIES MATTERS: AN EMPIRICAL ANALYSIS OF APPLICANT PERCEPTIONS	24
5	THE BIGGER THE BETTER? THE EFFICIENCY OF RECRUITING ACTIONS IN FINDING SKILLED WORKERS	25
6	THE IMPACT OF NON-PERFORMANCE RELATED SPECIAL PAYMENTS ON WORKERS' EFFORT PROVISION - AN EXPERIMENTAL ANALYSIS.....	26
7	CONCLUSION AND IMPLICATIONS FOR PRACTICE	27
8	REFERENCES.....	32

II LIST OF FIGURES

Figure 1.1: Development of the working population by age groups	2
Figure 2.1: Signaling Equilibrium	10

1 Introduction

1.1 Recruitment and motivation of qualified employees as a core challenge of Human Resource Management

“Better talent is worth fighting for.”

(Chambers, Foulon, Handfield-Jones, Hankin, & Michaels, 1998, p. 45)

The development of labor markets is a central issue in current politics, practice and research. Demographic changes and a greater demand for highly educated employees will present major challenges for human resource management in the future, by hampering the recruitment of skilled labor (Heidemann, 2012). In this context, Chambers et al. (1998) have coined the term “war for talents”, which has been continually used ever since. On the basis of a survey including 400 board members and 6000 executives, Chambers et al. (1998) came to the conclusion that it is becoming increasingly difficult for companies to attract and retain qualified employees. In the past, numerous studies and reports have assessed the impending shortage of skilled workers and the underlying reasons for this, thereby identifying several causes for these predicted shortcomings.

Firstly, demographic forces, as an ageing population and declining birthrates, are creating a change in the age distribution, resulting in a smaller labor supply (Caballero & Walker, 2010; Foster Thompson & Aspinwall, 2009; Heidemann, 2012). Secondly, globalization and a higher job mobility of workers lead to more intense competition for skilled workers. Companies no longer compete solely on the regional or national level, but also with others worldwide (Caballero & Walker, 2010; Chambers et al., 1998). And thirdly, technological developments affect the requirement profiles of jobs. As tasks become ever more sophisticated, companies are requesting more highly qualified employees with a higher cognitive ability (Beechler & Woodward, 2009; Caballero & Walker, 2010; Heidemann, 2012). Therefore, it can be expected that in particular the demand for specialists and workers with academic degrees will continue to increase.

Although in Germany it can be assumed there is currently no general shortage of skilled labor, there is already a shortcoming of skilled workers in certain industry sectors and occupations, e.g. engineering and healthcare professions (Heidemann, 2012). In view of the demographic developments within previous years, it can be expected that this situation will be further aggravated (Heidemann, 2012). As can be seen in Figure 1.1, the working proportion of people in older age groups has increased during the past years. From 2000 to 2010, the share of people working in the age group '45 to 55 years' increased by nearly 29%, and those '55 to 65 years' by 34%. However, the working population in those groups less than 45 years old has decreased.

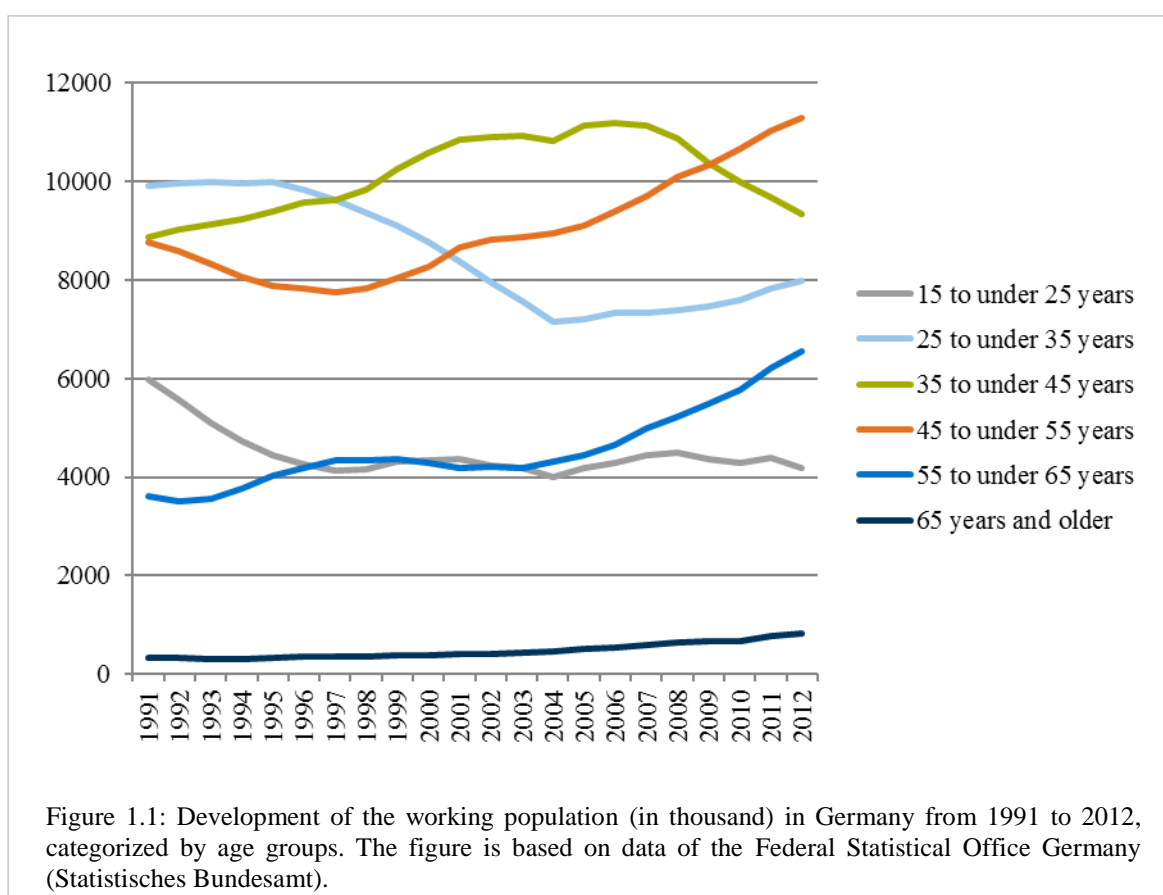


Figure 1.1: Development of the working population by age groups

This development is aggravated by the increased demand for higher qualifications from employees. As expected by the European Center for the Development of Vocational Training (Cedefop), the proportion of jobs with high-level profiles will increase from 29% in 2010 to 35% in 2020, while the demand for low-qualified jobs will be reduced from

20% to 15% (European Centre for the Development of Vocational Training (Cedefop), 2010). As a consequence, companies must make greater efforts to attract and retain applicants to remain competitive (Bangerter, Roulin, & König, 2012; Burke & Ng, 2006; Foster Thompson & Aspinwall, 2009; Uggerslev, Fassina, & Kraichy, 2012), with a special focus being placed on the recruitment of university graduates (Caballero & Walker, 2010).

Thereby, firms should be finding applicants whose profiles match the company best, as this can enhance recruitment success, worker motivation and retention. A considerable amount of literature has investigated perceptions of jobs, organizations and individuals; with the result that *fit* is an important element in recruitment (for an overview see Beechler & Woodward (2009)). Moreover, applicants' decisions to apply for specific jobs can be affected by a large number of factors, including organizational characteristics, such as firm size or industry sector, and job characteristics, such as compensation, work atmosphere or career opportunities (Grund, 2009; Hiltrop, 1999; Lievens, Decaseterker, & Coetsier, 2001; Powell, 1984).

A difficult aspect of applicants' decision making is the existing informational asymmetry. Many characteristics, which are important for applicants' job choice, are not directly observable by them. For example, Sutherland (2012) examined the job preferences of workers in the UK and identified "work you like doing", "secure job" and "friendly people to work with" as important characteristics. Nonetheless, most of these aspects cannot be reliably assessed before the job role begins which creates uncertainty and hampers the decision making of applicants. On the basis of the Socio-Economic Panel, Grund (2009) analyzed the importance of job characteristics for German employees. He obtained similar results as Sutherland (2012), and concluded that, besides compensation, most of the essential aspects for a job belong to the area of non-monetary and non-material job characteristics like type of work, work time regulation, career opportunities and job security (Grund, 2009).

Moreover, monetary and non-monetary job characteristics will not only affect job choice decisions of applicants, but may also enhance workers' motivation and performance, by creating incentives for workers. A considerable amount of literature has been published on this topic, emphasizing the impact of monetary (e.g. Lazear, 2000; Prendergast, 1999), as well as non-monetary (e.g. Kosfeld & Neckermann, 2011) incentives. The results of these

studies indicate that numerous incentives do have an impact on workers' behavior. For example, Lazear (2000) analyzed the effects of a change from fixed wages to a pay-for-performance plan, and identified a 44% increase in workers' performance. Thereby, half of the increase can be attributed to an incentive effect for workers to exert higher effort levels. The other half of the performance increase was due to a different composition of the workforce. Workers of higher ability and productivity were attracted to performance pay, more so than low ability workers, leading to a sorting effect. But also non-monetary incentives can increase workers' performance – sometimes even more than a monetary payment at the same level (Jeffrey, 2009). The prospect of receiving awards can motivate employees to increase performance, by gaining a higher status and social recognition in the workplace (Kosfeld & Neckermann, 2011).

Overall, it seems both the design of an effective recruitment strategy and the creation of attractive incentive schemes are essential for companies in maintaining their competitiveness. The selection and design of recruiting actions is important to attract highly qualified applicants. Though, to motivate these employees and retain them in the further course of employment, the provision of appropriate incentives is a major factor. However, to implement these strategic objectives, a key issue to be determined is which aspects of the job and organization are important to workers, and to analyze how workers are affected by different incentive schemes.

1.2 Research questions and methodological approaches

In view of the challenges that companies have to face, this thesis examines possible strategies for the recruitment of skilled workers, as well as for obtaining an increased performance and motivation of workers in employment.

Thereby, one focus of this work will be to analyze the impact of applicants' perceptions of job and company characteristics on applicants' intentions to apply for a job. From this, recommendations will be made for human resource management practice. Therefore, the first part of this thesis concentrates on the question:

- (I) *How do applicants' perceptions of job and company characteristics influence their intentions to apply for a job?*

Chapters 3, 4 and 5 all refer to this topic; however there are differences with regard to the specific problems and the methodological approaches used. Chapter 3 uses data from a large survey among German companies, conducted by Creditreform e.V., to examine whether the existence of job and organizational characteristics in a company has an impact on recruiting success. The special aspect of our approach lies on the fact that my co-authors and I take into account which recruiting channel is used by companies, thereby differentiating between recruiting channels with low (internal job markets and employee referrals) and high (job advertisements, the Federal Employment Agency and headhunters) degrees of informational asymmetry. As outlined in the previous section, often those aspects that are important for job choice are not directly observable by applicants. By using recruiting channels with low informational asymmetry, companies provide applicants with the possibility to acquire more information about these factors and decrease uncertainty in decision-making. This again can have a positive influence on the recruiting success.

In Chapters 4 and 5, I analyze self-collected data from two large career fairs in Germany. On the one hand, I use data from a survey I conducted among the participants of the career fairs. By means of a questionnaire, I asked for a large number of job preferences, as well as for an evaluation of companies that were present at the career fair. On the other hand, I gathered data on characteristics from companies that were present at the career fairs. To identify those aspects that affect applicant perceptions, I matched both data sets to control for factors like firm size, reputation or industry sector in the analysis of applicant perceptions. Chapter 4 thus focuses on applicants' use of observable characteristics as a signal for unobservable company characteristics such as work atmosphere or job security.

As an extension to Chapter 4, Chapter 5 analyzes the impact of a variety of recruitment actions on applicant attraction, e.g. the effects of fair stand size, events at the fair stand or a highlighted career fair appearance¹. To examine these aspects, this chapter uses data of the survey that was conducted on one of the career fairs already discussed in Chapter 4. However, I supplemented the data set with detailed information about the sizes of companies' fair stands as well as with financial ratios from companies' balance sheets, in order to account for a company's economic situation in the analyses as well. This

¹ On the career fair that is studied in this chapter, companies had the possibility to decide for a highlighted career fair appearance, where companies paid additional money to be highlighted in the lead-up (e.g. better positioning of company information in the career fair booklets) and at the fair itself (instead of a combination of letters and numbers, the company name or corporate logo was printed directly in the fair hall plan).

additional data enables me to assess, for instance, which kind of companies choose to invest in large, but costly, fair stands. I include a measure for a company's quality to examine whether the fair stand size can be regarded as an indicator for quality, or if it is affected by other factors, such as company size or industry sector. As a measure for quality, I use a number of financial ratios of company's balance sheets, which were selected on basis of a factor analysis. Furthermore, I analyze the impact of costly recruiting actions on applicant attraction, so whether bigger, more expensive fair stands have positive effects on applicants. Thereby, I can also compare the effects of such costly recruiting actions with the impact of less costly recruiting measures, such as friendly organizational representatives.

Though, besides attracting qualified applicants, it is also essential to motivate workers (Bangerter et al., 2012; Uggerslev et al., 2012) in the course of the employment. One way to do this is by giving monetary incentives to workers, such as one-time special payments, which are used by a large number of German companies. Therefore, the second focus of this thesis is on the question:

(II) How do monetary incentives, such as one-time special payments, influence workers' motivation and performance?

The impact of monetary incentives, such as higher wage levels or bonus payments, has been examined by a large number of studies (e.g. Fehr & Falk, 2002; Gneezy & Rustichini, 2000), with valuable implications for the design of incentive schemes in practice. However, one measure that has not been previously considered, but is often used by German companies in practice, are one-time special payments. In the past, companies such as Siemens, VW, Porsche, BMW and Lufthansa have decided to pay out one-time special payments to their employees to let them participate from a good company performance in the past financial year. The distinguishing characteristics of such payments are (1) that it is not known in advance whether the company gives out a special payment to its employees, and (2) every employee in the company receives the same amount of money, irrespective of hierarchy level, individual performance or seniority. Given the fact that companies spent large amounts of money on such payments, it is essential to assess whether these can increase workers' performance. Therefore, Chapter 6 mainly focuses on this issue, so as to provide evidence on this question.

I will use an experimental approach for this, as in practice it is often not possible to investigate whether a causal link between special payments and workers' performance exists, since there are numerous other factors that could affect behavior. Behavior and effort decisions might be endogenously affected by factors of the work environment or the individual, e.g. interpersonal relationships. However, under controlled conditions in a laboratory experiment, it is feasible to examine the effect of special payments when all other factors are held constant. For example, participants are randomly assigned to treatment groups and the experimenter can control and ensure environmental conditions, such as the ringing of a telephone or a disturbance by colleagues. This allows us to identify *ceteris paribus* changes and derive conclusions about the relationship between variables (Falk & Fehr, 2003).

Thus, the objective of Chapter 6 is to determine whether special payments have a positive influence on performance. Moreover, I examine whether results change when workers have the possibility to assess their performance in relation to co-workers, as is often the case for occupations in practice. Since previous studies have shown that perceptions of fairness, as well as peer effects, may have an impact on workers' behavior (e.g. Abeler, Altmann, Kube, & Wibral, 2010; Akerlof & Yellen, 1990; Card, Mas, Moretti, & Saez, 2012; Falk & Ichino, 2006; Gächter & Thöni, 2010), this issue should be taken into account when analyzing the effects of special payments on workers' performance.

2 Theoretical Considerations

2.1 Asymmetric information and signaling theory

In economics and other fields, many markets are characterized by asymmetries of information. For instance, sellers of used cars often have more information about the true quality of the car than potential buyers (Akerlof, 1970), or consumers about the quality of products (Nelson, 1970). Moreover, in job markets applicants normally have more information about their abilities and can better assess their qualifications and talents than potential employers (Spence, 2002). Such set-ups, where one contracting party has more information than the other, are referred to as situations with asymmetric information.

However, such informational gaps create uncertainty in decision-making and influence the utility of the contracting parties. In many cases, one difficulty is that direct communication of information is not possible, which is why one party may try to convey information about the quality of a certain aspect by other means (Kreps & Sobel, 1994). Sellers of used cars of high quality may, for example, offer a guarantee to buyers. This demonstrates the quality of the car and differentiates them from sellers with cars in a precarious condition (Akerlof, 1970). Furthermore, job applicants can signal their talent by obtaining certain qualifications or degrees to distinguish themselves from applicants of lower ability (Spence, 2002).

The importance of signaling in markets with asymmetries of information has been investigated by a large number of researchers. In this context, the work of Michael Spence (1973) is fundamentally important. Spence analyzed signaling games in the labor market context. Here, informational asymmetries on the side of employers exist, as they only have limited information about the true ability of applicants before hiring (Spence, 1973). Thereby, applicants of high ability can use signaling, to differentiate themselves from applicants of lower ability, and receive a higher wage, which corresponds to their ability. Applicants are characterized by a number of attributes than can be observed by employers. These observable characteristics that are relevant for signaling purposes are those which are alterable for the applicant and called signals. For instance, a signal for ability could be an apprenticeship, further training or a university degree. By contrast, characteristics like gender, which cannot be manipulated by applicants, are referred to as indices. Therefore,

individuals can use alterable attributes as signals to decrease informational asymmetries and any decision uncertainty from employers (Spence, 1973).

Nevertheless, signals are associated with costs, which have to be negatively correlated with the productivity of an individual for signaling to be effective. This means the signal is less costly for a high ability individual than for those with a low ability (Spence, 1973). Otherwise, everyone would invest in the signal, resulting in differentiation getting lost. In his model, Spence (1973) differentiates between two types of applicants, where Type 1 has a productivity of 1 and Type 2 a higher productivity of 2 . The population consists of a proportion (q_1) of individuals of Type 1 and a proportion ($1-q_1$) of individuals of Type 2. Individuals have the possibility to invest in a costly signal to be identified as an applicant of type 2 and receive a higher wage offer by the employer. Investing in the signal is associated with the costs of y for individuals of Type 1 (lower ability), and lower costs for Type 2 individuals (higher ability), in Spence's model $y/2$. Spence (1973) uses education as an example for a signal, where y^* is the employers' belief about the level of education. When he observes an individual with $y < y^*$, he classifies the individual as an applicant of Type 1, while he regards the individuals as Type 2 when he notices $y \geq y^*$. Only after observing the level of education, the employer will propose certain wage offers to applicants. However, it is important to note that education in Spence's model does not increase the productivity of workers or profits of the firm.

In a separating equilibrium, individuals choose either a signal of $y = 0$ or a signal of $y = y^*$, whereby each type will choose a different level of education/signal. Individuals with $y < y^*$ will choose $y = 0$, since costs, but no additional benefits, are associated with investing in the signal (as long as y lies below y^*). In this case, it is optimal not to invest in the signal at all. The situation is different for individuals with $y \geq y^*$. As soon as $y \geq y^*$, the employer sorts those individuals into the group of applicants with high productivity. Thus, further investing in the signal after the point of y^* would only result in higher costs but no additional benefits. Hence, individuals will either choose a signaling intensity of $y = 0$ or $y = y^*$ (see Figure 2.1).

For individual utility maximization, each individual will try to maximize the difference between attainable wages and costs associated with signaling. They will base their decision, to signal or not, on the outcome of this calculation. Individuals of lower ability will choose $y = 0$ when their productivity, without investing in the signal, is larger than

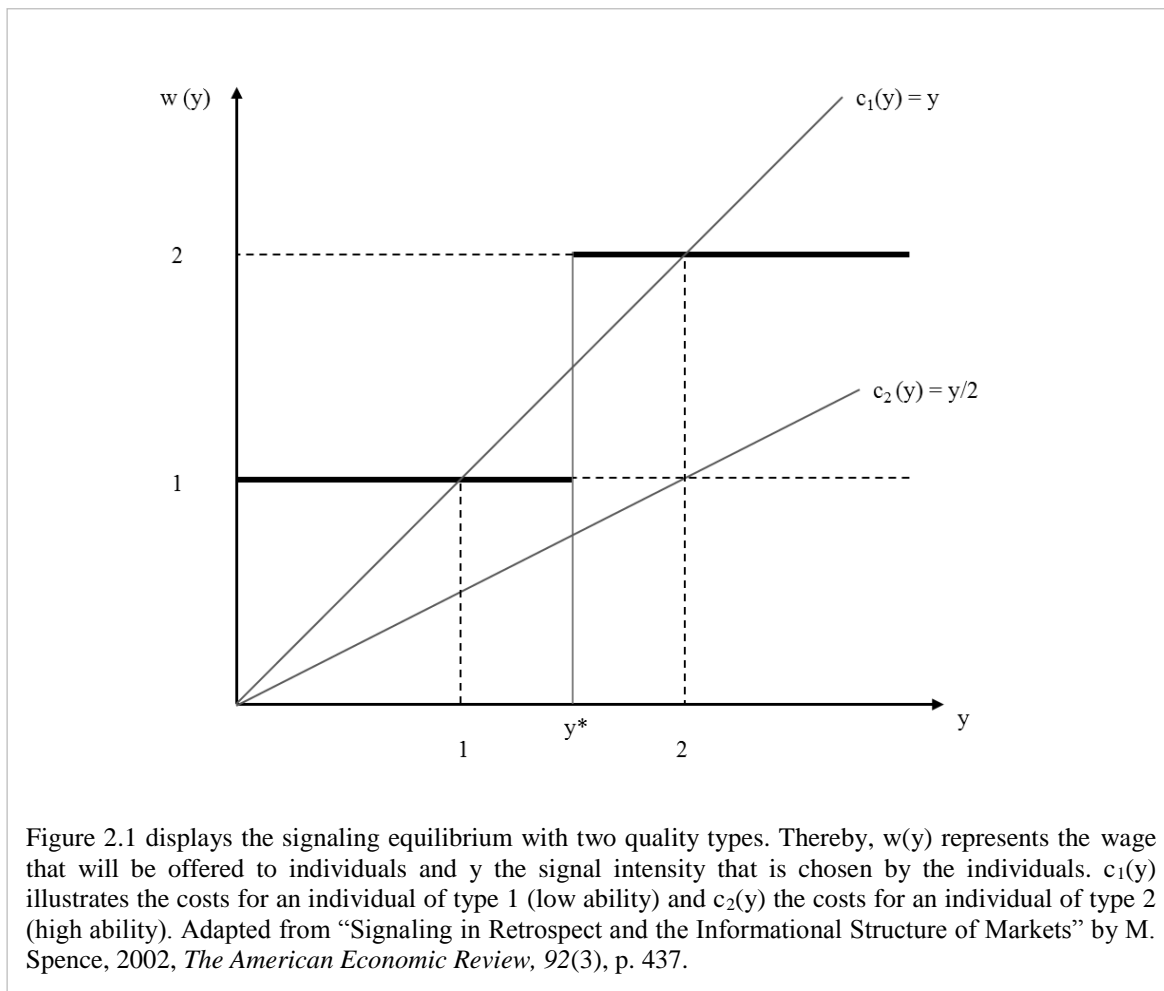


Figure 2.1: Signaling Equilibrium

investing in signaling, so when $I > 2 - y^*$. Individuals of higher ability will choose $y = y^*$ when the increased productivity by investing in the signal is larger than without it, taking into account the costs of the signal, in other words when $2 - y^*/2 > I$. The higher the expectations of the employer about y^* , the lower the proportion of individuals who will invest in the signal. Moreover, when too many individuals invest in the signal, signaling will become less relevant and a pooling equilibrium may evolve. This situation is where differentiation between groups is not possible any more (Spence, 2002). For instance, this may be the case when the proportion of individuals with low ability in the population is relatively small, so the risk for being mistaken is not offset by the costs for investing in the signal (Spence, 2002).

It is important to note that, besides the negative relationship between ability and the cost of the signal, the underlying characteristic of the signal moreover has to be important for

signaling to be effective (Conelly, Certo, Ireland, & Reutzel, 2011; Spence, 2002). In other words, if an employer is not looking for a certain quality, signaling by the applicant to convey specific information might be ineffective.

Furthermore, a considerable amount of literature has analyzed signaling games in more detail. Engers (1987) modeled a situation where many signals are available and was able to show that a separating equilibrium also exists in this case. Moreover, Inderst (2001) examined signaling effects in the reversed case where the principal has more information than the agent. Furthermore, a large body of research has empirically examined signaling effects in many different fields, including anthropology (e.g. Bliege Bird & Smith, 2005), biology (e.g. Grafen, 1990) and economics (Albert Ma & Weiss, 1993; Bedard, 2001; Hvide, 2003). However, in economics, the results of empirical studies are particularly diverse. For example, while Albrecht and Van Ours (2006) found evidence that supported the assumptions of Spence (1973) that education is used as a signal, Albrecht (1981) did not support the predictions of signaling theory. Though, the difficulty that lies in these studies is the clear demarcation of signaling effects from human capital theory, as investments in education in practice inevitably increase productivity.

A recent study by Backes-Gellner and Tuor (2010) further analyzed the reversed signaling model empirically, where the employer has more information than the applicant. Backes-Gellner and Tuor were able to show that several observable company characteristics were regarded as signals for unobservable job and company attributes by applicants. Firstly, they found that the existence of apprenticeship trainings reduces vacancy rates. However, this characteristic is not supposed to have an effect on the blue-collar workers considered in their data set, since these workers have already completed their apprenticeship. From this, Backes-Gellner and Tuor (2010) concluded that workers may interpret apprenticeship training as a signal for career opportunities and this, as a result, affects the vacancy rate. Secondly, they identified the existence of works councils as a signal for workplace attractiveness and job security in the company. Thirdly and finally, the results indicated that a higher percentage of skilled workers in a company might work as a signal for higher quality jobs.

More research on signaling in a recruitment context has been undertaken by researchers from economics and psychology. For example, Turban, Forret and Hendrickson (1998) and Boswell, Roehling, LePine and Moynihan (2003) both found that impressions of

recruitment activities, such as the perception of the location, host likeableness and the opportunity to meet other employees of the company, may be regarded as signals for organizational characteristics, such as the quality of the working conditions or the company's interest in its employees. Further studies, which focused on specific actions of the recruiting process, identified recruiter behavior (e.g. Chapman, Uggerslev, Carroll, Piasentin, & Jones, 2005; Goltz & Giannantonio, 1995; Rynes, Bretz, & Gerhart, 1991; Saks & Uggerslev, 2010), recruitment information (Saks & Uggerslev, 2010) or a listing in the Fortune rating (Cable & Turban, 2003) as signals for unobservable job and company characteristics.

Contrary to the predictions of Spence (1973), there are also theoretical approaches that forecast non-monotonic signaling, so that the signaling intensity is no longer monotonic in senders' types. In fact, it can frequently be observed in practice that the best quality types sometimes refrain from signaling. For example, elderly wealthy people exercise restraint in consumption, while nouveau riche flaunt their wealth (see Feltovich, Harbaugh, & To, 2002) and high-end fashion products use less explicit brand logos to signal their quality, compared to mainstream products of the medium price segment (Berger & Ward, 2010). Such a situation, where lower quality types invest in the signal and the higher quality types intentionally decide not to signal, has been described in different theoretical frameworks.

In this context, one interesting approach is the countersignaling model by Feltovich et al. (2002). In contrast to the traditional signaling model by Spence (1973), Feltovich et al. (2002) based their analysis on the premise of three quality types - low, medium and high - and the existence of additional, noisy information about the quality. As in Spence's model, information about the type is private and only known by the senders. Therefore, the receiver can only assess the quality of the senders by observing what kind of signals they are sending. However, in contrast to Spence (1973), Feltovich et al. (2002) assumed that additional, exogenous information is available to the receivers that convey extra information about quality types. While this additional information reveals the quality of low and high ability types with a high probability, the additional information about medium types is ambiguous, which is why medium ability types cannot solely rely on the information content. Feltovich et al. (2002) managed to show that a countersignaling equilibrium can evolve where high types intentionally decide not to signal and pool with low types. As they are confident that the extra information will be sufficient to reveal their high quality, they do not feel the need to invest in the signal. At the same time, medium

types will invest in the signal since, unlike high types, they cannot be sure about the content of the extra, but noisy information and they want to prevent being mistaken for low types. Hence, in a countersignaling equilibrium, the decision of high types not to signal can also be regarded as a sign of confidence (Feltovich et al., 2002). If high types invested in the signal, they could even risk being confused with medium types - a situation they want to avoid. Therefore, as outlined in the countersignaling model of Feltovich et al. (2002), in this case a non-monotonic relationship between quality types and signaling intensity can be expected.

Similar observations of such non-monotonic signaling effects were also found in other studies. For example, Sadowski (2013) modeled a situation of overeagerness, where high types will signal their quality by sending weaker signals than low types. By choosing high signals, low types thereby give the impression of overeagerness to receivers. Moreover, Mayzlin and Shin (2011) highlighted that high quality firms give less product-attributed information in their advertising compared to low quality firms. And Teoh and Hwang (1991) also pointed out that high quality firms intentionally decide to withhold good news about their company, while low quality firms prefer to reveal any such information.

2.2 The importance of job attributes in recruitment

The relevance of job attributes in recruitment has been widely investigated. A large number of empirical and theoretical studies have examined the effects of job attributes and the underlying reasons for behavior. In this context, the theoretical considerations that are described in the objective and subjective factors theory of Behling, Labovitz and Gainer (1968) are particularly important, as well as the assumptions of the person-organization and person-job fit models by Kristof (1996) and Edwards (1991).

With an aim to provide an explanatory approach for the job-choice behavior of college graduates, Behling et al. (1968) addressed the importance of job attributes in their objective and subjective factors theory. In the objective factors theory, Behling et al. (1968) outlined that graduates' job choice decisions are based on the evaluation of a large range of job and organizational characteristics, such as compensation, benefits, location of the company or career prospects (Behling et al., 1968). Based on the assessment and valuation of these factors, graduates will decide whether they will apply for a job or not.

Therefore, information conveyed during the recruitment process about these aspects may be crucial for recruitment success (Harold & Ployhart, 2008).

In contrast, the subjective factors theory is based on the understanding of a fit between the applicant and the organization, and thereby closely related to the person-organization (P-O) and person-job (P-J) fit models. In the subjective factors theory, Behling et al. (1968) suggested that graduates form their decision for a job through an evaluation of the job environment and by assessing the personal fit with it (Behling et al., 1968). Thus, in the recruitment process, graduates will select the company, which best meets their needs.

Person-organization fit has been further examined and defined by a large number of researchers. For example, Chatman (1989) defines P-O fit as the “congruence between the norms and values of organizations and the values of persons” (Chatman, 1989, p. 339). Moreover, Kristof (1996) refers to P-O fit as “the compatibility between people and organizations” (Kristof, 1996, p. 4) and outlines how people are attracted to different organizations as a result of different levels of fit. The importance of P-O fit is enhanced by the numerous empirical studies that provide evidence for the importance of P-O fit for the attraction to an organization and job choice (e.g. Kristof-Brown, Zimmermann, & Johnson, 2005; Pfeiffelmann, Wagner, & Libkuman, 2010; Roberson, Collins, & Oreg, 2005; Uggerslev et al., 2012). Furthermore, Edwards (1991) highlighted the importance of person-job fit in job choice and described the impact of job and individual characteristics on personal and organizational attainments, in particular job satisfaction. Thereby, he differentiated between two different types of P-J fit. The first concept is concerned with the fit between the desires of an individual and job attributes. The second concept, in contrast, describes the fit between the abilities of an individual and the demands of a job, so whether their educational level and abilities meet the requirements of the job. P-O and P-J fit are supported by various studies that examined the importance of fit for different recruitment outcomes, such as organizational attractiveness or job satisfaction (e.g. Edwards, 1991; Hu, Su, & Chen, 2007; Judge & Cable, 1997; Uggerslev et al., 2012).

Both theoretical approaches emphasize the importance of job attributes for organizational attraction and job choice. However, many job attributes are not directly observable or detailed information is hard to obtain, so recruiting actions and the conscious choice of recruitment channels may affect recruitment success, by conveying information about these characteristics and facilitating peoples decision-making. For example, in the context

of P-O fit, Breugh (2008) stated that more detailed information in advertisements may enhance applicant interest for a job and facilitate assessment of P-O fit. Roberson et al. (2005) concentrated on recruitment advertisements and came to the same conclusion. Furthermore, Harold and Ployart (2008) also emphasized the importance of information on the job and organizational characteristics, by analyzing data from applicants on PhD programs at a university in the United States. Moreover, a sufficient amount of information in recruitment mediums is perceived as more credible by applicants, thereby providing an additional benefit (Allen, Van Scotter, & Otondo, 2004). Detailed information about the job and the organization helps applicants to gain a realistic impression of a job and the work environment, so that dissatisfaction, low motivation levels and resignations can be avoided (Breugh & Starke, 2000).

In this context, recruitment channel use holds an important place. Recruitment channels can be categorized into formal and informal channels, whereby informal channels are characterized mainly through personal contacts, such as word-of-mouth or referrals from other workers or friends (DeVaro, 2008). The decision to use a specific recruitment channel to fill a vacancy is largely dependent on different characteristics of the firm, such as the number of vacancies or the position (Gorter, Hassink, & Russo, 2003; Sabatier, 2010). Informal recruiting channels are generally seen as more efficient in filling a vacancy, but formal recruitment channels, such as job advertisements, are also often utilized, whether it is subsequently or simultaneously (Gorter & van Ommeren, 1999). Particular importance is attributed to employee referrals and word-of-mouth, and a wide range of literature has investigated the benefits of these recruitment channels on applicants. Here, special attention is devoted to the credibility of information, as it has been demonstrated by a large number of studies that information conveyed through these channels is regarded as more credible by applicants (e.g. Cable & Yu, 2006; Fisher, Ilgen, & Hoyer, 1979; Van Hoyer & Lievens, 2005). According to Allen et al. (2004) a higher credibility is achieved when the recruiting channel enables personal interaction, which is the case for referrals of employees and friends (Fisher et al., 1979), as well as for the usage of personnel networks (Casella & Hanaki, 2008; Marmaros & Sacerdote, 2002). However, companies can also obtain added value by using informal recruiting channels such as referrals or networks, as they have the possibility to gain more information about potential employees (Pinkston, 2012; Simon & Warner, 1992).

2.3 Monetary and non-monetary incentives and their impact on employee behavior

As outlined in Chapter 1.1, monetary aspects are of great importance for applicants' job choice. This raises the question which, if any, incentives should be provided to workers. Incentives offer a variety of possibilities to induce higher performance, motivation and satisfaction of workers. A recent survey by Towers Watson (2012) with 1600 employers showed that basic wages are regarded as an important element in attracting and retaining workers. Therefore, it is not surprising that companies offer their employees various types of incentives to increase satisfaction and performance. This section discusses the impact incentives can have on workers' performance and motivation. A large number of theoretical and empirical papers have been concerned with the optimal contract design that aligns the interests of the company with the interests of workers, as the design of compensation schemes can be decisive for effort provision of workers.

When examining incentive measures, a distinction can be drawn between monetary incentives, such as base wages and variable remuneration elements, and non-monetary incentives, such as awards, recognition and material incentives. The challenge is to select the appropriate measure and implement it effectively, as various incentives might be used for different business functions, hierarchy levels or the type of work (Incentive Federation, 2005). For example, variable bonus payments may be more effective than other incentives when the performance of workers is easy to measure (i.e. the sales department). In the following, both types of incentive measures are examined in more detail, and the impact on workers' performance reviewed.

A key issue for the design of compensation schemes is the decision to pay workers a fixed salary or to attach remuneration to workers performance, by integrating variable wage components such as performance pay or individual bonuses. This question is not easily answered, as the design of workers' compensation is determined by a large number of issues. A considerable amount of literature has been published on this matter, and the effectiveness of fixed and variable wage components analyzed (for a review on incentive effects see Prendergast (1999)). From a company's perspective, monetary incentives encourage workers to exert higher effort level and, subsequently, increase the performance of the company. However, informational asymmetries exist, so that effort levels of workers are not directly observable or measurable. In this case, proceeding on the assumptions of

standard economic theory, it is expected that a rational worker will choose a minimum performance level when a fixed wage is paid, as workers aim to maximize their individual utility (Akerlof, 1982). As their wage is independent of performance, additional effort is associated with higher effort costs without receiving a higher compensation in return. Thus, in order to provide an incentive for a higher performance, companies have to attach a variable wage component to workers' compensation scheme (Kräkel, 2007).

This situation is further described in the principal-agent model, where a principal assigns a task to a risk averse agent. However, a problem arises as the principal cannot be sure whether the agent chooses the effort level that is in the interest of the principal. He can only observe the output, but has no information about the agents' individual effort level or his ability. Therefore, the situation is characterized by an asymmetry of information between the principal/employer and the agent/employee, where the agent has more information about his abilities and intentions than the principal (Holmstrom, 1979). Since output is not only dependent on the effort exerted by the agent, but also dependent on an exogenous error term, it is not possible for the principal to make inferences regarding the agents' effort level by just observing the output. Moreover, the situation is compounded on the assumption that the agent maximizes his own utility. Effort is costly for the agent, and he will choose lower effort levels than are optimal for the principal. The problem can be resolved by contractual agreements between the principal and the agent, where the principal lets the agent have a share in his success. With this, the interests between the principal and the agent can be made coherent, and incentive compatibility can be obtained. This can be achieved by creating incentives for the agent, such as through performance pay or performance bonuses. In this case, the performance of the agent is assumed to be higher than if remunerated only with a fixed payment.

The effects of performance dependent payments on effort levels and performance of workers has been widely investigated. For example, Lazear (2000) analyzed the incentive effect of a change from hourly wages to piece wages for workers of a windshield repair company. He showed that a performance dependent remuneration significantly increased the performance of workers. Knez and Simester (2001) obtained similar results for performance-dependent contracts at Continental Airlines, Paarsch and Shearer (2000) for a tree planting company and Bandiera, Barankay and Rasul (2007) for managerial performance pay at a fruit-picking company. However, careful consideration for the appropriate use of performance pay should be given. As Freeman and Kleiner (2005)

pointed out, although workers' productivity may be higher under piece rates, it may still be more profitable for a company to decide against it, taking into account higher costs e.g. for monitoring. In some cases, another problem is that output is hard to observe or measure, so that piece rates are not suitable for a given worker. Moreover, changing back to fixed wages after piece rates have been installed could lead to greater difficulties and lower performance (Irlenbusch & Sliwka, 2005). Instead of piece rates, companies could attach variable bonus payments to workers' base salary to set an incentive for a higher performance, which can be paid out within a narrow time frame, or as a yearly bonus.

But is it actually true that, as predicted by standard economic theory, a higher fixed wage cannot yield an incentive for a higher performance? During the past years, many empirical studies have been conducted on this question, with the result that fixed wages do matter and can have a decisive contribution on performance. An explanation for this resides in the positive reciprocal behavior of workers that has been observed in a large number of experimental studies (e.g. Charness & Kuhn, 2007; Fehr, Kirchsteiger, & Riedl, 1993; Nosenzo, 2013). In these "gift-exchange" experiments, the relationship between different wage levels and performance has been analyzed on whether a higher wage level may induce a higher performance of workers.

A standard gift-exchange game is played between two subjects - a worker and an employer (e.g. Fehr et al., 1993). Mostly, the general sequence of actions in the experiment is as follows:

- Stage 1: The employer offers a wage w .
- Stage 2: The worker accepts/rejects the wage offer.
- Stage 3: If the worker accepts the wage offer, he chooses his effort level e , which is associated to costs $c(e)$.

As workers are assumed to be utility maximizing, and not bound to comply with the desired effort level of the employer, it has to be expected that workers will choose the lowest effort level possible. The employer will anticipate this behavior and offer the worker the lowest wage that is possible.

Yet, contrary to the predictions of standard economic theory, numerous experimental studies find that the level of the wage offered by the employer is higher than expected, and

that the wage level affects the effort level chosen by the worker. In this context it has been proven that workers exert higher effort levels when higher fixed wages are paid. Behavioral economics literature offers many possible explanations for the above observation. One of these is reciprocity, which states that subjects reflect friendly actions with friendly actions of their own (Fehr & Gächter, 2000). For example, reciprocal behavior in employment relationships happens when a worker responds with a higher effort level or more cooperation to a high wage, which is regarded as a friendly action of the employer. Numerous experimental studies provide evidence for such behavior from workers (e.g. Berg, Dickhaut, & McCabe, 1995; Kube, Maréchal, & Puppe, 2012).

Another explanation, which is related to reciprocity, is a workers' perception of fairness. When a worker exerts higher effort levels than required, he expects a fair wage in return (Akerlof, 1982). Vice versa, it can be argued that companies pay fair wage levels in anticipation of higher performance from workers, or they pay them in expectation of a reciprocal behavior of workers. Thereby, a decisive factor for higher performance is that workers feel they are treated fairly by the company (Akerlof, 1982). Furthermore, an important aspect in the evaluation of a fair wage is the comparison with others (Akerlof & Yellen, 1990). Wage comparisons and relative wage levels on performance have been explored in numerous studies (e.g. Abeler et al., 2010; Cohn, Fehr, & Götte, 2013; Gächter & Thöni, 2010; Nosenzo, 2013). In this context, wage comparisons have a decisive impact on performance, in particular for those workers who feel underpaid. As Nosenzo (2013) and Gächter and Thöni (2010) showed, relatively underpaid workers decrease their effort level when they learn that co-workers receive higher wages than they do. Moreover, rises in salary also have a greater impact on this group of workers. As Cohn, Fehr and Götte (2013) demonstrated, a pay raise significantly increased effort from workers who previously received lower wages than they considered to be fair, while a wage increase did not significantly affect performance of workers who felt overpaid. Moreover, Clark and Oswald (1996) reported that relative wages significantly influence job satisfaction, whereas this is not the case for absolute wage levels. Therefore, it appears that workers draw additional value from information about their compensation, relative to others.

The existence of equity is essential when discussing compensation schemes and the fairness of wages, as described in the equity theory by Adams (1963). Equity implies that higher wages are paid for higher effort levels. In contrast, when a worker exerts lower effort than other workers, the company should pay him a lower wage compared to his

colleagues. The decisive factor is the preservation of a certain input-to-output ratio between workers' effort and compensation, for equity to be obtained. When this is not complied with, perceptions of inequity may arise and workers see a given wage level as unfair with respect to their performance (Adams, 1963). A possible way to induce equity is by paying workers according to their performance. Firms have various possibilities to attach compensation to performance, and could pay piece rates or give out bonuses according to (relative) performance.

A considerable amount of studies have raised the issue whether companies should pay their workers according to their performance or issue a fixed salary. Both approaches have their advantages and disadvantages and largely depend on the task and other company characteristics. For example, piece rates produce a direct incentive for workers to increase performance, since they directly influence compensation (Lazear, 1999). However, such a performance dependent pay scheme is also associated with a certain risk, as the output may vary or is affected by factors outside the control of the worker. Moreover, piece rates require monitoring of workers' performance and product quality, to prevent workers from focusing too much on producing high numbers of pieces and, consequently, ignoring quality (Freeman & Kleiner, 2005). Nevertheless, a change from fixed wages to piece rates may significantly increase productivity. Many empirical studies found an increase in workers' productivity when switching from fixed wages to piece rates, generally giving two explanatory approaches for this finding. On one hand, the results provide evidence for an incentive effect so that workers are more motivated to increase their effort (Bandiera, Barankay, & Rasul, 2007; Freeman & Kleiner, 2005; Lazear, 2000; Paarsch & Shearer, 2000). On the other, a selection effect seems to be present, which means that piece rates attract more able workers to join the company, while less able workers decide to leave (Bandiera et al., 2007; Lazear, 2000; Paarsch & Shearer, 2000).

Additionally, an important and critical point in the design of incentive schemes is the level of the incentive. Standard economic theory predicts a positive relationship between the level of incentives and workers' effort, but numerous studies show this is not always the case in practice. For instance, Irlenbusch and Ruchala (2008) only found a significant effect from a bonus payment if it is high enough, while low bonus payments have no impact on performance. Similar results were obtained by Gneezy and Rustichini (2000), who showed that for small bonus payments, performance is even lower than if no bonus is paid at all. Furthermore, also very high bonus payments can have detrimental effects on

performance when workers are “choking under pressure” (Ariely, Gneezy, Loewenstein, & Mazar, 2009; Baumeister, 1984), which again highlights the great elaborateness that is necessary when designing incentive schemes and deciding compensation levels.

However, monetary incentives are not the only way to motivate workers to enhance their performance. For some tasks, monetary incentives may not be suitable because it is hard to measure performance, such as the performance of an HR Manager or of a researcher, who is conducting research on one subject over several years. In this regard, non-monetary incentives are suitable to motivate and retain workers. Together with monetary incentives, they also help to decisively shape the employer image and are becoming increasingly important in recruitment (Sutherland, 2012). Non-monetary incentives comprise a wide range of benefits, ranging from childcare, flexible work arrangements and chances for advancement, through to recognition, respect and status.

Monetary and non-monetary incentives can both be effective measures for increasing performance and motivation, but the underlying reasons for behavior differ. While the value of a monetary bonus is easy to classify, the value of a non-monetary incentive might be affected by workers’ preferences and, therefore, have different effects on different workers (Lazear, 1999). In this context, it is possible that the value of a non-monetary incentive for workers is well above the actual monetary costs for a company. This can be caused by different value perceptions of workers. However, it is also possible that companies can purchase benefits more cheaply than an individual person (Lazear, 1999; Oyer, 2008). For example, Oyer (2008) has shown that especially large firms provide benefits like childcare or company-provided meals, and both measures benefit from economies of scale. Moreover, he demonstrates that these benefits have a significant impact on workers’ effort, which underlines the relevance and importance of these types of incentives.

Numerous studies have further shown that positive effects on workers’ effort levels and performance can also be achieved by other measures, like combining performance pay with motivational talk (Kvaløy, Nieken, & Schöttner, 2013), providing recognition for the top performers (Bradler, Dur, Neckermann, & Non, 2013) or offering a congratulatory card as a reward for the best performance (Kosfeld & Neckermann, 2011). Considering that the costs of these measures are relatively small for the great majority of companies, a greater importance should be attached to these options.

Overall, it can be concluded that incentives, be it monetary or non-monetary, can affect workers' motivation, performance and satisfaction. As a result of their influence on employee behavior and performance, the optimal design of incentives is considered important for the recruitment and retention of qualified workers, especially in times of an increasing competition for skilled workers.

3 Different Degrees of Informational Asymmetry on Job Markets and Its Impact on Companies' Recruiting Success

Authors: Falk, Sabrina; Hammermann, Andrea; Mohnen, Alwine; Werner, Arndt

First Author: Falk, Sabrina

Current Status: Published in the *Journal of Business Economics* (Vol. 83, No. 4: 1-23)

Summary

Based on a large survey of German companies, we investigate the influence of job characteristics on the recruiting success on labor markets with different degrees of informational asymmetry. We cluster companies' recruiting channels in those with low (internal job markets and employee referrals) and high (job advertisements, the Federal Employment Agency and headhunters) degrees of informational asymmetry. We provide evidence that monetary aspects are important when quality aspects of the job and the company are not directly observable by job applicants. However, if recruiting channels are used where the level of asymmetric information is lower because applicants have more reliable information about job and company characteristics, the quality attributes of a workplace, such as flexible work times or a high job responsibility, become influential on the recruiting success. Finally, our results show that applicants with access to more information about the quality aspects of a job also seem to be in a better position to evaluate the information given with regard to their credibility.

Individual Contribution

In this paper I was in charge for most of the data analysis, especially the regression analyses and the robustness checks, as well as for writing large parts of the paper. In the review process I contributed by conducting the additional analyses requested by the referees as well as the incorporation of further comments and changes.

4 Why the Career Fair Appearance of Companies Matters: An Empirical Analysis of Applicant Perceptions

Authors: Falk, Sabrina; Mohnen, Alwine

First Author: Falk, Sabrina

Current Status: Under review for publication

Summary

Using a matched data set of student perceptions and company characteristics from two career fairs in Germany, we investigate which aspects of a company's career fair appearance may serve as signals for unobservable workplace characteristics and thus influence students' intentions to apply for a job. We identify several observable characteristics of a career fair appearance that are used as signals by applicants, deriving clear recommendations for the design of recruitment activities for career fairs. We also find some significant differences between "high-potential" and "non-high-potential" students that should be considered by companies. Therefore, depending on the target group, different priorities should be set in recruitment strategies.

Individual Contribution

In this paper I was responsible for the development of the research questions, the design of the questionnaire as well as for conducting the survey at two national career fairs in Germany. Moreover, I conducted the data analysis largely independently and wrote the most part of the paper.

5 The Bigger the Better? The Efficiency of Recruiting Actions in Finding Skilled Workers

Author: Falk, Sabrina

Current Status: Under review for publication

Summary

This chapter empirically examines what effect (costly) recruiting actions on career fairs have on applicant attraction in order to derive recommendations for company's recruitment strategies. In light of the increasing shortage of skilled labor, the recruitment of qualified applicants constitutes a main challenge for companies. Within this context, particular importance is assigned to career fairs because they represent an effective recruitment instrument, especially for university graduates. Using a matched dataset from a large national career fair in Germany, this study finds that organizational representatives at career fairs have the largest impact on the applicants' intentions to apply for a job. In contrast, costly recruitment actions like a large fair stand only have a minor positive effect. Thus, companies should concentrate on employing well-trained staff and the provision of information on open positions over investing in large fair stands because the effect of stand size is comparatively small compared to other characteristics of career fair appearance.

6 The Impact of Non-Performance Related Special Payments on Workers' Effort Provision - An Experimental Analysis

Authors: Falk, Sabrina; Mohnen, Alwine

First Author: Falk, Sabrina

Current Status: Under review for publication

Summary

In this study, we use an experimental design to test whether non-performance-related special payments increase the productivity of workers. The special characteristic of these payments is that, unlike individual bonus payments, all employees of the company receive the same level of bonus, regardless of their individual performance or their contribution to the performance of the company. In our laboratory experiment, we vary both the level of special payment given to workers and the available information about relative performance. Our data reveals that only high amounts of special payments lead to an increase in performance. However, effects differ when workers are able to compare their performance against that of co-workers.

Individual Contribution

In this paper, I was responsible for the development of the research questions as well as the design and the conduction of the experiment. Moreover, I carried out the data analysis largely independently and wrote the most part of the paper.

7 Conclusion and Implications for Practice

Amplified by demographic changes, globalization and technological developments, the recruitment and motivation of employees will become one of the major challenges for companies in the years to come. The question therefore arises, what measures companies can take to address these developments.

Hence, this dissertation set out to investigate the effects of selected recruitment and incentive measures to derive recommendations for human resource management on this matter. The first part of this dissertation dealt with the question, how applicants' perceptions of job and company characteristics affect their intentions to apply for a position. To answer this, I used data from a large survey of German companies (Chapter 3) as well as a self-collected matched dataset from two career fairs in Germany (Chapters 4 and 5). Thereby, a major focus was on the question, whether applicants use observable characteristics of companies' career fair appearances to generate perceptions about non-observable job and company characteristics. Moreover, I also examined whether the observability of such non-observable aspects, which is possible when recruiting channels with a low degree of informational asymmetry are used, has an effect on companies' recruiting success.

The analysis of the survey data in Chapter 3 did indeed show that only observable aspects, such as wages and fringe benefits, have a significant impact on companies' recruiting success when recruiting channels with a high degree of informational symmetry are used. When using such channels, the quality aspects of a job are not directly observable and are thus likely to have no effect on recruiting success. However, when companies use recruiting channels with a low degree of informational asymmetry, non-observable aspects become more influential, e.g. individual job responsibility or opportunities for flextime.

Result 1: *The use of recruiting channels with low degrees of informational asymmetry enables applicants to obtain information about non-observable job characteristics and thus increases companies' recruiting success.*

One recruitment channel that allows applicants to obtain information about a large number of, typically non-observable, job and company characteristics, are career fairs. To investigate in more detail, which aspects of a company's career fair appearance in particular serve as signals for non-observable workplace characteristics, I conducted a large survey on two German career fairs. My methodological approach thereby differs from other studies in this field by using a matched data set of applicant and company data. This enabled me to analyze the effectiveness of recruiting actions in more detail and so contribute to existing studies on the signaling effects of recruiting actions.

The analyses in Chapter 4 reveal that various aspects of a company's career fair appearance are used as indicators for unobservable company characteristics. The key findings will be outlined in the following. It is important to note, however, that this applies in particular in cases where an applicant's perceptions are negative: Perceptions of the employees representing the company at the fair stand only have an effect on applicants' evaluations of the workplace atmosphere in cases where these employees are perceived as unfriendly. Furthermore, this negative effect applies in particular to the group of "high potentials". It is possible that this group of applicants has particularly high expectations with regard to the presentation and appearance of companies at career fairs and thus reacts very strongly when these expectations are not met. Hence, in particular where recruitment strategy is aimed at recruiting "high potential" applicants, it is essential for companies to select qualified and trained employees to represent the company at a career fair. Companies should also assure the provision of sufficient information about job and company characteristics. Such information about job opportunities not only improves the applicants' assessment of career prospects and wage levels in a company, but also tends to induce higher levels of applications.

Result 2: *Applicants' seem to use visual, behavioral and informational aspects of a company's career fair appearance to draw conclusions about non-observable workplace characteristics. Thereby, the effects differ between "high potential" and "non-high potential" applicants.*

Furthermore, an important follow-up question is: what impact do other factors of a companies' career fair appearance, such as the size of its fair stand, have on applicants'

intentions to apply? This aspect was examined in Chapter 5. The fair stand size indeed shows a positive impact on the intention to apply but this effect is comparatively small so that its cost-effectiveness should be questioned. Moreover, a highlighted career fair appearance, which may also be very costly, even has a negative effect on students' intentions to apply – however, only in case the company is not listed in the ranking “Germany’s Best Employers”. When the company is not on this list, students might interpret a highlighted career fair appearance as an indicator for higher personnel requirements and maybe also a higher fluctuation in the respective companies. Yet, a listing among “Germany’s Best Employers” might ensure a certain quality of the company so that applicants might look at a highlighted career fair appearance from a different perspective. Furthermore, the findings of this chapter again confirm the importance of company representatives at career fairs, even having larger effects on students' intentions to apply than other (costly) recruiting measures.

Result 3: *The organizational representatives at the fair stand as well as information about job openings have a stronger positive impact on applicants' intentions to apply than a large fair stand. Thus, companies should carefully consider the costs and benefits of recruiting actions at career fairs.*

Overall, the following implications for recruitment strategy can be drawn from the results of the studies carried out within the scope of this dissertation. Companies' recruiting success can be increased when recruiting channels with low degrees of informational asymmetry are chosen, which enable applicants to obtain information about non-observable job and company characteristics. Therefore, companies should ensure that they don't limit their recruitment strategy to channels with high degrees of informational asymmetry (e.g. job advertisements). Moreover, companies should place special emphasis on the revelation and transmission of information about non-observable job and company characteristics. Career fairs provide a good opportunity for companies to present themselves and their benefits to applicants, since a direct interaction between company representatives and applicants is possible. In addition, the selection of qualified and trained organizational representatives at career fairs is particularly important in improving applicants' perceptions of a company and increasing their intentions to apply. Allied with

this, the trustworthiness and credibility of recruiters should be taken into consideration as well. Attention should also be paid to the provision of sufficient information about open positions and job opportunities. In this context, giving a company presentation can be useful to increase applicants' awareness of a company and their perceptions of job security and the wage level.

Moreover, the impact of company representatives at a career fair is even more essential than costly recruiting actions, such as a large fair stand or a highlighted career fair appearance. Since the effect of a large fair stand on students' intentions to apply is generally small, companies should rather focus on the presence of qualified representatives and the provision of sufficient information about job openings. To obtain higher visibility and awareness, giving a company presentation at the career fair constitutes a suitable and effective approach.

However, it should be noted that these findings are limited by selection effects regarding participants and companies that were present at the career fairs and those who were not. Furthermore, in my datasets from the career fairs, there was no information available as to why companies chose to participate in them. On the other hand, in the company survey analyzed in Chapter 3, no information was available about whether applicants were actually able to observe the job characteristics that were discussed. Further research needs to examine these aspects more closely to establish a greater understanding on this matter.

The second focus of this dissertation was on the effectiveness of non-performance-related special payments as a measure to increase employee motivation, and thus performance. Using an experimental approach, I analyzed to what extent special payments affect the performance of workers and how these effects change when effort-comparison information is made available. Considering that companies in Germany spend millions of Euros every year on such initiatives, a profound examination of the incentive effects of such payments is needed.

The results of the laboratory experiment reveal that non-performance-related special payments do indeed have a positive impact on performance but only when the level of the special payments is sufficiently high. Moreover, when workers are given information on relative performance, the results reveal that in particular below-average performers significantly increase their performance when special payments are issued.

Result 4: *A significant performance effect of special payments is only induced when the level of the special payment is high enough.*

Result 5: *When workers are provided with effort-comparison information, non-performance-related special payments in particular increase performance of below-average performers.*

The evidence from this study suggests that special payments in general have positive effects on workers' performance and thus present a suitable incentive measure for companies. However, to generate such a positive performance effect, companies have to ensure the level of the special payment is well chosen. Otherwise it is possible that workers' performance remains unchanged despite the special payment that has been disbursed and the costs associated with this incentive measure. It should be noted, however, that I only considered the effects of special payments on performance, since the experimental setting does not allow the examination of the consequences of special payments e.g. on commitment to a company. It may well be the case that in practice even low special payments have positive effects on workers' satisfaction, commitment and identification that I could not measure in the experiment. Thus, further research is needed that examines the various effects of special payments that may arise in practice.

Despite these limitations, this thesis has made several important contributions to the current literature on the signaling value of recruiting actions as well as on the effectiveness of non-performance-related special payments. The findings of this dissertation enhance our understanding of the factors that should come into play in the design of recruitment strategies and incentive measures, pointing out several important implications for corporate practice.

8 References

- Abeler, J., Altmann, S., Kube, S., & Wibrall, M. (2010). Gift Exchange and Workers' Fairness Concerns: When Equality is Unfair. *Journal of the European Economic Association*, 8(6), 1299–1324.
- Adams, J. S. (1963). Toward an Understanding of Inequity. *Journal of Abnormal and Social Psychology*, 67(5), 422–436.
- Akerlof, G. A. (1970). The Market for "Lemons": Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, 84(3), 488-500.
- Akerlof, G. A. (1982). Labor Contracts as Partial Gift Exchange. *The Quarterly Journal of Economics*, 97(4), 543–569.
- Akerlof, G. A., & Yellen, J. L. (1990). The Fair Wage-Effort Hypothesis and Unemployment. *The Quarterly Journal of Economics*, 105(2), 255–283.
- Albert Ma, C.-T., & Weiss, A. M. (1993). A Signaling Theory of Unemployment. *European Economic Review*, 37(1), 135–157.
- Albrecht, J. W. (1981). A Procedure for Testing the Signalling Hypothesis. *Journal of Public Economics*, 15(1), 123–132.
- Albrecht, J. W., & van Ours, J. C. (2006). Using Employer Hiring Behavior to Test the Educational Signaling Hypothesis. *Scandinavian Journal of Economics*, 108(3), 361–372.
- Allen, D. G., van Scotter, J. R., & Otondo, R. F. (2004). Recruitment Communication Media: Impact on Prehire Outcomes. *Personnel Psychology*, 57(1), 143–171.
- Ariely, D., Gneezy, U., Loewenstein, G., & Mazar, N. (2009). Large Stakes and Big Mistakes. *Review of Economic Studies*, 76(2), 451–469.
- Backes-Gellner, U., & Tuor, S. (2010). Avoiding labor shortages by employer signaling: on the importance of good work climate and labor relations. *Industrial and Labor Relations Review*, 63(2), 271–286.

-
- Bandiera, O., Barankay, I., & Rasul, I. (2007). Incentives for managers and inequality among workers: Evidence from a firm-level experiment. *The Quarterly Journal of Economics*, *122*(2), 729–773.
- Bangerter, A., Roulin, N., & König, C. J. (2012). Personnel selection as a signaling game. *Journal of Applied Psychology*, *97*(4), 719–738.
- Baumeister, R. F. (1984). Choking Under Pressure: Self-Consciousness and Paradoxical Effects of Incentives on Skillful Performance. *Journal of Personality and Social Psychology*, *46*(3), 610–620.
- Bedard, K. (2001). Human capital versus signaling models: university access and high school dropouts. *Journal of Political Economy*, *109*(4), 749–775.
- Beechler, S., & Woodward, I. C. (2009). The global “war for talent”. *Journal of International Management*, *15*(3), 273–285.
- Behling, O., Labovitz, G., & Gainer, M. (1968). College Recruiting: A Theoretical Base. *Industrial Relations and Personnel Management*, *47*(1), 13–19.
- Berg, J., Dickhaut, J., & McCabe, K. (1995). Trust, Reciprocity, and Social History. *Games and Economic Behavior*, *10*(1), 122–142.
- Berger, J., & Ward, M. (2010). Subtle signals of inconspicuous consumption. *Journal of Consumer Research*, *37*(4), 555–569.
- Bliege Bird, R., & Smith, E. A. (2005). Signaling Theory, Strategic Interaction, and Symbolic Capital. *Current Anthropology*, *46*(2), 221–248.
- Boswell, W. R., Roehling, M. V., LePine, M. A., & Moynihan, L. M. (2003). Individual job-choice decisions and the impact of job attributes and recruitment practices: A longitudinal field study. *Human Resource Management*, *42*(1), 23–37.
- Bradler, C., Dur, R., Neckermann, S., & Non, A. (2013). *Employee recognition and performance: A field experiment* (CESifo Working Paper No. 4164). Retrieved from <https://www.cesifo-group.de/de/ifoHome/publications/working-papers/CESifoWP.html>.
- Breaugh, J. A. (2008). Employee recruitment: Current knowledge and important areas for future research. *Human Resource Management Review*, *18*(3), 103–118.
- Breaugh, J. A., & Starke M. (2000). Research on Employee Recruitment: So Many Studies, So Many Remaining Questions. *Journal of Management*, *26*(3), 405–434.

-
- Burke, R. J., & Ng, E. (2006). The changing nature of work and organizations: Implications for human resource management. *Human Resource Management Review*, *16*(2), 86–94.
- Caballero, C. L., & Walker, A. (2010). Work readiness in graduate recruitment and selection: A review of current assessment methods. *Journal of Teaching and Learning for Graduate Employability*, *1*(1), 13–25.
- Cable, D. M., & Turban, D. B. (2003). The Value of Organizational Reputation in the Recruitment Context: A Brand-Equity Perspective. *Journal of Applied Social Psychology*, *33*(11), 2244–2266.
- Cable, D. M., & Yu, K. Y. T. (2006). Managing Job Seekers' Organizational Image Beliefs: The Role of Media Richness and Media Credibility. *Journal of Applied Psychology*, *91*(4), 828–840.
- Card, D., Mas, A., Moretti, E., & Saez, E. (2012). Inequality at Work: The Effect of Peer Salaries on Job Satisfaction. *American Economic Review*, *102*(6), 2981–3003.
- Casella, A., & Hanaki, N. (2008). Information channels in labor markets: On the resilience of referral hiring. *Journal of Economic Behavior & Organization*, *66*(3), 492–513.
- Chambers, E. G., Foulon, M., Handfield-Jones, H., Hankin, S. M., & Michaels, E. G., III (1998). The war for talents. *The McKinsey Quarterly*, *3*, 44–57.
- Chapman, D. S., Uggerslev, K. L., Carroll, S. A., Piasentin, K. A., & Jones, D. A. (2005). Applicant Attraction to Organizations and Job Choice: A Meta-Analytic Review of the Correlates of Recruiting Outcomes. *Journal of Applied Psychology*, *90*(5), 928–944.
- Charness, G., & Kuhn, P. (2007). Does pay inequality affect worker effort? Experimental evidence. *Journal of Labor Economics*, *25*(4), 693–723.
- Chatman, J. A. (1989). Improving Interactional Organizational Research: A Model of Person-Organization Fit. *Academy of Management Journal*, *14*(3), 333–349.
- Clark, A. E., & Oswald, A. J. (1996). Satisfaction and comparison income. *Journal of Public Economics*, *61*(3), 359–381.

-
- Cohn, A., Fehr, E., & Götte, L. (2013) *Fair wages and effort provision: Combining evidence from the lab and the field* (University of Zurich Department of Economics Working Paper Series No. 107). Retrieved from: <http://www.econ.uzh.ch/static/workingpapers.php>.
- Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling Theory: A Review and Assessment. *Journal of Management*, 37(1), 39–67.
- DeVaro, J. (2008). The labor market effects of employer recruitment choice. *European Economic Review*, 52(2), 283–314.
- Edwards, J. R. (1991). Person-Job Fit: A Conceptual Integration, Literature Review, and Methodological Critique. In C.L. Cooper & I.T. Robertson (Eds.), *International Review of Industrial and Organizational Psychology: Vol. 6*, (pp. 283–357). Oxford, England: John Wiley & Sons.
- Engers, M. (1987). Signalling with Many Signals. *Econometrica*, 55(3), 663-674.
- European Centre for the Development of Vocational Training (Cedefop). (2010). *Skills supply and demand in Europe: Medium-term forecast up to 2020*. Retrieved from <http://www.cedefop.europa.eu/en/publications/15540.aspx>
- Falk, A., & Fehr, E. (2003). Why labour market experiments? *Labour Economics*, 10(4), 399-406.
- Falk, A., & Ichino, A. (2006). Clean evidence on peer effects. *Journal of Labor Economics*, 24(1), 39–57.
- Falk, S., Hammermann, A., Mohnen, A., & Werner, A. (2013). Different Degrees of Informational Asymmetry on Job Markets and Its Impact on Companies' Recruiting Success. *Journal of Business Economics*, 83(4),1–23.
- Federal Statistical Office Germany (Statistisches Bundesamt). *Bevölkerung, Erwerbstätige, Erwerbslose: Deutschland, Jahre, Geschlecht, Altersgruppen [Population, Working Population, Unemployed: Germany, Years, Gender, Age Groups]* Retrieved from <https://www-genesis.destatis.de/genesis/online/logon>.
- Fehr, E., & Falk, A. (2002). Psychological foundations of incentives. *European Economic Review*, 46(4/5), 687–724.

-
- Fehr, E., & Gächter, S. (2000). Fairness and retaliation: The economics of reciprocity. *Journal of Economic Perspectives*, 14(3), 159–181.
- Fehr, E., Kirchsteiger, G., & Riedl, A. (1993). Does Fairness Prevent Market Clearing? An Experimental Investigation. *Quarterly Journal of Economics*, 108(2), 437–459.
- Feltovich, N., Harbaugh, R., & To, T. (2002). Too Cool for School? Signalling and Countersignalling. *The RAND Journal of Economics*, 33(4), 630–649.
- Fisher, C. D., Ilgen, D. R., & Hoyer, W. D. (1979). Source Credibility, Information Favorability, and Job Offer Acceptance. *Academy of Management Journal*, 22(1), 94–103.
- Foster Thompson, L., & Aspinwall, K. R. (2009). The recruitment value of work/life benefits. *Personnel Review*, 38(2), 195–210.
- Freeman, R. B., & Kleiner, M. M. (2005). The Last American Shoe Manufacturers: Decreasing Productivity and Increasing Profits in the Shift from Piece Rates to Continuous Flow Production. *Industrial Relations*, 44(2), 307–330.
- Gächter, S. & Thöni, C. (2010) Social comparison and performance: experimental evidence on the fair wage-effort hypothesis. *Journal of Economic Behavior & Organization*, 76(3), 531–543.
- Gneezy, U., & Rustichini, A. (2000). Pay enough or don't pay at all. *Quarterly Journal of Economics*, 115(3), 791–810.
- Goltz, S. M., & Giannantonio, C. M. (1995). Recruiter Friendliness and Attraction to the Job: The Mediating Role of Inferences about the Organization. *Journal of Vocational Behavior*, 46(1), 109–118.
- Gorter, C., Hassink, W. H., & Russo, G. (2003). The structure of hiring and labour market tightness. *Economic Letters*, 80(1), 99–103.
- Gorter, C., & van Ommeren, J. O. (1999). Sequencing, timing and filling rates of recruitment channels. *Applied Economics*, 31(10), 1149–1160.
- Grafen, A. (1990). Biological signals as handicaps. *Journal of Theoretical Biology*, 144(4), 517–546.
- Grund, C. (2009). Jobpräferenzen und Arbeitsplatzwechsel [Job preferences and job change]. *Zeitschrift für Personalforschung*, 23(1), 66–72.

-
- Harold, C. M., & Ployhart, R. E. (2008). What do applicants want? Examining changes in attribute judgments over time. *Journal of Occupational and Organizational Psychology*, 81(2), 191–218.
- Heidemann, W. (2012). *Zukünftiger Qualifikations- und Fachkräftebedarf: Handlungsfelder und Handlungsmöglichkeiten [Future need for skilled workers: Fields and opportunities for action]*. Retrieved from: www.boeckler.de/pdf/mbf_pb_fachkraeftemangel_heidemann.pdf.
- Hiltrop, J.-M. (1999). The Quest for the Best: Human Resource Practices to Attract and Retain Talent. *European Management Journal*, 17(4), 422–430.
- Holmstrom, B. (1979). Moral Hazard and Observability. *The Bell Journal of Economics*, 10(1), 74–91.
- Hu, C., Su, H.-C., & Chen, C.-I. B. (2007). The effect of person–organization fit feedback via recruitment web sites on applicant attraction. *Computers in Human Behavior*, 23(5), 2509–2523.
- Hvide, H. K. (2003). Education and the Allocation of Talent. *Journal of Labor Economics*, 21(4), 945–976.
- Incentive Federation Inc. (2005). *A Study Conducted among Current Users of Merchandise and Travel Items for Motivation/Incentive Applications*. Retrieved from http://www.incentivecentral.org/business_motivation/whitepapers/federation_study_2005.1928.html
- Inderst, R. (2001). Incentive schemes as a signaling device. *Journal of Economic Behavior & Organization*, 44(4), 455–465.
- Irlenbusch, B., & Ruchala, G. K. (2008). Relative Rewards within team-based compensation. *Labour Economics*, 15(2), 141–167.
- Irlenbusch, B., & Sliwka, D. (2005). *Incentives, Decision Frames, and Motivation Crowding Out - An Experimental Investigation* (IZA Discussion Paper No. 1758). Retrieved from: <http://www.iza.org/en/webcontent/publications/papers>.
- Jeffrey, S. A. (2009). Justifiability and the Motivational Power of Tangible Noncash Incentives. *Human Performance*, 22(2), 143–155.

-
- Judge, T. A., & Cable, D. M. (1997). Applicant Personality, Organizational Culture, and Organization Attraction. *Personnel Psychology*, *50*(2), 359–394.
- Knez, M., & Simester, D. (2001). Firm-Wide Incentives and Mutual Monitoring at Continental Airlines. *Journal of Labor Economics*, *19*(4), 743–772.
- Kosfeld, M., & Neckermann, S. (2011). Getting more work for nothing? Symbolic awards and worker performance. *American Economic Journal*, *3*(3), 86–99.
- Kräkel, M. (2007). *Organisation und Management [Organization and Management]* (3rd ed.). Tübingen: Mohr Siebeck.
- Kreps, D. M., & Sobel, J. (1994). Signaling. *Handbook of game theory with economic applications*, *2*, 849–867.
- Kristof, A. L. (1996). Person-Organization Fit: An Integrative Review of Its Conceptualizations, Measurement, and Implications. *Personnel Psychology*, *49*(1), 1–49.
- Kristof-Brown, A. L., Zimmerman, R. D., & Johnson, E. C. (2005). Consequences of Individuals' Fit at Work: A Meta-Analysis of Person-Job, Person-Organization, Person-Group, and Person-Supervisor Fit. *Personnel Psychology*, *58*(2), 281–342.
- Kube, S., Maréchal, M. A., & Puppe, C. (2012). The Currency of Reciprocity: Gift Exchange in the Workplace. *American Economic Review*, *102*(4), 1644–1662.
- Kvaløy, O., Nieken, P., & Schöttner, A. (2013). *Hidden benefits of reward: A field experiment on motivation and monetary incentives* (CESifo working paper No.4393). Retrieved from: <https://www.cesifo-group.de/de/ifoHome/publications/working-papers/CESifoWP.html>.
- Lazear, E. P. (1999). Personnel Economics: Past Lessons and Future Directions. *Journal of Labor Economics*, *17*(2), 199–236.
- Lazear, E. P. (2000). Performance pay and productivity. *The American economic review*, *90*(5), 1346–1361.
- Lievens, F., Decaestecker, C., & Coetsier, P. (2001). Organizational Attractiveness for Prospective Applicants: A Person-Organisation Fit Perspective. *Applied Psychology: An International Review*, *50*(1), 30–51.

-
- Marmaros, D., & Sacerdote, B. (2002). Peer and social networks in job search. *European Economic Review*, 46(4), 870–879.
- Mayzlin, D., & Shin, J. (2011). Uninformative advertising as an invitation to search. *Marketing Science*, 30(4), 666–685.
- Nelson, P. (1970). Information and Consumer Behavior. *Journal of Political Economy*, 78(2), 311-329.
- Nosenzo, D. (2013). Pay secrecy and effort provision. *Economic inquiry*, 51(3), 1779–1794.
- Oyer, P. (2008). Salary or benefits? In S. W. Polacheck & K. Tatsiramos (Eds.), *Research in Labor Economics: Vol. 28. Work, Earnings and Other Aspects of the Employment Relation* (pp. 429–467). Bingley: Emerald Group Publishing Limited.
- Paarsch, H. J., & Shearer, B. (2000). Piece Rates, Fixed Wages, and Incentive Effects: Statistical Evidence from Payroll Records. *International Economic Review*, 41(1), 59–92.
- Pfieffelmann, B., Wagner, S. H., & Libkuman, T. (2010). Recruiting on Corporate Web Sites: Perceptions of fit and attraction. *International Journal of Selection and Assessment*, 18(1), 40–47.
- Pinkston, J. C. (2012). How Much Do Employers Learn from Referrals? *Industrial relations*, 51(2), 317–341.
- Powell, G. N. (1984). Effects of Job Attributes and Recruiting Practices on Applicant Decisions: A Comparison. *Personnel Psychology*, 37(4), 721–732.
- Prendergast, C. (1999). The provision of incentives in firms. *Journal of Economic Literature*, 37(1), 7–63.
- Roberson, Q. M., Collins, C. J., & Oreg, S. (2005). The Effects Of Recruitment Message Specificity On Applicant Attraction To Organizations. *Journal of Business and Psychology*, 19(3), 319–339.
- Rynes, S. L., Bretz, R. D., & Gerhart, B. (1991). The Importance of Recruitment in Job Choice: A Different Way of Looking. *Personnel Psychology*, 44(3), 487–521.
- Sabatier, M. (2010). Filling vacancies: Identifying the most efficient recruitment channel. *Economics Bulletin*, 30(4), 3355–3368.

-
- Sadowski, P. (2013). *Overeagerness* (Economic Research Initiatives at Duke Working Paper No. 82). Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1701921.
- Saks, A. M., & Uggerslev, K. L. (2010). Sequential and Combined Effects of Recruitment Information on Applicant Reactions. *Journal of Business and Psychology*, 25(3), 351–365.
- Simon, C. J., & Warner, J. T. (1992). Matchmaker, Matchmaker: The Effect of Old Boy Networks on Job Match Quality, Earnings, and Tenure. *Journal of Labor Economics*, 10(3), 306–330.
- Spence, M. (1973). Job Market Signaling. *The Quarterly Journal of Economics*, 87(3), 355–374.
- Spence, M. (2002). Signaling in Retrospect and the Informational Structure of Markets. *American Economic Review*, 92(3), 434–459.
- Sutherland, J. (2012). Job attribute preferences: who prefers what? *Employee Relations*, 34(2), 193–221.
- Teoh, S. H., & Hwang, C. Y. (1991). Nondisclosure and adverse disclosure as signals of firm value. *The Review of Financial Studies*, 4(2), 283–313.
- Towers Watson. (2012). *2012 – 2013 Global Talent Management and Rewards Study: The Next High-Stakes Quest - Balancing Employer and Employee Priorities*. Retrieved from <http://www.towerswatson.com/en/Insights/IC-Types/Survey-Research-Results/2012/09/2012-Global-Talent-Management-and-Rewards-Study>
- Turban, D. B., Forret, M. L., & Hendrickson, C. L. (1998). Applicant Attraction to Firms: Influences of Organization Reputation, Job and Organizational Attributes, and Recruiter Behaviors. *Journal of Vocational Behavior*, 52(1), 24–44.
- Uggerslev, K. L., Fassina, N. E., & Kraichy, D. (2012). Recruiting through the stages: A meta-analytic test of predictors of applicant attraction at different stages of the recruiting process. *Personnel Psychology*, 65(3), 597–660.
- Van Hoye, G., & Lievens, F. (2005). Recruitment-Related Information Sources and Organizational Attractiveness: Can Something Be Done About Negative Publicity? *International Journal of Selection and Assessment*, 13(3), 179–187.