WP 3

DELIVERABLES NR 3.1 / 3.2 /3.3

CONFIDENTIAL

Contract nr
HPSE-CT-2002-00121
Acronym
PSYCONES

Title:

Instruction work book and blueprint for methodology

Project coordinator:
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Reference period:
From (T4) to T(8)

Date of issue of this report:

WP3

Psychological Contracting across Employment Situations

PSYCONES

Instruction booklet and blue print for methodology
Draft

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1 Introduction

In order to make sure that differences between countries are a result of differences concerning the variables under research and not a result of differences in method, one target of international research is to make sure that there is no variation in method. Therefore standard rules have to be applied for data collection procedure, data checks, construction of scales, indices and new variables, handling of codes and missing data and conventions on how to document basic results which serve as a base for further data analyses of all partners. The main objective of WP 3 therefore is to develop rules to ensure that everybody conducts the same interview and follows the same design (sampling, number of participants etc).

Fundamental for homogenous data evaluation and documentation will be the instruments in use for data collection. Depending on the theoretical model, type of variables in the questionnaire and interview schedules, rules for analyses and documentation can be developed taking into account the level of measurement of every variable. Even when applying general rules of analysis and documentation, decisions will still need to be taken with respect to special cases. Because most variables touch specified areas of competence of different partners, this requires all partners work in an interactive way. In addition to the general rules, processes for reaching decisions concerning specific problems have to be agreed, so they can be repeated in later phases of the project or by other researchers.

By developing clear guidelines for data collection and data analysis we can expect to develop measures of our variables, which are reliable and valid for all countries. Only then we can compare countries. By developing standards of documentation - not only of results, but also of procedures - we make sure, that other countries could be included later on, following the same procedures. Thus, confounding method variance can be limited in any further replications of our results.

1.1 Overview

This report starts in the first chapter with the description of the objectives for the PSYCONES project, the presentation of the conceptual model. The methodology, including cross-national research, guidelines for translation, and sampling are provided in the second chapter along with general rules for testing psychometric properties of scales, testing equivalence across countries, and a short introduction to multilevel analysis.

The third to fifth chapter are dedicated to the description of the research instruments, starting with the contact sheet, and then the employee's questionnaire and the employers' questionnaire. The variables are introduced, and critically reviewed in terms of their psychometric properties. Whenever possible data from the pilot is used to show that scales are reliable and valid across countries.

The sixth chapter provides guidelines for the coding and processing of data. This report is accomplished by an annex that presents the research instruments in all project languages, as well as information about SPSS files, and Syntaxes.

1.2 Objectives of the PSYCONES project

The overarching objective for the study will be to examine how the changing nature of employment relations in general and different forms of employment contracts in particular affect the job security, well-being and health of workers in Europe and for comparative purposes Israel. An extensive literature review (cf. De Cuyper et al., 2003), the investigation of societal background variables (Claes et al., 2003), and the results of the pilot study (Isaksson, Bernhard, Peiro et al., 2003) led us to the following three main research questions:

(1) Is there a relationship between contract permanency (temporal versus permanent contracts) and our outcome variables: employee well-being (attitudes, behaviours and health) and organizational outcomes?
(2) Can we explain this relationship or the absence of such a relationship by introducing different sets of intermediate variables, including the psychological contract, or e.g. employee prospects?
(3) Is the relationship between contract permanency and outcome variables (see '1') also 'affected' by variables on a 'higher' level? These include: aspects of the company (organizational policy and practices), the sector and the countries involved. This part will be analysed by performing the final multi-level analysis (with inclusion of variables from WP4).

1.3 The development of a conceptual model

In order to answer the research questions, the first step has been to develop a conceptual model that places variables of interest to independent, control, intervening, and dependent variables. During several discussions, the input of the WP1 literature review, and the results of the pilot, the model has been slightly revised several times.

The basic model has been presented in the application to the European Commission (figure 1).

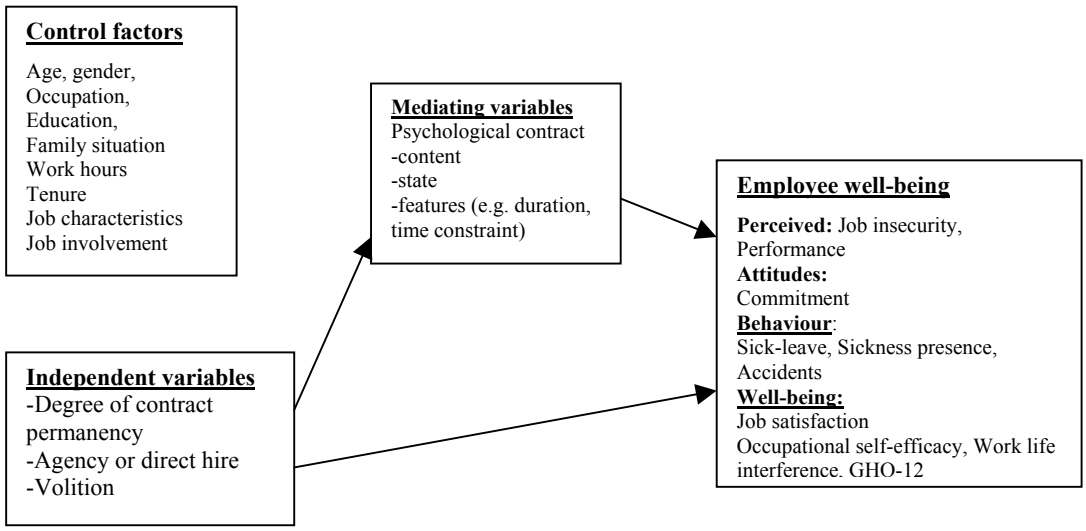


Figure 1 Conceptual model as presented in the application

In the first meeting of the project, in December 2002 in Leipzig the following changes to this model have been implemented. (1) As "mediating variables" seemed to be to restrictive, it was agreed to rename this part of the model to "intervening variables" (allowing also moderating effects), (2) The definition and operationalisation of the independent variables have been further clarified, (3) job characteristics, and organizational factors have been moved to the independent variables, (4) Volition (Choice) was moved to the intervening variables, (5) additionally employee prospects were introduced to the intervening variables, (6) The control factors were divided into two subgroups: individual and work related, (7) also the dependent variables were divided in two groups (employee and organisation), (8) we introduced the levels society, sector and company to the model.

In April 2003, the discussions during the Stockholm meeting resulted in the following changes: (1) Further clarification of the assessment of independent variables, (2) job

characteristics and organizational factors have been moved to the intervening variable, (3) the number of dependent variables was reduced.

During the preparation of the employees' questionnaire some of the variables had to be changed, because of license costs for special instruments, unreliable measures in the pilot, and a necessary limitation of the length of the questionnaire.

In November 2003 in Tilburg, an agreement could be reached that we should divide the model in two steps. At first step, we will use a rather restricted model: The independent variable will be the type of formal contract. The intervening variable will be the psychological contract: content, state, breach & volition. The output variables will be the dependent variables as decided in Stockholm. The control factors will be: the individual and the work related variables as decided in Stockholm. The next step, an expanded model will be used including other several possible intervening variables - numbers 2 (employee prospects) & 5 (organization) of the Stockholm model. This revised model with the new set of variables can be seen in figure 2.

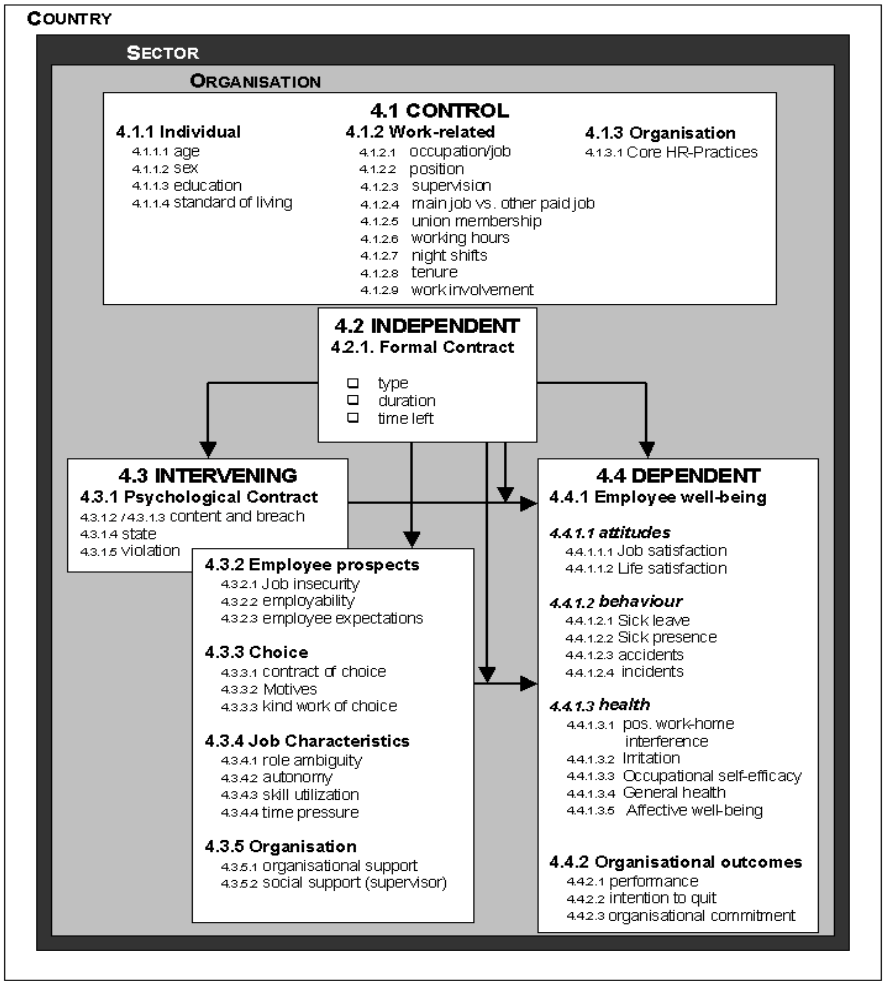


Figure 2 The two-step conceptual model of the PSYCONES Project

2 Methodology

2.1 General Classification

The project can be classified as a cross-sectional (and cross-national) field study using surveys as instruments. In its aims, underlying theory and methodology it is situated within the field of work- and organisational psychology. This research field is considered to be an applied science.

Using paper and pencil surveys as data source, we have to be aware of some limitations of this method. Several respond biases are discussed in literature (e.g. Biemer, Groves, Lyberg, Mathiowetz & Sudman, 1992). We think by setting standards and ensure transparency of the questionnaire we can reduce these biases to a minimum.

A further aspect, is that it could be shown, that correlations based on observations are normally weaker as those of self assessment data (Mohr & Udris, 1997). Crampton, and Wagner (1994) speak of "percept-percept inflation". On the other hand the subjective assessment of the job and its conditions has more influence than objective criteria. This could be shown by several studies investigating the stress at the workplace (e.g. Mohr & Semmer, 2002).

In the following we will discuss some general issues related to cross-national research, describe the translation process for the questionnaires, outline the sampling procedures, and provide information on statistical techniques for scale and item analysis (and equivalence analysis).

2.2 Notes on Cross-National Research

Looking at a definition for culture, provided by House, Hanges, and Ruiz-Quintanilla (1997, p.221): "… a set of common (or shared) attributes (assumptions, values, beliefs, meanings, social identities, and motives) among members of collectives that permit meaningful interaction among members of the collective and differentiate one collective from another". The orientation of the PSYCONES Project is rather cross national than cross cultural (Claes et al., 2003), as despite for Israel all other countries share the umbrella of being part of Western Europe. But still, differences between participating countries can be

found. The results of the background societal dimensions suggest three clusters, with Sweden as one, Israel, and Spain having similarities, and the other countries as third cluster (Claes et al., 2003). As all cross-national research is at least implicitly comparative (Baistow, 2000) these background information will be very helpful for the formulation of hypothesis, and the explanation of cross-national differences in the research project. One aspect taking from a classical book of cross-cultural research is definitely true for the PSYCONES project: the investigated groups "speak different languages and are governed by different political units" (Brislin, Lonner & Thorndike, 1973, p.5).

One of the most discussed issues in cross-national research is the equivalence of measures used. "Based on the information about national instruments a decision has to be reached if the variable of interest should be measured with the same instrument in each country, that is if input harmonisation is employed, or if country specific instruments must be used. If this latter approach is followed, and this will occur in the majority of cases, the question has to be answered how comparable measures will be derived from the country specific data" (Hoffmeyer-Zlotnik & Wolf, 2003,397). As the construction of the questionnaire was a team effort with contributions of all members, joint meetings and debates – the result can be seen as input harmonisation. Despite the measure of education, that could rather be seen as ex-post harmonisation as items are differing between countries but are brought to the same classification referring to ISCED.

The need for standardised translation procedures and quality management are also stressed to be important problems that have to be solved in cross-national research (Smid & Hess, 2003, p.57).

In order to fulfil these points, this paper describes the translation procedures, defines sampling strategies, and gives a definition of all used instruments. Our steps of quality management are summarised in table 1.

Table 1 Quality Management

1. The same shared conceptual model, developed by all researchers involved
2. Input harmonisation, by preparing an English Master-questionnaire
3. A thorough translation process
4. The same sampling procedures in all countries
5. Strict guidelines for the coding of data
6. Standards for the evaluation of psychometric properties of scales, and tests for equivalence

2.3 Translation of questionnaires

Translation of the questionnaires in cross-national projects is often one of the last steps before starting to gather data. That is probably the reason why it is often done at a fast pace with sometimes inappropriate methods and without paying attention to the documentation of the translation process. Several authors criticise that in most cross-national studies the construction of the questionnaires is not well documented (e.g. Behling & Law, 2000; Harkness, 1999; O'shea, Bryson & Jowell, 2002).

A good translation should lead to semantic, conceptual, and normative equivalence, and does not only include the literal translation process. Behling and Law (2000) distinguish six different translation techniques: simple direct translation, modified direct translation, translation / back-translation, parallel blind technique, random probe, and 'ultimate test'. Translation / Back-Translation has not only become the most famous since the seventies (Werner & Campbell, 1970), but is supposed to be also the most efficient one, as it yields to high informativeness, and high source language transparency (Behling & Law, 2000). Compared to the five other translation approaches this pattern stems out to be the best. But there are also critics on this 'gold standard' (O'shea, Bryson & Jowell, 2002). Harkness (1999, p.135) even states that it is "one of the less recommendable procedures" – but it must be said that she assumes that the translation can not be read by the researchers, which is definitely not true in all cases.

However, using a word-by-word translation – the English and the target language version might prove to be semantically equivalent using translation and back translation but are not conceptually or normatively equivalent. Thus, conducting a pretest is highly favourable but consumes a lot of time and money. Within the PSYCONES Project such a pretest has been conducted, and some of the scales used in the pilot proofed to be reliable and valid measures across countries. These scales will be indicated in the questionnaire section of this paper and some parameters of equivalence will be presented. Due to the improvement of the conceptual model and the exchange of scales which did not work as well as others, a new questionnaire was developed for the main study. Thus for some of the scales no pretests are available, but scales are described as reliable and valid in literature.

A presumption of conceptual equivalence is that the constructs assessed are etic: "Berry (1969) makes a useful distinction between etic constructs – those that exist in identical or near identical form across a range of cultures – and emic constructs that are limited to a single culture" (Behling & Law, 2000, p.3). Whereas semantic equivalence should get major attention, problems with conceptual equivalence play a minor role within the PSYCONES

project, as six samples are located within Western Europe, and there is also no evidence that the used constructs differ for Israel. Two countries of the PSYCONES project even share one language: Belgium and the Netherlands, and can share the same versions of the questionnaires. If there is a lack of theory why constructs should be emic, the only way to test conceptual equivalence is given by a set of statistical methods that will be discussed in this paper later on.

Reasons for normative non-equivalence might be the openness with which particular topics are discussed, or the variation of manner in which ideas are expressed across societies (Behling & Law, 2000, p.5f): Assertiveness versus acquiescence, self-enhancement versus modesty, objectivity versus social desirability, and directness versus indirectness are such indicators.

An option discussed to tackle the problem of conceptual and normative equivalence is decentering. Decentering refers to a translation process in which the source and the target language versions are equally open to modification during the development phase (Brislin, Lonner & Thorndike, 1973). As we mainly use instruments that are documented in literature this procedure is not appropriate for our project.

To consider all these problems, the following guidelines were established. The first step was to look for tested and probably published target language versions of the used instruments. If no version was available for the target language, the translation process started. All national teams employed more than one translator and used Translation / back-translation as technique. The outcome was discussed together with a team of researchers and deviations between source and back-translation were solved together. Whereas the translators were mainly responsible for semantical equivalence, each research team was responsible to monitor the translation process and to ensure normative, and conceptual equivalence.

Before printing the questionnaire we conducted a small field test. In each country the questionnaire was filled in by at least five persons, following the recommendation of Geisinger (2003). They got the instruction to report problems in understanding, and spelling errors.

Special attention was also paid to the translation of the word-anchors of scales[1]. In all cases, we found a compromise between using the most common verbal qualifiers for a national questionnaire or translating the response scales (Harkness, 2003).

[1] As an example: "Another interesting issue is that some students in Bulgaria reported difficulties in using the response formats as they were formulated: "very true", somewhat true", "somewhat false", and "totally false". For these students, "true" could only be "true" and not "somewhat" or "very" true. Thus, not only the wording of the questions is important, but also the choice and wording of the categories for responding" Alsaker, F. D., Flanagan, C., & Csapo, B. (1999). Methodological challenges in cross-national research: Countries, participants, and general procedures. In F. Alsaker, & A.

We should keep in mind that: "[…] translation problems will always be plausible rival hypotheses for any obtained results" (Brislin, Lonner & Thorndike, 1973, p.32). Thus a well-documented, highly standardised translation process is necessary to decrease language biases as much as possible. A documentation of all translation stages including problems and hints could be very helpful for publishing instruments in new language versions and to give advice for further cross national research in the field of work and organisational psychology. The national teams did this. For this report, just two examples of problems and solutions shall be picked out.

Problems occurred with the translation of "organisation" and "job". In Swedish, the word "organisation" is unusual. There it was replaced by "company" or "employer". In order to make the questionnaire valid for all sectors in Germany, the German team decided to translate organisation with "Firma / Organisation" (firm / organisation), and "job" related to the context of the question, whether as "Tätigkeit", "job", "Stelle" or "Aufgaben".

The Spanish team encountered problems with the translation of the position items. These changes are presented in table 2.

Table 2 Changes in the formulation of the position question in the Spanish version

English Original	Spanish Reformulation in the English back-translation
How would you classify your current job? Please only focus on the actual tasks and activities you are performing in your job (<u>not taking your educational level into account</u>) ❑ Unskilled blue collar worker (e.g. plant/machine operator, assembly line worker,…) ❑ Skilled blue collar worker or foremen (e.g. electrician, fitter, technician,…) ❑ Lower level white collar worker (e.g. typist, secretary, telephone operator, computer operator, shop assistant,…) ❑ Intermediate white collar worker or supervisor of white collar workers (e.g. computer programmer, school teacher, sales representative,…) ❑ Upper white collar worker, middle management/executive staff (e.g. store/shop/sales manager, office manager, engineer, university lecturer,…) ❑ Management or director (e.g. departmental/section manager, senior manager, headmaster, rector,…)	**How would you classify your current job?** Please, when classifying it keep in mind the tasks and activities you carry out in it without considering your level of schooling, as you answer this question) ❑ Non-skilled operator (e.g. worker on an assembly line.) ❑ Skilled operator or foreman (e.g. Electrician, fitter, technician,…) ❑ Office worker- entry level (e.g. Typist, secretary, telephone operator, computer technician, salesperson,…) ❑ Office worker- mid-level- or supervisor of office workers (e.g. computer programmer, teacher, sales representative,…) ❑ Professional worker – superior level- or boss (e.g. Manager of a store or shopping centre, office manager, engineer, university professor,…) ❑ Director or administrator (e.g. Director of a department, head of studies, rector,…)

Flammer (Ed.), *The adolescent experience: European and American adolescents in the 1990s* (pp. 15-32). Mawah, NJ, US: Lawrence Erlbaum Associates, Publishers.

2.4 Sampling

Sampling is the process of selecting units (e.g., people, organizations) from population of interest so that by studying the sample we may fairly generalize our results back to the population from which they were chosen. Thus, the first question to be asked when talking about sampling is to whom we want to generalise the findings (e.g. Häder & Gabler, 2003). The PSYCONES project investigates differences between employees in several employment situations and variables that might explain those differences. The main criterion is defined as having a permanent or a temporary contract. The theoretical population of interest is therefore employees that can be distinguished in the feature in the participating countries. That of course exceeds the possible accessible population. Therefore we had to restrict the sampling to certain sectors.

As criteria for the choice of sectors, we used (1) Has to be present in all participating countries, (2) A reasonable amount of non-permanent employed employees can be found within the sectors, and (3) sectors represent a broader class of organisational forms (e.g. public ruled, production plant, ..) . Following these criteria, we could agree on the following three sectors: Food Industry, Education, and Retail. In these three sectors we have private companies, as well as public organisations, we have a broad variety of educational, and skill levels, and we have manufacturing as well as service. The three sectors build our sampling frame.

Within this frame, we came to an understanding of further specifications that limit the broadness of the target population, but make comparisons more valid. Therefore we agreed to sample only professionals within the education sector, and only employees doing tasks in the core business of food industry plants.

As we have to rely on the voluntary participation of organisations, the sampling method cannot be completely random. That would imply that every employee working in one of these sectors would have the same chance to participate in the study. Due to our aim for investigating the situation of non-permanent employees, we will have a bias towards companies, where these contracts are present. But even those companies and organisations might have different reasons for not participating in the study. One reason can be seen as very likely. If an organisation is going through a structural crisis, their participation will become less likely. Thus, we can assume, that we might have a positive outcome bias in our results.

A further topic that has to be addressed is the necessary sample size. This is connected to the power of statistical tests. Whereas for correlation analysis a sample of approximately

100 can be seen as sufficient, more complex analysing strategies need a bigger sample size[2]. The rationale beyond our sampling standards is derived from the needs of multilevel analysis (see 2.8).

These sampling definitions led to further specifications. The minimum sample of each country is *600 workers*. Across the three sectors we should get about the same number of participants. In order to ensure that one organization has not too much impact on the overall results, we agreed to limit the maximum share of one organization subsample to 1/3 within the sector. This should also be reached concerning the subgroups of permanents, and non-permanent workers. At least 5 employees should have a non-permanent contract in one organization. Furthermore at least seven organizations per country per sector should be sampled (see also 2.8).

If a country face problems that prevent sampling one of the three sectors it should sample a different sector in the same professional level: Instead of the education sector- the health sector, instead of the food industry- a different industry, in the sales sector it is possible to include also assurance companies, banks, etc.

Having quite restrictive specifications for sampling strategies, the mode of data collection has to be a matter of more degrees of freedom. Though it would be desirable to specify on what days, at what time and in which settings questionnaires should be filled out, we will not specify these conditions, assuming that the possible bias of data collecting method levels across the sample. But for a good documentation policy this information will be reported in the contact sheet and can thus be discussed when presenting the data. Table 3 gives a summary of sampling strategy.

[2] An a priori analysis with the program G-power (Faul & Erdfelder, 1992) for example reveals for correlation analysis with expected average correlation of .30, and alpha of .05 and a power of .95 a sample size of N=111.

Table 3 Summary of the sampling strategy

	Country		
	Educational Sector	Food Industry	Retail and Sales
Description of the sector	Educational organisations (public, subsidized, private)	Food & Drink industry: No managerial staff sampled.	Shops, travel agencies, banks, assurance companies
Specification	Employees are professional staff in schools and universities (kindergarten/pre-primary included, cleaning staff, secretarial, etc. excluded).	Mainly workers that work in the core of the company's business	No restrictions
Number of companies	At least 7	At least 7	At least 7
Number of temporary workers	Minimum of 5 temporary workers in each organisation, not more than one third of temporary workers within one sector should be from one company, within one sector at least 100 temporary workers.		
Number of permanent workers	No limit per company. Within the sector, no more than 1/3 of the permanents from one organisation		
Number per organization	Not more than 1/3 of the sector sample should come from one single organisation		

2.5 Scale, and Item-Analysis

We built on the classical test-theory (CTT) (cf. Gullikson, 1950; Lord & Novick, 1967) for scale- and item analysis. The first step of a scale- and item-analysis should be the testing of the factor structure. For a generalized interpretation of the results of a factor analysis, the N of the sample, the amount of variables that load on one dimension, and the factor loadings have to be considered. According to Guadagnali and Velicer (1988) a criteria of .40 is sufficient if 10 to 12 items load on one factor. Where there are less (at least four), the criteria should be shifted to .60. Item, and Scale properties are always dependent on the underlying sample (Richardson & Adkins, 1938). Thus, it is necessary to proof the quality of a scale in each study or sample, instead of relying on former studies. For an explanatory factor analysis several estimation methods exist. A ubiquitous technique of data analysis, principal component analysis is often considered to be a factor analysis, but it is not based on a probability model, and thus has its restrictions. Though results of different estimation methods are very similar, we prefer to use the maximum-likelihood method rather than the principal component analysis, when using an explanatory factor analysis as a pretest for a confirmatory factor analysis. Whereas exploratory factor analysis is searching for an underlying structure, confirmatory factor analysis (CFA) is theory-based and allows a test of a specific model. Furthermore with CFA the factor-model can be tested concerning its equivalency across subsamples.

In a second step we will analyse the reliability in terms of internal consistency (e.g. Cronbach's Alpha, Cronbach, 1951), and the item-total correlations (cut-off $r_{it} > .30$) for every

dimension. Factor loadings and item-total correlations can be used as criteria for a necessary shortening of the scale.

Before starting to work with the variables, and scales of the main study, we will prepare a report of scale-, and item- properties, split for each country, and also performing tests on the equivalency of measures across countries. For that purpose some procedures for testing measurement equivalence are shortly presented in the next chapter.

2.6 Analysis of Equivalence

Several methods exist to test the equivalence of scales across subgroups. Salzberger, Sinkovics, and Schlegelmilch (1999) make the distinction between configural invariance (Basic Factor Patterns Correspond), Metric Invariance (Factor Loadings Correspond), and Scalar Invariance (Relationship of Latent and Manifest Variables Correspond). Within a simulation study the authors could prove the advantages of Latent Trait Approaches over confirmatory Factor Analysis (CFA). Another approach is described by (Mullen, 1995, p.580): "Optimal Scaling with PRINCIPALS can be thought of as linearizing all the bivariate scatter plots of the items in a principal components analysis wherein the loading matrix is predetermined by the conceptual model guiding the research."

However, still CFA seems to be the most common method for testing model equivalence across groups, and is thus suggested as the first method of choice. With multiple group structural equation modelling, measurement models can be tested for common form and invariance of factor loadings or for equality of measurement error variances.

2.7 Multilevel Analysis

From a human-ecology point of view, it is assumed that we can distinguish several nested systems: Exosystems (e.g. another country), macro- (e.g. society), meso (e.g. organisation), and micro-systems (e.g. family) (cf. Bronfenbrenner, 1981). Societal values, attitudes towards work, work climate, trust and values in a branch or company, and individual variables might influence the perception and the expectations of individuals, and thus are likely to influence psychological contracts (see also Rousseau & Schalk, 2000). A statistical framework called multilevel analyses can be used to investigate the interdependencies between groups or individuals on a macro and micro-level. "The general concept is that individuals interact with the social contexts to which they belong, meaning that individual

persons are influenced by the social groups to which they belong, and that the properties of those groups are in turn influenced by the individuals who make up the group" (Hox, 1995, p.1).

The question of sample size that is needed to perform a multilevel analysis is not easy to be answered (Snijders & Bosker, 1993). For a "simple" two level model, some authors speak of more than 100 groups to be on the safe side, that means to prevent an underestimation of group level variance components and standard errors (e.g. Busing, 1993). However the exact power of a multilevel model, especially when exceeding two levels can only be calculated accurately post-hoc, because the power is influenced by many parameters within the model (cf. Snijders & Bosker, 1999). Theoretically we have at least four possible levels within our research model: nations/societies, sectors, organizations, and individuals. Some groups might even be divided to subgroups. As a given fact of the project we have to deal with seven groups on the macro-level of society. Thus, we decided to need at least 100 organisations across countries in order to have a sufficient power for multi level modeling. If the second goal is to get a more or less balanced sample across groups on different levels, we came up with the guideline to gather data from at least 7 organisations per sector per country (7 Countries * 3 Sectors * 7 Organisations = 147).

It goes beyond the scope of this report, to describe the multilevel procedure in detail (see for example, Hox, 1995; Snijders & Bosker, 1999).

2.8 Summary

In this chapter, we formulated a set of standards and definitions for the general methodology of the PSYCONES research project. The overcharging objective of these standards is to ensure that differences between countries can be drawn back to differences in variables not in methods. For that reason, the development of the conceptual research model, as well as its operationalisation was a joint task of the whole group of researchers involved. The use not only of the same conceptual model, but also of the same instruments in all countries can be characterised as input harmonisation. The limitations within paper and pencil surveys are brought to a minimum, with equal standards across countries, same layout, the mixture of items in the questionnaire to prevent context and order effects, and shared standards for psychometric properties of the measures.

In a time-consuming procedure, that involved the preparation of several drafts of the questionnaires, the final English version was prepared as master document. The need for a

thorough translation process was stressed. Some techniques have been presented. Though the single teams did not all use the same translation strategy – it can be seen, that all spent great effort to come to good translations. The statistical tests for the evaluation of psychometric properties have been shortly presented.

Besides having the same instruments, and evaluation techniques, the sampling plays an important role in achieving comparable results. For that reason the population, and the sampling frame has been clearly defined, and guidelines have been presented.

Strict guidelines for the coding of the data (will be presented in chapter 6), and the calculation of indices and scales ensure comparable data sets across countries. Altogether, with this canon of standards we try to ensure the comparability of results across countries.

In the next section we will present our research instruments, the contact sheet, the employees questionnaire and the employers questionnaire in detail.

3 Contact-Sheet

The contact-sheet has been designed in order to have a standardised procedure of recording data (relevant for contact) concerning organisations/companies that have been contacted, or are participants in the study. Each organisation gets a sequenced number within each sector.

The contact-sheet shall not only be an administrative helper in handling the acquisition, and data-gathering in such a way that information about organisations and contact persons are recorded in the same way, but can also help to look for sample biases. It is thought to be an instrument for the facilitation of administrative tasks for the data collection period. Despite the mode of data-collection, it is not an instrument for gathering data. Just in order to have some key features of an organisation at a glance – some basic information that we get from the HR-Manager Questionnaire/Interview shall be transferred to the contact sheet. The contact sheets can thus be used to describe the sampling in a country. Including the information (for each sector):

- How many organisations have been contacted (and how many participated)
- How many contacts were necessary
- Size of organisation / company (Number of employees)
- Mode of data collection (at home, at work, researcher present, …)
- General structure of work-force

These information can than be accomplished with the characteristics of the samples within each organisation.

Contact-sheet

c s nr

Address and basic information

Name of Organisation			
Name of Contact Person			
Street Address		ZIP-Code	City
Telephone	Fax		Email
Internet			
Number of employees	male	fem:	
Temporary contracts		Permanent contracts	
male:	fem:	male:	fem:

(last row voluntary)

Contacts

Psycones				Company			
Nr	**Date**	**Category**	**Content**	**Nr**	**Date**	**Category**	**Content**
P1				C1			
P2				C2			
P3				C3			
P4				C4			
P5				C5			
P6				C6			
P7				C7			
P8				C8			

Category: L=Letter, E=Email, T=Telephone, P=Personnel Communication, F=Fax, D=Data Gathering

Rates

Mode of Data Collection:	Within working time? ❑Yes ❑ No	At the work place but not within working time? ❑Yes ❑ No	At home? ❑Yes ❑ No	Researcher present? ❑Yes ❑ No	
	Questionnaires distributed (N)		filled in Questionnaires (n)		Answer rate = n/N
Employees					
			Permanent n_P(%)	Temporary n_T(%)	

4 The Employees' Questionnaire

The questionnaire for employees is the core instrument of the project. Items, scales were chosen according to the conceptual model. The pilot study served as test run for the instruments. Using criteria of dimensionality, reliability, and item characteristics the instruments for the main study were chosen, modified or constructed. Compared to the pilot study, the conceptual model was subject to extensions, that have been discussed in several meetings of the PSYCONES group. Thus, not all instruments included in the main study have been tested in the pilot.

For those instruments, that were included in the pilot we will present a scale, and item analysis, as well as an analysis of metric, and scalar equivalence across countries. The main results of the pilot study are presented in the WP2-report (Isaksson, Bernhard, Peiro et al., 2003), and the SALTSA report (Isaksson, Bernhard, Claes et al., 2003). Thus, we will not go into detail in this report. The sample characteristics of the pilot study have been described by Isaksson, Bernhard, Peíro et al. (2003, p.1): "Total sample size obtained was 1685 with varying numbers for the countries and sectors. We managed to obtain relatively large samples from the health care sector (35%), retail sector (20%) and temporary employment agencies (21%). Mean age was 35 years and there was a small over-representation of women in the whole sample. Overall there was also a variation across educational levels with proportions of individuals with academic education varying between 19% (Germany) and 76% (Israel)." With 53 participants in the Netherlands and Israel, these samples are too small for statistical analyses and are not included.

The questionnaire is partitioned into the five sections: 1) Present job and employment contract, 2) Job characteristics and performance in your present job, 3) Attitudes towards the job and organisation, 4) Health and well-being, and 5) Background information. This division should enhance transparency and clearness of the questionnaire for responders, without biasing the answers. In order to diminish context and order effects, we mixed items of the scales wherever it seemed possible. "Broadly stated, context-and-order effects occur when previously asked questions influence responses to later questions" (Smith, 2003, p.84).

In the following section the variables included in the questionnaire shall be described. If there is data available from the pilot, we will also present the psychometric properties of scales across countries, and report changes that have been made to scales or items, having the prospect for a better measure. The structure is oriented on the conceptual model not on the order of questions in the questionnaire, the item-labels are indicated in parentheses.

4.1 Control Variables

4.1.1 Individual

4.1.1.1 Age (q30)

Generally there are two options for the measurement of age, asking directly for the age or asking for the birthday. The latter might be a problem because it could threaten the anonymity of survey participants. A further problem that might occur in cross national research when asking for the date of birth can be the use of different calendars (Wolf & Hoffmeyer-Zlotnik, 2003). Advantages could be seen in the accuracy of the measure and if analysed units should be birth cohorts it is the more appropriate strategy. However, we decided to ask directly for the age of the participants.

4.1.1.2 Sex (q31)

Sex refers to whether one is born a male or female. Though most studies dealing with differences between females and males are called gender studies – it is rather the biological distinction that is focussed than gender, as stereotypical behaviour (Wolf & Hoffmeyer-Zlotnik, 2003). Therefore within the project we will ask for the biological sex: whether a participant is female or male.

4.1.1.3 Educational Levels (q36)

Educational Programs differ to a great extent between countries or even within one country. Thus great effort has been made by the OECD to come to a comparable classification system across countries: "The basic concept and definitions of ISCED have therefore been designed to be universally valid and invariant to the particular circumstances of a national education system" (Unesco, 2003,196). The ISCED (OECD, 1999) provides a classification of six educational levels. Another wide used system for international education comparisons is the CASMIN (Comparative Analyses of Social Mobility in Industrial Nations) (Brauns, Scherer & Steinmann, 2003). But as this classification is restricted and based only on France, West Germany, Italy and the United Kingdom it does not fit the needs of the PSYCONES project as well as the ISCED – classification. The six levels and its description are presented in table 4. More detailed definitions split for the countries can be found in the appendix.

Table 4 Educational Levels according to ISCED-97 (OECD, 1999)

0	Pre-primary level of education
1	Primary level of education
2	Lower secondary level of education (2A, 2B, 2C)
3	Upper secondary level of education (3A, 3B, 3C)
4	Post-secondary, non-tertiary education (4A, 4B, 4C)
5	First stage of tertiary education 5B, 1st , 2nd qualifications (short or medium duration) 5A, 1st degree (medium duration) 5A, 1st degree (long) 5A, 2nd degree
6	Second stage of tertiary education (leading to an advanced research qualification)

Additionally to the educational level, a lot of studies use the figure of time spent in formal education, or the age of individuals, when they gained their highest degree. The rationale behind this idea, is that the more time was spent in education, the higher the educational level. Another advantage is seen in the metric level of the variable, that allows using certain statistical procedures. But "In a system providing repetition, however, incapable pupils spend a higher amount of time in secondary education than capable pupils. Time spent in secondary education can thus be a negative indicator for a high level of education. " (Hoffmeyer-Zlotnik, 2003, p.249). Thus, this variable has to be interpreted carefully, and is only a vague indicator for educational level. Especially because time spent in school or university can defer between countries.

4.1.1.4 Standard of living (social support (q32), financial contribution (q33), dependents (q34), household-responsibilities (q35))

Assessing living conditions or issues concerning a household again is connected to cross national differences in the definition of households. "In Germany household is defined as 'living together and building a common economic unit' (Hoffmeyer-Zlotnik & Warner, 1998, p.51). In the Netherlands and some southern European countries 'having meals together' suffice to constitute a household. In Great Britain three elements of definition need to be combined, 'same housing', 'meals together' and 'shared economic unit'. " (Bien & Quellenberg, 2003, p.280). We are aware of these difficulties. Thus, we implemented a set of variables that shall be used as indicators for the living conditions of the participants. As we are interested in an indicator for social support, we decided to ask if the participants live together with a partner, together with family, parents or friends or if they live alone, instead of

asking for the legal status. We know that this is only a vague indicator of social support, but due to limitations in the length of the questionnaire, we find this solution to be a good compromise. Secondly we ask about the individual's contribution to the household-income, and distinguish between sole earner (100%), main earner (more than 50%), joint earner (about 50%), and contributory earner (less than 50%). Furthermore we ask how many persons (including the respondent) are mainly dependent on the household income.

Connected to the living situation, and household, but different from the other questions, we also ask about the household responsibilities (who's mainly responsible for ordinary shopping and looking after the home).

4.1.2 Work related

4.1.2.1 Occupation / Job (q1)

We are interested in what the job participants do in the organisation we gather data. As this might be different from the formal vocational/occupational education persons have, we stress that the actual tasks should be considered and not the educational level.

4.1.2.2 Position (q2)

It has been suggested that "the division of labour is the kernel of social inequality" (Ganzeboom & Treiman, 2003, p.159). On an international level several classification schemes have been developed for the standardised measure of occupational status (e.g. SIOPS, ISEI, EGP, see Ganzeboom & Treiman, 2003 for an overview).

As we have the sector, the occupation, and the type of contract already covered in other items, we focus here on the hierarchical level within the company or organisation. The skill level, and the degree of responsibility are the main indicators of our classification. We distinguish between (1) unskilled blue collar workers, (2) skilled blue collar worker or foreman, (3) lower level white collar worker, (4) Intermediate white collar worker or supervisor of white collar workers, (5) Upper white collar worker, middle management / executive staff, and (6) Management or director. It shows some similarity with the EGP Class Categories. From a work psychology point of view this classification - in terms of action regulation theory (e.g. Frese & Zapf, 1994) – can be considered to map degrees of complexity, and degrees of freedom along with the levels.

Position is an important background variable that should be controlled for in our model. The classification described was modelled after Goldthorpe's Class Scheme. The scale's validity has been endorsed on a number of occasions (e.g. Evans, 1993).

4.1.2.3 Supervision (q5)

Along with position, having supervising tasks might enhance the cognitive complexity of a job. We assess this by asking, "Do you supervise other employees?".

4.1.2.4 Main job vs. other paid job (q7)

Kastner, Kastner, and Vogt (2001) for example state that the known dichotomy of having employment and being unemployed will be replaced by a continuum ranging from having no employment to having several employments. The more insecure jobs are the more likely will it be, that individuals try to find more than one job. Thus, we will ask, if the respondents have another paid job besides the one in this organisation, and if yes how many hours they work there.

4.1.2.5 Union membership (q6)

Temporary workers, and especially temporary agency workers share the lack of a right to have a say in the company (e.g. Galais & Moser, 2001). Whether one is a union member might influence his/her position in the company or organisation. On societal level, we have data about union density, on organisational level the share of employees, that are union members, and last but not least, we ask individuals whether they are union members or not.

4.1.2.6 Work hours (q3)

Asking for the hours worked per week, we are seeking information, whether respondents work part- or full-time. Also, longer working hours (in excess of 48 hours per week) is connected to deteriorating psychological and physical well being (e.g. Kirkcaldy, Levine & Shepard, 2000; Kirkcaldy, Trimpop & Levine, 2002) and thus should be controlled.

4.1.2.7 Night Work (q3a)

It is well known that there are several risks in shift and night work. Employees working at night and in shift-work acknowledge that their work affects their health more often than other workers. Hearing problems, skin problems, injuries, stress, and overall fatigue is especially higher for night workers (Boisard, Cartron, Gollac & Valeyre, 2002). Thus,

working in night shifts might influence the dependent variables, especially health and, well-being of participants and is therefore included as control variable.

4.1.2.8 Tenure (q4)

As the psychological contract is a dynamic concept that is subject to changes and development with time passing it is important to know for how long participants are already employed by this organisation. The question "how long have you been working in this organisation" can be answered using boxes for years, months or days.

4.1.2.9 Work involvement (q21c, q22c, q22o, q23e)

The work involvement measure replaces the job involvement measure used in the pilot. Now it more clearly becomes a control variable.

Kanungo (1982) developed two separate measurements for each work and for job involvement while previous authors used both expressions simultaneously. The author defines work involvement as the "individual psychological identification" (Kanungo, 1982, p.342) to work in general whereas job involvement describes the identification to a specific job context.

According to Kanungo the work involvement questionnaire (WIQ) can identify work involvement within an organization. Moreover the scale allows testing predictions of both alienation and involvement towards work, which hinges on the worker's extrinsic and intrinsic needs as well as the perception. The scale consists of six items with a six-point agree-disagree response. The internal consistency of .75 and the test- retest reliability of .67 are both judged as "reasonable". A low correlation to Gorn and Kanungos' scales (1980) of job satisfaction (.12) and overall job satisfaction (.04) supports the prediction, that work involvement "is not dependent on present job satisfaction" (Kanungo, 1982, p.347). We shortened the scale to four items.

4.1.3 Organization

4.1.3.1 Core HR practices (q16a-q16h)

Previous research has shown a strong and positive relationship between the presence of human resource practices and state of psychological contract (Guest & Conway, 2002b) and improvements in the psychological contract (Guest & Conway, 2001).

We used the set of items from Guest and Conway (2002) and choose eight items, reformulated some of them to better fit to the PSYCONES purpose. Some of the wording reflects quite extensive pilot testing to ensure comprehension across the UK working population. Response to all items is *yes/no/don't know.* The measure is scored by taking a count of the "yes" responses.

4.2 Independent Variables

4.2.1 Type of contract (q9)

In the pilot study different employment contracts have been arranged in a grid, opposing contract permanency (variable with subject to immediate notice, fixed with subject to notice, permanent with subject to notice, and permanent without subject to notice) and direct employment vs. employment by an agency. Thus seven different types of employment contracts could be distinguished. We recognised that not all cells could be filled by all countries, and thus revised this scheme in order to come to a valid measure of type of contract.

The main focus is on the distinction between permanent and non-permanent contracts. The underlying dimension is degree of permanency. So one dimension is time of the duration of contract and the other is type of contract. This way different subgroups can be build that differ in the level of distinction. The highest order distinction is whether a person is permanently employed or not (0/1). On the second level, for the temporary workers four different subgroups can be distinguished. For permanent workers, for some countries a distinction can be made between open-ended contracts, and civil servants.

On the third level further distinctions can be made between different kinds of temporary contracts. Figure 4 shows the structure of the assessment of type of contract.

For a more precise definition and classification of non-permanent contracts we also ask for the duration and the time left of the contract / assignment. An additional question asks for the contracts' history of respondents, respectively how long they have worked on temporary contracts so far. Answers to these questions may be given in numbers of years, months or days.

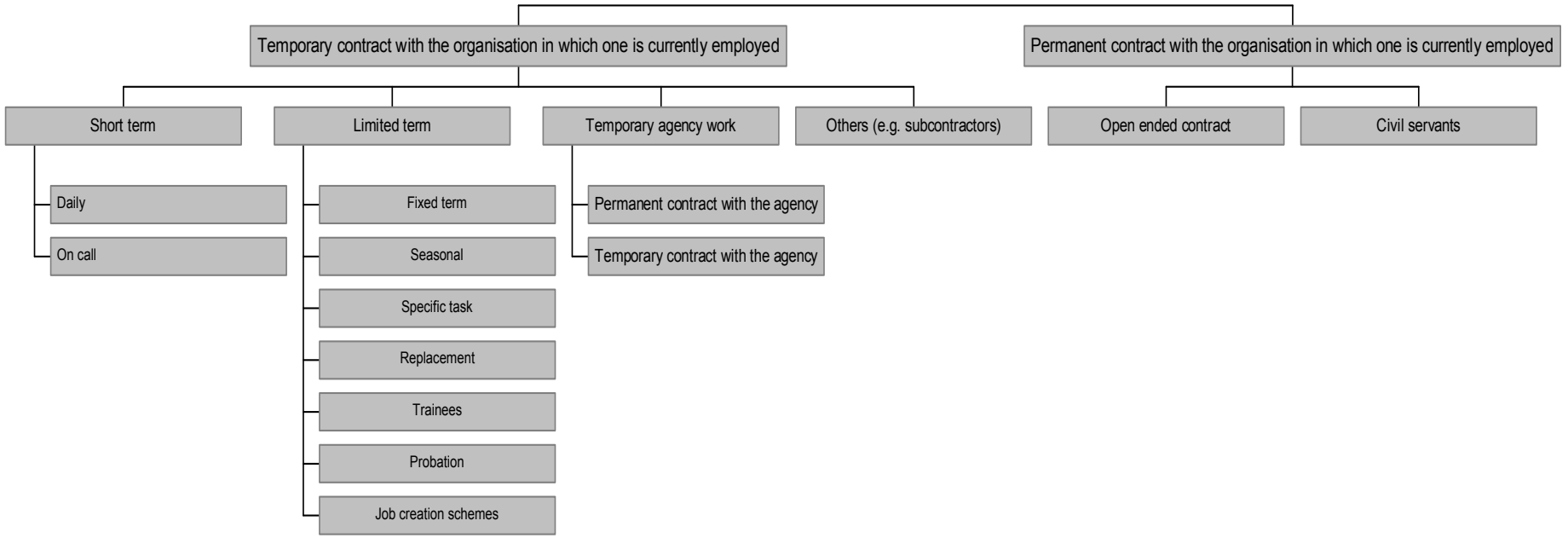


Figure 3 Classification of different kinds of employment contracts

4.3 Intervening Variables

4.3.1 Psychological Contract

The first utilisation of the concept "psychological contract" may be found in Argyris (1960). First considered as social exchange process, only the shift towards a mental model of a set of unwritten reciprocal expectations between the individual employee and the organisation made the concept prominent in the nineties. Mostly due to the work of Denise Rousseau. Critics note that the uni-directional definition of psychological contracts, which are mostly focused on the employees' perspective, does not cover the exchange process (Rousseau, 1995). Most empirical studies are limited to the perspective of employees (Herriot, Manning & Kidd, 1997), and lack the exchange component (Arnold, 1996; Guest, 1998). The contract is thus defined as a cognitive model rather than an exchange concept (Raeder & Grote, 2001).

We tried to find a compromise, and thus construed the psychological contract as a multi-facet instrument. First, we distinguish between employers and employees obligations. At this stage we focus on the employee as data source. That means that, albeit considering both sides, it is still the mental (cognitive) model of the employee that is assessed and not the social exchange as such. We will not only ask for the perceived employers obligations, but also for the promises and commitments of the employee towards his/her employers. Taking both sides of contract-partners into account we follow the definition of the psychological contract as '…the perceptions of reciprocal expectations and obligations implied in the employment relationship (Isaksson, Peiró et al., 2003, p.3).' The employer's side will be considered in the employer's questionnaire that will be described later on. Within these categories we further distinguish between the content of the psychological contract and the "delivery of the deal". Another constituent element of the psychological contract is trust, and fairness (also called: state of the psychological contract). The items indicate whether the employment relationship is perceived as just, fair and to what extent one can trust the employer (managers, supervisors). Additionally, and that was added for the main study, we assess the violation of the psychological contract. In contrast to the delivery of the deal (breach) which is rather seen as cognitive reaction, the violation of the contract is seen as an affective reaction to the psychological contract (cf. Morrison & Robinson, 1997) Figure 4 shows these constituent elements of the psychological contract at a glance.

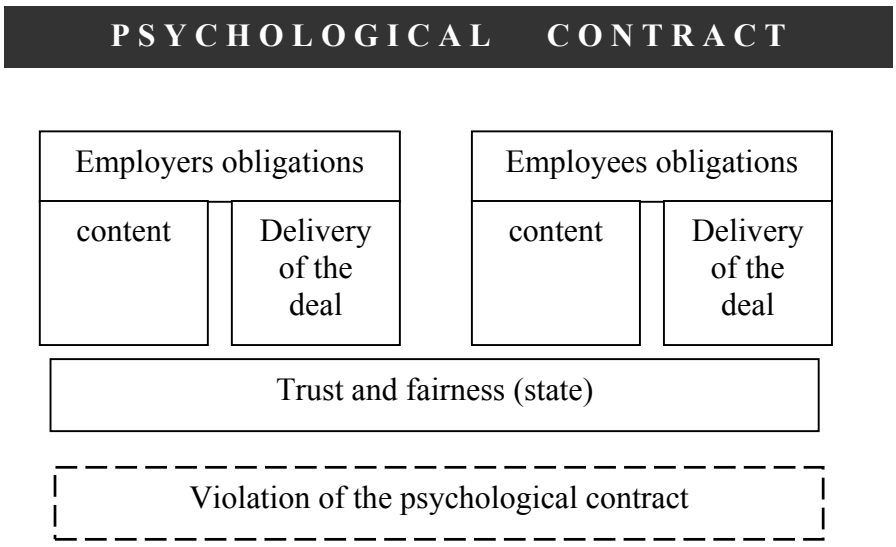


Figure 4 The constituent elements of the psychological contract in the questionnaire

Now, we will describe the single elements in more detail and provide data from the pilot study and explanations for the add-ons and improvements for the main study. First a detailed analysis of the problems in terms of invalid and missing answers that occurred with the instrument in the pilot phase is given. Then the psychometric properties of the different scales are analysed and conclusions are drawn for the main questionnaire.

4.3.1.1 Invalid and missing answers in the pilot

In the Pilot questionnaire the scaling for the Employers and Employees obligations was split into two parts. First asking whether a promise has been given or not (yes/no = content) and then asking, "If Yes, to what extent has this promise or commitment been kept?" to be rated on a seven point scale, ranging from "not at all" to "totally" (="delivery of the deal"). This quite complicated structure of the question led to missing and invalid answers. Some answered the second part of the questions, even if they stated that the promise was not given, others perceived the promise as given, but did not rate to what extent, and a few missed to fill out the content question, but filled out the second part. Table 5 gives an overview of these errors.

Table 5 Types of respond errors to the psychological contract question in the pilot study

Error1	Error2	Error3	Error 4
Rating the delivery of the deal. Albeit stating that the promise has not been given	Not rating the delivery of the deal, albeit stating that the promise has been given	Rating the delivery of the deal, albeit not stating if the promise has been given	Completely missing answers

Assuming that the same respondents cause same errors, approximately 15% of the total sample did not understand the instructions well or refused to follow the instructions. Error3 might be seen as less severe as others, as we can assume that there must have been a kind of promise (or the perception of it) if responders are able to rate to what extent it has been kept.

Thus we decided that the layout of the question has to be changed, and we could agree that we merge the two scales together, labelled with : No, "**Yes**, but promise not kept at all", "**Yes**, but promise only kept a little", "**Yes**, promise half-kept", "**Yes**, and promise largely kept", "**Yes**, and promise fully kept". The introduction to this scale is: "Next follows a list of some promises and commitments which organizations sometimes make to their employees. For each, I would like you to consider whether such a promise has been made by this organisation, either formally or informally, and the extent to which it has been fulfilled. Has your organisation promised or committed itself to …"

4.3.1.2 Content

4.3.1.2.1 Employers Obligation (q17)

The content of the employers obligations is defined by whether a promise by the organisation is perceived as being made or not. In the pilot questionnaire we used a set of 14 items in order to assess a range of possible contents. The content of the PC refers to the 'concrete terms being part of the perceived exchange relationship' (Rousseau & Tijoriwala, 1998). It is not possible to make a list of all possible content-items. The psychological contract rests on the variety of aspects considered. In planning the main study, we considered, that probably, more items would be needed to explore more adequately the rich content of psychological contract. Alcover (2002) and Thomas and Anderson and Schalk (1998b) reviewed different studies that include different dimensions of PC content (promises made by employer). Table 6 gives an overview of possible contents.

Table 6 Overview of Psychological contract contents (promises made by employer)

Rousseau (1989); Robinson, Kraatz and Rousseau (1994)	Robinson (1996); Robinson and Rousseau (1994)	Schalk, Van den Bosch and Freese (1994):	Porter et al. (1996):	Herriot, Manning and Kidd (1997)
▪ To allow quick professional advancement ▪ High incomes ▪ Wage proportioned to worker performance ▪ Training ▪ Long-term employment security (stability) ▪ Career development ▪ Support in the case of personal and family problems	▪ Training and development ▪ Promotion ▪ A clear representation of tasks ▪ Feed-back ▪ Employment security (stability) ▪ Information of decision-making about relevant changes at work ▪ Responsibility (more duties and more important tasks?)	▪ Job Content ▪ Opportunities for personal development ▪ Rewards ▪ Human Resources' policies and practices ▪ Social aspects (Extra benefits? Interpersonal elements?)	▪ Incomes related to performance ▪ Open recognition ▪ Significative job content ▪ Opportunities to development ▪ Responsibility and autonomy ▪ One year employment security ▪ Incomes related to company benefits ▪ Participation and consideration in decision-making	▪ Training ▪ Justice ▪ Humanization ▪ Equitable wage and benefits ▪ Healthy and safe work environment ▪ Communication with employees ▪ Recognition

According to this literature review we extended the set of items of the psychological contract. The changes made to the items will be reported later on.

For the Saltsa-report a factor analysis was run across the total sample: « Factor analyses revealed three dimensions of the content of employer obligations. First a general factor including transactional aspects (pay and job security) but also career prospects (challenging job, advance and grow, career), secondly a relational factor (e.g. friendly climate and co-operation), and finally a dimension concerning the chance to have an influence on important decisions." (Isaksson, Bernhard, Claes et al., 2003, p.16). This result can be confirmed for the total sample of the pilot study using CFA (table 7). For the psychological contract we abstain from country comparisons, as the psychological contract is highly dependent on the context, and samples in the pilot study are hardly comparable.

Table 7 Factor analysis of employers content (maximum-likelihood, varimax-rotated), cronbachs alpha and item-total correlations (for subscales)

		r_{tt}	f	
18a	to provide you with interesting work	.57	.54	
18b	to provide you with a reasonably secure job	.50	.52	
18c	to provide you with good pay for the work you do	.57	.62	
18d	to provide you with a job that is challenging	.59	.53	
18e	to allow you to participate in decision-making	.66	.67	
18f	to provide you with a career	.58	.57	
18g	to provide a good working atmosphere	.60	.60	
18h	to provide you with pay that is commensurate with the level of your performance	.56	.58	
18i	to ensure fair treatment by managers and supervisors	.56	.52	
18j	to provide possibilities to work together in a pleasant way	.68	.87	
18k	to allow you to participate in important decisions	.66	.82	
18l	organizational flexibility in matching demands of non-work roles with work	.50	.39	
18m	to help you deal with problems you encounter outside work	.50	.40	
18n	to provide you opportunities to advance and grow	.59	.56	
	Alpha	.84	.78	.79
	N	1382		
	Chi^2/df	712.24/74		
	CFI	.91		
	GFI	.93		
	AGFI	.90		
	RMSEA	.08		
	Explained variance	41%	8%	8%
Factor 1	Factor 2	Factor3		

For the main study we decided to make the following changes to items. We skipped items q18h, and q18k, and added therefore three new items: (1) “provide you with a safe working environment?” (2) “improve your future employment prospects?” (3) “provide an environment free from violence and harassment?”. These changes were motivated by the aim to broaden the scope of the scale, and to reduce redundancies.

Changing the scaling format makes it necessary to introduce a special calculation procedure for the content of the psychological contract. Therefore the items q17a to q17o (labels of the main study questionnaire) have to be recoded the following way: (0=0) (1=1) (2=1) (3=1) (4=1) (5=1) (9=9). These new variables can be summed up and used as an index of given promises (see SPSS-Syntax in the annex).

4.3.1.2.2 Employee Obligations (q19)

For this variable we choose the same operationalisation as for the employers obligations, distinguishing between content of the psychological contract and the delivery of the deal. Thus, for the pilot study the same problems as discussed above occurred with that scale, and we changed the scaling for the main study.

The content of the employee's obligations is defined by whether a promise or commitment towards the organisation by the individual is perceived as being made or not. In the pilot questionnaire we used a set of 10 items in order to assess a range of possible contents. An exploratory factor analysis, as well as a CFA confirms a one-dimensional solution for the total sample.

Table 8 Factor analysis of employees content (maximum-likelihood, varimax-rotated), cronbachs alpha and item-total correlations (for subscales)

		r_{tt}	f
19a	go to work even if you don't feel particularly well	.49	.52
19b	protect your company's image	.53	.54
19c	show loyalty to the organisation	.49	.51
19d	work overtime or extra hours when required	.48	.51
19e	be polite to customers or the public even if they are rude and unpleasant to you	.56	.63
19f	be a good team player	.55	.64
19g	be punctual (prompt)	.57	.66
19h	assist others with their work	.63	.72
19i	volunteer to do tasks outside your job description	.58	.63
19j	work enthusiastically on jobs you would prefer not to be doing	.64	.69
	Alpha	.84	
	N	1438	
	Chi^2/df	525.66/35	
	CFI	.89	
	GFI	.93	
	AGFI	.89	
	RMSEA	.10	
	Explained variance	43%	

The SPSS-Syntax for calculating the content can be found in the annex. For the main study we decided to add the following items: (1) "develop your skills to be able to perform well in this job?" (2) meet the performance expectations for your job?" (3) accept an internal transfer if necessary?" (4) "provide the organization with innovative suggestions for improvement?" (5) "develop new skills and improve your current skills?" (6) "respect the rules and regulations of the company?" (6) "take responsibility for your career development?".

4.3.1.3 delivery of the deal

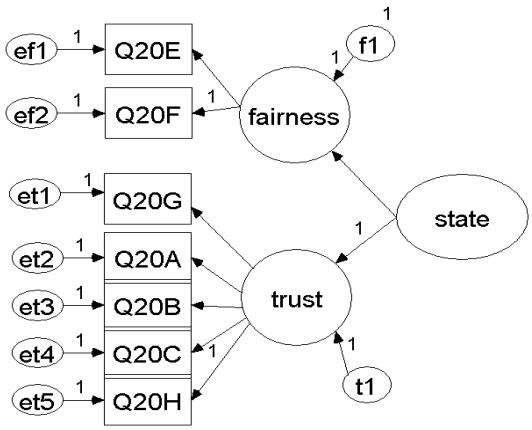
The delivery of the deal is defined by the perceived degree if a promise has been kept or not, rated on a seven point Likert-type scale from "not at all" to "totally" (in the pilot study). For the delivery of the deal we have to leave the common methods of scale construction, because the rationale of this instrument implies that a promise must have been

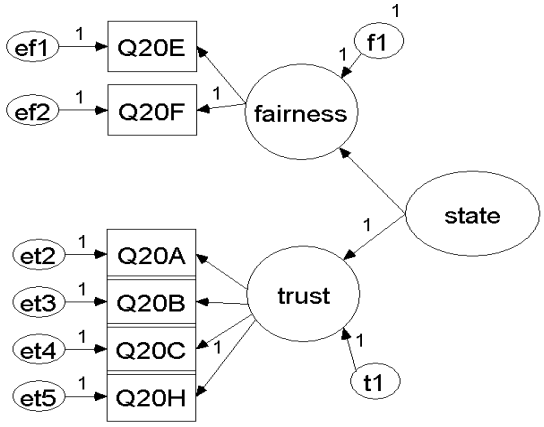
given in order to be able to rate the fulfilment. Thus not all persons rate all promises. So we can neither perform a factor analysis nor a reliability analysis, or give descriptive statistics on item basis (this would only be possible, when taking those persons who answered to all items). As we discussed for the contents, we propose as a general case to compute the delivery of the deal as an index, consisting of those items that have been rated. For special cases, subsets of items might be regarded. For the calculation of this index see the SPSS-Syntax in the annex. This syntax computes the mean of those items, a response to the fulfilment has been given.

4.3.1.4 State of the Psychological contract (q20)

In the report of the pilot study (Isaksson, Bernhard, Claes et al., 2003) the state of the psychological contract was defined by perceived trust and fairness of the employment relationship. After reconsidering the content validity of the scale the item "In general, how much do you trust the government and politicians to enable your organisation to keep its promises or commitments to you and other employees?" was omitted from the scale, because it goes beyond the scope of describing the employment relationship in the organisation.

An exploratory factor analysis over the total sample (N=1585) adduces two factors: the first factor can explain 53% of the variance, whereas the second factor explains 13% of variance, and only consists of two items (instead of three). Thus the theoretical distinction between the two subscales could only be uphold by deleting item q20g: "Do you feel that organisational changes are implemented fairly in your organisation?", as this item should load on the fairness factor, and not on the trust- factor. Comparing two models (one with this item loading on trust, one without) shows also the advantage of the second model. A one-dimensional solution over the remaining six items is not supported at all (all fit-indices CFI, GFI, AGFI <.80, RMSEA < .20).





N	1585
Chi^2/df	270.32/13
CFI	.96
GFI	.95
AGFI	.95
RMSEA	.11
Explained variance	59%/14%

N	1585
Chi^2/df	49.80/8
CFI	.99
GFI	.99
AGFI	.97
RMSEA	.06
Explained variance	60%/17%

Figure 5 Two 2-dimensional CFA-models of the state of the Psychological contract (Pilot data)

The items that indicate trust for itself build a satisfactory one-dimensional scale, at least for the total sample (CFI: .99, GFI: .99,AGFI: .95,RMSEA: .10). We tested the two-dimensional model as shown in the right model of figure 6 across countries. The results are summarized in the following tables. The factor-loadings were observed running a Maximum-Likelihood-Factor analysis with Varimax-rotation. Item-Total Correlations and Alphas were estimated for the subscales separately. A two-item scale can of course be doubted – just for reasons of completeness alphas, and item-total correlations are reported for this sub-dimension.

Table 9 Factor analysis of trust and fairness (maximum-likelihood, varimax-rotated), cronbachs alpha and item-total correlations (for subscales)

		Sweden		Germany		Belgium		Britain		Spain		Total sample	
		r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f
q20a	To what extent do you trust your immediate line manager to look after your best interests?	.63	.59	.67	.71	.59	.61	.58	.60	.58	.63	.61	.62
q20b	To what extent do you trust senior management to look after your best interests?	.71	.71	.76	.81	.71	.81	.72	.79	.75	.79	.73	.80
q20c	In general, how much do you trust your organisation to keep its promises or commitments to you and other employees?	.77	.79	.72	.76	.73	.81	.73	.83	.76	.79	.75	.82
q20e	Overall, do you feel you are rewarded fairly for the amount of effort you put into your job?	.82	.86	.86	.89	.82	.88	.84	.96	.81	.84	.84	.84
q20f	Do you feel you are fairly paid for the work you do?	.82	.76	.86	.87	.82	.87	.84	.81	.81	.87	.84	.90
q20h	To what extent has the organisation kept its promises and commitments to ensure fair treatment by managers and supervisors?	.71	.65	.64	.63	.62	.64	.63	.68	.62	.61	.64	.65
	Alpha	.90	.86	.92	.85	.90	.83	.91	.83	.90	.84	.91	.84
	N	135		195		596		194		366		1585	
	Chi^2/df	7.52/8		7.36/8		39.83/8		22.41/8		18.75/8		49.80/8	
	CFI	1.00		1.00		.98		.98		.99		.99	
	GFI	.98		.99		.98		.97		.98		.99	
	AGFI	.95		.97		.94		.91		.96		.97	
	RMSEA	.00		.00		.08		.10		.06		.06	
	Explained variance	11%	67%	17%	61%	19%	56%	20%	55%	16%	61%	17%	60%

Annotation: two items from the pilot study have not been included in the analysis due to (1) doubtful content validity, (2) vague dimensional allocation

Table 10 Test of equivalent factor structure and loadings across countries for trust and fairness

	Equal factor structure	Equal factor loadings
Chi^2/df	95.87/40	118.99/56
CFI	.99	.99
GFI	.98	.98
AGFI	.95	.95
RMSEA	.03	.03

The test for equivalence factor structure and equivalence factor loadings reveal satisfying fit indices (table 11). For the main study, to strengthen the factor "fairness" we replaced the deleted item with "Do you feel fairly treated by managers and supervisors", and kept the former q20g – item. Besides this two-dimensional measure of the state of the

psychological contract, another option is to use a combined measure of state and delivery of the deal. This option shall be reported in the next section.

4.3.1.5 A combined measure

Another approach to define the state of the psychological contract was suggested by Guest and Clinton (2003). In Guest's (1998) model and Guest and Conway's (2002a) model of the psychological contract, a clear distinction is drawn between the psychological contract and the *state* of the PC. The psychological contract is defined as: "The perceptions of both parties to the employment relationship, organisation and individual, of the reciprocal promises and obligations implied in that relationship". The concept of the state of the PC goes beyond this and can be defined as "the extent to which the promises and obligations in the psychological contract have been delivered, whether the deal is perceived to be fair and the degree of trust in whether it will continue to be delivered in the future". It is therefore a broader evaluation of the employment relationship that is shaped by the promises and obligations in the psychological contract but which goes beyond them. Importantly, the state of the PC must therefore include the three elements: Fairness, Trust and Delivery of the 'Deal'. In order not to get confused which measure was used, we will call this index FTD (Fairness, Trust, and Delivery of the Deal). Therefore,

$$\textit{State of Psychological Contract (FTD)} = \textit{Fairness} + \textit{Trust} + \textit{Delivery of the deal}$$

In the SALTSA analysis, the state of the PC only included fairness and trust while the Delivery of the 'Deal' is the variable that is currently the perceived fulfilment of employer obligations if an obligation is perceived as being offered. The argument is that these should be combined. The analysis confirms that the psychometric properties of the combined measure are acceptable (α=.93).

Combining these three aspects to one index, we leave the traditional psychometric methodology for the construction of scales, as results of factor analysis cannot be drawn back to single items, in this index. But regression models using this index as an indicator of psychological contract lead to good predictions, and underpin the validity of this measurement index (Guest & Clinton, 2003).

4.3.1.6 Violation of the psychological contract (q18)

The delivery of the deal can in other words also be defined as the cognitive awareness of a contract breach. A conceptual difference is made between breach and violation of the psychological contract. Whereas breach only covers the cognitive awareness of an unfulfilled deal, violation involves the emotional reaction. Most research focus on violation (e.g. Cavanaugh & Noe, 1999; Robinson, Kraatz & Rousseau, 1994; Robinson & Rousseau, 1994; Turnley & Feldman, 1999). The state of the psychological contract as described above, with its components trust and fairness can be seen as an indicator of violation. In that terms the state of the psychological contract was shown to significantly influence several outcomes (Isaksson, Josephson & Vingard, 2003; Rigotti & Mohr, 2004).

However, in the main study we wanted to go one step further and assess the emotions concerning the perception of the psychological contract. For that purpose we use six feelings concerning the perception of the psychological contract: happy, angry, pleased, violated, disappointed, grateful that have to be rated on a five point scale ranging from "strongly disagree" to "strongly agree".

4.3.2 Employee Prospects

4.3.2.1 Job insecurity (q21d, q22b, q23d, q23h)

Job insecurity may be defined as an overall concern about the existence of the job in the future (cf. De Witte, 1999). It can be considered as a subjective experience rather than an objective criterion. Furthermore job insecurity implies worries about the future, and can be seen as an important stressor, that causes mental stress, or even a deterioration of health.

An approach for measuring job insecurity was made by Borg (1992). He developed an instrument consisting of two dimensions: an emotional component (worries) and a cognitive component (qualms). He assumes that an enhancement of job insecurity not only diminishes the quantity of commitment, but also the quality. Emotional commitment especially shall be affected because the impending job loss is a breach of the psychological contract between the employee and the organisation (Borg, 1992, p.110). The construction of items have been inspired by this distinction (De Witte, 2000). With four items the instrument can be seen as an economic instrument.

The scale has been tested in the pilot study. An explanatory factor-analysis could show that in all language versions the empiric data proves that the scale might be considered as one dimensional (Only one Eigenvalue > 1). Factor loadings are above .60 and item-total correlations above .30 (except for one item in the German version), also reliabilities ranging from .73 to .89 across countries are satisfactory. The confirmatory factor analysis could show good model fits for a one-dimensional solution, except in the English sample, where AGFI (.83) and RMSEA (.17) point towards an improvement possibility. However, the test on structural and factor-loading equivalence showed good model-fits across countries. So we did not feel the need to change this scale for the main study.

Table 11 Factoranalysis (maximum-likelihood), item-total correlations, and Alphas for job insecurity

	Sweden		Germany		Belgium		Britain		Spain		Total sample	
	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f
1 Chances are, I will soon lose my job	.46	.71	.66	.85	.77	.88	.71	.85	.62	.80	.71	.80
2 I feel insecure about the future of my job	.39	.62	.29	.46	.71	.83	.58	.74	.50	.70	.56	.60
3 I think I might lose my job in the near future.	.65	.85	.75	.91	.81	.90	.83	.92	.67	.84	.76	.87
4 I am sure I can keep my job.	.61	.82	.65	.86	.75	.86	.70	.84	.63	.81	.69	.77
Alpha	.73		.77		.89		.86		.79		.84	
N	147		203		628		196		377		1657	
Chi^2/df	1.88/2		0.65/2		9.75/2		13.34/2		5.71/2		1.66/2	
CFI	1.00		1.00		1.00		.97		.99		1.00	
GFI	.99		1.00		.99		.97		.99		1.00	
AGFI	.97		.99		.96		.83		.96		1.00	
RMSEA	.00		.00		.08		.17		.07		.00	
Explained variance	57%		62%		75%		70%		62%		68%	

Table 12 Test of equivalent factor structures and factor loadings across countries for job insecurity

	Equal factor structure	Equal factor loadings
Chi^2/df	31.34/10	64.68/22
CFI	.99	.98
GFI	.99	.98
AGFI	.95	.95
RMSEA	.04	.04

4.3.2.2 Employability (q21b, q21f, q22e, q23c)

We are using employability as synonym for the perception of labour market possibilities (external mobility). The scale was developed by Hans de Witte, based on this previous research and was also used in the pilot questionnaire.

Exploratory factor analyses propose in all countries a one-dimensional structure of this scale (One Eigenvalue > 1). This can be confirmed by the CFA. The test for equivalent factor structures and equal factor loadings also led to acceptable fit indices (see table 14 and 15). But, as item4 showed to have weak item total correlations, as well as factor loadings, we decided to delete this item for the main study. The other items have been slightly reformulated for the main study (see annex).

Table 13 Factoranalysis (maximum-likelihood), item-total correlations, and Alphas for employability

		Sweden		Germany		Belgium		Britain		Spain		Total sample	
		r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f
1	I am confident that I could quickly get another job at about the same pay, without having to move house	.62	.78	.46	.72	.66	.81	.64	.81	.58	.78	.63	.74
2	It does not matter if I get dismissed, because I will easily find another job.	.64	.78	.64	.84	.62	.79	.54	.74	.55	.75	.62	.73
3	I am optimistic that I will find another job, if I look for one.	.68	.82	.61	.80	.70	.84	.57	.76	.60	.77	.66	.74
4	Other employers are not interested in workers like me.	.50	.67	.12	.21	.31	.46	.27	.43	.22	.36	.31	.34
5	I can easily switch to another employer	.58	.74	.47	.69	.59	.75	.59	.78	.58	.78	.60	.69
	Alpha	.81		.70		.79		.75		.74		.79	
	N	145		201		622		193		372		1639	
	Chi^2/df	5.15/5		14.45/5		30.10/5		1.73/5		21.38/5		34.59/5	
	CFI	1.00		.96		.97		1.00		.96		.99	
	GFI	.99		.97		.98		.99		.98		.99	
	AGFI	.96		.91		.94		.99		.93		.97	
	RMSEA	.01		.10		.09		.00		.09		.06	
	Explained variance	58%		47%		55%		51%		50%		54%	

Table 14 Test of equivalent factor structures and factor loadings across countries for employability

	Equal factor structure	Equal factor loadings
Chi^2/df	72.78/25	125.45/41
CFI	.98	.96
GFI	.98	.97
AGFI	.94	.94
RMSEA	.04	.04

4.3.2.3 Employee expectations (q10a – q10d)

This variable can be defined as the perceived chance of getting a renewal of a temporary contract or getting a permanent contract once the present contract runs out. This can of course only be asked to the non-permanent participants. We formulated four items (e.g. "I think I will be employed in this organisation for longer than has been agreed in my employment contract") to assess these expectations to be rated on a five-point scale.

4.3.3 Choice

4.3.3.1 Contract of Choice / Volition (q12a – q12d)

In international literature, choice mostly refers to whether one voluntarily chooses temporary work, roughly distinguishing two types of workers: involuntary employees and voluntary workers, preferring temporary work for whatever reason (cf. also De Cuyper et al., 2003; Krausz, 2002).

In the pilot study we used a set of six items. With the method of explanatory factor analysis the assumption of a one-dimensional structure could be rejected. For a two dimensional solution no theoretically meaningful interpretation could be found, as one item showed to clearly build a distinct dimension (probably because flexibility is not only seen as contractual flexibility), while another item had similar loadings on both dimensions, and also two other items could not clearly be situated into one of the dimensions. As the calculation of internal consistency only makes sense for a one-dimensional scale (Shevlin, Miles, Davies & Walker, 2000), we agreed that we have to construe a new scale for the main study, as volition proved to be an important moderating variable (Ellingson, Gruys & Sackett, 1998; Rigotti & Mohr, 2004). Following the purpose of having a one-dimensional scale, we formulated four items, modelled after the pilot, but sticking to the core content of our definition to be rated on a five point Likert scale.

4.3.3.2 Motives (q11a – q11i)

The reasons why an individual has chosen (or has to put up with) the employment contract that they are on can possibly provide us with additional information beyond just a 'volition' score. For example, an individual who is voluntarily working in a non-permanent

employment as a strategy to developing a more permanent role is perhaps likely to perceive and behave in a different way to an individual who is doing so for more flexible hours.

Ellingson *et al* (1998) and Tan & Tan (2002) have both developed scales looking at reasons why temporary workers pursue their way of working. Neither is ideal for our purpose, however both go beyond just looking at voluntary versus involuntary choice of contract. Ellingson *et al* (1998) found that only an aggressive, as opposed to conservative, interpretation of their results supported the use of their scale over a dichotomous measure of volition. Tan & Tan's (2002) scale, which is a longer but more thorough scale, was developed for use with a Singaporean population.

Tan & Tan (2002) compiled their scale from various articles published about temporary workers in Singapore's leading newspaper. It is scored on a 5-point Likert type scale of 1, 'not important at all', to 5, 'extremely important'.

In a study with 152 TAWs (Galais, 2003) found "learning new things" and "get to know new organisations" as the most popular motives for working for an agency. The main advantages of temporary work compared to permanent work were seen as: interesting tasks, change of work and colleagues, and more leisure time. The main disadvantage was seen in low wages (Galais, 2003). Using a factoranalytic approach the author could extract three dimensions of motives, labelled as "push", "pull", and "additional income" - motive. Push-motives can be seen as negative states, that people tend to avoid (e.g. to avoid unemployment), whereas pull-motives (e.g. desire for variety) are seen as those pointing towards a positive, and worthwhile goal. This theoretical and dimensional approach towards motives led to the decision to assess the motives via a Likert scale.

Using the content dimensions found in the above-mentioned studies, we formulated a set of nine items to assess the motives of being in a temporary contract. This question is only addressed to non-permanent workers.

4.3.3.3 kind of work of choice (q8a, q8b)

In order to facilitate comparisons, it was agreed to use the items of 'contract of choice', thereby replacing contract by work. The items are taken from the SCB statistics in Sweden (Aronsson & Göransson, 1999). This has the advantage of being able to construct a measure of global volition. The final questions refer on the one hand to the concrete job, on the other hand to the more abstract concept of profession/occupation: (1. My current job is my preferred job, 2. My current profession/occupation is my preferred one).

4.3.4 Job characteristics

Job characteristics in the pilot were measured using 18 items, assessing five dimensions from the QPS Nordic (Dallner et al., 2000), answered on a five point scale ("never/rarely" to "always/very often"). *Work load* (4 items assessing quantitative demands, e.g. "Do you have to work overtime?") was the only dimension with satisfying reliability (α =.71). The dimension *role clarity*, assessed with 3 items (e.g., "Do you know what your responsibilities are?") showed a low reliability of .62. *Autonomy* was measured with 5 items (e.g., "Can you influence the amount of work assigned to you?"). The reliability estimate was .69. The dimensions *complexity of decision making* (3 items) and *skill utilisation* (3 items) showed low reliabilities in this sample (α =.64 and α =.52, respectively) (cf. Isaksson, Bernhard, Claes et al., 2003). Thus we decided to look for new measures for job characteristics. First we agreed to use role ambiguity, autonomy, skill utilization, and work load (time pressure) as indicators to assess job characteristics, than we looked for valid and reliable scales in the literature. These dimensions can at least partly be found in the job characteristics model by Hackman and Oldham (1976).

4.3.4.1 Role ambiguity (q13a, q13d, q13h)

Two types of role scales are role conflict and role ambiguity. Role ambiguity has been described by Kahn, Wolfe, Quinn, Snoek, and Rosenthal (1964) as the single or multiple roles that confront the role incumbent, which may not be clearly articulated (communicated) in terms of behaviours (the role activities or tasks/priorities) or performance levels (the criteria that the role incumbent will be judged by). Thus it can be seen as an uncertainty over job definition

One set of scales that has been used in numerous studies are the measures developed by Price and Mueller (see Price, 1997). They have both been found to have adequate validity and good reliability. A further set of scales that have been extensively used and reviewed were developed by Rizzo, House and Lirtzman (1970). They have also been found to have good reliability and validity, but also have their critics (e.g. King & King, 1990). Thus we decided to use the three item measure of role ambiguity as presented in Price (1997).

4.3.4.2 Autonomy (q13b, q13e, q13f, q13i)

Autonomy may be defined as amount of decision-making latitude in the job. We decided to use a scale that has been used by Rosenthal, Guest, and Peccei (1996). The four items scale gets alphas in between .70 and .80 depending upon participating sample.

4.3.4.3 Skill utilization (q13c, q13g, q13j, q13k)

The items are taken from the Leiden quality of work questionnaire from the subscale "skill Discretion" (Van Der Doef & Maes, 1999). The authors report for eight items an internal consistency of .76. Using experts' face-validity together we choose four of these items to measure skill utilization.

4.3.4.4 Time pressure (q14a – q14d)

We decided to use the subscale time pressure from the ISTA, a four item measure assessing the perceived work load in terms of extra time (e.g. "do you go home late because of having too much work?") on a five point scale ranging from "rarely or never" to "very often or always.

The instrument for stress related work analysis (ISTA) designed by (Semmer, Zapf & Dunckel, 1999) consists of several features of work tasks described either as resources or releases of stress with regard to health and satisfaction of the employee. The authors consider the action regulation theory as conceptions as well as the psychological stress concept by Lazarus (Lazarus, 1966; Lazarus & Launier, 1981) as the theoretical basis which are combined in pointing out individual resources. Aiming to create an optimal level of complexity at work, the ISTA receives data out of subjective questionnaires in addition to rating scales by trained observers. In contrast to the reliability, which is, differing in several subscales, considered as adequate (.58 to.93). Although examining a low correlation between the ISTA and the psychosomatic well- being, the authors estimate these findings as acceptable with reference to the multifactor causes of psychosomatic diseases. In addition to the German questionnaire ISTA an English, French, Italian and a Polish translation are available.

4.3.5 Organization

4.3.5.1 organizational support (q22d, q22i, q22m, q23f)

In contrast to what has been expected in previous research, POS (Perceived Organisational support) has been found to be higher among non-permanent employees than permanent employees (Ang & Slaughter, 2001; Coyle-Shapiro & Kessler, 2002). In addition, POS has been found to be strongly and positively related to both content and state of the psychological contract (Guest & Conway, 2002b). As such, we consider POS to be an important variable in our model that was missing in the pilot.

The most widely used POS scales are shortened versions of Eisenberger *et al.*'s (Eisenberger, Fasolo & Davis-Lamastro, 1990) 36-item scale. An 8-item scale has been successfully used on several occasions. We will use five out of these eight items to measure POS. It is scored on a 7-point Likert-type scale ranging from 1, 'strongly disagree', to 7, 'strongly agree':

4.3.5.2 Social Support by supervisor (q21j, q22a, q22f, q23b)

As not only support by the organisation as such, but also first of all from those having a direct social exchange is considered to be important, we will also assess the perceived social support of supervisors. For that purpose we will use the subscale "Social Support Supervisor" from the Leiden quality of work questionnaire (Van Der Doef & Maes, 1999). The authors report a reliability of .89. for five items.

4.4 Dependent Variables

4.4.1 Employee well-being

4.4.1.1 Attitudes

4.4.1.1.1 Job satisfaction (q21e, q21h, q22k, q23i)

Job satisfaction has received a great amount of attention in work and organisational psychology, mainly due to the assumed link between satisfaction and performance. We find a

consistently high proportion of satisfied employees when studies use attitude-based measures (Büssing & Bissels, 1998). Social desirability and avoidance of cognitive dissonance are named as causes for high reports of satisfaction. Also, job satisfaction was found to be a highly stable state. This report acknowledges personal variables that influence job satisfaction: "[…] it has to be taken into account that a small part of variance in job satisfaction remains that is directly determined by personality variables and which may be considered as a contaminating factor in the measurement of job satisfaction" (Dormann & Zapf, 2001,498).

Though the assessment of job satisfaction has its critics, we are aware of the fact that we cannot do without. As the four items measure, that was used in the pilot from Price (Price, 1997) showed to have good psychometric properties, we felt no need to change this scale.

An explanatory factor analysis reveals only one dimension in all country samples explaining between 55% and 76% of variance. Reliabilities vary from .72 to .89 across countries. Only for the UK sample, the AGFI (.88) and the RMSEA (.15) from the CFA point towards a not perfect fit (see table 19). The equivalence of factor structure and loadings across countries on the other hand is satisfactory (table 20).

Table 15 Factoranalysis (maximum-likelihood), item-total correlations, and Alphas for job satisfaction

	Sweden		Germany		Belgium		Britain		Spain		Total sample	
	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f
1 I am **not** happy with my job.	.59	.71	.49	.53	.65	.69	.75	.80	.43	.49	.58	.64
2 I am often bored with my job.	.41	.48	.61	.69	.73	.81	.76	.82	.57	.76	.65	.75
3 Most days I am enthusiastic about my job.	.60	.74	.67	.78	.73	.79	.79	.85	.50	.58	.66	.74
4 I find enjoyment in my job.	.68	.80	.72	.85	.76	.85	.77	.83	.52	.68	.69	.80
Alpha	.76		.80		.87		.89		.72		.82	
N	145		203		633		195		379		1663	
Chi^2/df	3.45/2		0.71/2		10.02/2		10.77/2		8.49/2		19.83/2	
CFI	.99		1.00		.99		.98		.98		.99	
GFI	.99		1.00		.99		.98		.98		.99	
AGFI	.94		.99		.96		.88		.94		.96	
RMSEA	.07		.00		.08		.15		.09		.09	
Explained variance	60%		63%		72%		76%		55%		65%	

Table 16 Test of equivalent factor structures and factor loadings across countries for job satisfaction

	Equal factor structure	Equal factor loadings
Chi^2/df	33.68/10	84.89/22
CFI	.99	.97
GFI	.99	.97
AGFI	.95	.94
RMSEA	.04	.04

4.4.1.1.2 Life Satisfaction (q27a – q27f)

Life satisfaction can be defined as the overall degree to which an individual likes his / her life. Concerning the association between job and life satisfaction, researchers proposed three different models: the spillover, compensation and segmentation hypotheses (Loscocco & Roschelle, 1991). Evidence could be found for the spill over hypotheses. Though it is very common to employ only a single question for the measurement of life satisfaction, we, as already done in the pilot, prefer to use a set of items that allows further distinctions later on.

An exploratory factor analysis with the six items from the pilot questionnaire revealed a clear one-dimensional structure in all countries that can explain between 47% and 64% of the variance. Reliabilities are above .75 continuously. Only for Spain, the CFA could clearly confirm the one-dimensional structure (table 21), but factor structure and factor loadings seem not to differ significantly across countries (table 22).

We skipped item 27 (see table 17) because this item showed the lowest correlation to the general life satisfaction (item 23) and therefore introduced the item "the financial situation of your household?".

Table 17 Factoranalysis (maximum-likelihood), item-total correlations, and Alphas for life satisfaction

pilot		Sweden		Germany		Belgium		Britain		Spain		Total sample	
How satisfied do you currently feel about...		r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f
23	your life in general?	.74	.80	.58	.69	.75	.86	.70	.79	.67	.80	.70	.80
24	your family life?	.68	.75	.54	.67	.64	.77	.68	.80	.53	.65	.59	.72
25	your leisure?	.80	.85	.64	.74	.66	.68	.75	.79	.61	.66	.68	.73
26	your state of health and well-being?	.71	.76	.43	.51	.58	.62	.64	.70	.57	.63	.59	.65
27	your participation in the community?	.65	.68	.33	.37	.69	.73	.47	.50	.42	.45	.52	.55
28	about your work – life balance?	.66	.70	.54	.59	.59	.61	.54	.56	.53	.62	.59	.63
	Alpha	.89		.76		.86		.85		.79		.84	
	N	140		200		620		194		374		1628	
	Chi^2/df	56.6/9		41.1/9		167.8/9		42.8/9		38.7/9		299.99/9	
	CFI	.90		.89		.91		.93		.95		.92	
	GFI	.88		.93		.91		.93		.97		.94	
	AGFI	.71		.85		.79		.83		.92		.85	
	RMSEA	.20		.13		.17		.14		.09		.14	
	Explained variance	64%		47%		59%		57%		51%		55%	

Table 18 Test of equivalent factor structures and factor loadings across countries for life satisfaction

	Equal factor structure	Equal factor loadings
Chi^2/df	347.2/45	400/65
CFI	.91	.90
GFI	.93	.92
AGFI	.82	.86
RMSEA	.07	.06

4.4.1.2 Behaviour

The following indicators can be subsumed under behavior, and can be seen as objective complements to subjective well-being criteria. For all these variables we face the problem that in our sample we will have temporary workers (but also permanents) that might not be in the organization for more than one year. But as we have to refer to this organization, as all independent, and intervening variables refer to the job in this organization, we decided to use a time frame of twelve months and referring to this organization. Thus, the figures have to be controlled for tenure.

4.4.1.2.1 Sick leave (q28a)

This item assesses the amount of absences due to the state of health: "How often have you been absent from work due to your state of health over the last 12 months?"

4.4.1.2.2 Sick presence (q28b)

In contrast this item assesses the amount of cases, when the employee had gone to work though not feeling well: "How often have you *gone to work* despite feeling that you really should have stayed away due to your state of health over the last 12 months?"

4.4.1.2.3 Accidents (q28c)

The amount of accidents is asked with the following question: "Have you had an accident in the work place over the last 12 months? (Please count all accidents, even when you have continued to work the same day)."

4.4.1.2.4 Incidents (q28d)

Additionally to the pilot we employ the following question: "Have you personally experienced any incidents of harassment or violence at work in the last 12 months?"

4.4.1.3 Health

4.4.1.3.1 Positive Work-Home-Interference (q26a – q26d)

Combining work and family is mentioned as one of the reasons employees choose temporary contracts (e.g. Arvidsson, 1997; Bellaagh & Isaksson, 1999; De Witte et al., 2002; Pekkari, 1999). The relationship of working life and life outside employment is subject of a field labelled work-life balance. Several authors have stated a set of hypotheses, concerning

this relationship, ranging from no influence to congruence. As the Irritation scale (see 4.4.1.3.2) already includes negative work home interference, we decided to use only positive work home interference from the Survey Werk-thuis Interferentie-Nijmegen (Wagena & Geurts, 2000) .

This measure was employed and tested in the pilot. The four items show to build a single factor in all countries with an explained variance between 48% and 61%. The reliabilities that are between .61 and .79 are acceptable for group statistics, a CFA leads to good fit indices for a one-dimensional solution (table 19). Also the test for equivalent factor structure and factor loadings shows a satisfactory congruence between the different language versions (table 20).

Table 19 Factoranalysis (maximum-likelihood), item-total correlations, and Alphas for positive work-home interference

	Sweden		Germany		Belgium		Britain		Spain		Total sample	
	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f
1 You come home cheerfully after a successful day at work, positively affecting the atmosphere at home?	.21	.27	.35	.47	.48	.53	.27	.31	.32	.36	.36	.41
2 You fulfil your domestic obligations better because of the things you have learned on your job?	.39	.58	.52	.61	.65	.77	.55	.68	.64	.80	.61	.74
3 You manage your time at home more efficiently as a result of the way you do your job?	.53	.65	.49	.67	.64	.76	.61	.77	.58	.69	.61	.73
4 You are better able to interact with your spouse/family/friends as a result of the things you have learned at work?	.48	.74	.54	.68	.61	.70	.66	.84	.66	.82	.62	.75
Alpha	.61		.69		.79		.72		.75		.75	
N	130		122		592		194		353		1483	
Chi^2/df	4.40/2		0.01/2		1.01/2		0.20/2		0.18/2		1.34/2	
CFI	0.96		1.00		1.00		1.00		1.00		1.00	
GFI	0.98		1.00		0.99		0.99		1.00		1.00	
AGFI	0.91		1.00		0.99		0.99		0.99		1.00	
RMSEA	0.09		0.00		0.00		0.00		0.00		0.00	
Explained variance	48%		52%		61%		57%		58%		58%	

Table 20 Test of equivalent factor structures and factor loadings across countries for positive work-home interference

	Equal factor structure	Equal factor loadings
Chi^2/df	5.83/10	30.71/22
CFI	1.00	.99
GFI	1.00	.99
AGFI	.99	.98
RMSEA	.00	.02

4.4.1.3.2 Irritation (q25a- q25h)

An instrument frequently used in German-speaking research on stress in the work place is irritation (Mohr, 1986; Mohr & Rigotti, 2003). Irritation describes subjective perceived emotional and cognitive strain in occupational contexts.

Thus a mental state is described which is less severe than a mental illness and therefore appropriate for the assessment of well-being in a non-clinical sample. It was shown that Irritation precedes further psychological strains and depression (Dormann & Zapf, 2002). Thus it can be assumed that irritation, describing an early stage of psychological impairment could be helpful to find differences in groups that cannot be shown with instruments concerning general health or psychosomatic complaints. The scale contains eight items, response format is a seven-point scale.

4.4.1.3.3 The occupational self- efficacy scale (q21k, q22g, q22l)

The generalized self-efficacy is represented as a personality construct that affiliates to self–esteem, locus of control and neuroticism, which are meant to have an influence on the job performance. For the construction of the occupational self-efficacy scale, items were taken from four questionnaires concerning general self-efficacy, hope and heuristic competence. The items were adapted to the occupational domain to create a work related view on self–efficacy. Referring to the authors "the instrument is a rather broad one, so that employees in different organisational contexts can be compared with respect to their level of self-efficacy" (Schyns & Von Collani, 2002, p.237).

A short form reduces the original occupational self-efficacy scale from twenty to eight items. Schyns and Collani (2002) present the scale as a measurement of a high internal consistency (cronbachs´ alpha .92). In the pilot questionnaire we used a version reduced to six items. For the main questionnaire, we were reluctant to skip it totally, but due to limitations in length of the questionnaire we had to limit the measure to three items (see annex), that showed to have a high internal consistency in the pilot study, ranging from $\alpha = .79$ (Israel) to $\alpha = .85$ (Germany).

4.4.1.3.4 General Health (q29a – q29e)

In the pilot questionnaire the GHQ (General Health Questionnaire) was used for the assessment of health (Goldberg, 1978). Besides some difficulties with the different

translations that differed between countries, we had to face the problem of licence costs that would have been necessary for the main study. Thus, we decided to use another measure for assessing general health.

The SF–12 questionnaire from Ware (1999) is considered to evaluate health concepts of patients. Constructed as a short version of the SF–36 scale (Ware, 1999). The 12 item scale, using Likert's method of summated ratings, appraises physical and social functioning, role limitations because of health and emotional problems, bodily pain, general health perceptions, vitality (energy) and mental health. Also referring to the analyses of SF-36 the test-retest reliability and the internal consistency are discussed as adequate (Ware, 1996), as well as the construct and criterion validity. Moreover the authors confirm a strong correlation with other measures, including the SF-36 (r=.96) and the mental component summary (MCS) (r = .95).

For our purpose we choose the sub-scale assessing general health, consisting of five items (e.g. "In general, would you say your health is?"). Translations in all PSYCONES languages were available.

4.4.1.3.5 Affective well-being (q24a – q24l)

As an addition to the large number of scales assessing affective well – being in a non-related context, Warr (1990) adapts some of these questionnaires by transforming them to the specific domain of work. Affective well being covers "specific facets of satisfaction, alienation from work, job attachment, job tension, depression, burnout, involvement and job morale " (Warr, 1990, p.194). Differences could be found in gender, age and occupational levels. In analyses a two axes model of affective well-being with the dimensions of arousal and pleasure could have been found. The author enlarges the second dimension by assuming the axes of anxiety vs. contentment and enthusiasm vs. depression. Both of the job related scales reveal a high reliability with a coefficient alpha of .76 for the anxiety- contentment axis and .80 for the depression-enthusiasm axis. In each domain the two axes in job related and non- job related versions are strongly intercorrelated (r = .66 and r = .73). Furthermore research could confirm an average correlation of r = .61 for the anxiety and depression scale with equivalent non job related measurements.

An advantage of the affective well- being scale is the easy handling, as referring to the author the inventory is assumed to be easy for jobholders to complete. The scale is build with

12 adjectives (e.g. “enthusiastic”, “gloomy). As frame we use the following instruction: “In the past few weeks, how often have you felt each of the following regarding your work?”.

4.4.2 Organisation outcomes

4.4.2.1 Performance (q15a – q15f)

In the pilot study, we used perceived performance as describe by Abramis (1994). The scale showed to be quite odd, with nine item no inherent factor structure could be found. For the main study our aim is to assess the perceived performance as one-dimensional construct. Thus, we agreed to cut two items indicating cooperation, and the item “Finish things on time”.

For this shortened scale, we used an exploratory factor analysis that proposed a one-dimensional structure across countries. Reliabilities are ranging from $\alpha = .74$ to $\alpha = .84$, and are acceptable. The CFA, however points towards improvement possibilities, namely the AGFI scores below .90 consistently and the RMSEA above .10 (table 21). Also the invariance tests across countries yield to a not perfect fit (table 22). We still decided to use this set of items, and wait for the data of the main study for decisions on further shortening.

Table 21 Factoranalysis (maximum-likelihood), item-total correlations, and Alphas for perceived performance

		Sweden		Germany		Belgium		Britain		Spain		Total sample	
		r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f
15a	Make decisions?	.53	.64	.45	.63	.54	.59	.56	.61	.52	.62	.53	.59
15b	Perform without mistakes?	.45	.53	.37	.56	.43	.42	.62	.66	.43	.45	.46	.48
15c	Devote yourself to work?	.51	.55	.55	.74	.41	.43	.65	.71	.46	.47	.49	.52
15e	Achieve your objectives?	.42	.45	.52	.70	.48	.48	.61	.65	.47	.50	.47	.50
15f	Take initiatives?	.53	.68	.58	.73	.55	.74	.71	.81	.60	.76	.61	.77
15g	Take responsibility?	.49	.61	.46	.63	.63	.81	.60	.70	.54	.70	.57	.72
	Alpha	.75		.74		.76		.84		.76		.77	
	N	138		195		617		196		373		1622	
	Chi^2/df	31.9/9		33.5/9		119.8/9		50.8/9		61.8/9		257.86/9	
	CFI	.86		.90		.88		.91		.89		.89	
	GFI	.93		.94		.93		.91		.94		.94	
	AGFI	.83		.86		.84		.80		.87		.87	
	RMSEA	.14		.12		.14		.15		.13		.13	
	Explained variance	45%		45%		46%		56%		46%		47%	

Table 22 Test of equivalent factor structures and factor loadings across countries for perceived performance

	Equal factor structure	Equal factor loadings
Chi^2/df	279.9/45	369.1/65
CFI	.89	.86
GFI	.93	.92
AGFI	.84	.87
RMSEA	.06	.06

4.4.2.2 Intention to quit (q21g, q22h, q22p, q23g)

The intention to quit indicates the voluntary change of an individual from one organisation to another, into self-employment or in voluntary unemployment (Baillod & Semmer, 1994). Intention to quit in the pilot was assessed using an instrument, introduced by Price (1977) using five items.

There appears to be three general problems with existing scales: Firstly, temporary workers are more likely to be 'thinking about leaving their current job', as they are more short-term and have a more rapid rate of job transition. Secondly, temporary workers are perhaps likely to be constantly searching for new jobs. However, this may not mean that they are more or less likely to quit. Thirdly, for similar reasons, asking if a temporary worker 'plans to leave a job' is very different to asking a permanent worker, as the temporary worker knows they will be leaving from their first day on the job. As leaving and starting jobs more often is, in many ways, a defining characteristic of non-permanent working, finding differences between our groups using existing items is both unsurprising and difficult to interpret.

Using the items from the Pilot as well as scales from Sjöberg and Sverke (2000) we developed a new scale, consisting of four items, to be answered on a five point scale. The formulation of the items was chosen to reply to the named problems.

4.4.2.3 Organisational commitment (q21a, q21i, q22j, q22n, q23a)

The organisational commitment scale by Cook and Wall (1980) assesses the affective relationship of the employee to his employing organisation. Commitment is defined as the "feelings of attachment to goals and values of the organisation, one's role in relation to this,

and attachment to the organisation for its own sake rather than for its strictly instrumental value" (Cook & Wall, 1980, p.40).

As already used in the pilot, we would like to assess the affective commitment towards the organisation. As one item showed to have weak item-total correlations, and factor loadings, we agreed to skip this item for the main study. Analysis from the pilot data show that the remaining five items load on a single factor, sharing 45% to 66% of the variance. Despite of the UK data the model fit for a one-dimensional factor structure can be seen as satisfactory, taking into account the rather small sample sizes for a confirmatory factor analysis. The RMSEA that reaches values above .10 might be an indicator that there are redundancies in the scale. Reliabilities are satisfactory, ranging from .67 to .86. The fit indices from the CFA, however, are not brilliant (table 23). Hypothesis about equal factor structure across countries can be accepted (table 24).

Table 23 Factoranalysis (maximum-likelihood), item-total correlations, and Alphas for commitment

	Sweden		Germany		Belgium		Britain		Spain		Total sample	
	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f	r_{tt}	f
1 I am quite proud to be able to tell people who it is I work for.	.45	.53	.62	.64	.59	.60	.49	.48	.58	.59	.57	.59
~~2 I sometimes feel like leaving this employment for good.~~												
3 Even if this organisation was not doing too well financially, I would be reluctant to change to another employer	.43	.51	.58	.59	.52	.52	.42	.33	.42	.43	.48	.48
4 I feel myself to be part of the organization	.54	.72	.73	.76	.65	.72	.57	.53	.71	.73	.66	.70
5 In my work, I like to feel that I am making some effort, not just for myself but for the organization as well.	.52	.68	.79	.92	.69	.86	.57	.84	.74	.90	.71	.88
6 To know that my own work had made a contribution to the good of the organization would please me.	.26	.33	.73	.84	.59	.74	.57	.83	.69	.84	.63	.79
Alpha	.67		.86		.80		.75		.83		.81	
N	146		204		616		193		378		1645	
Chi^2/df	14.34/5		15.46/5		70.72/5		44.16/5		46.19		163.02/5	
CFI	.92		.89		.94		.86		.95		.95	
GFI	.96		.97		.95		.91		.95		.96	
AGFI	.89		.90		.85		.73		.85		.87	
RMSEA	.11		.10		.15		.20		.15		.14	
Explained variance	45%		66%		58%		52%		60%		50%	

Table 24 Structural and metric equivalence of the shortened commitment scale (five items) across five countries

	Equal factor structure	Equal factor loadings
Chi^2/df	190.88/25	254.09/41
CFI	.94	.92
GFI	.95	.93
AGFI	.85	.87
RMSEA	.07	.06

4.5 Summary

We described the employed variables in the employees' questionnaire, following our conceptual research model. Using results from the pilot study our aim was to employ reliable and valid measures. Generally we had to face the problem of constructing a questionnaire that has a reasonable length. The questionnaire should not exceed the length of the Pilot questionnaire, but new variables had to be included. Thus some scales needed to be shortened. From former studies we have the experience that participants need between 6 to 10 seconds on average to fill out one item. If the acceptable limit of time we can impose for the participants is approximately 30 minutes, we had to limit the questionnaire to about 180 items.

In the following table the above described variables are presented according to the appearance in the conceptual model. In the annex you may find a table with variables in the order of appearance in the SPSS file, as well as all items, scale labels, and instructions in all languages involved.

In the PSYCONES project we are aiming to respond to multilevel questions. Thus it is important to get background information of the organisations in which we gather data. The contact-sheet and the employers' questionnaire are two instruments to fulfil this aim, and will be described in the next sections.

Table 25 Synopsis of the items of the employee's questionnaire

Item	Variable	Authors	k	Value Labels	Level of measurement
CONTROL VARIABLES					
Q30	Age	PSY	1	Number	Continuous
Q31	Sex	PSY	1	0 male 1 female	Nominal
Q36	Educational level	PSY		Differing between countries	Ordinal
Q36b	Years of full-time education	PSY		Number	Continuous
Q32	Private social support	PSY	1	1 no, alone 2 no with parents/family/friends 3 yes	Nominal
Q33	Financial contribution	PSY	1	1 sole earner 2 main earner 3 joint earner 4 contributory earner	Ordinal
Q34	Dependents	PSY	1	Number	Continuous
Q35	Homework responsibilities	PSY	1	1 no someone else 2 equally responsible 3 yes	Nominal
Q1	Occupation/Job	PSY	1	Text	Nominal
Q2	Position	PSY	1	1 unskilled blue-collar worker 2 skilled blue collar worker 3 lower level white collar worker 4 intermediate white collar worker 5 upper white collar worker 6 management or director	Ordinal
Q5	Supervision	PSY	1	0 no 1 yes	Nominal
Q7	Main job vs. other paid job	PSY	1	0 no 1 yes	Nominal
Q7a	Hours in additional job(s)	PSY	1	Number	Continuous
Q6	Union membership	PSY	1	0 no 1 yes	Nominal

Continuation of table 27

Item	Variable	Authors	k	Value Labels	Level of measurement
Q3	Work hours	PSY	1	Number	Continuous
Q3a	Work system	PSY	1	0 no 1 yes	Nominal
Q4aym q4am Q4ad	Tenure	PSY	1	Numbers	Continuous
Q16a – q16h	Core HR-Practices	PSY	8	1 No 2 Yes 3 Don't know	Nominal
INDEPENDENT VARIABLES					
Q9	Type of contract	PSY	1	0 no 1 yes	Nominal
Q9_p	Different permanent contracts	PSY	1	Country specific (not asked in all countries)	Nominal
Q9_ta	Different non-permanent contracts	PSY	1	1 fixed term 2 permanent with agency 3 temporary with agency 4 daily / on-call 5 probation 6 training 7 seasonal employment 8 job creation 9 subcontractor 10 consultant 11 other	Nominal
Q9_tao	Other non-permanent contract	PSY	1	Text	Nominal
Q9_tby q9_tbm q9_tbd	Duration (years) Duration (months) Duration (days)	PSY	1	Numbers	Continuous
Q9_tcy q9_tcm q9_tcd	Time left (years) Time left (months) Time left (days)	PSY	1	Numbers	Continuous
Q9_tdy q9_tdm q9_tdd	History (years) History (months) History (days)	PSY	1	Numbers	Continuous
INTERVENING VARIABLES					
Q17a-q17o	Employers Obligations (Content, breach)	PSY	15	0 no 1 yes, but promise not kept at all 2 yes, but promise only kept a little 3 yes, promise half kept 4 yes, and promise largely kept 5 yes, and promise fully kept	Continuous
Q19a – q19q	Employees Obligations (Content, breach)	PSY	17		
Q20a – q20g	State of the Psychological contract	PSY	7	1 not at all 5 totally	Continuous
Q18a-q18f	Violation of the psychological Contract	PSY	6	1 strongly disagree 2 somewhat disagree 3 partly agree, party disagree 4 somewhat agree 5 strongly agree	Continuous
Q21d, q22b, q23d, q23h	Job insecurity	(De Witte, 2000)	4		
Q21b, q21f, q22e, q23c	Employability	De Witte	4		
Q10a-q10d	Employee expectations	PSY	4		
Q12a-q12d	Contract of choice/Volition	PSY	4		
Q11a-q11i	Motives	PSY	9		
Q8a, q8b	Kind of work of choice	PSY	2		
Q13a, q13d, q13h	Role ambiguity	(Price, 1997)	3	1 rarely or never 2 not often 3 sometimes 4 rather often 5 very often or always	Continuous
Q13b, q13e, q13f, q13i	Autonomy	(Rosenthal, Guest & Peccei, 1996)	4		
Q13c, q13g, q13j, q13k	Skill utilization	(Van Der Doef & Maes, 1999)	4		
Q14a-q14d	Time pressure	(Semmer, Zapf & Dunckel, 1999)	4		
Q22d, q22i, q22m, q23f	Organizational support (POS)	(Eisenberger, Fasolo & Davis-Lamastro, 1990)	4	1 strongly disagree 2 somewhat disagree 3 partly agree, party disagree 4 somewhat agree 5 strongly agree	Continuous

Continuation of table 27

Item	Variable	Authors	k	Value Labels	Level of measurement
Q21j, q22a, q22f, q23b	Social support by supervisor	(Van Der Doef & Maes, 1999)	4		
DEPENDENT VARIABLES					
Q21e, q21h, q22k, q23i	Job satisfaction	(Price, 1997)	4	1 strongly disagree 2 somewhat disagree 3 partly agree, party disagree 4 somewhat agree 5 strongly agree	Continuous
Q27a-q27f	Life satisfaction	PSY	6	1 very dissatisfied 7 very satisfied	Continuous
Q28a	Sick leave	PSY	1	1 never 2 Once 3 2-3 times 4 4-5 times 5 more than 5 times	Ordinal
Q28b	Sick presence	PSY	1		
Q28c	Accidents	PSY	1		
Q28d	Incidents	PSY	1		
Q26a-q26d	Positive work-home interference	(Mohr, 1986; Mohr & Rigotti, 2003; Wagena & Geurts, 2000)	4	1 rarely or never 2 not often 3 sometimes 4 rather often 5 very often or always	Continuous
Q25a-q25h	Irritation	(Mohr, 1986; Mohr & Rigotti, 2003)	8	1 strongly disagree 2 quite strongly disagree 3 somewhat disagree 4 pertly agree, partly disagree 5 somewhat agree 6 quite strongly agree 7 strongly agree	Continuous
Q21k, q22g, q22l	Occupational self-efficacy	(Schyns & Von Collani, 2002)	3	1 strongly disagree 2 somewhat disagree 3 partly agree, party disagree 4 somewhat agree 5 strongly agree	Continuous
Q29a	General Health	(Ware, 1996; 1999)	5	1 poor 2 fair 3 good 4 very good 5 excellent	Continuous
Q29b-q29e				1 definitely false 2 mostly false 3 not false, not true 4 mostly true 5 definitely true	
Q24a-q24l	Affective Well-being	(Warr, 1990)	12	1 rarely or never 2 not often 3 sometimes 4 rather often 5 very often or always	Continuous
Q15a.-q15f	Performance	(Abramis, 1994)	6	1 very badly 2 rather badly 3 neither well nor badly 4 rather well 5 very well	Continuous
Q21g, q22h, q22p, q23g	Intention to quit	(Price, 1997)	4	1 strongly disagree 2 somewhat disagree 3 partly agree, party disagree 4 somewhat agree 5 strongly agree	
Q21a, q21i, q22j, q22n, q23a	Organisational commitment	(Cook & Wall, 1980)	5		Continuous
Q21c, q22c, q22o, q23e	Work involvement	(Kanungo, 1982)	4		

5 The Employers Questionnaire

In the employers questionnaire, we are mainly interested to get background information of the organisation. Thus, for the employers' questionnaire we seek rather informants than respondents. The Employers questionnaire will be addressed to HR-Managers, as they are familiar not only with the structure and characteristics of the organisation but also with the implementation of HR-practices. They should also be able to evaluate the obligations, promises and commitments that employees, as well as the organisation, have given.

Concerning the mode of data collection we will rather follow the possibilities we find on site, as give a guideline. In fact, it does not matter, if the information is gathered during an interview, or if the HR-Manager fills in the questionnaire on her/his own. Whatever modus is chosen in a conversation of the researcher with the HR-Manager, ambiguities should be clarified.

Before describing the single variables in detail, we will outline the objectives of the employers' questionnaire.

5.1 Objectives of the employers questionnaire

Having the psychological contract as core variable in the name and in the model of the PSYCONES project, and defining the PC as reciprocal obligations, our first and extensive aim is of course to get information from both sides – the employee and the employer. The further aims for the employer survey are: (1) To understand the context of employee responses – i.e. the relevant policies and practices as well as the organisational and economic context, (2) To provide specific information on policies and practices that can serve as a cross-check against employee responses – for example on HR practices or intention to quit versus actual quit rates, (3) To provide an understanding of company policy, practice and rationale with respect to employment of workers on different types of contract, and (4) To aid multi-level analysis. These aims shall be described in more detail:

Aim 1. In the main analysis, we will need to include a set of control variables and therefore need to collect this information systematically.

Aim 2. We will be collecting information on employee outcomes. We need to check this against actual outcomes in areas such as labour turnover, accidents, and absence. Our analysis will be much stronger if we have "objective" data against which to compare employee responses. We also need to have information on the employer's side of the psychological contract to determine how much of a match there is between the employer and employee version. A plausible hypothesis might be that where there is a better match, there will be higher levels of trust and fairness.

Aim 3. It will be helpful not just to know what proportion of the workforce is employed on different types of contract but also the rationale for company employment policy and whether in practice the policy objectives are being achieved. We might expect different responses where the policy is purely economic – i.e. to cut costs – compared with where it reflects labour market shortages or a means of realistic job preview. We also need to know whether an employer as a matter of policy treats workers on different types of contract differently. This can be partly picked up in responses about the psychological contract but may also need to be viewed from a broader policy perspective. It will also be important to know whether different practices are applied on other criteria that might help to explain variations in employee responses.

Aim 4. One of the benefits of a study on the scale envisaged is the opportunity for multi-level analysis. The research question is whether it is factors at the individual, organisational or national level that are most likely to explain variations in employee attitudes and behaviour; or whether type of employment contract overrides them all!

The same standards as for the employees' questionnaire regarding the development of the employers' questionnaire were used. The questionnaire is partitioned in four sections: (I) Characteristics of the company / organisation, (II) Human Resources Policies and Practices, (III) Performance Indicators, and (IV) Employer-Employee Relations. The employed variables will be describes in the following.

5.2 Characteristics of the company / organisation

In this section we look for objective figures describing the organisation. As it is highly relevant that we use the same contextual frame for this description, our definition of the organisation is given to the respondents: „When we refer to your 'organisation' we would like you to consider this as being the independent geographical site/plant/school within which you are located, even if the department/plant/school you are working for itself is a part of a larger company/organisation".

5.2.1 Amount of employees (hr_1)

We had a controversial discussion in the group what time frame we should add to the question on the amount of employed persons by this organisation. On the one hand, a fixed time point like the 31st of December 2003 should help to get exact data, on the other hand it was argued that the figures might have changed compared to the time of data gathering in the organisation. At the end, we decided to use the recent situation, instead of referring to a time point in the past, as all other information we get from HR-Manager, as well as from the employees refer to the current situation. Furthermore we highlighted that all types of contracts, i.e. temporary agency workers, as well as subcontractors should be included in the figure.

In order to have a figure for our core independent variable (permanent vs. non-permanent workers), we additionally ask about the amount of permanently employed persons in this organisation.

5.2.2 Organisational form (hr_2)

On a very basic level organisations can be distinguished whether they are public or private owned. This distinction already implies a lot of legal differences in the structure of organisations, the zone of negotiability, and the wage politics. Furthermore, we want to know whether the organisation is embedded in a structure of other organisations (which is probably generally the case for public organisation) or if it is a single independent body. Organisational culture, HRM practices, and the composition of the work-force (and thus also the psychological contract) might also be affected by the provenance of the head (umbrella)

organisation. Thus we also ask whether HR practices are implemented independently or governed by the head quarter.

5.2.3 Structure of the workforce (hr_3)

The share of all types of temporary (non-permanent) employees can already be obtained by the information we get out of question 1. Going into more detail, we are also interested which types of temporary contracts are existent (e.g. fixed-term, probation, temporary agency contract, …), and what is the share within the group of non-permanent employees in the organisation. To ease the response to this question, we decided to give answer options. The respondent might choose if they report an exact number or a percentage, ranging from "not present", "present but small minority (0%-25%)" to "present, large majority (76%-100%)" with six gradations. For the coding only the percentages will be used.

5.2.4 Union members (hr_4a)

The influence of work councils and unions on the configuration of the organisation is reflected in the degree of workers rights and the use of so called precarious employment contracts. Thus, we want to collect information on the share of union members in the organisation.

5.2.5 Percentage of females (hr_4b)

The information about the percentage of employed females by this organisation can help to check if the sample we have in one sector is representative for this branch in the country. If we find a high deviation in the share of female employees that can be found in the branch / sector generally and our sample we can hardly generalise our findings. Furthermore sex might be confounded with the position levels in organisations. Thus it can serve as control variable.

5.2.6 The organisation in retrospect and prospect (hr_5, hr_6)

It could be shown that changes in the organisation, especially regarding the employed workforce can modulate the psychological contract (e.g. Allen, Freeman, Russell, Reizenstein

& Rentz, 2001; Baruch & Hind, 1999; Berner, 1999). Especially dismissals can be perceived of as a breach of the relational psychological contract, and this loss of trust certainly has an impact on the perceptions and expectations of the "survivors". Therefore we ask the HR-Managers, whether the number of employees increased, decreased or stayed the same over the last three years. Also an increase of non-permanent employment might be observed as a breach of the traditional contract, we added the same question concerning the number of non-permanent employees.

The psychological contract is a dynamic concept, and not only involves the perception of the employment relationship based on past experiences, but also includes the future prospects (Anderson & Schalk, 1998a). Thus, we will also ask for the expectation regarding the development of the work force in the next three years, if it grows, stays the same or gets smaller.

5.3 Human Resources Policies and practices

Rousseau and Schalk (2000) recognised that "different firms in the same society can have distinct approaches to employment based on strategy, technology, and other business-related factors" (p.17).

Kabanoff, Jimmieson, and Lewis (2000) put HRM (Human Resource Management) practices at the core of their organising model. The authors refer to Rousseau and Wade-Benzioni who in (1994) argued "that HRM practices are one of the major mechanisms through which employees come to understand the terms and conditions of their employment" (p.33). The influence of HR practices on the psychological contract can hardly be overlooked. We will ask for a set of core hr-practices, accomplished by special practices, explore the motives that lead the organization to employ persons on a temporary basis, ask for the satisfaction with the performance of temporary and permanent workers, the influence of unions or work council, and last but not least the difficulty of filling vacancies. These variables shall be described now.

5.3.1 Core HR-practices (hr_7a –hr_7f)

The items asking for the core HR practices are modelled after the questions for the employees. In order to get information on the treatment of employees in different contract

types, response to all items is no/ yes, but mainly to permanent workers / yes to both: permanent and non-permanent workers, and don't know asking for opportunities for rights to have a say, providing interesting jobs, providing support with non-work responsibilities, equal opportunities, and the prevention of harassment or bullying. The measure is scored by taking a count of the "yes" responses separately for permanents, and to all employees.

An additional question asks for the equal treatment of permanent and non-permanent workers, with an open question to name differences if existent.

5.3.2 Special practices (hr_8, hr_9, hr_10)

Besides the rather general formulations for the core HR-practices we further ask for training and development (hr_8), performance appraisals (hr_9), and performance related pay (hr_10). These three questions are asked for the situation of permanent employees and non-permanent employees separately, looking for an indication of percentage of employees.

5.3.3 Motives for recruiting non-permanent employees (hr_11a-hr_11l)

Organisation might be driven by different motives why they employ people on a fixed-term contract. They might seek a dynamic employment of special skills as a response to fast changes in the demands in the market or they might use non-permanent contract for cost-cutting strategies in recruiting, or to improve their performance, just to name a few out of the construed list of 12 items. It is likely that the motives of the employer also influence the psychological contract, especially the obligations they are willing to give. Answer options are presented on a five point Likert type scale from "never" to "very often".

5.3.4 Satisfaction with employee performance (hr_12)

This question taps the degree of satisfaction concerning the performance of permanent and non-permanent employees. Ratings can be given on a seven-point scale accomplished with Kunin-faces.

5.3.5 Influence of union / work council

Together with the question about the union density in the organisation, we are interested in the influence of unions or work councils on the following aspects: employment

contracts, HR-practices, and working conditions. Answers can be given on a five-point scale ranging from “no influence” to “very much influence”.

5.3.6 Vacancies

The difficulty of filling vacancies regulates the offers made by the employer to a great extent. If it is very hard to find employees with special skills or competencies, the organisation will probably enhance their efforts and provide more promises to potential candidates. Answers to this question can be given on a five-point scale, ranging from “very easy” to “very difficult”.

5.4 Performance indicators

There is a vast quantity of possible performance indicators we can think about, ranging from the gained profit, the growth of the organisation, the position in the market, the compliance to certain norms and rules (like ISO norms), and so forth. As we are looking for data that can be matched with the information we get from the employees we follow a rather restricted list of performance indicators.

Without denying other aspects that might be relevant for a performance appraisal of an organisation, in the questionnaire we decided to focus on the dynamic of the work force (dismissals and voluntary quitting), on sick leave and accidents. These performance indicators might help to understand the causes of workplace safety behaviour and accidents, and how this is affected by HR policies, and the use of non-permanent contracts. All these questions are asked separately for permanent and non-permanent employees.

As these performance indicators are reported in annual reports of an organisation, we decided to specify the time frame to the year 2003 (01.01.2003 to 31.12.2003).

5.4.1 Quitting (hr_15a, hr_16a)

A high rate of employees voluntary leaving the organisation is an indicator that points towards problems concerning the commitment of employees. A connection to a breach of the psychological contract is likely. We decided to ask for the exact numbers of permanent, respectively non-permanent employees that left the organisation voluntary before their contract run out.

5.4.2 Dismissals (hr_15b, hr_16b)

Whereas quitting refers to actions (or reactions) on the employees' side, dismissals refer to the expulsion of employees from the workforce initiated by employers. A high rate of dismissals can lead to the loss of trust, and to high perceptions of insecurity among survivors. Thus, this variable might explain differences in the assessment of the psychological contract between companies. Here we ask for the exact number of dismissals.

5.4.3 Sick leave (hr_15c, hr_16c)

Sick leave, as a performance indicator can provide information that can set forth assumptions about the working conditions, and the commitment and involvement of employees. It is also interesting to compare the percentage of sick leaves of permanent and non-permanent employees, as the percentage of sick leave is found to decrease in countries that have a high growth of precarious employment. Here we ask for the percentage of working time that was lost due to sick leave.

5.4.4 Accidents (hr_15d, hr_16d)

In the literature we can find hints that permanent workers are better off in terms of safety knowledge compared to temporary workers (Aronsson, 1999; Kochan, Smith, Wells & Rebitzer, 1994; Probst & Brubaker, 2001). We will ask for the amount of reported accidents. Again the differentiation between permanent and non-permanent employees can provide interesting insights in the situation of temporary employees.

5.5 Employer-Employee Relations

We described the psychological contract and its operationalisation in detail for the employees' questionnaire. The rationale for asking employers is that the contract in its nature is reciprocal. Not many studies take this two-sided perspective, as it is not easy to decide who is the organizational holder of the contract. Without denying the individual differences of psychological contracts, we assume (and have evidence from literature) that there are common and shared features for all employees in one organization. Thus, we are looking for a person in the organization to answer the questions, who is concerned with all aspects of the human capital, who knows about the structure, the policy and practices of the organization.

Thus, we will ask HR-Managers, as they most likely combine this knowledge. Depending on the size of the organisation, the HR-Manager might be the CEO, or the leader of the human resources department.

We conclude that psychological contracts are between employer and employee, and that psychological contracts are formed and developed in a specific organisational context: two reasons for asking the employers (represented by the HR-Manager) about the psychological contract.

As we are investigating the special situation of the growing number of non-permanent employees, we decided to divide the questions of employers and employees obligations for permanent and non-permanent workers.

5.5.1 Employer Obligations (hr_17, hr_18)

For the employer obligations we use the same items as in the employee's questionnaire, albeit the introduction had to be slightly changed. Fifteen potential promises shall be rated by the HR-Managers whether these promises are present and, if yes, whether these promises or have been kept on a five point scale. The list of promises is presented twice, once for permanent employees and once for non-permanent employees.

5.5.2 Employee Obligations (hr_19, hr_20)

The same set of 17 items as for the employee's questionnaire is used to assess the employees' obligations to the organisation. The introduction from the employee's questionnaire is substituted by "As far as your organization is concerned, do permanent employees promise or commit themselves to.." Also for this part of the psychological contract we ask for the promises of permanent and non-permanent workers separately.

5.6 Summary

With the employers' questionnaire, we want to measure background information concerning the organisation that can help to categorise different organisations, serve as background variables in regression analyses or as the presentation of the organisational level for a multilevel analysis. Furthermore the assessments of employees can be compared with

the ratings of the HR-Manager within one organisation. With 112 items the employers' questionnaire has a reasonable length. Table 26 summarises the employed variables.

Table 26 Variables employed in the HR-Manager questionnaire

Item	Variable	Authors	k	Value Labels	Level of measurement
CHARACTERISTICS OF THE COMPANY / ORGANISATION					
hr_1a	Number of employees	PSY	1		Coninuous
hr_1b	Number of permanent employees	PSY	1		Coninuous
hr_2a	Organisational form (public or private)	PSY	1	0 public 1 private	Nominal
hr_2b	Organisational form	PSY	1	1 single independent establishment not belonging to another body 2 head office of different establishments 3 one of a number of different establishments within a larger UK-owned organisation/institution 4 the sole UK establishment of a foreign owned organisation 5 one of a number of different establishments within a larger foreign-owned organisation	Nominal
hr_2c	Responsibility on HR-policies	PSY	1	1 yes, fully responsible 2 yes, joint responsible 3 no	Nominal
hr_3a – hr_3k	Presence of non-permanent contracts	PSY	11	1 not present 2 present, but small minority 3 present, but minority 4 present, about half of the non-permanent workforce 5 present, majority 6 Present, large majority	Ordinal
hr_4a	Percentage of union memers	PSY	1	0 none 9 don't know	Continuous
hr_4b	Percentage of female employees	PSY	1	0 none 9 don't know	Continuous
hr_5a	Number of employees past three years	PSY	1	1 yes, decreased 2 yes, increased 3 no change	Nominal
hr_6	Prospect concerning workforce	PSY	1	1 grow 2 stay same 3 get smaller	Ordinal
HUMAN RESOURCES POLICIES AND PRACTICES					
hr_7a-hr_7e	HR practices	PSY	5	1 No 2 Yes, but mainly to permanent workers 3 yes, to all workers 4 I don't know	Nominal
hr_7f	Equal treatment	PSY	1	1 yes, exactly the same 2 no, small differences 3 no rather large differences	Nominal
hr_8a	Permanent training	PSY	1	0 none 9 don't know	Continuous
hr_8b	Non-permanent training	PSY	1	0 none 9 don't know	Continuous
hr_9a	Permanent feedback	PSY	1	0 none 9 don't know	Continuous
hr_9b	Non-permanent feedback	PSY	1	0 none 9 don't know	Continuous
hr_10a	Permanent benefits	PSY	1	0 none 9 don't know	Continuous
hr_10b	Non-permanent benefits	PSY	1	0 none 9 don't know	Continuous

Item	Variable	Authors	k	Value Labels	Level of measurement
hr_11a-hr_11l	Motives	PSY	12	1 never 2 not often 3 sometimes 4 rather often 5 very often	Continuous
hr_12a	Satisfaction non-permanents	PSY	1	1 very dissatisfied 7 very staisfied	Continuous
hr_12b	Satisfactoin permanents	PSY	1	1 very dissatisfied 7 very staisfied	Continuous
hr_13a	Influence on employment contracts	PSY	1	1 no influence 2 little influence 3 moderate influence 4 much influence 5 very much influence	Continuous
hr_13b	Influence on HR-practices	PSY	1		
hr_13c	Influence on working conditions	PSY	1		
hr_14	Vacancies	PSY	1	1 very easy 2 easy 3 so-so 4 difficult 5 very difficult	Continuous
PERFORMANCE INDICATORS					
hr_15a	Quit (permanents)	PSY	1		Continuous
hr_15b	Dismissal (permanents)	PSY	1		
hr_15c	Sick leave (permanents)	PSY	1		
hr_15d	Accidents (permanents)	PSY	1		
hr_16a	Quit (non-permanents)	PSY	1		
hr_16b	Dismissal (non-permanents)	PSY	1		
hr_16c	Sick leave (non-permanents)	PSY	1		
hr_16d	accidents(non-permanents)	PSY	1		
EMPLOYER-EMPLOYEE RELATIONS					
hr17a-hr_17o	Employers Obligations (Content / breach) - permanent	PSY	15	0 no 1 yes, but promise not kept at all 2 yes, but promise only kept a little 3 yes, promise half kept 4 yes, and promise largely kept 5 yes, and promise fully kept	Continuous
hr18a-hr_18o	Employers Obligations (Content / breach) – non-permanent	PSY	15		
hr_19a-hr_19q	Employees Obligations (Content / breach) permanent	PSY	17		
hr_20a-hr_20q	Employees Obligations (Content / breach) – non-permanent	PSY	17		

6 Coding and Processing Data

6.1 General Rules for coding

Now, after describing our aims and research questions, and our research instruments, in the following paragraph we will present guidelines, and techniques on how to get the data from the filled in questionnaires to the computer for further analysis, and also first steps that have to be done before starting to test our research model.

The first step was to prepare a SPSS-mask for the variables. This was done by the WP3 – team and sent to all partners. Generally no changes to this mask are allowed. If any problems or mistakes are encountered it is necessary that all national teams get the same information. In such a case, the proposed changes should first be adressed to the WP3-team. The file description of the master SPSS data matrix is presented in the annex.

Generally, within SPSS three different types of variables can be distinguished: metric, ordinal and nominal. We have all kinds of variables in our questionnaires. All data will be typed into the SPSS-mask by each national team. Every coder has to be trained and introduced – this report should serve as a guideline.

Categorical variables with two levels (dichotomous) is coded with 1/0, also called dummy coding. The scales are coded from 1 to 5, respectively 1 to 7. For text variables (ID, occupation, perscode, and q9_tao) – the words, or code is typed in. All text variables should be typed in English in all countries! For all nominal variables with more than two values, the value labels are shown in the table in the annex.

6.1.1 Coding and handling of Missings

Special emphasis has to be drawn onto the coding of missing data – as for some variables “9” is still included in the values range, a “99” has to be coded for missing values. It is also important that missing values are defined, and consistently coded across countries. The coding of missing values turned out to be one of the most common coding errors in the pilot study, as some variable values were just left blank, others were coded with “9” or “99” – this makes not only descriptive data more complex (because then we get system missing data, and missing data) it might also provoke problems when merging the data files.

Some questions follow a causal structure, question 7 might serve as example. There we ask for other paid jobs, and if yes, how many hours are worked in the other job(s). If

someone indicates “no”- I do not have other jobs, he or she does obviously not need to fill in the additional hours question. In that case this is not a missing value, and should not be coded (blank data field).

Data could be missing completely at random or missing at random or not missing at random. Several methods exist to impute missing data (see table 27). As we have planned reasonable sample sizes, and we do not encounter missing values that are caused by any biasing third variable, the easiest way is probably to delete missing values for statistical analysis where missing values are not allowed.

Missing values should not be deleted from the national data files before merging the data files, as this has to be the decision of each researcher before analysing the data. However, if we encounter only a very small proportion of missing values, we might agree after merging the data to prepare a final SPSS file that contains no missings anymore.

Table 27 Methods to impute missing data

(1) Listwise (casewise) Deletion: uses only complete cases
(2) Pairwise Deletion: uses all available cases
(3) Dummy Variable Adjustment: missing value indicator method
(4) Mean Substitution: substitute mean value computed from available cases (cf. unconditional or conditional)
(5) Regression methods: predict value based on regression equation with other variables as predictors
(6) Hot deck: identify the most similar case to the case with a missing value and impute the value

6.1.2 Items, only addressed to a subsample

The scales “employee prospects”, and “motives” are only addressed to non-permanent workers. As permanent employees are explicitly not asked to answer these items – the fields are left blank for them. Whereas if non-permanent employees do not answer these questions they are coded as missing values.

6.1.3 Multiple Answers

Some questions in the questionnaire have nominal or ordinal answer categories. Though in most cases we do not want respondents to tick more than one box, we still need rules for handling multiple answers:

q2 (position):

All categories of this question are exclusive. If someone ticks more than one box, we will try to rate the position in the organisation according to the answer in q1 (occupation/job). If this is not possible, it has to be coded as missing value.

q9a (Type of contract):

We explicitly state that multiple answers can be given. But how to deal with it? Some of the employment situations are exclusive, i.e. it is not possible to have a permanent and a non-permanent contract with a temporary work agency. In those cases the item has to be coded as missing. As fixed-term contract is a rather broad category, it should get a minor place. That means if some ticks having a fixed-term contract and being on probation, we will code probation. On the other hand contracts with temporary work agencies, due to their special arrangements should get a major place before other categories. If someone ticks having a contract with a temporary work agency and being on training, we will code temporary work agency.

q31(sex), q32, q33, q35 (living conditions):

The answer categories to these questions are exclusive. Thus, if more than one box is ticked, we have to code it as missing value.

q36 (education):

If more than one option is chosen, we will code the highest educational degree. For q36b, asking for years in full-time education, whether the number of years, "99" for missings or "88" for being a student at the moment is coded.

6.2 Data screening

When the self-set goal of 600 employees per country (including the sampling specifications) is reached, there should be a few steps done before starting to work with the data concerning the contents. First data should be screened for errors, using exploratory data screening methods:
The first step should be to perform a frequency analysis over all variables.

It can easily be checked if there are coding errors, as scales ranging from 1 to 5 must not contain items coded with numbers >5 or <1 or decimals. Errors should be corrected in every country file before merging the data. Some variables have to be recoded into the

international system (e.g. type of non-permanent contract, educational level), before merging data.

As permanent employees should not answer the employees' prospects, and motives questions, this should also be checked, the following Syntax should produce only system missing values for the group of permanent workers:

```
SORT CASES BY q9 .
SPLIT FILE
  LAYERED BY q9 .

FREQUENCIES
  VARIABLES=q10a q10b q10c q10d q11a q11b q11c q11d q11e q11f q11g q11h q11i
  /ORDER=  ANALYSIS .
```

6.3 Merging data

When the data is "clean", the country files can be merged together to one file. The different country files may be merged together using the following SPSS-Syntax (table 28).

Table 28 SPSS Syntax for merging data files

```
DEFINE !merge ().

* Get the first file.
GET  FILE='C:\…\Psycones(1).sav'.    *Specify location of the files

****************
Files should be named as follows:
Sweden: Psycones(1).sav
Germany: Psycones(2).sav
Netherlands: Psycones(3).sav
Belgium: Psycones(4).sav
UK: Psycones(5).sav
Spain: Psycones(6).sav
Israel: Psycones(7).sav)
*****************
COMPUTE file1=1.
FORMATS file1(F8).

* Add all the other files to it.
!DO !var=1 !TO 7.
ADD FILES /FILE=*
 /FILE=!QUOTE(!CONCAT("c:\…\Psycones(",!var,").sav")) *Specify location of the files
 /IN=!CONCAT(file,!var).
VARIABLE LABELS !CONCAT(file,!var) !QUOTE(!var).
EXECUTE.
!DOEND.

!ENDDEFINE.
*************END OF MACRO ***********************.

*call macro.
!merge.
```

6.4 Recodes

Some of the items in the questionnaire are worded in the opposite way as the indicator they belong too makes it necessary. These variables have to be recoded. The items will be recoded using a SPSS syntax that is presented in the annex. Recodes will get an "r" as extension. For the use of the MEAN – Command in SPSS, it is necessary to define missing values for these recodes (see annex).

6.5 From single Items to scales and indicators

Most of the interesting variables, as presented in figure 2 (the conceptual model) are indicators assessed by more than one item (scales) or need to be recoded and new value labels have to be given in order to further work with the variables. For most of the scales the mean per case is the most appropriate procedure. This can easily be computed using SPSS Syntax.

From the employed scales, only the core HR-practices deviate, as they don't have a metric answer format. The answers to these items are coded with 1 (no), 2 (yes), and 3 (don't know). Only the yes answers should serve as indicators of the amount of implemented HR-practices. For that reason the referring SPSS syntax has to be a bit more complicated. First all items are recoded the following way: (1=0, 2=1, 3=0), than the items are summed up. The syntax also is presented in the annex. The Syntaxes for the calculation of the elements of the psychological contract have already been discussed in the referring chapter.

For all questions that use years, months, and days as answer format, a single index has to be calculated. Therefore it is necessary that the variables have a specified value range: this range should be for years from 0 to 60, for months from 0 to 11, and for days from 0 to 29. If more than 11 months are indicated, it should already be transferred to years in accordance to the range values, and if more than 29 days are indicated it should be transferred to months. The following quite artificial example shall illustrate this procedure.

Coding example:

Q4a How long have you been working in this organisation?

Case 1) _____ years (if less than one year: __15___ months or ___32__days)
➔ Code q4ay = 1, q4am = 4, q4ad = 2

Furthermore for some of the time-frame questions we included the option "don't know / not specified". In order to distinguish between this answer and a missing answer, the

don't know answer is coded with 0 for years, months, and days, a completely missing answer with years = 99. Table 29 shows the proposed classification. The referring SPSS Syntax is presented in the annex. The categories might of course be adapted to the research questions one wants to answer.

Table 29 Calculating categories for time-frame questions

Category	Label
1	Up to one week
2	Up to one month
3	Up to three months
4	Up to six months
5	Up to one year
6	Up to two years
7	Up to three years
8	Up to four years
9	Up to five years
10	more than Five years
11	Not specified/don't' know
99	Missing

Besides this categorisation it, also a single continuous variable can be computed (e.g. tenure = years*365 + months * 30 + days).

For the educational level, every national team uses different codes that have to be brought to the ISCED classification. The following table might serve as an example and follows the transition from raw data to the ISCED levels for the German questionnaire.

Table 30 Computing the ISCED classification from German raw data

	1	2	3	4	5
Primary Education ISCED 1	q36=1 & q36_ger=99				
Lower Secondary Education ISCED 2	q36=2 or q36=3 q36=4 & q36_ger=99	q36=2 or q36=3 or q36=4 & q36_ger=1	q36=2 or q36=3 or q36=4 & q36_ger=2	q36=1 & q36_ger=1	q36=1 & q36_ger=2
Upper Secondary Education general (ISCED 3a)	q36=5 or q36=6 & q36_ger=99				
Upper secondary Education vocational ISCED 3b	q36_ger=3	q36_ger=4			
Post Secondary Non Tertiary Education general ISCED 4A	q36=5 or q36=6 & q36_ger=3	q36=5 or q36=6 & q36_ger=4			
First Stage of Tertiary Education ISCED 5B	q36_ger=5	q36_ger=7	q36_ger=6		
First Stage of Tertiary Education ISCED 5A	q36_ger=8	q36_ger=9			
Second Stage of Tertiary Education (Research Qualification) ISCED 6	q36_ger=9				

All the proposed indices have to be seen as preliminary suggestions. After the evaluation of scale and item properties, the calculation of scales and indexes might be subject to changes, if for example single items turn out to have a low item-total correlation.

6.6 Preparing a booklet with scale descriptions

The next step should be to write a report containing sampling procedures, characteristics of the sample, scale and item –analyses, and an intercorrelation-matrix.

A basic description of the sample should include, the total N, the number of organisations, the N per organisation, the percentage of male and females, the average age, the distribution of types of contracts, and the educational levels.

The following information should be documented for scales and items split for countries:

- Items: Means, standard-deviations, item-total correlations, factor loadings, range
- Scales: Reliability (Cronbach's Alpha), mean, standard-deviation, median, kurtosis, scewness
- Screeplot and frequency diagram
- Fit-Indices (df, χ^2, CFI, GFI, AGFI, RMSEA) of a Confirmative Factor Analysis (CFA)
- Test for equal factor structure and factor loadings across country samples

Though this looks like a lot of work, this report can serve as the working book for all further work with the data. Scale-descriptions, sample characteristics, and so on can just be taken from this report instead of computing it again, and again for every publication in seven countries. This report can use as a blueprint for this booklet – in taking the scale descriptions as presented in the employees' questionnaire chapter.

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