

Public Sector Motivation in Germany-

A comparative study on work motivation and job satisfaction among civil servants and public employees in the city of Detmold

Bachelor Thesis

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Abstract

The study presented in the following examines the question in how far public employees and public servants as two distinct types of public workers exhibit different levels of job satisfaction and to what extent those are determined by intrinsic and different types of extrinsic motivation. This case study is conducted with a cross-sectional research design on different public organizations from the German city of Detmold. An online-survey is used as the quantitative data collection method. In summary, this research novelly compares German public servants and public employees in order to illuminate whether work motivation in general and the relationship between work motivation and job satisfaction differs across the two public worker groups. The scientific interest to compare the civil servants and public employees is motivated due to the two groups of public workers' different labor agreements. The officer status features numerous employment virtues in contrast to the employment as public employee. Potentially affecting the public workers' motivation and job satisfaction, this factor is given particular attention in the frame of this research. Finally, this study aims to test the validity of the Self-Determination Theory (SDT) with regard to public servants and public employees in Germany.

List of Abbreviations

b	- Unstandardized beta coefficient
OJS	- Overall Job Satisfaction Scale
p (-value)	- Probability value
SDT	- Self Determination Theory
R ²	- R-square

1. Introduction

More than ever before, the public sector at local level plays an important role in tackling diverse societal challenges that arise in the different regions, for instance due to the recent influx of refugees. Looking at the different segments of the public sector in Germany, such as schools, administrative authorities and courts, it is these public workers' performance on local level that contributes to the citizens' welfare and security due to the warranty of education, law and order in the communities. In order to safeguard the public workers' good performance and their continuance in the job, it is important to investigate the determinants thereof.

Until today, several studies, such as the prominent Hawthorne studies and the recent work by Judge, Thoresen, Bono and Patton, which compares several studies with regard to the correlation between job satisfaction and job performance, have yielded that job satisfaction is one of the most important determinants of good work performance (Judge, Thoresen, Bono, & Patton, 2001; Petty & Cacioppo, 1984). Similarly, research repeatedly identifies job satisfaction as an important condition, which has for instance a significant impact on the workers' turnover intentions (Tett & Meyer, 1993). At this point the question arises: What generates job satisfaction among public workers?

Bright found that public service motivation has a significant positive impact on the job satisfaction of public employees in the United States (Bright, 2008, p. 1). As the four intrinsic indicators of "self-sacrifice, compassion, public interest and public -policy making" (Bright, 2008, p. 155) based on the model by Perry and Wise (1990) were utilized to investigate the degree of public service motivation among public employees, the extrinsic dimension of motivation is neglected at this point.

In contrast, the *Self-Determination Theory* shaped by Gagné and Deci does not only deal with intrinsic work motivation, which implicates a public worker puts effort in his/her work due to personal motives such as finding the work activities interesting. It also considers the impact of different types of extrinsic motivation in affecting certain work outcomes. Categorizing intrinsic and different types of extrinsic (social-extrinsic, material, extrinsic, introjected, integrated and identified) motivation into the two groups of autonomous and regulated motives, Gagné and Deci (2005) predict that the rather autonomous (identified,

integrated and intrinsic) motivation types yield the most positive work outcomes. Differently, the more controlled reward-based extrinsic types of motivation would yield rather poor work outcomes (Gagné & Deci, 2005). Therefore, following from the Self-Determination Theory, when studying the public workers' determinants of job satisfaction in terms of motivation, there is also the extrinsic dimension to be considered, with the different types of extrinsic motivation affecting job satisfaction in different ways depending on the degree of autonomy that they are connected to.

Concerning this relationship of interest, the German public sector presents an extraordinary case, barely dealt with in previous literature. Ammon (2006) compared the German public and the private sector, examining the correlation between the four variables of performance motivation, organisational commitment, perceived job autonomy and locus of control (Ammon, 2006). However, so far, no scientific work has compared German civil servants and public employees, as two distinct groups of public workers, with regard to the relationship between work motivation and job satisfaction. Still, the specific differences in employment conditions and status between the German public servants and public employees arising from the two groups' different types of labour contracts (Linde & Jansen, 2010) give reason to assume that the two distinct groups of public workers in Germany differ significantly with regard to their types of work motivation and level of job satisfaction, which shall be elaborated in the following.

While employees in the German public sector can be compared legally to ordinary employees employed with a collective labour agreement under private law, public servants are bound to a "Dienst- und Treueverhältnis" (Bundesbeamtengesetz, § 4), a special relationship of service and loyalty, to the state, which is subject to public law. The German public servants are appointed via an administrative act, the "Verwaltungsakt auf Unterwerfung" (Linde & Jansen, 2010, p.1). From their appointment and the civil servant law, which they are hence subject to, follows that they shall efficiently fulfil sovereign tasks related to public affairs as representatives of the state apparatus. In return, they are granted special privileges with regard to their salary, position and pension, for instance (Klär, 2015). Klär points out that budget cuts since the 1990s led to less financial bonuses for the public servants and to more working hours per week than among public employees. Still, it is unquestionable that until today, the civil servant status involves a lot of appealing employment merits such as job security,

pension rights, and a better health insurance compared to the job of public employee (Klär, 2015, p. 11).

Due to these employment privileges resulting from the distinct public-law employment relationship of German public servants, the widely known German prejudice appears highly realistic that the public servants choose their job predominantly based on extrinsic motives. This assumption would imply that German public servants are more often reward-based extrinsically motivated than public employees. With reference to Self-Determination Theory, this would mean that the regulated- extrinsically motivated public servants are predominantly less satisfied with their jobs than their employee colleagues.

At this point, the questions arise whether there are meaningful differences between the job satisfactions of both types of German public workers, which types of work motivation the two groups predominantly show and in how far those ultimately have an impact on the respective workers' level of job satisfaction. These questions are unanswered yet due to the above mentioned lack of available data on public workers in Germany on the relationship of interest.

Furthermore, the question emerges whether Self-Determination Theory holds for the German public sector with regard to the distinct differences in employment relationships between public servants and public employees. After all, most of the research about public sector employees with reference to SDT has been dealing with the United States as research setting (Gagné and Deci, 2005), without taking into account particular differences between public servants and public employees with regard to their labour contracts, following employment conditions and consequences for work outcomes such as job satisfaction. This chain of effects might be considered a distinctively German one ascribable to the mentioned distinct German institutional laws and structures, as described by Linde and Jansen (2010).

Finally, the following research investigates the differences between the levels of job satisfaction and types of work motivation between German public employees and public servants in order to examine the universality of Self-Determination Theory and to help filling the mentioned gap in literature with data and knowledge about the differences between the two types of German public workers concerning the investigated causal relationship. Focussing on the theoretical assumptions of SDT, the following study includes intrinsic motivation as well as the different types of extrinsic motivation, controlled reward-based,

identified, introjected and integrated, as presented by Gagné and Deci (2005). Expecting a difference between the job satisfactions of both types of public workers, according to SDT, likewise the types of motivation shall generally differ between the public servants and public employees.

Ultimately, the following study not only aims to contribute to the scientific body of knowledge in the field of public sector motivation, novelly investigating and providing empirical insights about the difference between German public servants and employees with regard to their work motivation and levels of job satisfaction. From societal perspective, it is also valuable to examine the determinants and different distributions of job satisfaction among the different types of public workers as a basis for finding ways to increase and safeguard the job satisfaction of a great amount of public workers in the future in order to maintain their good performance and the stay in their job.

2. Research question

In order to attain the research aim mentioned above, the following study examines the question to what extent there is a difference between the levels of job satisfaction as well as types of work motivation between German public employees and public servants and in how far possible differences in work motivation do explain the variation in job satisfaction between both types of public workers.

In summary, this research deals with the two-folded explanatory question:

a) To what extent do the different types of autonomous and regulated motivation have an impact on the levels of job satisfaction of public servants and public employees in the German city of Detmold and b) in how far does the employment status affect both the type of motivation and level of job satisfaction that a public worker exhibits?

Before answering the two main explanatory questions, the following sub-questions shall be addressed:

1. What are the respective levels of job satisfaction of public servants and public employees?
2. Which types of work motivation do the distinct groups of public servants and public employees predominantly show?

3. What drives the job satisfaction of the two types of public workers in terms of work motivation?
4. Do those driving factors explain differences in the levels of job satisfaction between public servants and public employees?

3. Concepts and theory

3.1. The concept of job satisfaction

The concept of job satisfaction has already been examined for many years and in innumerable research works in the social sciences. In his work from 1969, Edwin A. Locke summarizes:

“Job satisfaction is the pleasurable emotional state resulting from the appraisal of one's job as achieving or facilitating the achievement of one's job values” (Locke, 1969, p. 316).

Similarly, Egan and his researcher colleagues defined job satisfaction as “an employee’s affective reactions to a job based on comparing desired outcomes with actual outcomes” (Egan, Yang, & Bartlett, 2004, p. 283). Hence, summarizing those authors definitions, job satisfaction can be described as the degree to which an employee’s actual professional work tasks and work task outcomes meet the individual’s desires and thereby contribute to the person’s positive emotional state.

While Locke (1969) sees job satisfaction and job dissatisfaction as two opposites, in the frame of his two-factor theory, Herzberg argues that these two work attitudes have to be looked at as two independent dimensions where the absence of job satisfaction would not automatically mean job dissatisfaction and the absence of the latter would not cause job satisfaction (Herzberg, 1968). Furthermore, job satisfaction and dissatisfaction would be conditioned by distinct factors. Whilst achievement, recognition, the work itself, responsibility, advancement and growth, which Herzberg summarizes as the “motivators” (Herzberg, 1968, p.9), would increase job satisfaction, the “hygiene factors” (p.9) company policy, administration, supervision, work conditions, salary, relationship with peers/the supervisor/subordinates, status and security would determine the level of job dissatisfaction (Dugguh & Dennis, 2014).

But since diverse researchers found evidence against the “mutual exclusiveness” (House & Wigdor, 1967, pp. 372-373) of the two dimensions of work attitudes as stated by Herzberg, this theory became scientifically contentious.

Besides multiple other researchers, Dunnette and his colleagues discovered that the four dimensions of “Achievement, Responsibility, Recognition, and Supervision- Human Relations” (Dunnette, Campbell, & Hakel, 1967) that had been introduced by Herzberg, are actually linked to both job satisfaction and dissatisfaction. Spector emphasizes this development in the field of science with the definition that “Job satisfaction is simply how people feel about their jobs and different aspects of their jobs. It is the extent to which people like (satisfaction) or dislike (dissatisfaction) their jobs [...] job satisfaction is an attitudinal variable” (Spector, 1997, p. 2).

The following study seizes on this rather contemporary conceptualization, which implies that job satisfaction and job dissatisfaction shall be regarded as two interdependent poles and that total job satisfaction comprises the individual’s attitude towards a variety of different aspects related to one’s work.

Still, the relevance of the two-factor theory by Herzberg in the field of research on job satisfaction and for later works shall not be denied (Hulin & Judge, 2003). For instance, the multi-item scale for the measurement of job satisfaction by Bright, which was newly developed from the review of diverse previous works in the frame of his oft-cited study in 2008, reflects the two- factor theory’s scientific impact. After all, the indicators of “satisfaction with opportunities for achievement, recognition, responsibility, meaningfulness, and advancement” (Bright, 2008, p. 156) coincide to a great extent with factors listed by Herzberg (1968) as “motivators” for job satisfaction (p.9).

Different from the emotion-based conception of job satisfaction by Locke (1969), the indicators for job satisfaction used by Bright (2008), refer to the term of cognitive job satisfaction as they can be told to enquire individuals’ assessments of their work “ which do not rely on emotional judgements, but instead are evaluations of conditions, opportunities, or outcomes” (Moorman, 1993, pp. 761-762).

Recent research identifies job satisfaction as a multidimensional construct that may inhibit “cognitive (evaluative), affective (emotional), and behavioral components” (Hulin & Judge, 2003, p. 255), which multidimensionality is taken into account in the frame of this research.

Concerning the importance of job satisfaction, the Hawthorne Studies as well as several recent researches yield that a person is most likely to perform well when he/she is satisfied with the own job (Petty & Cacioppo, 1984). Hence, in order to ensure the good performance of the individuals, it is important to safeguard the job satisfaction among public workers. But in order to be able to do so, it is essential to examine its determinants. The recent research by Bright from 2008 yields that public service motivation has a significant positive impact on the job satisfaction of public employees in the United States, which relationship is strengthened in the presence of person-organization fit. In this study as well as in most researches in the field of public service motivation, it is suggested that intrinsic work motivation plays an important role in determining positive work outcomes, for instance job satisfaction, commitment in the organization and high-level performance (Deci & Gagné, 2005).

Similarly as Bright, Deci and Gagné acknowledge the importance of considering the social environment including the “work climate” as well as “job content and context” (Deci & Gagné, 2005, p. 340). But in contrast to Bright, the two scholars emphasize that those social factors do not impact job satisfaction directly but that they rather determine the type of motivation a public worker exhibits. Hence, the social environment is not considered to have an impact on the relationship between motivation and job satisfaction. In this sense, although spuriousness can never be perfectly ruled out when testing for a causal relationship, work motivation seems a substantial determinant of job satisfaction and shall therefore be examined as explanatory variable in the frame of this research.

3.2. Distinguishing public service motivation and public sector motivation

Perry and Wise predict that a public worker is most motivated to work on his/her job when either the “participation in the process of policy formulation” is highly appreciated, the program is personally identified with, the individual is altruistically or morally driven to “serve the public interest” and/or the individual recognized the social relevance of the work activities (Perry & Wise, 1990, pp. 360-370).

But with regard to SDT, it is not only intrinsic motivation that is to be considered when investigating the public workers' job attitudes and behaviour but extrinsic motivation has to be taken into account as well. In contrast to the term of *public service motivation* described by Perry and Wise (1990) as capturing the facets of an individual public worker's intrinsic motivation, the term of *public sector motivation* that research usually refers to as the “work

motivation in the public sector”(Wright, 2001) is able to describe the entirety of the public workers’ motivation to work in the public sector in general. Hence, the following research refers to the term public sector motivation to describe both, public sector workers’ intrinsic and extrinsic motivation.

3.3. Assumptions from Self-Determination Theory and concepts of the different types of work motivation

When investigating the relationship between work motivation and job satisfaction, the Self-Determination Theory with the theoretical extensions by Deci and Gagné can be considered the most important theoretical basis. Deci and Gagné (2005) differentiate between intrinsic and different types of extrinsic motivation on a continuum from controlled to autonomous motivation, which reflect the employee’s attitude towards his/her work activities.

According to the Self-Determination Theory, *intrinsic motivation* can be conceptualized as the “inherently autonomous” ” (Deci & Gagné, 2005, p. 336) intention to accomplish one’s work activities successfully, which is perceived personally as appealing and “for which the reward [consequently lays] in the activity itself”(Ryan & Deci, 2000, p. 57).

Integrated extrinsic motivation, implying that the organization’s goals and values are extensively internalized as the own, which one identifies with without regarding the activities as interesting, is also seen as an autonomous type of motivation.

In contrast, *extrinsic motivation* means “an activity is done in order to attain some separable outcome“(Deci & Ryan, 2000, p. 60). In this context, the worker is told to be mainly dependent on and “controlled” (Deci & Gagné, 2005, p. 334) by the tangible or verbal rewards by his/her organization in exchange for the task fulfilment, with the absence or extensively subordinate role of personal intrinsic impulses, interest in the activity itself, identification or integration of the goals and values that go with the working activities.

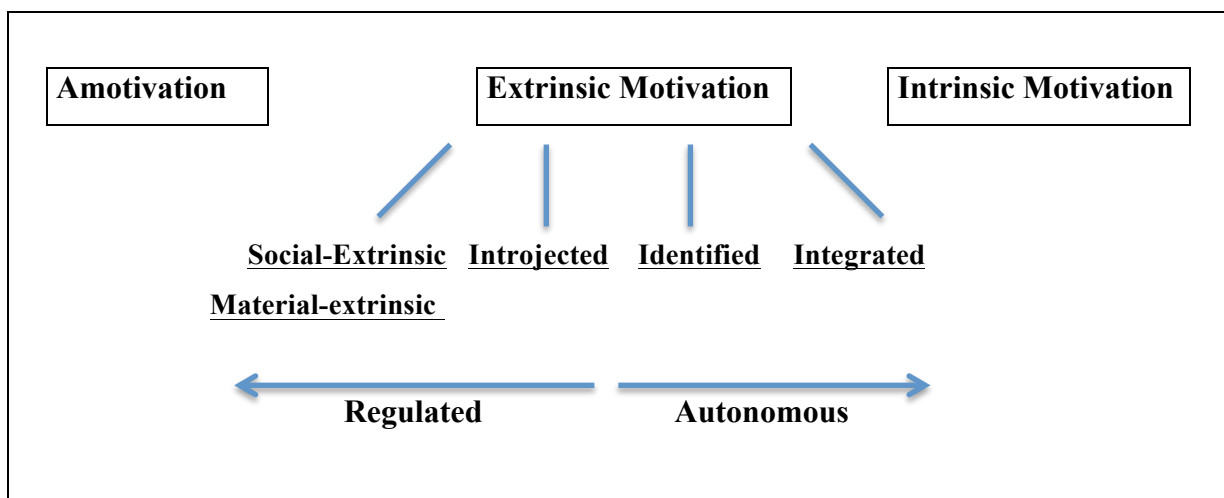
Identified motivation, where the organization’s goals and values are acknowledged as important without being internalized, is considered to be moderately autonomous. Finally, *introjected motivation*¹ as the “moderately controlled” type of extrinsic motivation implies

¹ As it is explained further in the operationalization chapter of this research paper, the integrated type of motivation is not included in the survey and hence is not further mentioned in the frame of this study. However, for reasons of theoretical integrity, as an element of Self-Determination Theory, it is still mentioned at this point in the theory section.

that internalization takes place not in form of value integration but in the sense that the work activities' performance are connected to one's feelings of "contingent self-esteem" (Deci & Gagné, 2005, p. 335).

Finally, Deci and Gagné assume that the different types of motivation would not be additive but have to be considered separately and with their respective relative strengths with regard to the individual's work motivation in general (Deci and Gagné, 2005).

Figure 1 *Work motivation continuum of Self-Determination Theory*



Designed with reference to Deci & Gagné (2005, p.336)

Overall, Deci and Gagné are convinced that any person's level of autonomous work motivation is determined by the satisfaction of his/her three basic psychological desires of "competence" and "relatedness" and, in particular, "autonomy" (Deci & Gagné, 2005, p. 336-337). Ultimately, Gagné and Deci summarize with evidence from previous research that due to the high degree of autonomy, intrinsic, integrated and identified extrinsic motivation most likely yield high levels of "performance, satisfaction, trust and well-being in the workplace" (Deci & Gagné, 2005, p. 356). On this theoretical basis, the following research examines the correlation between work motivation and job satisfaction with regard to German public servants and public employees.

3.4. Comparison between public servants and public employees as novel research aspect

Self-Determination-Theory, which was significantly shaped by Deci and Gagné (2015), is not tied to a specific type of organization or group of employees. With the notion that work autonomy, as integral part of work motivation, is important to be considered when the

relationship between work motivation and different outcome variables is investigated, SDT has proved to be applicable in diverse working environments, institutions and different countries (Deci & Gagné, 2005). However, like science in general, the theory cannot simply claim universal applicability and researchers have to investigate SDT's applicability for every single area separately.

So far, most researches linked to SDT have been dealing with the United States as the research setting and the public sector has been looked at as a whole, when the relationship between work motivation and different work outcomes was investigated, for instance by Bright (2008).

Regarding research in Germany, Ammon examined how performance motivation, organizational commitment, perceived job autonomy and locus of control are correlated. But although both, public employees and public servants participated in the study, the two groups were not compared with regard to those variables but the public and the private sector in Germany were compared in general (Ammon, 2006).

Furthermore, the dissertation by Klär from 2015 deals with the work motivation of German public servants and employees with the aim to elaborate possible strategies to enhance the motivation that would not be triggered by the employment virtues of the public sector anymore nowadays. In this research, diverse theories about human motivation but SDT, the distinct employment circumstances that arise from the German legal framework as well as findings from previous research are illustrated in a descriptive manner. Besides, statements are made about the motivation of the German public sector as a whole before possible solutions for its enhancement are presented (Klär, 2015).

After all, in his work from 2015, Klär substantiates the importance to look at the differences between public employees and servants with regard to the issues of employment relationship and variation in motivation. The two worker groups' differences in employment conditions and status due to distinct labour contracts (Linde & Jansen, 2010) give reason to assume that the two groups of public workers in Germany differ significantly with regard to their types of work motivation and levels of job satisfaction. This causal relationship and the applicability of SDT in this context have not been investigated yet. Therefore the questions arise whether the different types of public workers differ significantly with regard to their types of motivation and levels of job satisfaction and whether the theoretical assumptions

from Self-Determination hold for the case of German public employees and public servants regarding this correlation.

Hence, in the frame of the following study, the different types of work motivation presented by Gagné and Deci (2005), (regulated) social-extrinsic, material-extrinsic, introjected as well as (autonomous) identified and intrinsic motivation, are examined with regard to their respective impact on job satisfaction. Thereby, the following hypotheses, referring to Self-Determination Theory, shall be investigated in the frame of the following theory- testing inquiry of German public employees and servants:

***H1:** Public employees are more autonomously motivated with regard to their work than public servants.*

***H2:** Public employees have lower levels of regulated motivation than public servants.*

***H3:** Public workers with a more pronounced autonomous identified or intrinsic motivation have higher levels of job satisfaction than public workers with more pronounced regulated extrinsic or introjected work motivation.*

As Self-Determination Theory classifies the different types of work motivation according to their degrees of autonomy, this research seizes the division into the dimensions of autonomous and regulated motivation. Still, the study is also interested in the question in how far each single type of motivation concretely impacts the level of job satisfaction of a public worker. Hence, the third hypothesis does not merely deal with the subordinate concepts of regulated and autonomous motivation as grouped independent variables but the relationship between each type of motivation and job satisfaction is examined individually.

The first two hypotheses additionally stem from popular beliefs about public servants in Germany and from the work of Klär (2015) that refers to the two working groups' legally rooted different employment relationships.

Today, public servants still have significant privileges concerning their employment conditions compared to public employees and the servant status is widely known as sought for due to the high salary and job security. Hence, it stands to reason that public servants choose their job predominantly with extrinsic motives and are consequently rather regulated motivated at work. In difference, public employees agree to work less secure, less privileged and for a relatively lower salary so that in general there have to be other than regulated

extrinsic factors that motivate those people to work. Therefore, it is assumed that public employees are predominantly autonomously (intrinsically or identified) motivated concerning their profession.

The third hypothesis refers to the assumptions of Self-Determination Theory and previous research, such as conducted by Bright (2008), which found a significant positive relationship between intrinsic motivation and job satisfaction. Hence, it is to be assumed that those public workers who show high levels of job satisfaction should be intrinsically or identified motivated while relatively low levels of job satisfaction should be related with regulated types of motivation.

Finally, in order to test for reversed causation, a fourth hypothesis shall be added. According to Judge et al. (2001), job satisfaction with its numerous positive implications is both affected by different work conditions and equally conditions positive work outcomes such as a good work performance, so that the correlations are oftentimes bilateral. Hence, with regard to work motivation, it is possibly not only the different types of work motivation that affect job satisfaction, but in turn, job satisfaction as well, might have an impact on the nature of motivation at work that a public worker exhibits. Besides, regarding the notions of the third hypothesis about the varying impact of the different work motivation types on job satisfaction, this nature of the relationship should also hold for the reversed correlation. Thus, the fourth hypothesis to be tested in this research is:

***H4:** Job Satisfaction has a positive impact on the manifestation of autonomous motivation among public servants.*

4. Methodology

4.1. Research design

In order to investigate the presented assumptions about German public servants and public employees, a case study is conducted with the city of Detmold in North-Rhine Westphalia as the research setting. Detmold is chosen as a representative German city and as the “city of officials” (Schmidt, 2006, p. 363) with a large number of officials working there.

In general, a case study means “to reflect on a broader population of cases” (Seawright & Gerring, 2008, p. 294). As a typical German city with equal institutional structures and public

employment policies as all over Germany, the case study on Detmold might yield findings about the investigated relationship and the differences regarding public servants and public employees that can be possibly applied to all of Germany.

Furthermore, a cross-sectional research design is used. Cross-sectional research implies in general that a certain population is assessed with regard to a particular cause-and-effect-relationship “at one point in time” (Mann, 2003, p. 56). Gerring and McDermott equate the cross-sectional research with the term of a “spatial comparison”, which may comprise the causal comparison of two or more groups/ cases where the “spatial differences between the two cases are the product of antecedent changes in one (or both) of the cases” (Gerring & McDermott, 2007, pp. 394-395). This case study corresponds with the definition of a spatial comparison as the population of Detmold is not assessed as a whole but the two distinct groups of public servants on the one hand and public employees on the other hand are interrogated at one point in time.

The cross-sectional research design is chosen on the one hand because of feasibility reasons in a limited scope of time. On the other hand, this research design enables to identify the associations of interest (Mann, 2003), methodologically focussing on the comparison of the present determinants of job satisfaction across the two groups of public workers.

Concerning the threats to causal inference, with a cross-sectional research design, it is difficult to foreclose reversed causation on the one hand and spuriousness on the other hand. Therefore, the fourth hypothesis in this study aims to test for reversed causation between work motivation and job satisfaction as the main variables of interest in this research. Besides, multiple demographic variables are included and hierarchical multiple regression models are used for the statistical analysis for the attempt to rule out spurious influences.

4.2. Data collection method

In order to collect data from diverse public workers from Detmold, an online-survey was created on the university's LimeServer to be used as the quantitative data collection method.² German has been chosen as the language of the survey to make it as comprehensible and comfortable to fill in for the wide range of public workers in Detmold.

² A document version of the survey catalogue can be found in the appendix of this research paper.

The electronic method was chosen in place of a personal distribution of the survey in hardcopy form for the first alternative is to be considered less time-consuming and easier to handle for the research participants as well as less time-consuming and less expensive for the researcher.

Finally, although some of the contact data from public employees and servants in Detmold is publically available, the heads of the organizations, superior managers or the personnel department, presented as the respective responsible authorities on the websites of the organizations, were approached telephonically as well as via email, to inform them about the study and to ask for their organization`s official permission for their servants and employees to participate in the study.

The online survey was activated for participation from May 4th 2016 until May 31st 2016.

4.3. Case selection and sampling

In order to be able to draw conclusions about public servants and public employees in general and to avoid biased results bound to just one type of public organisation, diverse public institutions that are located in the city of Detmold were contacted for participation in this study. For reasons of anonymity and confidentiality, the identity of the participant and the employing organization is not retraced. Besides, the questionnaire only asks for the field of work, with the options of *administration, school, police, court, fire station* and *not specified*, which were thought to cover in principal all public organizations employing both public servants and public employees in Detmold. Due to extensive formal administrative procedures that would have had to precede the participation of the police and due to the limited scope of time, this type of organization is unfortunately not considered in the frame of this study. Multiple public institutions from each of the other working fields participated in the research.

After the consent and permission for participation of the own public workers was given, in the case of each participating organisation, the alternative was agreed upon that the information email including the link to the online-survey, is forwarded by the institution`s responsible superior himself/herself to the broad mass of the organization`s public workers included in the respective institution`s mailing list. In order to enable the frequent forwarding of the survey link, no tokens were made use of but the survey was set to the option of being openly accessible with one invariable link. The favourable organisations and the researcher agreed on this collaborative procedure, as the mass of potential participants included in the

internal mailing lists would not be approachable for the researcher without the respective superiors' authoritative invitation to his subordinates to participate in the survey. Hence, due to the use of internal mailing lists, in the case of each participating organization, random sampling took place.

Ultimately, the survey link and study description was sent electronically to three administrative institutions, one fire station, two judicial organizations and seven schools in Detmold. The inclusion of the researcher in two of those round mails, subsequent reassuring electronic responses and telephone conversations with the organisation's representatives after the internal forwarding, give evidence that three administrative institutions, at least three secondary schools, one fire station and one judicial institution located in Detmold participated in the survey. One of these central responsible administrative institutions has forwarded the survey link to many public workers in different working fields in Detmold. Hence, it is possible that other schools than contacted by the researcher and additional public agencies connected to this central administrative organization participated in the survey. Eight participants did not indicate their working field, which might imply that certain types of working fields, with regard to the public sector in Detmold, are missing in the survey.

In total, 215 public workers, from 242 potential participants who started the survey, of different age, gender and organisational tenure, with different educational achievements and from different areas of the public sector in Detmold submitted their answers for the online-survey of this study. About 43 % of the participants are employed as public servants and the other 57% are public employees. Those rates are representative of the employment reality, as a comparably low amount of public servants is employed in the German public sector. According to official statistics, in 2013, about 1.7 million public servants, judges and state prosecutors were employed in the public sector while the total number of public employees amounted to almost 2.8 million (Bundesministerium des Inneren, 2014).

Most participants indicated vocational training as their highest educational achievement (31%), while a university and polytechnic degree, with respectively 30%, were also common among the participants. While the great majority of the participants is female (about 64%), the different age groups are equally represented in this study, with the youngest participants around twenty and some participants being older than sixty. 1972 was accordingly indicated as the earliest year of one's employment start as well as 2016 was also stated by some

participants. The majority of participants (41%) started their job career in the last five years, and in total, 71% started their job in the last 16 years. In summary, most survey participants (70%) work in one of three central administrative institutions, which employ the majority of public workers in Detmold altogether, and the education sector is represented with about 18% of the participants.

Table 1. *Descriptive Statistics about online-survey participation*

N= 215

Variables	Public servant		Public employee			
Type of employment	43,3%		56,7%			
	Male		Female			
Gender	35,8%		64,2%			
	Abitur	Vocational training	Polytechnic degree	University degree		
Educational Achievement	9,8%	31,2%	29,3%	29,8%		
	19-29	30-45	45-60	>60		
Age (in years)	20,9%	34,4%	42,3%	2,3%		
	2011-2016	2010-2001	2000-1991	1990-1972	No response	
Year of job entry	40,9 %	30 ,2 %	15,3%	12,6%	0,9%	
	Administration	Education	Court	Fire station	No response	
Work field	70,2%	18,1%	6%	1,9%	3,7%	

5. Operationalization

5.1. Assessment and indicators for motivation

With the aim to examine the causal relationship between work motivation and job satisfaction, the online- survey as the data collection method of this study incorporates multiple indicators for those two variables as well as different control variables.

Apart from the control variables of age, gender, organizational tenure and educational achievement (Abitur, vocational training, polytechnic degree, and university degree), the dichotomous variable of the employment type, which differs between the options of being employed as a public servant or as a public employee, plays an important role in this study.

Besides, in order to examine if the place of employment might have an impact on the causal relationship that is investigated, the research participants are asked if they work in the administration, at a school, a court or a fire station. Those were chosen as the fields of work where both types of public workers and thereby potential research participants are employed. For reasons of anonymity and data protection, only the field of work and not the concrete employing organisation has been asked for. In order to explore the potential impact of the demographic factors, the variables of gender, employment status and organizational field are transformed into dummy variables, as those manifestations do not inherently involve an order. Thus, a detected significant impact of a certain dummy variable, and the unstandardized beta coefficient related to it, are to be evaluated with reference to the other manifestations of the same variable.³

In order to test for the influence of the mentioned demographic variables on work motivation and job satisfaction, the analyses in the frame of the third and the fourth hypothesis do not comprise bivariate regressions but hierarchical linear regression models are respectively constructed. The inclusion of the demographic variables in step two shall show in how far the endogenous variables are affected by those additional factors and to which extent the explanatory power of the model changes thereafter. Thus, the hierarchical linear regressions are not only conducted to test for the potential impact of the demographic factors but in this way, also the strength of the main (work motivation/ job satisfaction) independent variable in predicting the respective outcome variable is examined.

Drawing on the theoretical assumption by Gagné and Deci (2005) that work motivation varies on an autonomy continuum, the items from the multidimensional work motivation scale by Gagné et al. (2015) were chosen to be used in order to inquire the different types of work motivation among the public servants and employees with this survey. Concretely, the original items for intrinsic motivation, identified, introjected, material and social regulated extrinsic motivation were taken up from Gagné et al. (2015) and translated into German, with slight idiomatic adjustments being made. Gagné and her colleagues did not include integrated motivation with the argumentation that it would not be statistically separable from intrinsic and identified motivation, while adding “no apparent values” (Gagné et al., 2015, p. 16).

³ For instance, the highest positive unstandardized coefficient for a particular dummy variable of the working field variable would mean that the relationship between this manifestation and the endogenous variable is more positive compared to the impact of the other types of working field.

Following this reasoning, the study at hand does not include integrated motivation as well. Besides, the dimension of amotivation is left out, as it is not considered to be relevant with regard to the aim of this research and as it seemed inappropriate to impute the complete absence of work motivation to any of the research participants.

As the multidimensional work scale developed by Gagné et al. (2015) has been successfully tested for criterion, factorial, convergent and discriminant validity as well as for structural invariance, this instrument is considered to be scientifically viable for examining the mentioned concepts of interests.

In total, the 16 items retrieved from the multidimensional work scale (Gagné, 2015) include the indicators of *fun at work, interest, excitement* (intrinsic motivation), *effort alignment with personal values, personal significance, personal importance consideration* (identified), *proving to oneself the personal ability, feeling proud, bad, ashamed* (introjected), *others' respect, approval, avoidance of criticism* (socially regulated extrinsic), *financial rewards, job security/ promotion, risk of losing the job/ being seconded/similarly sanctioned* (materially regulated extrinsic motivation). The two latter items were completed with the opportunity to be promoted for one's efforts at work or being sanctioned/seconded for the absence of effort because the original items that ask only for job security and job loss are not applicable to the German public servants for reasons mentioned above. Hence, without this addition, this research would have yielded biased results in the sense that erroneously, an unrepresentative little number of public servants would have indicated to be material-extrinsically motivated.

For the respondents to rate every of the statements regarding their work motivation, thereby answering the introductory question *What motivates you to put effort in your current job?*, the original seven-point Likert scale from Gagné (2015) with *1=not at all, 2= very little, 3=a little, 4= moderately, 5=rather strongly, 6=very strongly* and *7=completely* was used in the survey.

For the aim of a clear comparison, the related motivation items based on the original motivation categories used by Gagné (2015) are firstly grouped into the index variables of introjected, identified, social-extrinsic, material- extrinsic and intrinsic motivation. Furthermore, in order to test the research hypotheses 1, 2 and 4 that are based on Self-Determination Theory, the variables of identified and intrinsic motivation are summarized into the variable of autonomous motivation. Equally, the items for social-extrinsic, material-

extrinsic and introjected work motivation form the variable of regulated motivation. As depicted in Table 2, each indexation of the variables is statistically legitimized with the Cronbach's alpha values for scale reliability exceeding .70 (Santos, 1999). Only the value of .528 for the extrinsic-material motivation variable indicates that the composition of the three items might not be suitable to measure the trait of material-extrinsic motivation among the public workers. Still, due to theoretical reasons, this variable is nevertheless included in the analysis. Furthermore, the value of .778 for the ten items of the regulated motivation variable certifies that it is appropriate to use this construct for analysis.

For the indexations of the motivation variables, equally as with the items for job satisfaction, the means from all of the related motivation items' values are combined into a single composite score. Hence, at this point as well as throughout the statistical analysis, the motivation and job satisfaction indexes are treated as interval variables as recommended for Likert- scale data in literature (Boone & Boone, 2012).

5.2. Assessment and indicators for job satisfaction

In order to measure the levels of total job satisfaction among the two groups of public workers, this survey includes indicators for the two dimensions of emotional and cognitive job satisfaction, in consideration of the multidimensional character of this concept (Hulin & Judge, 2003).

The six items used to assess the cognitive dimension of job satisfaction as well as the introductory question *Are you satisfied with your..?* originate from the job satisfaction scale by Bright that proved reliable and scientifically viable in the frame of his work from 2008. The original indicators of the "recognition opportunities", the "level of responsibility" and job's "meaningfulness" are directly translated while "opportunities for achievement" are rephrased into *prospects of success at work* to make it more comprehensible and tangible for the respondent. Furthermore, the indicator of the "advancement opportunities" (Bright, 2008, p. 156) is divided into *promotion opportunities* and *opportunities for professional advancement (due to i.e. advanced training)*, as the German term of advancement is rather broad.

Finally, those items represent the cognitive dimension of job satisfaction because they do not merely inquire the feelings associated with one's work, but of "evaluations of conditions, opportunities, or outcomes" (Moorman, 1993, pp. 761-762) in relation to the job are inquired.

In order to measure the levels of job satisfaction, Bright (2008) used the same seven-item scale as Gagné and her colleagues did to measure the different types of motivation (2015). Hence, also in this survey, the same seven-item scale is used to measure cognitive job satisfaction.

To include the emotional dimension of job satisfaction, while maintaining a reasonable moderate length of the survey, six items were retrieved from the Overall Job Satisfaction Scale (OJS). Based on the evaluations of social and cognitive psychologists, research identified this scale to measure predominantly affective job satisfaction (Schleicher, Watt, & Greguras, 2004). After all, the six items about being “fairly well satisfied”, finding “real enjoyment”, being “often bored”, the job being “pretty uninteresting”, being “enthusiastic” most days and each day seeming to “never end” (Schleicher et al., 2004, p. 176) were chosen because the research by Schleicher et al. (2004) mostly classified them as highly affective (one with 55 %, the rest with 90-100%). The items were directly translated into German. After all, three of the items ask for positive feelings and three ask for negative feelings, hence measuring both job satisfaction and job dissatisfaction. In order to compute the levels of total job satisfaction, those 6 items are to be weighed against one another and finally the results from the items reflecting both the emotional and cognitive job satisfaction dimension are added.

Although originally, a 5-item scale was used to measure job satisfaction with OJS, a 4-point- Likert scale, typically without a middle neutral category, was chosen for this survey, as research found that the middle option is increasingly chosen for when the scale is shorter because of a “social desirability bias” (Garland, 1991). Hence, the 4-point item scale with the four categories of *1 = Disagree; 2. Somewhat disagree; 3. Somewhat agree; 4. Agree* was chosen to attain more meaningful results.

Similarly as for work motivation, the related items for the two types of job satisfaction are firstly summarized into the two variables of cognitive and emotional job satisfaction.⁴ Furthermore, to be able to create an index variable for the analytical examination of total job

⁴ In order to standardize and group all of the items for emotional job satisfaction, the items V13b, d and e had to be reversed as they deal with job dissatisfaction. The Cronbach's alpha values of .859 for the cognitive satisfaction items and 0.885 for the emotional satisfaction items, legitimize the indexation (see Table 2 and Appendix, Tables 8.1-8.3)

satisfaction, the different items are standardized. Concretely, the answers from the 7-point scale are statistically aligned with the answers of the 4-point scale⁵ in order to be able to summarize the differently scaled answers for emotional and cognitive job satisfaction.

Table 2. *Indexation of motivation and job satisfaction items*

Variables	Number of items	Likert-scale type		Cronbach` s alpha
		4- point	7- point	
<u>Autonomous Motivation</u>	6		X	.863
Intrinsic	3		X	.934
Identified	3		X	.863
<u>Regulated Motivation</u>	10		X	.778
Introjected	4		X	.762
Material-extrinsic	3		X	.528
Social-extrinsic	3		X	.716
<u>Total Job Satisfaction</u>	12		X	.889
Cognitive	6		X	.859
Emotional	6	X		.885

6. Data analysis

6.1. Evaluation of average values for (cognitive and emotional) job satisfaction

In order to evaluate the data from the online- survey, the statistics program IBM SPSS Statistics 23 is used.

As job satisfaction presents the central concept of interest in this study, in the following, the mean values indicated for each indicator of cognitive and emotional job satisfaction shall be looked at. Thereby, the values shall be examined to evaluate how public workers assess their

⁵ For the standardization, the 7-point scale answers were transformed into the values 1; 1,5; 2; 2,5; 3; 3,5; 4.

satisfaction with the different work aspects and how this assessment differs between the two groups of public workers.

Regarding the responses about the different aspects of job satisfaction depicted in Table 3, the mean values for all respondents as a whole show that concerning the cognitive dimension of job satisfaction, the public workers are moderately satisfied with their prospects of success, recognition opportunities and professional advancement opportunities. They are rather strongly, and thereby more, satisfied with the meaningfulness of their job and they are especially satisfied with their level of responsibility at work. The satisfaction with one's promotion opportunities was rated lowest, indicating that the public workers are just a little satisfied with this aspect. Differently, the assessment of the aspects of emotional job satisfaction is rather neutral.⁶ On average, the public workers rather agree with the positive statements about satisfaction, enjoyment and enthusiasm while they rather disagree with the negative statements about boredom, a pretty uninteresting work and never ending working days.

When looking separately at the average values from the answers given by public servants and public employees that are depicted in Table 3, on the one hand, it stands out that on average, the values differ no more than maximally one answer category for each item between the two groups. This observation indicates that the job satisfaction does generally not differ to a great extent between both types of public servants.

Looking at the indicators for emotional job satisfaction, on a scale from 1 (disagree) to 4 (agree), on average, both public servants and public employees *rather agree* (responses around option 3) to be fairly well satisfied, finding real enjoyment and being enthusiastic about their job on most days. While public servants mostly *disagree* (with mean values around 1,4) to be often bored, that they find their job pretty uninteresting and that each day would seem to never end, the public employees (with average values around, 1,7) *rather disagree* with those statements.

Hence, the results yield that over all, concerning the emotional dimension, public servants are slightly more satisfied with their job aspects.

⁶ The rather neutral assessment of emotional job satisfaction with the indicated values varying from rather agree to rather disagree might also be attributed to a social desirability bias as and to the lower number of response options with the 4-point scale that was used for these items.

With regard to cognitive job satisfaction, which was assessed on a 7-point-Likert-scale, both groups of workers are moderately satisfied (averagely around answer option 4) with their prospects of success at work, recognition opportunities and opportunities for professional advancement. Furthermore, both groups are *rather strongly* satisfied with the meaningfulness of their jobs (around answer option 5). While public servants are most often moderately satisfied with their promotion opportunities and very strongly satisfied with their level of responsibility at work, public servants are rather strongly happy with their responsibility at work and are only *a little* satisfied with their promotion possibilities.

Finally, it is salient that although the average values, especially for emotional job satisfaction, do not differ a lot, almost all items of emotional and cognitive job satisfaction show higher mean values for the group of public servants.

As an exception, both groups agree to be enthusiastic about their job most days are equal for both types of workers and in the case of this sample, public employees seem slightly more satisfied with their recognition opportunities at work.

In order to draw concrete statistical conclusion about the differences of job satisfaction among public servants and public employees apart from the mere comparison of the average mean values, an independent samples- test was carried out. The results from the test yield that the differences between the public servants and public employees are statistically significant for the two cognitive indicators of promotion and advancement opportunities and for cognitive job satisfaction as a whole. Hence, the sample at hand provides evidence that public servants are more satisfied with their advancement and promotion opportunities than public employees.

Ultimately, as presented in Table 3, the difference in total job satisfaction between both types of public workers, including both dimensions, is found marginally significant with the threshold value of .05. Hence, the difference between the job satisfaction levels of public servants and public employees is generally not deniable and the employment status as public servant seems be significantly related to cognitive job satisfaction. In contrast, this research finds no significant difference between the two groups of public workers with regard to emotional job satisfaction.

Table 3. *Descriptive Statistics for Job satisfaction by type of public worker*

Variables	Total Means (N=215)	Public employee (N=122)	Public servant (N=93)	T-value (independence test)
Prospects of success	3,92	3,80	4,08⁷	.206
Recognition opportunities	3,92	3,94	3,89	.810
Level of responsibility	5,45	5,34	5,62	.086
Meaningfulness	5,10	5,01	5,23	.201
Promotion opportunities	3,11	2,81	3,54	.001
Professional advancement	4,11	3,87	4,42	.008
Total Cognitive Job Satisfaction	4,27	4,13	4,46	.026
<hr/> 4-point scale <hr/>				
Pretty well satisfied	3,26	3,24	3,29	.634
Pretty uninteresting	1,50	1,57	1,42⁸	.180
Mostly enthusiastic	2,98	2,98	2,98	.978
Often boring	1,55	1,64	1,44	.077
Real enjoyment	3,05	3,02	3,1	.452
Never ending day	1,65	1,74	1,53	.068
Total Emotional Job Satisfaction	3,26	3,21	3,33	.197
Total Job Satisfaction	2,95	2,89	3,03	.050

For Cognitive satisfaction items: 1=not at all, 2= very little, 3=a little, 4= moderately, 5=rather strongly, 6=very strongly, 7=completely

For Emotional satisfaction items 13a-f): 1= Disagree; 2. Somewhat disagree; 3. Somewhat agree; 4. Agree

⁷ The figures in boldface indicate for which group of public workers the responses are relatively higher with every item.

⁸ As the items V13b, c and d asked for negative job satisfaction, smaller figures reflect relatively higher levels of emotional job satisfaction.

6.2. Analysis of the relationship between the employment type and work motivation

After having observed differences in the levels of job satisfaction between public servants and public employees, this study is interested in the question in how far the two types of public workers differ in their work motivation and if there is a particular type of motivation that each group predominantly exhibits. Thus, similarly as with the construct of job satisfaction, the mean values for the different types of autonomous (intrinsic, identified) and regulated (introjected, social-extrinsic and material-extrinsic) work motivation among the public servants and public employees are examined. Furthermore, an independent samples t-test is conducted to explore if the possible differences are scientifically important. With this approach, the first two hypotheses of this research shall be tested.

Table 4. *Descriptive Statistics for work motivation by type of public worker*

Motivation variables	Total Means (N=215)	Public employee (N=122)	Public servant (N=93)	T-value (independence test)
Total Autonomous	5,50	5,39	5,63	.076
Intrinsic	5,46	5,38	5,56	.278
Identified	5,53	5,40	5,71	.032
-Personal values ⁹	5,60	5,46	5,78	.042
-P. importance	5,88	5,70	6,11	.005
Social-Extrinsic	5,02	5,07	4,95	.365
- Avoid criticism	4,17	4,39	3,87	.010
Material-Extrinsic	4,19	4,29	4,06	.104
-Job loss risk	2,88	3,08	2,61	.025
Introjected	4,69	4,70	4,67	.820
Total Regulated	4,63	4,69	4,56	.250

1=not at all, 2= very little, 3=a little, 4= moderately, 5=rather strongly, 6=very strongly, 7=completely

When comparing the mean values depicted in the table above, it is perceptible that both types of public workers attach similar weight to every single motivation category. For both groups, on average, identified motivation is ranked highest, hierarchically followed by

⁹ Apart from the overarching motivation categories, Table 3 only includes the single indicators for which significance was found in the independent samples t-test.

intrinsic, social-extrinsic, introjected and material-extrinsic motivation. This order implies that generally, the public workers value autonomous motivation, which includes intrinsic and identified motivation, above the regulated dimension. Furthermore, the mean values for all respondents as a whole (column 1) show that the public workers in general identify strongest with the category of identified motivation, and more concretely agree most with the statements that they are motivated to put effort in their job as they consider it as personally important and as this aligns with their personal values.

After the inspection of the average results for autonomous motivation regarding the group of public workers as a whole, the question to ask is: How do public servants and public employees differ with regard to the autonomous dimension of motivation and is this difference scientifically significant?

The first hypothesis of this research that shall be tested in the following says that *Public employees are more autonomously motivated with regard to their work than public servants.*

[H1]

The comparison of the average values for each distinct group of public workers shows that the public servants indicated on average higher values for every indicator of autonomous motivation (see Appendix, Table 8.5). While the public employees indicated strong identification with the indicators for intrinsic and identified motivation, the public servants state to be very strongly intrinsically and identified motivated. In particular, they agree very strongly to consider their work to be fun and interesting (intrinsic motivation) and that they put effort in their job due to personal importance and the alignment with one's personal values (identified motivation). Looking at the dimension of autonomous motivation as a whole, the average values show that the public employees rather strongly identify (5,39) with autonomous motivation while the public servants indicated to be very strongly autonomously motivated (5,63).

However, as the T-test does not yield significant results for this difference (p.: .076), the conclusion that public servants are generally more autonomously motivated than public employees cannot be drawn at this point.

Ultimately, the opposite initial hypothesis that public employees are more autonomously motivated than public servants has to be **rejected** as well as no scientific evidence is found for this assumption.

Still, the results depicted in Table 4 show certain statistically significant and interesting values that object the rejected hypothesis.

The T-values from the independent samples-test exhibit the difference between both types of public workers with regard to identified motivation, precisely involving the two items of the personal value alignment and the personal importance consideration mentioned above, to be statistically significant. Hence, it can be concluded that the employment as a public servant has a significant positive impact on the person's identified motivation, the connection of one's work with the personal values and the consideration of the work as personally important.

Ultimately, it is not possible to make statements about the dimension of autonomous motivation as a whole, as no significant results could be found with regard to the relationship between the employment type and intrinsic motivation. Still, the scientific finding with regard to identified motivation shows that contrary to the initial hypothesis, autonomous motivation is comparably more pronounced among public servants.

In connection to the first hypothesis, the second hypothesis was formulated assuming that *Public employees have lower levels of regulated motivation than public servants.* [H2]

Regarding the average values for the public workers in total, all types of regulated motivation were rated lower compared to autonomous motivation. In general, both groups agree only moderately that their work motivation is connected to material-extrinsic factors. While both public servants and public employees assess financial rewards to rather strongly impact their work motivation, job security/a promotion seems only moderately important and the fear to lose the job or to be seconded affects both groups' work motivation only a little (see Appendix, Table 8.11).

With regard to the social-extrinsic category, for both types of public workers, the approval of colleagues and superiors seems rather strongly relevant, while there is agreement that the avoidance of criticism is only moderately important for one's engagement at work and that respect for one's work has a very strong significance.

Concerning introjected motivation, both types of public workers agree that their work motivation is connected rather strongly to the urge of proving to oneself the personal ability as well as to the feeling of pride, shame or feeling bad.

Despite the descriptively perceptible similar tendencies of public servants and public employees with regard to their attitudes towards the extrinsic factors, the mean values in Table 4 exhibit that on average, the public employees rated every single indicator of regulated motivation more positively than the public servants.

However, as the results of the t-test do not yield a significant value for the variable of regulated motivation, no conclusion can be drawn about the relationship between the employment status and regulated motivation as a whole.

Thus, also the hypothesis that public employees have lower levels of regulated motivation than public servants has to be **rejected**.

Still, similarly as in the case of the different types of autonomous motivation, the results of the t-test enable to make statements about some of the elements of the regulated motivation index variable. Thus, the different attitudes of public employees and public servants with regard to the risk of losing the job and the wish to avoid criticism were detected to be scientifically significant. It is to be concluded that for the group of the public employees the risk of losing the job and the desire to avoid criticism are more strongly related to the effort that the public employees put into their job.

All in all, although no statements can be made about the whole dimensions of regulated and autonomous motivation, the significant values from the independent samples t-test yield in objection to both the first and the second hypothesis, that identified motivation (as one type of autonomous motivation) is more prevalent among public servants while public employees show to attribute more weight to certain extrinsic factors compared to the public servants.

6.4. Testing work motivation`s predictive strength for job satisfaction

With job satisfaction as the central concept of interest to be inquired in the frame of this study, the third and main hypothesis to be tested is:

***H3:** Public workers with more pronounced autonomous identified or intrinsic motivation have higher levels of job satisfaction than public workers with more pronounced regulated extrinsic or introjected work motivation.*

This hypothesis was formulated on basis of the finding by Bright (2008) that Public Sector Motivation has a positive impact on job satisfaction. Besides, it refers to the assumption from

Self-Determination Theory shaped by Gagné and Deci (2005) that the autonomous types of motivation are generally related to more positive work outcomes compared to the regulated types of work motivation.

The question that arises is: Which impact do the different types of work motivation have on the level of job satisfaction that public servants show and which work motivation type is related to the highest levels of job satisfaction?

In order to be able to give an answer to this question, hierarchical linear regressions are carried out separately for each type of motivation as potential predictor variable and with total job satisfaction (including emotional and cognitive job satisfaction) as the endogenous variable. In this way, the individual strengths of the motivation variables to predict the level of total job satisfaction are examined in a bivariate manner in the first step. Besides, the hierarchical type of regression was chosen in order to explore in a second model for each regression in how far the demographic variables of employment status, age, gender, organizational tenure, educational achievement or the work field are possibly related to job satisfaction and if their inclusion in the model raises its explanatory power considerably.

Table 5. *Hierarchical linear regression results for impact on Job satisfaction level (N=215)*

Model	Predictor Motivation type	Unstandardized beta	significance-level	adjusted R ²
1a	Intrinsic M.	.340	.000	.608
1b	Intrinsic M. Empl. Type Servant ¹⁰	.340 .124	.000 .022	.613
2a	Identified	.221	.000	.189
2b	Identified Tenure	.217 -.084	.000 .033	.199
3a	Introjected	.148	.000	.113
3b	Introjected Tenure Age	.157 -.087 .121	.000 .032 .023	.147

¹⁰ In Table 5, equally as in the tables in the frame of the fourth hypothesis, only the demographic variables' impact, which regression analysis detected as significant, are portrayed.

4a	Social-Extrinsic	.144	.000	.068
4b	Social-Extrinsic	.157	.000	.102 ¹¹
	Empl. Type Servant	.184	.026	
	Age	.149	.006	
	Tenure	-.090	.030	
<hr/>				
5a	Material-Extrinsic	.015	.674	-.004
5b	Material-Extrinsic	.030	.418	.019
	Empl. Type Servant	.170	.049	
	Age	.143	.012	
	Tenure	-.098	.025	

As depicted in the table above, the results of the hierarchical linear regressions show that each type of motivation but material-extrinsic motivation has a statistically significant impact ($p < .000$) on the total job satisfaction of the public workers. This means that, to a certain degree, each of the mentioned types of work motivation may provide an indication for an approximate level of job satisfaction that is connected to it.

Although for all types of motivation, the unstandardized beta coefficients have a positive sign, which would implicate a positive impact in all cases, meaningful differences between the relationships are detectable. The positivity of the coefficients can be attributed to the fact that most public workers indicate to be satisfied at work to a certain degree. Under this condition, the different values of the coefficients shall be compared, as higher values of the unstandardized beta coefficient would imply that the particular type of motivation is related to a comparably higher level of job satisfaction.

In this sense, when looking at the different models depicted in table 5, the unstandardized beta coefficient for intrinsic motivation (b.: 340) shows the highest values compared with the other correlations. Hence, intrinsic motivation is found related with the highest levels of job satisfaction. Furthermore, the regression 1b) that tested additionally for the influence of the demographic variables yields that also, the employment status of a public servant has a

¹¹ Looking at the results for social extrinsic motivation (model 4a), a significant impact on job satisfaction ($p < .000$) is found. Still, the result is not mentioned in the argumentation, as the adjusted R^2 value does not reach the threshold value for relevance of .094 (Foster et al., 2007). The three depicted demographic variables raise the model's explanatory power just above the threshold value of 10 per cent. However, the results are not further investigated as the comparably low increase in the adjusted R^2 value might be attributed merely to the amount of variables added to the model, which testifies the weak explanatory power of the model.

significant positive impact (b.: .124; p.: .022) on the public workers job satisfaction. Hence, although the employment status variable thus does not present an important predictor of the level of job satisfaction, adding less than 1 per cent to the explanatory power of the model, this research finds public servants to be more satisfied with their work. This finding goes along with the results from the independent samples test that compared the differences between both groups of public workers regarding their job satisfaction and found public servants more satisfied with their work the cognitive dimension.

In terms of the models 2 and 3¹², the different unstandardized coefficients for identified (b.: .221) and introjected (b.: .148) motivation imply that those types of motivations are related to comparably lower levels of job satisfaction compared to intrinsic motivation. Hence, statistically, when all other factors are kept constant, one unit change in the regulated introjected variable is found to yield half as high values for job satisfaction than intrinsic motivation. In this context, regarding model 2 in comparison with the other models, it is perceptible that identified motivation, as the other autonomous type of motivation, would contribute to the second highest levels of job satisfaction.

The **third hypothesis** that those public workers who are predominantly autonomous intrinsic or identified motivated are more satisfied with their job than the public workers who are rather extrinsically or introjected motivated **is confirmed**. Besides, with regard to the results concerning intrinsic motivation, it is possible to identify the workers who are more satisfied with their job as public servants.

In general, the comparison of the adjusted R²-values yields in addition to the observation of the unstandardized coefficients that the autonomous intrinsic motivation presents the most important predictor variable for an increased level of job satisfaction. As depicted in Table 5, the single intrinsic variable explains the greatest variance in the endogenous variable (ad. R²: .608). Thus, it can be concluded, that being satisfied at work is to a great extent related to the public worker enjoying his work and perceiving his/ her job as interesting and exciting.¹³

¹² In the argumentation, model 5 is not referred to and the results of model 5 b) are not further evaluated as no significant impact of material-extrinsic motivation was discovered and as also after the inclusion of the control variables, the explanatory power of the model stays very low (ad. R²: .019).

¹³ The adjusted R²-values for the other types of motivation (model 2 and 3) that were tested do not exceed .189. According to Foster (1997), values above .094 are marginally acceptable. Thus, these variables are not excluded from the argumentation despite of their comparably weak explanatory power. Regarding the impact of the

6.5. Testing for the potential impact of job satisfaction on work motivation

In order to test whether *Job Satisfaction has a positive impact on the manifestation of autonomous motivation among the public workers (H4)*, at first, a hierarchical multiple regression is conducted with the index variable of autonomous motivation as endogenous variable and the total job satisfaction variable is entered as potential predictor in the first step. In the second step, the demographic variables of age, gender, organizational tenure, educational level, work field and employment type are added to the model. Thus, the hierarchical type of regression was chosen for at this point in order to test if additionally, one of those factors has a significant impact on the endogenous variables that possibly adds to the explanatory power of the model.

Table 6. *Hierarchical linear model results for Job Satisfaction impact on Autonomous Motivation (N=215)*

Variables	Adj. R ²	Predictors		Demographic variables	
		Job Satisfaction			
Model Motivation Type		β^{**}	α^{***}	β	α
1a. Autonomous	.509	1.335	.000		
1b. ¹⁴ Autonomous	.506	1.399	.000	-	-

The results from hierarchical regression that are depicted in the table above certify that job satisfaction has a very significant ($p: .000$) strong positive impact ($b: 1.335$) on autonomous work motivation as a whole. Concretely, with every positive unit change in the variable of job satisfaction, autonomous motivation is shown to increase by the factor of 1.135. With regard to the potential impact of the demographic variables on autonomous motivation, the second model (1b) with autonomous motivation as endogenous variable yields that neither the age,

demographic variables, models 2 and 3 show that the level of job satisfaction would increase with the worker's age and decrease with the person's tenure. As those two factors should logically increase in a linear manner, the results prove contradictory at this point. Thus, they are not further evaluated and might be attributed to possible flaws in the grouping of the indicated ages and years of job start.

¹⁴ In each model b, additionally all demographic variables were added in order to examine their influence and their value for the explanatory power of the model.

gender, organizational tenure, work field, educational level nor employment status is found to have an impact on the public workers' autonomous motivation.¹⁵

Hence, with the regression results at hand, the hypothesis that job satisfaction has a positive impact on autonomous motivation **is confirmed**. Thus, it is to be concluded that the positive correlation between work motivation and job satisfaction is bilateral. For the aim to make substantial statements about the positive relationship's comparative strength, additionally a hierarchical linear regression model was constructed with regulated motivation as the endogenous variable.

Table 7. *Hierarchical linear model results for Job Satisfaction impact on Regulated Motivation (N=215)*

Model	Variables	Adj. R ²	Predictors			
			Job Satisfaction		Work field*	
Type	Motivation		β^{**}	α^{***}	β	α
2a.	Regulated	.086	.449	.000		
2b.	Regulated	.110	.506	.000	-.572	.044

* significant results for dummy- variable unknown working field * unstandardized beta coefficient **alpha-value of significance

As the second model (Table 7) shows, the impact of job satisfaction on regulated motivation would amount to .449. This means that one unit increase in the level of job satisfaction contributes more than two times as much to the prevalence of autonomous motivation among the public workers than for the case of regulated motivation. Hence, higher levels of job satisfaction are related to a much more pronounced autonomous motivation among the public workers than regulated motivation.

¹⁵ As the adjusted R²-value decreases from .509 to .506 in the second model, the additional variables only decrease the explanatory power of the model and hence should not be considered with regard to this correlation of interest, where just the job satisfaction variable explains more than 50 per cent of the variance in the dependent variable of autonomous motivation. In contrast, the explanatory power of the model for regulated motivation is rather weak (ad. -R²: .110).

Ultimately, as the previous results certify a positive impact of job satisfaction on autonomous motivation, it appears interesting to explore statistically in how far the job satisfaction of a public worker impacts the different types of autonomous motivation in particular. Therefore, additionally, hierarchical regressions were carried out with intrinsic and identified motivation as respective endogenous variables.

Table 8. *Hierarchical linear model results for Job Satisfaction impact on Intrinsic and Identified Motivation (N=215)*

Variables	Adj. R ²	Predictors			
		Job Satisfaction		Work field*	
Model Motivation		β^{**}	α^{***}	β	α
Type					
3a. Identified	.189	.875	.000		
3b. Identified	.199	.860	.000	-	-
4a. Intrinsic	.608	1.795	.000		
4b. Intrinsic	.615	1.782	.000	.639	.023

The results depicted in Table 8 show that job satisfaction has a very significant ($p: .000$) positive impact on both types of autonomous motivation. Furthermore, no influence from any of the demographic variables on identified and intrinsic motivation was found except for one significant correlation. At this point, the fact that the adjusted R^2 -values do not considerably increase with the addition of the demographic variables, certifies the explanatory power of the job satisfaction variable concerning identified and intrinsic motivation. With regard to the working field, a significant positive relationship ($b: .639$; $p: .023$) between the dummy-variable of the unknown working field and intrinsic motivation was statistically determined.¹⁶ Thus, the working fields that were not indicated (because they possibly had not been listed, or because the participants did not want to indicate this information), are related to a more pronounced intrinsic motivation among public workers compared to the working areas known to be represented in the survey (see Table 6; Appendix, Table 8.23). Equivalently to the

¹⁶ Despite the significant influence of the control variable found, statistically, the inclusion of the demographic variables in the model is barely valuable, as the adjusted R^2 -value increases only a little, implying that the model's explanatory power hardly increases.

results for intrinsic motivation, the unknown working field(s) shows a significant negative relationship with the regulated types of motivation (Table 7). Thus, the results imply that there are certain working fields that are distinctively related to a more pronounced autonomous motivation among the public workers.

When comparing the relationship of job satisfaction with the two types of motivation, the unstandardized coefficients (b : 1.795; .875) show that job satisfaction has the strongest positive impact on intrinsic motivation. Thus, public workers who are highly satisfied with their work are likely to put effort in their work because they consider it as personally important and as this aligns with their personal values. But most of all, the satisfied public workers' motivation is derived from fun, excitement and interest in their work activities.¹⁷

7. Conclusion and discussion

All in all, the aim of this research was to examine the research questions *To what extent does extrinsic and intrinsic motivation have an impact on the levels of job satisfaction of public servants and public employees in the German city of Detmold and in how far does the employment status affect both the type of motivation and level of job satisfaction that a public worker exhibits.*

Looking at the statistical findings in the frame of the first two hypotheses, generally, no statements can be made about the relationship between the employment status and the dimensions of autonomous and regulated work motivation as a whole due to the lack of statistically significant results.

Still, on the one hand, the independent samples t-test yield that the public servants in Detmold characteristically put effort in their job because they consider it as personally important and because this aligns with their personal values. Hence, this research finds the public servants to be predominantly identified motivated, which is categorized as autonomous type of motivation according to SDT. On the other hand, according to results of the t-test, the

¹⁷ The great difference between the adjusted R^2 -values for identified (.189) and intrinsic motivation (.610) emphasizes that job satisfaction is an important indicator for intrinsic motivation and a comparably weak indicator for identified motivation, as it is able to explain a considerably greater share of the variance in the intrinsic variable. Still, the results for identified motivation shall not be discarded as, according to Foster et al. (1997), the threshold value under the conditions of this study would be .094. Thus, the model for identified motivation is still to be considered relevant to a certain extent.

risk to lose the job and the wish to avoid criticism play a significantly more important role for the group of public employees in their work life. These two elements are indicators for the regulated social- and material- extrinsic motivation.

Thus, with regard to the significant results of the independent samples t-test for the three motivation items, this research finds the tendency that, contrary to the hypotheses of this study, the public servants from Detmold are predominantly autonomously (identified) motivated while the public employees are comparably more regulated (extrinsic) motivated.

The privileges that are connected to the status of a civil servant and that are rooted German civil servant law give reason to assume the levels of job satisfaction might differ between the two different types of public workers. But finally, the initial assumption of this research that the civil servant status, which is characterized by a considerable amount of privileges, such as job security and relatively higher salaries, contributes to a rather extrinsic orientation among these public workers does not prove valid. Equally, the public employees were assumed to be comparably more intrinsically motivated as they agree to work with fewer privileges. But as only a significant relationship is detected with the two indicators of extrinsic motivation, the opposite of the assumed motivation orientations is likely to be the case for the two groups of public workers in the city of Detmold.

But over all, due to significant results for just a few indicators, this research cannot make definitive conclusions about a certain employment type's relation to the whole autonomous and regulated dimension. Thus, future research on this topic is recommended to use advanced non-parametric statistical methods in order to make more extensive statements about the correlation between the employment status and all different types of work motivation.

With regard to the third and main hypothesis that was confirmed, both autonomous types of motivation (identified, intrinsic) and the regulated introjected motivation are found significantly related to the job satisfaction of the public workers. Among the different types of motivation, a pronounced intrinsic motivation is discovered as the most important predictor of the highest levels of job satisfaction. Furthermore, the employment as public servant is found positively related to the variable of total job satisfaction. Hence, it is to be concluded for the public sector in Detmold, that those public workers who find their work particularly interesting, exciting, and enjoyable are most satisfied with their job. Additionally, with the finding that intrinsic motivation is associated with a considerably higher level of job satisfaction than introjected motivation, the assumption of Self- Determination Theory that

the autonomous types of work motivation are related to the most positive work outcomes proves to be applicable on the public sector in Detmold.

In terms of the differences in job satisfaction, the significant results from the independent samples t-test reveal that compared to the public employees, the public servants in Detmold are in particular more satisfied with their opportunities for promotion and professional advancement as two indicators of cognitive job satisfaction. Differently, there seems to be no relevant difference in the emotional job satisfaction between the two groups of public workers. This study did not investigate the reasons for the similarities and differences between public servants and public employees with regard to two distinct dimensions of job satisfaction. However, this would be a scientifically interesting issue to investigate in future research.

Finally, the statistical results in the frame of the fourth hypothesis show that the relationship between job satisfaction and work motivation is bilateral. While job satisfaction is significantly related with every type of work motivation, it is in particular strongly and positively correlated with the autonomous motivation variable and pronounced intrinsic motivation among the public workers. Thus, this research proves statistically that being strongly satisfied with the job in turn strengthens the autonomous, especially intrinsic, motivation among the public workers, as for the case of the public sector in Detmold.

After all, the results of this research about the influence of the employment status and the interrelatedness of work motivation and job satisfaction advert to the importance of autonomous motivation and pronounced job satisfaction in the German public sector. Although job satisfaction and autonomous motivation are also rather pronounced among public employees, the results of this research imply that the employment as public servants is tendentially related to the autonomous dimension of motivation and to comparably high levels of job satisfaction. Thus, at least to a certain degree, the immanent work factors following from the employment status as public servant contribute to both more pronounced autonomous motivation and relatively high levels of job satisfaction. Hence, in order to raise the levels of job satisfaction and in the long term, autonomous motivation in the public sector, it seems important to grant more privileges and create new incentives, for instance better promotion and advancement opportunities, for the public employees in order to raise their job satisfaction.

From a scientific point of view, due to the confirmation of the assumptions from Self-Determination Theory, this research proves the theory's applicability in the German public sector.

Furthermore, this case study on the city of Detmold can possibly be treated as representative for the German public servants and public employees in general, as the labour conditions and the work mentality should generally not vary across Germany. Still, a recommendation for future research concerned with the relationships between the employment status, job satisfaction and work motivation would be to conduct a study with a larger sample size, including public workers from different cities and different levels of the German public sector. Thus, further research is needed to explore the robustness of the findings at hand and to make generalizable statements about the entirety of the German public servants and public employees.

As a minor recommendation, methodologically, it would be advisable to use the same type of (Likert) scale for all item answers throughout the whole survey in order to facilitate the comparability of the values in the analysis.

All in all, this research about the public sector in Detmold points to the necessity of investigating further the nature of work motivation and degree of job satisfaction among the different types of public workers. Additionally, the results of this study reveal that factors such as the working field also have an important influence on the work-related attitudes among the public workers. Thus, it would be scientifically valuable for prospective research to examine further the influence of the type of working field as well as of other demographic variables such as age and gender on work outcomes such as job satisfaction.

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Appendix

The following appendix includes the reliability-, regression- and test- tables that this research refers to as well as tests of the multiple regression assumptions for the different models and variables used for the research analysis.

Table 8.1

Cognitive Satisfaction

Cronbach's Alpha	N of Items
,859	6

Table 8.2

Emotional Satisfaction

Cronbach's Alpha	N of Items
,885	6

Table 8.3

Total Job Satisfaction

Cronbach's Alpha	N of Items
,889	12

Table 8.4

Regulated motivation

Cronbach's Alpha	N of Items
,778	10

Table 8.5

Autonomous Motivation

Cronbach's Alpha	N of Items
,863	6

Table 8.6

Intrinsic Motivation

Cronbach's Alpha	N of Items
,934	3

Table 8.7

Identified Motivation

Cronbach's Alpha	N of Items
,863	3

Table 8.8

Introjected Motivation

Cronbach's Alpha	N of Items
,762	4

Table 8.9

Social-Extrinsic Motivation

Cronbach's Alpha	N of Items
,863	3

Table 8.10

Material-Extrinsic Motivation

Cronbach's Alpha	N of Items
,528	3

Table 8.11 *Descriptive statistics for all work motivation items*

	Ich bin aktuell beschäftigt als	N	Mean	Std. Deviation	Std. Error Mean
V7a_intro	Angestellte/r	122	4,57	1,710	,155
proving ability	Beamte/r	93	4,46	1,691	,175
V7b_intro	Pride				
	Angestellte/r	122	5,00	1,355	,123
	Beamte/r	93	4,83	1,537	,159
V7c_intro	Shame				
	Angestellte/r	122	4,63	1,682	,152
	Beamte/r	93	4,53	1,685	,175
V7d_intro	Bad				
	Angestellte/r	122	4,61	1,699	,154

feeling	Beamte/r	93	4,84	1,604	,166
V8a_ident	Angestellte/r	122	5,46	1,325	,120
Considering important	Beamte/r	93	5,78	1,009	,105
V8b_ident	Angestellte/r	122	5,70	1,197	,108
Personal values	Beamte/r	93	6,11	,902	,094
V8c_ident	Angestellte/r	122	5,05	1,504	,136
Personal significance	Beamte/r	93	5,23	1,505	,156
V9a_extriso	Angestellte/r	122	5,24	1,206	,109
Others' approval	Beamte/r	93	5,35	1,018	,106
V9b_extriso	Angestellte/r	122	5,59	1,162	,105
Others' respect	Beamte/r	93	5,62	,943	,098
V9c_extriso	Angestellte/r	122	4,39	1,463	,132
Avoiding criticism	Beamte/r	93	3,87	1,476	,153
V10a_extrimat	Angestellte/r	122	5,36	1,099	,099
Financial rewards	Beamte/r	93	5,17	1,080	,112
JV10a_extrimat	Angestellte/r	122	4,43	1,610	,146
Job security /promotion	Beamte/r	93	4,40	1,596	,165
V10a_extrimat	Angestellte/r	122	3,08	1,599	,145
Risk to loose job/ sanctios	Beamte/r	93	2,61	1,391	,144
V11a_intrin fun	Angestellte/r	122	5,45	1,355	,123
	Beamte/r	93	5,65	1,129	,117
V11b_intrin exciting activities	Angestellte/r	122	5,27	1,361	,123
	Beamte/r	93	5,39	1,327	,138
V11c_intrin interesting work	Angestellte/r	122	5,41	1,290	,117
	Beamte/r	93	5,65	1,248	,129

Multiple Regression assumptions

Linearity. The first and central assumption to be tested for the multiple linear regression models is linearity. An important indicator for a linear relationship between the variables is **adjusted r-squared**, which shows how much variance in the respective endogenous variable is explained by the predictor variables in the model. In the frame of this study, various regression models were created.

Regarding the regression models created to test the third hypothesis, a comparably strong linear relationship was determined between the total job satisfaction variable and intrinsic motivation. The adjusted R^2 -value shows that the single intrinsic motivation variable has the explanatory power to predict 61% of the variance in job satisfaction. With regard to the other types of motivation, the social-extrinsic (p : .068) and material- extrinsic (p : -.004) variables fall below the critical value of .094 for the sample size and number of predictors of this study (Foster, Smith, & Whaley, 1997). Therefore the assumption of linearity is violated in the case of these two models. Thus, although the impact of social-extrinsic motivation was determined to be significant (p : .000), both the fourth and the fifth model displayed in Table 5 are not reliable and shall not be interpreted with regard to the impact on job satisfaction due to the low level of adjusted R^2 .

The adjusted R^2 - values in the case of identified (p : .189) and introjected (p : .113) motivation yield that the models explain less than 20% of the variance in job satisfaction, which shows a rather weak explanatory power compared to intrinsic motivation. Still, although the linearity of the relationships is not strongly pronounced in those cases, the critical value is not reached. Hence, the results are still included in the argumentation, considering that despite of the high significance values of p : .000, according to the results of this research, identified and introjected motivation shall not be seen as very important indicators for certain levels of job satisfaction. Finally, advanced non-parametric statistical methods might be useful for future research to foreclose the nature and strength of the relationship between all different types of work motivation and job satisfaction in the most reliable statistical way.

With regard to the findings about job satisfaction motivation affecting the autonomous types of work motivation, the adjusted r -squared values certify that job satisfaction is able to predict a comparably great share of the variance in autonomous motivation in general (index variable including identified and intrinsic motivation: p : .509) as well in intrinsic motivation (p : .615). Thus, those relationships are clearly linear. Similarly as in the case of job satisfaction tested as endogenous variable, in the reversed model, job satisfaction is also detected to predict 19% of the variance in the identified motivation variable. Repeatedly, the R^2 - value does not testify a strongly linear correlation but still, with the conclusion that job satisfaction is not a pivotal indicator for identified motivation, the results are included in the argumentation, as the threshold value is not researched. In difference, the adjusted R^2 - value falls under the critical value for regulated motivation and thus, the relationship between job satisfaction and

regulated motivation in general is not found linear. However, as the fourth hypothesis does not deal with the relationship between job satisfaction and regulated motivation, this regression, which is probably partly biased due to the low value of adjusted R^2 , was only presented and used for the sake to illustrate the comparatively and considerably high positive impact of the job satisfaction variable on intrinsic motivation.

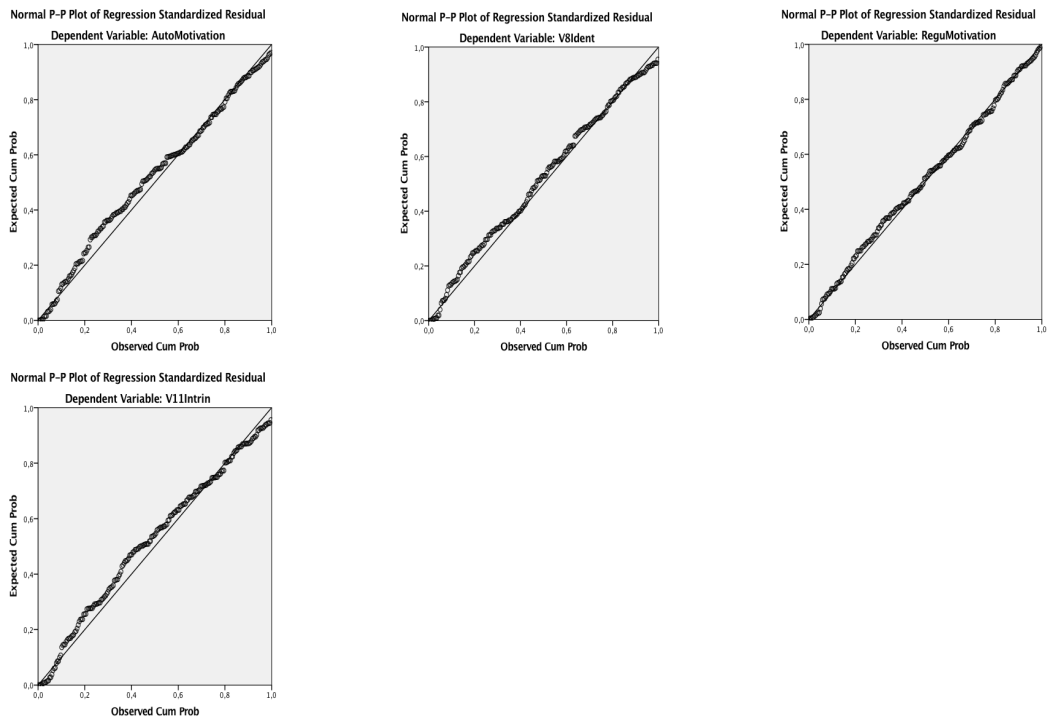
Normality. Furthermore an important assumption of linear regression is the normal distribution of residuals. According to the Shapiro-Wilk-test, which was conducted with all of the endogenous variables of this study, only the values for cognitive job satisfaction and regulated motivation indicate a normal distribution (with the only values above .05 and significance indicating non-normality). However, these normality results are assumed to lack reliability in the case of large sample sizes, in the sense that the “powerful” Shapiro-Wilk test shows non-normality where the deviation is practically not severe (Meyers, Gamst, & Guarino, 2013, p. 20). Furthermore, according to the assumptions following from the Central Limit Theorem, a large sample size is generally associated with an approximately normal distribution of the error terms (Anscombe, 1952). In this sense, the sample size of this study forecloses the problem of non-normality. Still, **P-P plots of standardized residuals** for each single variable are inspected in order to verify the normal distribution of the error terms.

Table 8.12 *Tests of Normality*

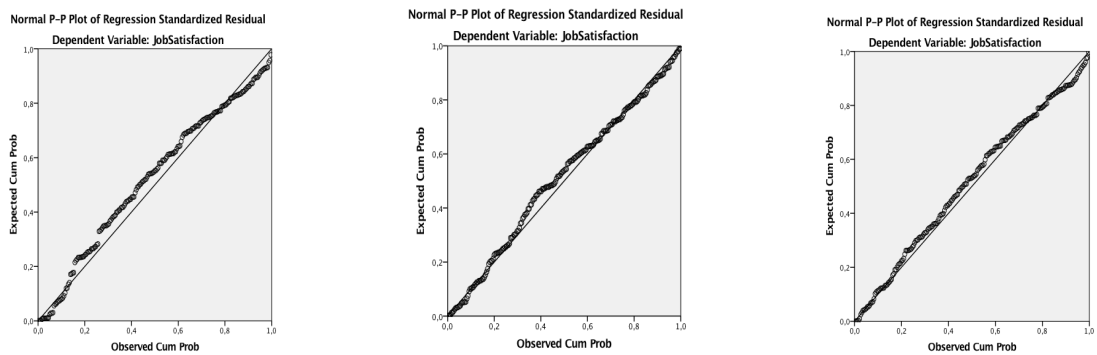
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
V7Intro	,065	215	,027	,980	215	,004
V12Cogsat	,071	215	,011	,989	215	,089
V13Emosat	,142	215	,000	,881	215	,000
JobSatisfaction	,089	215	,000	,947	215	,000
V8Ident	,116	215	,000	,930	215	,000
V9Extriso	,092	215	,000	,979	215	,002
V10Extrimat	,114	215	,000	,981	215	,005
V11Intrin	,147	215	,000	,915	215	,000
AutoMotivation	,111	215	,000	,942	215	,000
ReguMotivation	,041	215	,200*	,994	215	,526

Figures 8.13.-8.20. *P-P plots to test for normality*

Total Job Satisfaction as predictor of different work motivation types



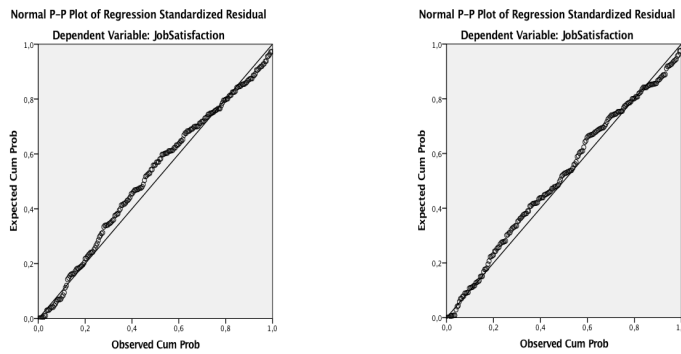
Job Satisfaction predicted by the different types of work motivation



Independent: Intrin

Independent: Extrimat

Independent: Introjected

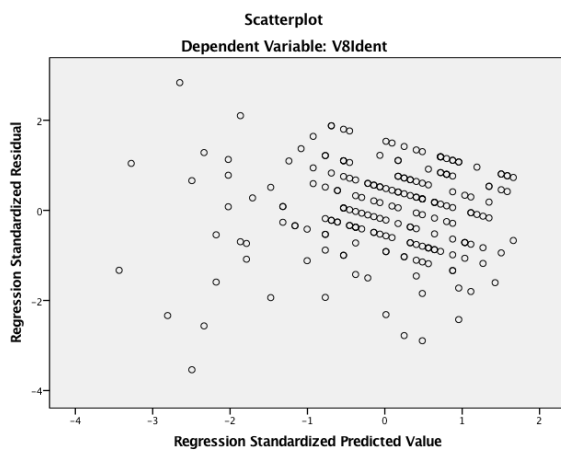


Independent: Social- Extrinsic Independent: Material- Extrinsic

The P-P plots depicted above illustrate that among the majority of the variables, the error terms are mostly normally distributed along the fitted line.

Homoscedasticity. The Levene's Test for Equality of Variances yields with significance values above .05 that in almost all of the (motivation as well as job satisfaction) variables, the errors vary respectively equally across the values of X. Only for identified motivation, inequality of the error variances is found.

Figure 8.21 *Scatterplot to check for heteroscedasticity in the identified motivation variable*



The scatterplot of the standardized predicted values and residuals depicted above illustrates with its cone-shape that the variance of errors changes across the x-axes, so that heteroscedasticity is ascertainable for the identified motivation variable. Still, the scatterplot, which mainly shows a deviation of the errors only on the very left as well as the value of .044 from the Levene's test, which is not very significant, show that the variable is only severely heteroscedastic. Thus, the threat of a Type I error and of a distortion of the findings is limited. As Table 8.7. shows, in consideration of the inequality of variances, the t-test (which is

executed in one step with the Levene's test in SPSS) still yields a significant impact of the employment status on identified motivation.

Table 8.22 Independent Samples Test for indicators

		Levene's Test for Equality of		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
13e Great enjoyment	Equal variances	,118	,731	-,753	213	,452	-,080	,107	-,291	,130
	Equal variances not assumed			-,758	202,957	,449	-,080	,106	-,289	,129
13c Enthusiasm	Equal	,128	,720	-,027	213	,978	-,003	,114	-,227	,221
	not equal			-,027	196,192	,978	-,003	,114	-,228	,221
13a Very satisfied	Equal	2,863	,092	-,476	213	,634	-,053	,111	-,270	,165
	not equal			-,484	208,316	,629	-,053	,109	-,267	,162
13b Pretty uninteresting	Equal	1,425	,234	-1,832	213	,068	-,21082	,11505	-,43761	,01596
	not equal			-1,864	208,555	,064	-,21082	,11310	-,43378	,01213
13d Often bored	Equal	4,666	,032	-1,724	213	,086	-,19848	,11515	-,42547	,02851
	not equal			-1,775	212,438	,077	-,19848	,11181	-,41888	,02191
13f Never ending day	Equal	3,216	,074	-1,346	213	,180	-,14622	,10862	-,36033	,06789
	not equal			-1,371	209,067	,172	-,14622	,10665	-,35647	,06403
12a Success prospects	Equal	,214	,644	-1,270	213	,206	-,272	,214	-,694	,150
	not equal			-1,254	188,067	,211	-,272	,217	-,700	,156
12b Recognition	Equal	,814	,368	,240	213	,810	,050	,209	-,361	,462
	not equal			,242	203,780	,809	,050	,207	-,358	,458
12c Responsibility	Equal	6,769	,010	-1,662	212	,098	-,273	,164	-,596	,051
	not equal			-1,724	211,920	,086	-,273	,158	-,584	,039

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12d	Equal	1,362	,245	-1,283	213	,201	-,218	,170	-,552	,117
Meaningfulness	not equal			-1,319	212,061	,189	-,218	,165	-,543	,108
12e	Equal	1,812	,180	-3,501	212	,001	-,699	,200	-1,093	-,306
Promotion	not equal			-3,451	184,709	,001	-,699	,203	-1,099	-,300
12f	Equal	,169	,682	-2,657	213	,008	-,551	,207	-,959	-,142
Advancement	not equal			-2,648	195,474	,009	-,551	,208	-,961	-,140
7a	Equal	,005	,944	,476	213	,635	,111	,234	-,350	,573
Proving ability to self	not equal			,476	199,264	,634	,111	,234	-,350	,573
7b	Equal	1,373	,243	,870	213	,385	,172	,198	-,218	,562
Pride	not equal			,856	184,139	,393	,172	,201	-,225	,569
7c	Equal	,034	,855	,450	213	,653	,104	,232	-,353	,561
Shame	not equal			,450	198,006	,653	,104	,232	-,353	,561
7d	Equal	,513	,475	-1,017	213	,310	-,232	,228	-,682	,218
Bad feeling	not equal			-1,025	203,492	,307	-,232	,226	-,679	,214
8a	Equal	5,765	,017	-1,975	213	,050	-,326	,165	-,651	-,001
Personal importance	not equal			-2,048	213,000	,042	-,326	,159	-,640	-,012
8b	Equal	7,071	,008	-2,702	212	,007	-,404	,149	-,698	-,109
Personal values	not equal			-2,807	211,991	,005	-,404	,144	-,687	-,120
8c	Equal	,005	,944	-,853	213	,395	-,177	,207	-,585	,232
Personal significance	not equal			-,853	198,131	,395	-,177	,207	-,585	,232
9a	Equal	1,132	,289	-,705	212	,481	-,110	,156	-,418	,198
Others' approval	not equal			-,722	209,138	,471	-,110	,153	-,411	,191
9b	Equal	5,199	,024	-,227	213	,821	-,033	,148	-,325	,258
Others' respect	not equal			-,233	212,146	,816	-,033	,144	-,317	,250
9c	Equal	,036	,851	2,584	213	,010	,522	,202	,124	,921
Avoiding criticism	not equal			2,581	197,294	,011	,522	,202	,123	,922
10a	Equal	,394	,531	1,256	213	,210	,189	,150	-,107	,485

Financial rewards	not equal			1,259	199,898	,209	,189	,150	-,107	,484
10b Job security	Equal	,019	,891	,129	213	,898	,028	,221	-,407	,464
	not equal			,129	199,075	,898	,028	,221	-,407	,463
10c Job loss risk	Equal	,819	,367	2,253	213	,025	,469	,208	,059	,879
	not equal			2,295	209,231	,023	,469	,204	,066	,872
11a Fun	Equal	1,769	,185	-1,118	213	,265	-,194	,174	-,537	,148
	not equal			-1,146	211,279	,253	-,194	,170	-,529	,140
11b Excitement	Equal	,015	,902	-,629	213	,530	-,117	,185	-,482	,249
	not equal			-,631	200,589	,529	-,117	,185	-,481	,248
11c Interest	Equal	,570	,451	-1,344	213	,180	-,235	,175	-,581	,110
	not equal			-1,350	201,375	,179	-,235	,174	-,579	,108

Independence of errors. Another important assumption of linear regression is the independence of residuals. Autocorrelation as a possible cause of the interdependence of the residuals is foreclosed in the case of this study, as the research is not longitudinal. Besides, in order to check for the fulfilment of this assumption, a Durbin-Watson- test is conducted. Regarding all regressions of this research, in any case, the test results yielded no critical but only appropriate values around 2 (Savin & White, 1977), certifying the independence of errors for each regression model used in this study.

Multicollinearity. Multicollinearity is a potential problem in multiple regression that implies that two or more predictor variables are (strongly) correlated and thus their individual impact on the endogenous variable would not be accurately estimated in the regression model. Thereby, a Variance Inflation Factor (VIF) of 5 (or higher) is seen as critical cut-off value, which expresses that 80 % “of the variability in the *i*th independent variable is explained by the remainder of the independent variables in the model“ (Craney & Surles, 2002, p. 393). Throughout all of the regression analyses in the frame of this research, all VIFs amounted to less than 2, indicating the absence of multicollinearity. Furthermore, to verify that none of the variables are highly correlated, a bivariate correlation matrix was created, which includes all demographic variables, both job satisfaction variables and all types of motivation variables. As for none of the bivariate relationships (but for emotional job

satisfaction and intrinsic motivation, which are never both tested as potential predictors in any of the regression models), the Pearson correlation coefficient reaches the threshold of .8 or exceeds this value, multicollinearity is foreclosed.

Table 8.23 *Correlations*

		Employ Gender	Age	Tenure	Educati on	Work field	V7Intro	V8Iden iso	V9Extr	V10Ext rimat	V11Intr in	V12Co gsat	V13En osat	
ender	Pearson Correlation	1	,033	,143*	,060	,001	,132	-,132	,001	-,048	-,016	,034	,107	-,048
	Sig. (2- tailed)		,629	,036	,383	,987	,053	,053	,984	,484	,815	,622	,119	,485
	N	215	215	215	213	215	215	215	215	215	215	215	215	215
mploym t type	Pearson	,033	1	-,095	,050	,417**	,143*	-,016	,141*	-,062	-,111	,074	,152*	,088
	Sig. (2- tailed)	,629		,164	,471	,000	,036	,820	,038	,365	,104	,278	,026	,197
	N	215	215	215	213	215	215	215	215	215	215	215	215	215
ge	Pearson	,143*	-,095	1	,570**	-,008	-,077	,032	,145*	-,063	-,086	,131	,005	,147*
	Sig. (2- tailed)	,036	,164		,000	,913	,258	,644	,034	,361	,207	,055	,946	,031
	N	215	215	215	213	215	215	215	215	215	215	215	215	215
nure	Pearson	,060	,050	,570**	1	-,001	,060	-,024	,057	-,087	-,107	-,002	-,155*	,024
	Sig. (2- tailed)	,383	,471	,000		,989	,384	,725	,411	,205	,118	,977	,024	,728
	N	213	213	213	213	213	213	213	213	213	213	213	213	213
lucation	Pearson	,001	,417**	-,008	-,001	1	-,026	-,144*	,023	-,045	-,112	,109	,083	,080
	Sig. (2- tailed)	,987	,000	,913	,989		,700	,035	,740	,508	,100	,111	,228	,241
	N	215	215	215	213	215	215	215	215	215	215	215	215	215
ork ld	Pearson	,132	,143*	-,077	,060	-,026	1	-,095	-,023	-,077	-,059	,117	,015	,038
	Sig. (2- tailed)	,053	,036	,258	,384	,700		,167	,732	,263	,388	,087	,826	,581
	N	215	215	215	213	215	215	215	215	215	215	215	215	215
7Intro	Pearson	-,132	-,016	,032	-,024	-,144*	-,095	1	,545**	,534**	,174*	,314**	,298**	,317**
	Sig. (2- tailed)	,053	,820	,644	,725	,035	,167		,000	,000	,010	,000	,000	,000
	N	215	215	215	213	215	215	215	215	215	215	215	215	215
3Ident	Pearson	,001	,141*	,145*	,057	,023	-,023	,545**	1	,440**	,101	,514**	,351**	,430**
	Sig. (2- tailed)	,984	,038	,034	,411	,740	,732	,000		,000	,138	,000	,000	,000
	N	215	215	215	213	215	215	215	215	215	215	215	215	215

9) Extrinsic	Pearson	-,048	-,062	-,063	-,087	-,045	-,077	,534**	,440**	1	,381**	,249**	,283**	,209**
		,484	,365	,361	,205	,508	,263	,000	,000		,000	,000	,000	,002
		215	215	215	213	215	215	215	215	215	215	215	215	215
10) Extrinsic	Pearson	-,016	-,111	-,086	-,107	-,112	-,059	,174*	,101	,381**	1	-,067	,128	-,058
		,815	,104	,207	,118	,100	,388	,010	,138	,000		,329	,060	,397
		215	215	215	213	215	215	215	215	215	215	215	215	215
11) Intrinsic	Pearson	,034	,074	,131	-,002	,109	,117	,314**	,514**	,249**	-,067	1	,563**	,805**
		,622	,278	,055	,977	,111	,087	,000	,000	,000	,329		,000	,000
		215	215	215	213	215	215	215	215	215	215	215	215	215
12) Cognition	Pearson	,107	,152*	,005	-,155*	,083	,015	,298**	,351**	,283**	,128	,563**	1	,575**
		,119	,026	,946	,024	,228	,826	,000	,000	,000	,060	,000		,000
		215	215	215	213	215	215	215	215	215	215	215	215	215
13) Emotions	Pearson	-,048	,088	,147*	,024	,080	,038	,317**	,430**	,209**	-,058	,805**	,575**	1
		,485	,197	,031	,728	,241	,581	,000	,000	,002	,397	,000	,000	
		215	215	215	213	215	215	215	215	215	215	215	215	215

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

Influence. After all, before the analysis of the research data, the outlier removal, as a common element connected to multiple linear regression, was taken into consideration. But the inspection of the boxplots for the value distributions of each variable examined in this study yielded that only a few outliers are perceptible for each variable. Thus, in the case of this research, an outlier removal was finally seen as unnecessary and was not undertaken. In this context, literature declares the outlier removal as not desirable as it could “complicate the interpretation of the results” (Osborne & Waters, 2002, p. 1), as possibly and unnecessarily important data is removed. All in all, after the cleansing of the data and the exclusion of suspicious answers, legitimately, only values were included in the analysis that vary from 1 to 7 (answer option) or 1972 and 2016 in the case of the employment start. Thus, the data set can be considered clear from influential cases that might have distorted the scientific results identified motivation.

Table 8.23 *Hierarchical Multiple Regression with Intrinsic Motivation as endogenous variable (H4)*

		Coefficients^a				
Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients		
1	(Constant)	,161	,296		,544	,587
	JobSatisfaction	1,795	,099	,781	18,179	,000
2	(Constant)	-,164	,355		-,462	,644
	JobSatisfaction	1,782	,101	,776	17,640	,000
	Beschäftigungsdauer gruppiert	,017	,063	,015	,277	,782
	Alter	,075	,082	,050	,912	,363
	Bildungsniveau	,059	,065	,047	,903	,368
	V2newempl=Beamter	-,173	,124	-,071	-1,393	,165
	V5orga=Schule	,221	,153	,070	1,442	,151
	V5orga=Gericht	,052	,227	,010	,229	,819
	V5orga=Feuerwehr	,612	,406	,068	1,507	,133
	V5orga=Keine Angabe	,639	,278	,100	2,298	,023
	V4gend=männlich	-,028	,112	-,011	-,248	,804

a. Dependent Variable: V11Intrin

		Excluded Variables^a				
Model		Beta		Partial	Collinearity	
		In	t		Sig.	Statistics
				Correlation	Tolerance	
2	V2newempl=Angestellter	. ^c	.	.	,000	
	V5orga=Verwaltung	. ^c	.	.	,000	
	V4gend=weiblich	. ^c	.	.	,000	

a. Dependent Variable: V11Intrin

b. Predictors in the Model: (Constant), JobSatisfaction

c. Predictors in the Model: (Constant), JobSatisfaction, V5orga=Schule, V4gend=männlich, Beschäftigungsdauer gruppiert, V5orga=Keine Angabe, V5orga=Gericht, V5orga=Feuerwehr, V2newempl=Beamter, Bildungsniveau, Alter

4 **Bitte kreuzen Sie jeweils an, inwiefern die folgenden Aussagen zu Ihrem Beruf für Sie zutreffen.**
(1 steht für trifft nicht zu, 2 = trifft eher nicht zu, 3= trifft eher zu, 4= trifft zu)

	1	2	3	4
Ich bin sehr zufrieden mit meinem derzeitigen Beruf.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meine Arbeit ist ziemlich uninteressant.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An den meisten Tagen bin ich von meiner Arbeit begeistert.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ich fühle mich oft gelangweilt in meinem Beruf	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meine Arbeit bereitet mir große Freude.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jeder Arbeitstag scheint, als würde er nie enden.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

ENDE DES FRAGEBOGENS. VIELEN DANK FÜR IHRE MITHILFE.

Über Ihre Bereitschaft, an einem halbstündigen persönlichen Interview zu der Fragestellung teilzunehmen, würde ich mich sehr freuen.

Teilen Sie mir dazu unter der Email- Adresse n.klauser@student.utwente.nl bitte mit, ob Sie an dem Interview teilnehmen möchten.