

# The attractiveness of temporary employment to reduce adjustment costs: A conjoint analysis

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## Abstract:

In this paper I determine the importance of adjustment costs in employers' hiring decisions. Temporary work arrangements offer potential ways to avoid adjustment costs. I estimate employers' willingness to pay for the characteristics of these work arrangements. I distinguish regular contracts, direct hire temporaries, temporary agency contracts, freelance workers and contract workers, which all have their specific effect on hiring and firing costs. Conjoint analysis on a sample of 1000 Dutch employers is used to determine the relative preference for the constituent characteristics of these employment arrangements. My results indicate that strategies that reduce turnover are more important than strategies to reduce adjustment costs per worker. On average regular contracts are most attractive for employers, because they allow for investment in (firm specific) human capital. Non-standard work arrangements are valued in some situations, e.g. in highly volatile environments. This suggests that temporary contracts are used not only for screening purposes, but also to adjust the workforce to fluctuations on the product market.

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## 1. Introduction

Last decades the use of temporary employment has grown tremendously in western societies. Temporary work arrangements offer potential ways to avoid adjustment costs and as such represent an option value to the firm (see Foote and Folta, 2002). Severance payments are nonexistent for temporary contracts. And temporary work agencies reduce search costs by providing workers instantaneously. As such, they may help increasing the speed of adjustment of the workforce to economic shocks and thus the speed of adjustment of the overall economy.

A whole series of literature investigates the consequences of firing costs on employment. These have shown mixed results. The overview study of Ljungqvist (2002) shows that early general equilibrium analyses by Burda (1992), Hopenhayn and Rogerson (1993) and Saint-Paul (1995) display a negative effect of firing costs on employment, whereas later general equilibrium models by Alvarez and Veracierto (1998) and Mortensen and Pissarides (1999) conclude that firing costs affect employment positively. Ljungqvist shows that the results of these theoretical models depend crucially on the model features and assumptions.<sup>2</sup> There is also some work on partial equilibrium models, such as Bentolila and Saint-Paul (1992 and 1994), Bentolila and Bertola (1990) and Aguirregabiria and Alfonso-Borrego (1999) which gives no clear outcome of the consequence of firing costs on employment levels either. Lower firing costs are associated with an increased response to shocks, with ambiguous effects on the average employment level. Also the empirical work on this subject is inconclusive. Hunt (2000) finds little evidence of increased employment in Germany after the 1985 Employment Promotion Act reduced firing costs. Bentolila and Saint-Paul (1992) find mainly evidence for the increase in cyclical response in Spain after the 1984 reform, with uncertain effects for the average level of employment. Aguirregabiria and Alonso-Borrego (1999) show positive effects of this same reform for the level of Spanish employment.

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<sup>2</sup> In search and matching models with the standard assumption of a constant relative split in the match surplus between firms and workers, layoff costs tend to increase employment by reducing labour reallocation, whereas employment effects tend to be negative in models with employment lotteries due to the diminished private return to work.

In this paper I measure the influence of adjustment cost on the hiring decisions of employers. I focus on adjustment costs that are reduced by temporary employment. Overall, adjustment costs include (see Hamermesh and Pfann, 1996):

- Search costs (advertising, screening and processing new employees);
- Costs of training new employees (including disruptions to production as previously trained workers' time is devoted to on-the-job instructions of new workers);
- Overhead cost of the staff dealing with worker recruitment and worker outflow;
- Severance pay and cost caused by mandatory advance notice periods (firing costs).

Temporary employment can be divided in a broad range of contracts, such as direct hire temporary work (fixed-term contracts), temporary agency work, on-call work, freelance work and contract work. Each of these contracts influences one or more of the adjustment costs mentioned above. In this paper I estimate employers' willingness to pay for these characteristics of the work arrangements. Also, I determine which work arrangements are attractive for which type of vacancies and for which type of employers.

I apply conjoint analysis to estimate the importance of several adjustment costs. Conjoint analysis uses profiles of 'products' - in my case employment contracts - which differ on several attributes. The attributes discern employment contracts from each other. The attributes are either implicit or explicit adjustment costs. Each respondent is shown ten profiles and is asked to indicate the attractiveness of the combination of attributes on the profiles, on a scale from 1-10. I use an orthogonal design of the profiles, to ensure maximum efficiency. Data were gathered among a sample of 1000 Dutch individuals that are all involved in the process of filling vacancies (e.g. company directors, divisional and departmental heads and HRM staff). I analyse the data using several estimation techniques and calculate the willingness to pay for the employment contracts' attributes. I analyse differences between industries, occupations, education levels, required work experience, small and large employers.

The outline of the paper is as follows. In the next section I present some theoretical considerations. I determine how attributes of temporary employment contracts influence adjustment costs and what this implies theoretically for the attractiveness for (types of) employers. In section 3 I describe conjoint analysis in general and how it can be used as an empirical strategy to measure the attractiveness of the constituent characteristics of

temporary employment contracts. Section 4 presents the data collection. Section 5 gives the estimation results, using different estimation techniques, and presents implicit prices of the attributes. In section 6 I show the consequences for the attractiveness of temporary employment contracts. I determine which elements make the contracts attractive and for which type of firms or vacancies they are most attractive. Section 7 concludes.

## **2. Theoretical considerations**

Temporary work arrangements offer potential ways to avoid adjustment costs. A firm's adjustment costs consist of hiring costs, firing costs and quit costs. The total costs are determined by the amount of turnover and the (hiring, firing and quit) costs per worker. In this paper I consider the attractiveness of different types of non-standard employment contracts. Each contract has some characteristics that influence a firm's adjustment costs. It is these characteristics that I am interested in. They consist of the contracting out of selection, the term of availability, the term of notice for employees, the provision of replacement in case of quits, the term of notice for employers, the severance payments, the duration of stay and the flexibility of working hours. In this section I discuss the theoretical effect of these elements on (adjustment) costs and therewith the theoretical attractiveness and theoretical willingness to pay for employers.

When faced with a vacancy firms can choose to organise a selection procedure themselves or contract the selection of the applicant out to an external agency.<sup>3</sup> The contracting out of the selection of applicants has two effects for employers. If the employer organises selection procedures himself, he incurs costs of advertising and screening and has to invest his own time in the selection procedure. Thus, hiring costs decrease when these activities are contracted out, which firms are willing to pay for.<sup>4</sup> On the other hand contracting out versus self-organised application procedures might affect the quality of the worker-firm match. Thus, contracting out might be either positive or negative for productivity, depending on who is better able to find the best match. Overall, it is uncertain whether employers prefer to select workers themselves or contract the selection out to an external party.

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<sup>3</sup> E.g. temporary help agency, contract agency or recruitment agency.

<sup>4</sup> This is one of the reasons why there is a market for temporary help agencies.

The term on which applicants are available influences hiring costs. The sooner a suitable applicant is available the shorter hiring procedures are. This means less of the employer's time is invested in the hiring procedure. Also the period of labour shortage is reduced if an applicant is available on short term. Both effects imply a reduction of the (explicit and implicit) hiring costs. This implies employers prefer shorter terms of availability which they should be willing to pay for.

The term of notice for employees influences quit costs. The shorter the employees' term of notice is, the higher is the probability that the firm experiences decreased productivity in the period between one worker quitting and the arrival of a new worker. This means that the implicit costs of quitting rise. Therefore, employers prefer longer terms of notice for their employees, so they can reduce the period of reduced productivity due to labour shortage. This implies firms are theoretically willing to pay for a longer term of notice for employees.

The period during which a firm experiences decreased productivity because one worker quits and another has not yet arrived can be considerably shorter if a replacement worker is provided. If an external party provides immediate replacement when an employee quits, quit and hiring costs decrease. This might be quite valuable to a firm, which accordingly is willing to pay for immediate replacement.<sup>4</sup>

The term of notice for employers is related to firing costs. The longer employers' term of notice, the higher the indirect costs of (reduced productivity during) dismissal procedures. So firing costs are higher, the longer the employers' term of notice is. Obviously, the same holds for the amount of severance payments, since these make up the direct cost element of firing costs. Not surprisingly, I state that employers prefer shorter notice periods and lower severance payments and are willing to pay for that.<sup>4</sup>

The duration of the period that a worker stays at the same employer reduces turnover, and therefore influences adjustment costs via the number of adjustments. The duration of stay might affect productivity as well. When firms invest more in workers who stay longer, as is shown in the literature (see Almeida-Santos and Mumford, 2004a and 2004b; Booth et al, 2002; Draca and Green, 2004), productivity is enhanced if tenure increases. On the other hand, productivity over the cycle is positively related to a shorter duration of stay, since firms

have less superfluous personnel if natural attrition is higher. As a result it is theoretically uncertain whether employers prefer short or long durations of stay.

As Nickell (1978) already showed, employees' willingness to work overtime reduces the need to hire and fire in order to adjust the workforce to fluctuating product demand. Thus, flexibility of working hours reduces the amount of turnover and influences adjustment costs in that way and is valuable for employers.

Theoretically the impact of the abovementioned issues differs between types of firms. Firms operating in markets that experience high fluctuations in demand have a higher need to adjust their workforce and therefore have higher turnover than firms operating in more stable markets. Thus, the former are more sensitive to issues affecting hiring and firing costs. Furthermore, some production processes are more sensitive to the absence of a worker. As a result quit costs differ between firms. In firms that are sensitive in this respect, strategies that reduce the number of quits have more impact on costs and will therefore be more valuable than in other firms. Likewise, when hiring costs are high, e.g. in occupations with shortages of labour supply, firms attach high value to strategies to reduce the need to hire. And a firm that generally has high turnover caused by quits is sensitive to strategies that reduce quit costs per quitter: employee's term of notice and replacement.

### **3. Conjoint analysis**

In this paper I measure the importance of adjustment costs in employers' hiring behaviour. I ask employers for the importance of several issues in their decision to hire new personnel. It is commonly known that self-explicative methods lead to socially acceptable – and thus biased – answers. Furthermore, if individuals choose between options that differ on several elements, asking them directly for the considerations on the basis of which they choose doesn't properly take into account the multi-dimensionality of the choice. It is better to let them make the actual choice. Therefore, when analysing preferences, conjoint analysis is often used. This method stems from marketing research and psychology, but is used in economics and sporadically in labour economics as well. A good example is Van Beek, Koopmans and Van Praag (1997). They use conjoint analysis to determine employers' preferences for characteristics such as gender, ethnicity, age, work experience, and

unemployment history. De Wolf and Van der Velden (2001) use conjoint analysis in an employer recruiting setting as well. They study employers' selection behaviour to analyse the extent to which selection procedures differ between academic positions, focussing on the relative importance of general and specific competences.

The conceptual foundation of conjoint analysis arises from the consumer theory developed by Lancaster (1966). This theory assumes that utility is derived from the characteristics of products. A major implication is that the overall utility for a product can be decomposed into separate utilities for its constituent characteristics (Louviere, 1994). This implies that we can use the characteristics of products as arguments of the utility function. Conjoint analysis is used in marketing research to improve understanding of consumers' preferences for multi-attribute products. For instance, when introducing a new product the producer is interested in the relative importance of attributes of that product, such as technical specifications, colour, brand name, weight, package, price and so on. Using conjoint analysis one can infer implicit weights for each of the attributes.

In this paper I perform conjoint analysis on employment contracts, with attributes such as firing costs, notice periods, term of availability and wage costs. This means that I analyse employer preferences, just as Van Beek, Koopmans and Van Praag (1997) and De Wolf and Van der Velden (2001). Traditionally conjoint analysis focussed on analysing consumer preferences. However, McFadden (1984) indicates that problems involving profit-maximizing firms can be analysed by methods paralleling the treatment of utility-maximizing consumers.

The typical conjoint question presents each respondent with a number of commodity descriptions or situations, which differ according to the attributes. Survey respondents are then asked to either rank the profiles according to desirability, rate their desirability, choose the most desirable profile or indicate whether they would accept each profiled product. The inclusion of price as one of the attributes is standard, and allows for the derivation of implicit prices of the attributes. Mackenzie (1993) empirically compared three different response formats – ratings, rankings and binary choice – and argues rating provides informational efficiencies in econometric estimation over the other two response modes.

I have used a traditional conjoint question with rating response option. Data resulting from such a survey look as follows:

“On a scale from 1 (very undesirable) to 10 (very desirable) how would you rate an employee with the characteristics and wage costs listed below?”

	profile 1	profile 2	profile 3	.	profile s
attribute 1	$q_1^1$	$q_1^2$	$q_1^3$	.	$q_1^s$
attribute 2	$q_2^1$	$q_2^2$	$q_2^3$	.	$q_2^s$
.....	.	.	.	.	.
attribute k	$q_k^1$	$q_k^2$	$q_k^3$	.	$q_k^s$
price	$p^1$	$p^2$	$p^3$	.	$p^s$
rating	$r^1$	$r^2$	$r^3$	.	$r^s$

$q$ =attribute level (characteristics),  $p$ =price (wage costs),  $r$ =rating

Standard analyses of conjoint rating proceed by regressing responses, often using OLS, on a linear function of the attributes:  $r^{ij} = \alpha + \beta_1 q_1^i + \dots + \beta_k q_k^i + \beta_p p^i + \varepsilon^{ij}$ , where  $j$  is an individual and  $i$  is a profile. This implies that attribute levels ( $q^i$ ) and price ( $p^i$ ) are regressed on ratings. Technically the use of OLS leads to biased coefficients, since the  $\varepsilon^{ij}$  are not independent. Adding an individual specific term  $\alpha^i$  removes this bias. Furthermore OLS estimation does not take into account the fact that ratings are bounded between 1 and 10. Therefore Roe, Boyle en Teisl (1996) use a tobit model. The difference with OLS is that it treats the ratings as censored at both ends of the rating scale. As OLS, the tobit model treats the ratings as a cardinal measure of utility. This requires an assumed transformation from ratings space to utility space, which carries the implicit assumption that the utility distance between each unit change in ratings is constant. A method that relaxes this last assumption is an ordered probit or logit model. In this model the ratings have no cardinal interpretation, that is, a rating of eight is not twice as far from a rating of six as a rating of seven.

It is also possible, assuming transitivity of preferences, to transform the ratings into rankings of the profiles and analyse the rankings. Boyle et al. (2001) show that it is possible to recode ratings to rankings and directly analyse the data using a random utility framework. Rank data can be analysed using a rank-ordered logit model. Rank order estimation exploits all rank information by implicitly assuming that each rank is made as part of a sequential random utility selection process. The alternative ranked first is assumed to have been chosen because it yields higher utility than the other alternatives. It is assumed that respondents



repeat this random utility maximization with the remaining commodities. A censored, rank-ordered logit model, as used by Boyle et al. (2001) can be used to analyse the recoded ratings that include ties. Censored, rank-order logit accommodates instances where only partial orderings of the data are available, as is the case of ties in the ratings recoded to ranks. This modelling framework allows the researcher to avoid making subjective decisions of whether tied ratings should be assigned the higher or lower rank.

Irrespective of the econometric specification, estimated coefficients can be used to determine the marginal rate of substitution between attributes  $x$  and  $y$  ( $MRS_{ab}=\beta_x/\beta_y$ ) and the marginal value (implicit price or “willingness to pay”) of attribute  $x$  ( $\beta_x/\beta_p$ ). Measures of compensating variation (CV) between attribute levels  $h$  and  $g$  of attribute  $x$  can be simulated

$$\text{by: } CV_{h-g} = \frac{\hat{\beta}_x(q_h - q_g)}{\hat{\beta}_p}.$$

#### 4. Data

The data I use were gathered in August 2004<sup>5</sup> among 1000 Dutch individuals who by the nature of their employment position are involved in the process of filling vacancies. This includes company owners and directors (306), divisional and departmental heads (424), but also human resource managers or personnel and organisation staff (109) and some other senior personnel (161). Of the respondents 73 percent is male and 27 percent female. All respondents participate in the Interview/NSS Internet panel. People who participate in this panel fill in web-based surveys on a regular basis and get paid for it on the basis of the length of the survey. In this case respondents received 2 Euro for completing the questionnaire. A major advantage of the use of an Internet based survey is that it enabled me to give each respondent 10 randomly selected profiles out of a total set of 100 profiles. These 100 profiles were constructed in a way that guarantees orthogonality. That is, no linear relations existed between any of the 100 different profiles. Furthermore I used the restriction that each attribute level had to be used at least a minimum number of times on the 100 profiles. This

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<sup>5</sup> This is a period during which the Dutch economy showed the first signs of recovery after the 2001-2003 recession. Obviously this might influence the results in this paper, since employers’ preferences might depend on the phase of the business cycle.

minimum was determined using the formula  $MIN_i = \frac{100}{m_i} * 0.8$ , where  $m_i$  is the number of attribute levels for attribute  $i$ .

I asked respondents to describe a job opening within their firm. This vacancy was preferably open at the time of the survey. If there was no such job opening present, respondents were asked to describe a recently filled vacancy<sup>6</sup> or otherwise a vacancy that could occur in the (near) future. I asked for the type of job that this vacancy applied to, the minimum required educational level, the minimum required years of work experience, the number of hours per week that the vacancy applies to and the gross monthly wage that is usually paid to a worker who fulfils the minimum requirements. Table 1 gives an overview of the vacancies described by the respondents.

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<sup>6</sup> I assume that respondents can separate the hypothetical questions that I asked of them from the characteristics of the applicant that was actually hired.

Table 1 Vacancies described by respondents

Characteristic	Share in sample	Share in vacancies in 2003 (source: Netherlands Statistics, CBS)
Required education level		
Low	0.27	0.30
Medium	0.36	0.41
High	0.37	0.29
Required experience		
None	0.30	
1 - 3 years	0.45	
4 - 5 years	0.22	
> 5 years	0.03	
Gross wage		
< 1000 Euro per month	0.15	
1000 – 1999 Euro	0.36	
2000 – 3000 Euro	0.28	
>3000 Euro per month	0.21	
Occupation		
Production personnel	0.17	
Administrative	0.11	
Sales	0.11	
IT	0.08	
Executive	0.08	
Health care and social work	0.07	
Education	0.06	
Catering	0.04	
PR, marketing, communication	0.04	
Transport	0.03	
HRM, P&O	0.03	
Call centre operator	0.02	
Research and development	0.02	
Logistics, purchase	0.02	
Agricultural	0.01	
Juristic	0.01	
Military	0.01	
Other	0.10	

Next, respondents were shown ten profiles of applicants, which they were asked to rate with a grade from 1 to 10. I explicitly stated that the applicant was sufficiently qualified in all profiles. These profiles consisted of nine attributes: contracting out selection, term of availability, term of notice employee, provision of replacement when quit, term of notice employer, severance payment, duration of stay, flexibility of working hours and wage cost.

Special attention was given to the best way to include the price attribute, i.e. wage costs. Van Beek (1993) argues one should be very careful with wage costs as price attribute on this type of profiles. Reason is that employers use wage costs to signal worker's quality. Therefore I have chosen to clearly state on top of the profile the gross monthly wage that this

worker will be paid, together with the education level and the years of work experience. These issues did not vary. They were simply copied from the answers the respondents themselves gave when they were asked to describe the job opening. What varied on the profiles was the *mark-up* employers pay on top of the gross wage. It was explicitly stressed that wage costs are not the same as gross wages, and the difference between the two was explained in a pop-up (“wage costs exceed gross wages because as employer one needs to pay social premiums, or because costs have to be paid to external agencies from which employees are hired”). In this way I hoped to disentangle wage costs from quality. As I will show later, I succeeded in this purpose. Respondents valued high wage costs as negative.

In order to prevent dominating or dominated profiles, the ‘mark-up’ was chosen to be representative for the attractiveness of the other attributes, such that a clearly very attractive profile would not be cheaper than a clearly unattractive one. For each profile I calculated an ‘attractiveness’  $A$ , the sum of the rank of the attribute-scores. The mark-up was calculated as a function of  $A$  plus a random component:

$$mark - up = \min + N\left(-\frac{A - \bar{A}}{\sigma_A} + rand(0,1) - 0.5\right) * \max, \text{ where } N \text{ is the standard normal}$$

distribution function and  $rand(0,1)$  is a draw from a uniform distribution between 0 and 1. The maximum mark-up (max) was set at 50 percent and the minimum mark-up (min) at 0.

Also, special attention was given to balancing the answers. Different individuals may use different centering points on the scale 1-10. A person who starts with giving a high rating has less room left to give higher ratings for more attractive alternatives. In order to make respondents familiar with the response scale and to stabilize answers, I started each conjoint set with two warm-up profiles (see appendix 2). One of these profiles was (in my opinion) the worst combination of attribute levels and the other the best combination. These profiles were shown next to each other on the screen to make it possible for respondents to compare them. These profiles were not used in my analysis, they were just meant to give respondents a feeling of what is good and what is bad. Subsequently each respondent was given a random selection of ten profiles out of the hundred that I made in total. Respondents were asked to rate the attractiveness of these profiles on a scale from 1 to 10.

In addition to these conjoint questions, I asked respondents for background characteristics, such as firm size, industry, sensitivity to business cycle fluctuations and

seasonal fluctuations, region, gender and function in the organisation. Table 2 gives an overview.

**Table 2 Firm characteristics**

Characteristic	Share in sample	Share in vacancies in 2004 (source: Netherlands Statistics CBS)
<b>Industry</b>		
Agriculture	0.02	0.02
Manufacturing	0.07	0.08
Construction	0.02	0.06
Public utilities	0.01	0.003
Trade	0.13	0.17
Transport and communications	0.06	0.05
Hotels and catering	0.04	0.06
Financial service	0.05	0.05
Business services	0.19	0.24
Public administration	0.05	0.04
Health care and social work	0.12	0.13
Education	0.07	0.03
Culture and other service	0.14	0.06
<b>Stability of product market</b>		
Very – rather stable	0.31	
Intermediate	0.45	
Very – rather unstable	0.24	
<b>Firm size</b>		
1-9 employees	0.20	1-10 employees: 0.35
10-19 employees	0.09	10-100 employees: 0.32
20-49 employees	0.11	>100 employees: 0.33
50-199 employees	0.15	
200-499 employees	0.13	
>=500 employees	0.32	
<b>Region</b>		
Randstad (4 major cities)	0.15	0.20
West	0.33	0.32
North	0.08	0.06
East	0.22	0.17
South	0.21	0.25

## 5. Estimation results

Table A1 (in appendix 1) gives an overview of the results using different estimation techniques. As discussed in section 2 several estimation techniques are used in the conjoint literature. In the first column of table A1 I show the results of a standard OLS estimation. Next tobit results are presented that take into account that ratings are bounded between 1 and 10. The third column presents an ordered logit model, which relaxes the assumption of

cardinal utility. The rank ordered logit model, presented in column 4 relaxes the assumption of measurable utility even further.

All methods presented in the first four columns of table A1 are applied to a dataset with 10,000 observations, where the 10 observations per person are treated as independent observations. The basic assumption behind these estimation techniques is that the error term is (normally) independently distributed. However, the observations are clearly not independently distributed since each set of 10 ratings belongs to one and the same person. Ferrer-i-Carbonell and Frijters (2004) show that in analysing self-reported satisfaction questions results are far more sensitive to the way multiple observations per individual are treated than to whether utility is treated as a cardinal or ordinal measure. To test whether this is also the case for conjoint data, I used panel data techniques that take into account that we have multiple observations per respondent. In the column 5 and 6 of table A1 results of fixed effect and random effect analyses are presented. The coefficients of the random effects estimation, are practically the same as the fixed effect results. Nevertheless, the Hausman test rejects the absence of systematic differences ( $\chi^2(16)=42.62$ ). Also, I apply random effect variants of the tobit and ordered logit models These are presented in the last two columns of Table A1. Comparing the random effects tobit model with the simple tobit model, the Wald test ( $\chi^2(16)=1731$ ) rejects the hypotheses that both models are the same.

Results from different estimation techniques do not seem to differ much and the economic impact of the differences is small. The only exception is the ordered logit model estimated with random effects. In that model all coefficients are smaller than in the other models, as a result of which the implicit prices and compensating variations are again similar to those calculated using the results of the other estimation techniques. For all other models, the coefficients are in the same order of magnitude and statistical significance hardly differs. The (methodological) conclusions can be summarised as follows:

- Generally the lower bound of a rating scale of 1-10 is experienced by respondents as a restriction (see appendix 2). Therefore Tobit estimation is preferred to methods that do not take the (upper and) lower bound into account. Nevertheless, even though the results are statistically different, in economic terms differences are small.

- Cardinal utility is a reasonable assumption. (Rank) ordered logit results differ little from the results of other estimation techniques. This is in accordance with findings from Ferrer-i-Carbonell and Frijters (2004) in their analysis of satisfaction data.
- Even though the Hausman test indicates fixed-effects analysis is preferred, in economic terms results are not sensitive to random versus fixed effect analysis.
- The linear specification is not a restriction. Non-linear terms, such as quadratics, log-linear specifications and cross terms of attributes were not found to be appropriate.

### **5.1 Contract attributes**

In this section I discuss the empirical conclusions drawn from Table A1. In Table 3 I present estimated implicit prices and compensating variations, calculated from the random effect tobit estimations.<sup>7</sup> These implicit prices and compensating variations give a concise overview of the relative importance of the attributes in employers' appraisal.

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<sup>7</sup> In Table A2 I show the correlations between the ten profiles resulting from this estimation method. Correlations are small and do not appear to be systematic.

Table 3 Willingness to pay (WTP) and compensating variation (CV)

	WTP	CV in availability	CV in layoff cost per monthly wage per year worked
Availability (months, range in profile 0-5 months)	-0.037		0.6
Selection (reference: self)			
Recruitment agency	-0.135	3.7	2.3
Contracting company	-0.176	4.8	3.0
Temporary help agency	-0.193	5.2	3.3
Long term expectations (reference: employee likely to remain with you on the current level)			
Employee likely to become valuable experienced employee	0.025	-0.7	-0.4
Employee likely to leave for another employer soon	-0.470	12.7	8.0
Term of notice for employee (reference: 1 month)			
Employee cannot leave before the end of the contract	0.003	0.0	0.0
Term of notice 2 months	-0.007	0.2	0.1
No term of notice	-0.070	1.9	1.2
Replacement (reference: no replacement)			
Replacement immediately taken care of	0.087	-2.4	-1.5
Working hours (reference: only during fixed hours)			
On-call basis	0.186	-5.0	-3.2
Irregular working hours not a problem	0.195	-5.3	-3.3
Term of notice for employer (reference: 2 months)			
No term of notice	0.064	-1.7	-1.1
Immediate layoff at end of contract	0.047	-1.3	-0.8
Layoff cost (severance payment in monthly wage per year worked, range on profile 0-6 monthly wages)	-0.059	1.6	

Irrespective of the econometric technique, one attribute clearly dominates the others. The expected duration the applicant will work for the employer has by far the highest price elasticity. The magnitude of this effect might however be related to the way the attributed was measured on the profiles. As mentioned before, measuring this issue on a continuous scale would have had added value and made interpretation easier. As it is now we can see that leaving ‘soon’ lowers willingness to pay with 47 percent, equivalent to more than a year later availability and 8 extra monthly wages per year worked of severance pay. The impression that an applicant is likely to leave soon is considered to be a very unattractive feature. Theoretical predictions presented earlier were unclear. On the one hand a longer duration of stay leads to an increased need to dismiss those workers who stay longer if the tide goes down. On the other hand workers who remain longer might have a higher productivity and there are less disruptions of the production process because of the number of quits and replacement hires is lower. The outcome presented in table 3 indicates that the first (negative) effect is dominated by two other (positive) effects. The long-term expectations in a



sense represent the importance of investment costs. A firm invests in a new employee in several ways, most notably by providing (firm-specific) human capital, but also by costs of advertisement, interviewing and doing the paper work. These costs are associated with hiring a new worker, and are lost if the worker leaves the firm. They are irreversible. In making the decision to hire someone, an employer takes into account how long he expects him to stay. The firm pays him a wage below his productivity in order to recover costs spent. But if the worker leaves sooner than expected, it means a loss to the firm. Employers have wrongly estimated the option value of the investment in the new worker, when the worker leaves too soon, i.e. before the irretrievable hiring costs have been earned back. As a result an employer will either pay a lower wage to an individual who is expected to leave soon<sup>8</sup>, or not hire him at all. Comparing a worker who is likely to leave soon with a worker who is likely to remain for a long time on the current level, an average employer is willing to pay an extra 47 percent surplus on the wage for a worker of whom he has the impression that he will stay longer, which is substantial. Based on this finding I conclude that irretrievable hiring costs are substantial. Strikingly I find little difference in attractiveness between applicants with high probabilities to become valuable senior employees and applicants with high probabilities to remain working at the current level. Beforehand I had expected this difference to be valuable to employers. Apparently this is not the case. A possible explanation is that nowadays employers expect employees not to stay with them for more than a few years anyway and prefer to recruit senior personnel from outside their organisation instead of training them themselves.

Another important attribute has to do with flexibility of the worker within the firm (internal flexibility) resulting from flexibility of working hours. This too fits theoretical predictions. Employees' willingness to work overtime or irregular working hours reduces the need for hiring and firing and increases productivity. On-call work is an extreme example hereof. Someone who wishes to work only during fixed hours is considered a lot less attractive than someone who is prepared to make irregular hours. An employer is willing to pay an extra 19 percent on top of the wage for a flexible employee. There is little difference

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<sup>8</sup> Future research should focus on what is considered to be 'soon'. Including the number of months/years the worker is expected to stay can answer this question.

in attractiveness between being prepared to work irregular hours and being prepared to work only the hours that the employer needs, i.e. on-call.

A feature that is also very important for employers is the selection process. According to my theoretical considerations contracting out the selection of new employees could either increase or decrease labour costs. Contracting out lowers hiring costs, since advertising and screening costs disappear. The effect on productivity, through the quality of the worker-firm match, is theoretically uncertain. My estimation results show that contracting out the selection process is generally deemed unattractive. Even though selection does take a substantial amount of their time, employers highly value making their own selection. Alternative selections, irrespective whether they are performed by recruitment agencies, temporary help agencies or contract companies, are regarded as significantly less attractive than own selection. The implicit price shows that a penalty of 14-19 percent of the wage has to be accounted for if the employer cannot select the worker himself. This might be interpreted as a risk premium.

Organizing a selection procedure does take time. Especially since applicants are generally not available on as short a term as for example agency workers. In the meantime the firms' production is reduced because of labour shortage. Therefore it is not surprising, and in accordance with theoretical considerations, to find that employers value quick availability. On the profiles I included availability varying between zero and five months. For each month that the applicant is available sooner, an employer is willing to pay a 3.5 percent higher wage. Non-linear terms in availability were found not to improve the model fit.

Normally firms experience a disruption of their production process when a worker is absent, because of sickness or because he quits. Would replacement be provided in these cases, something which is done by temporary help agencies, it would reduce quit costs and therefore be appreciated by employers. As table 3 shows, firms are willing to pay 9 percent on top of the wage for this service.

The impact of dismissal related costs is relatively insubstantial, even though their effect is statistically significant. As Bentolila and Bertola (1990) already stated, hiring costs are more important in hiring decisions than firing costs. As mentioned before, firing costs consist of direct and indirect costs. Direct costs are severance payments. The Netherlands has a rather complicated system of dismissal legislation. If the employer can show to the Centre

for Work and Income (CWI) that a dismissal is legitimate he gets a so-called layoff permit, which means he does not have to pay any severance payment. A dismissal is legitimate in case of financial necessity, unsuitability or blameworthy behaviour of the employee. Nowadays less than half of all dismissals run through the Centre for Work and Income. Instead employers go to court. These procedures are shorter than the lengthy CWI procedures and chances of success are higher. However, judges do impose severance payments. These severance payments are related to the monthly wage. Generally a worker who is laid off receives one monthly wage per year of service. This may be higher or lower depending on who is to be blamed most (the employer or the employee) and is somewhat higher for workers aged over forty. On the profiles I stated – in accordance with current practises in the Netherlands – the number of months per year of service that employers would need to pay in case they needed to dismiss the worker that is currently applying for their vacancy. The range that I used varied from zero to six months per year of service. The implicit price calculated on the basis of the estimation results shows that per extra month wage paid per year of service the employer wants to have 6 percent lower wage costs, which is not far from actuarial neutrality. This means that in fact they let the worker pay for the privilege of receiving severance payments. This is in accordance with theoretical predictions by Lazear (1990).

The indirect component in firing cost is caused by the employers' term of notice and the length of dismissal procedures. Employers who decide a worker's productivity no longer exceeds wage cost, whether for person-related reasons or because of decreased product demand, have to continue paying this worker during the dismissal procedure and the term of notice. Currently employers' term of notice is related to job tenure. It is one month in case tenure is shorter than five years, two months for tenure 5-10 years, three months for tenure 10-15 years and four months for someone who works more than fifteen years at the same employer. On the profiles the term of notice for employers varied between no term of notice, 2 months notice or automatic layoff at end of contract. The estimated coefficient is statistically significant, but the impact is relatively small compared to the other attributes. For an extra month employers want to be compensated by 3 percent lower wage costs.

A shorter term of notice for employees increases quit costs. It is a factor of uncertainty on the employer side. In case no such term of notice is in place, employers

constantly run the risk of disruptions in the production process. The longer the term of notice for the employee, the more time employers have to find suitable replacement. In the Netherlands all direct-hired workers have a term of notice of one month. On the profiles, employees' term of notice varied between no term of notice, 1 month, 2 months and not allowed to leave before the end of the contract. In accordance with my theoretical predictions, employers value the existence of a notice period for employees. Would employees have no term of notice, the employer would like to be compensated by 7 percent of the gross wage. However, employers are indifferent between notice periods of one or two months or prohibition to leave until the contract ends.

Naturally, wage costs are important for employers too. As already mentioned, wage costs were included on the profiles as the gap between total employers' wage costs and gross wage. According to OECD (2004) compulsory social security contributions for Dutch employers in 2003 were 9 percent of the gross wage of an average employee without children and 5-7 percent for married average earners with children. Pension premiums, of about 13 percent (of which on average two thirds is paid by the employer), are not included in this figure, as are some other fringe benefits. All in all employers' wage costs are about 20 percent higher than employees' gross wages. This figure will differ between low paid and high paid workers. High paid workers generally receive more fringe benefits such as profit sharing, lease cars and better pensions arrangements. On the profiles the surcharge of wage costs over gross wages varied between zero and fifty percent. The higher wage costs compared to wages were, the less employers valued the profiles.

## **5.2 Firm characteristics**

Several firm characteristics might be expected to influence the relative weights of the attributes of temporary work arrangements. This implies we expect some attributes to be more important in some firms than in others. In this section I compare theoretical expectations with empirical outcomes. A main conclusion is that empirical results show that firm characteristics matter only at the margin. Overall, conclusions are similar irrespective of firm type.

The main distinctive feature affecting adjustment costs is demand fluctuation. Some firms operate in environments more prone to fluctuations in demand than others. As a result these employers have a higher need for labour force adjustment: hirings will be high in one

year and firings in another. This implies that in these firms costs are more sensitive to hiring costs and firing costs than other firms. Also they are theoretically less sensitive to changes in the number of quits, since these reduce the need to dismiss. In the survey I asked employers to indicate the volatility of the market they operated in, using a 5-point Likert scale. Table A3 shows that indeed employers in more volatile markets attach less value to expected duration of stay. If these firms know they will need workers only for a short period of time, the fact that they leave soon is not problematic. Other issues do not differ statistically significant between both types of employers. Importance of hiring and firing costs-reducing strategies are predicted to differ based on theory, but are empirically found to have a similar effect on attractiveness for employers in both types of industries. This might have several causes. Respondents might have misunderstood the attribute scale of severance payment. Severance payments were stated in terms of monthly wages due at dismissal. This seems a pretty abstract notion, if it were not the regular way to determine severance payments used in court (currently approximately one month salary per year of service). Another possibility is that respondents misunderstood the question on demand fluctuations. Therefore I test for differences between industries based on self-reported industry.

Regarding industry public versus private markets is the key issue, since firms operating in private markets are more sensitive to business cycles. As a result I expect them to be more sensitive to hiring costs and firing costs and less sensitive to the duration of stay (see above). Table A4 shows results by industry, where education and health care/social sector are the (semi) public industries. In accordance with theoretical predictions, education is an exception with respect to (hiring cost affecting) long-term expectations. Only in education do respondents highly value prospects of valuable experienced employees. The perception that someone is likely to stay for a long time is not enough in this sector. The health care and social sector on the other hand, does not differ from the private sector in this respect. And again, firing costs are found to differ little and not systematic between public and private markets. Only in manufacturing severance payments are statistically significant.

With respect to firm size I theoretically expect hiring and quit costs to be lower in large firms. These firms generally have their own recruitment staff, which implies lower hiring costs per recruited worker. Quit cost are lower because it is easier to organise internal replacement. As a result theoretically small firms will attach more value to strategies

reducing number of hires and quits. Attributes striking at this point are the duration of stay and flexibility of working hours. Results for small and large firms are shown in Table A5. Predictions are not confirmed. Duration of stay and flexibility of working hours do not differ systematically by firm size.

### **5.3 Job characteristics**

Not only firm characteristics are expected to affect the weight of attributes. Job characteristics might be influential as well. Required education and experience level for instance could be associated with higher hiring costs. And firm specific human capital might be more important in some occupations than in others. Tables A6-A9 present results for these job characteristics.

The higher the education level, the higher hiring costs are. Therefore, I theoretically expect strategies that reduce hiring costs, i.e. duration of stay and flexibility of working hours, to be more important at higher function levels. Also, quit costs are higher for higher function levels, for the reason that it is harder to find replacement and the production process will be disrupted for a longer time. Table A6 confirms that a higher required education level is associated with higher valuation of expected duration of stay, and especially the likelihood of becoming a valuable senior employee. For flexibility of working hours theoretical predictions are not confirmed. On the contrary, on-call working is appreciated more for lower education levels. Replacement is more valuable for occupations with lower required education levels. Again, this is not in accordance with theoretical predictions that strategies that reduce quit costs are more important for higher education levels. But it is common sense that workers at higher function levels are harder to replace, as result of which employers might distrust externally provided replacement for these higher levels.

Table A7 presents results according to different levels of required work experience. Hiring costs are higher the more work experience is required, since experienced workers are harder to find. Also quit costs are higher, because these workers are harder to replace. So theoretically the more work experience is required the more value is attached to strategies reducing the number of hires and quits. Indeed table A7 shows that it is highly appreciated if these workers are not likely to leave the firm soon. They are simply too valuable for that.

Contrary to theoretical predictions, flexibility of working hours is more important in jobs where little experience is required.

Regarding occupation some occupations have more labour market shortages than others. This survey was held in 2004, when there were not many shortages on the labour market in general. Of the occupations mentioned in table A8 only management and medical vacancies were hard to fill. This implies that these occupations experience higher hiring and quit costs than the others, as a result of which theory predicts duration of stay to be more important here. This prediction is not confirmed. Also, flexibility of working hours, theoretically predicted to be more important in these occupations, are not. What is clear is that these two occupations behave differently when it comes to contracting out the recruitment process in order to reduce hiring costs. The use of recruitment agencies is deemed an acceptable strategy for management functions, but not for medical personnel.

## **6. Flexible employment contracts**

It is generally acknowledged that temporary and flexible types of employment have been created to escape from stringent employment regulation. Once the probation period has passed it is hard to dismiss workers on indefinite contracts in many countries and in the Netherlands as well. Procedures are time consuming and often severance payments need to be paid. Fixed-term contracts are often used as extended probationary periods, after which employees who perform on a satisfactory level are offered an indefinite contract. Also, fixed-term contracts are used for activities that are known in advance to last only for a certain period of time. Temporary agency workers (TAW), contract workers or freelance workers may be used for this reason as well. In this section I use the conjoint results to determine which aspects make flexible employment contracts more or less attractive for employers in different situations. Table 4 gives an overview of the characteristics of the contracts and how their characteristics influence their attractiveness.

Table 4 Contract characteristics and influence on appraisal compared to regular contract

	Contracting out selection	Term of availability	Term of notice employee	Replacement	Term of notice employer	Severance pay	Duration of stay	Flexibility working hours
Fixed-term						+	-	
TAW	--	+	-	+	+	+	--	
Contract work	--	+	0		+	+	-	
Freelance			0		+	+	-	
On-call								++

+ = positive effect on appraisal  
 - = negative effect on appraisal  
 0 = difference has no effect on appraisal

Direct-hire fixed-term contracts differ relatively little from indefinite contracts. The main difference is that no severance payments and dismissal procedures are due at the end of the contract. Goux et al. (2001) show that hiring fixed-term workers is only slightly less difficult than hiring regular ones. Obviously, lower firing costs are the reason why these contracts are used, either for screening purposes or to absorb shocks in workload. As a result it is unsurprising that fixed-term contracts are valued highest in industries that are sensitive to business cycle fluctuations such as manufacturing, for production, administrative and management personnel. Were the lower firing costs the only difference between fixed-term and regular workers, then employers would be willing to pay an employee who works on a fixed-term contract 6 percent more than the same employee on an indefinite contract. This is not what we find in wage analyses; the literature usually finds a negative wage effect of fixed-term contracts (see e.g Booth, Francesconi and Frank, 2002; Hagen, 2002, McGinnity and Mertens, 2004; Addison and Surfield, 2005). Clearly this means that firing costs are not the only difference. In terms of the analysis, it is the duration of stay that causes another difference. The duration of stay of workers hired on fixed-term contracts is generally shorter than for regular workers, especially when used to absorb shocks. Therefore it is also unsurprising that several authors have found fewer training investments in temporary workers compared to regular workers (e.g. Almeida-Santos and Mumford, 2004a and 2004b; Booth et al, 2002; Draca and Green, 2004): the pay back period is shorter. When used for screening purposes, a fixed-term contract is usually explicitly contracted with the intensity to become permanent at the end of its term, if both parties are satisfied. In that case, expected duration is not so much shorter than for workers who work on an indefinite contract from the



start, and thus it is not the reason for lower valuation and payment in that case. But screening is often the result of uncertainty about the worker's ability, which results in a risk deduction on the wage (see De Graaf-Zijl, 2005).

Temporary agency work (TAW) differs from regular contracts on many aspects. Some aspects make them attractive to employers, others unattractive. Attractive features are the direct availability of workers, replacement, no notice period for employers and no severance payments. Unattractive is the fact that selection is performed by the agency, the absence of notice period for workers and the limited duration of the stay. Generally agency workers form no long-term relations with their employer, even though some 15 percent of agency workers eventually find a regular job at one of their employers (Ecorys-Nei, 2003). This is the main reason why agency work is not attractive for an average vacancy, but only in specific cases. E.g. when little firm-specific human capital is involved, as was already indicated by Davis-Blake and Uzzi (1993) and discussed by Matusik and Hill (1998). This is in accordance with my simulation results based on characteristics of the contract. These indicate that agency work is most attractive for employers seeking production personnel and least attractive for employers looking for IT and medical staff. This coincides with the finding that agency work is more attractive for low educated jobs than for jobs requiring a high education level. Similarly they are more attractive for jobs requiring no experience than for vacancies demanding more work experience. Looking at firm characteristics, my simulations reveal that based on its characteristics agency work is valued higher in firms that experience high fluctuations in demand. A fact that is not surprising and was already found by Davis-Blake and Uzzi (1993) for the US. Furthermore, agency work is most attractive in the service sectors and least attractive in the health care industry. Large firms are more attracted to the characteristics of agency work than small firms.

Contract work resembles agency work in many aspects. On the attractive side: workers are directly available, no severance payments are due and the employer has no term of notice. On the negative side, selection is contracted out to a contract company, and the duration of stay is short, even though contracting work generally has a longer duration than agency work. Contracting is often used for specific purposes, if a worker has specific knowledge that a firm needs for a short time. That makes this contract type not very attractive for regular vacancies. As already indicated by James (1998), task involving firm-

specific human capital are more likely to be fulfilled by direct-hired employees than by contract workers. My simulations based on the contract's characteristics indeed indicate that contracting is more attractive in case higher education and more experience are required. Employers looking for production personnel or shop assistants do not value the characteristics of contract workers, but those recruiting for management or IT functions do. Regarding firm characteristics, the simulations reveal that contracting is more attractive in sectors susceptible to fluctuations in demand. It is most attractive in the service sectors but least attractive in manufacturing or trade. Small firms are more susceptible to the positive aspects of contracting than large firms.

Freelance workers are independent contractors that are usually hired by firms to perform specific tasks. Positive aspects of freelance contracts for employers are the absence of severance payments and term of notice. Nevertheless, these workers too are temporarily passing through the firm, as a result of which pay back periods for irretrievable hiring costs are short. So for an average vacancy freelance work is not attractive. As contracting, the characteristics of freelance work make it relatively attractive for IT and management functions. But contrary to expectations it is more attractive in cases where little experience is needed. It is more attractive for employers in unstable environments. However, it is also relatively attractive in education, where in practise freelance employment is not used so often, even though it does exist. It is mostly used in private education, not funded by the government, which is a minor part of the Dutch education system (Burger et al, 2004).

On-call work is attractive because it supplies the valued working hours flexibility to employers. According to my simulations employers are willing to pay an extra 18 percent on top of the wage for this feature. De Graaf-Zijl (2005) shows that indeed on-call workers receive a wage premium. As shown in Table 3, employers have however little preference for contracts on an on-call basis relative to other workers who are willing to work irregular hours. Since many workers on the other contracts – both regular and temporary ones – are willing to work irregular hours, the wage premium is in practise lower than 18 percent. On-call work is most attractive in sectors that experience high fluctuations in demand, in service sectors and education, in large firms, for low educated jobs requiring no experience.

## **7. Conclusions and discussion**

In this paper I have estimated the relative importance of several implicit and explicit adjustment cost in employers' hiring decisions. In my empirical analysis I have focussed on the attractiveness of standard versus non-standard employment contracts as instruments to reduce adjustment costs. Each contract consists of a number of constituent characteristics that influence adjustment costs, either by reducing the amount of turnover or by minimising the turnover costs – hiring, firing or quit costs – per worker. I estimated willingness to pay for each of these characteristics. The results of my empirical analysis have shown that strategies that reduce turnover and (potentially) increase productivity are much more important than strategies to reduce hiring, quit and firing costs per worker.

The expected duration a new worker will stay at the firm was found to be the main determinant for attractiveness to employers. Employers are willing to pay an extra 47 percent on top of the wage for someone who is likely to remain for some time instead of leave soon, which is equivalent to waiting more than a year longer until an applicant is available. A longer duration of stay is the main turnover reducing strategy available. Also another turnover reducing strategy, flexibility of working hours, was found to be of major importance in employers' choices. Why would employers find these strategies so attractive? The most obvious explanation is that irretrievable hiring costs are substantial. These costs consist of search costs, advertisement and screening, but probably more importantly of training costs. If these costs per worker are substantial, a firm has two options. Either reduce hiring costs per worker or reduce the number of times these costs need to be made. The empirical results show that the latter strategy is preferred to hiring cost reducing strategies such as the contracting out of advertisement and screening.

Temporary contracts do not reduce turnover, but enhance it. Instead, the attractive feature of temporary work arrangements is that they reduce firing costs and some arrangements also reduce hiring and quit costs per worker. Reducing firing costs is the main *raison d'être* for many temporary employment contracts. The entire range of temporary contracts has in common that dismissal procedures and severance payments are avoided. Compared to the turnover reducing strategies, firing costs were found to be of minor importance in the hiring decisions. The willingness to pay for avoiding severance payment was estimated as 6 percent, which is nearly actuarial neutral and implies that firms let

workers pay for the privilege of receiving severance payments. My results have shown that the less attractive features of the alternative contracts, such as the shorter duration of stay and the contracting out of the selection process, in most cases overshadow the positive aspects of reduced firing and/or hiring costs.

This is in accordance with the finding that indefinite contracts are still the rule on the Dutch labour market. According to data from Netherlands Statistics and the Ministry of Social Affairs and Employment, 6 percent of employees works on-call or as agency worker and 15 percent has a fixed-term contract (see de Graaf-Zijl, 2005). Especially since there is some overlap between these categories, these numbers imply that by far the major share of workers has a regular contract. The majority of new hires are on fixed-term contracts. It should be noted that these are mainly fixed-term contracts designed to convert into open-ended contracts after a certain period, mostly one year (Bekker et al., 2005, p. 48). This corresponds with the empirical results in this paper. These contracts have the advantage of low dismissal costs, but do not have the disadvantage of a short duration of stay that is related to most temporary contracts. We have to keep in mind that in my analysis respondents had the current situation in mind, that is a situation where permanent and temporary contracts coexist. It is therefore dubious to draw conclusions on preference for a completely different system of labour market regulation.

Results have shown that some temporary work arrangements are more attractive in some situations than in others. Fixed-term contracts are valued most in industries that are sensitive to business cycle fluctuations such as manufacturing, for production, administrative and management personnel. The fact that these fixed-term contracts are more attractive for firms in fluctuating markets implies that these contracts are used not only as screening devices, as is suggested in some theoretical model such as Blanchard and Landier (2002), but is also used to accommodate to fluctuations in demand. This conclusion is in accordance with those of Hagen (2001) for Germany. Temporary agency workers form no long-term relations with their employer, which is the main reason why agency work is not attractive for an average vacancy, but only in specific cases. E.g. when little firm-specific human capital is involved. Another negative aspect of agency work is that employers dislike contracting out the selection of their workers. This explains why direct-hire fixed-term contracts are more popular among employers than agency and contract workers. My results show that agency

work is most attractive for employers seeking production personnel for low educated jobs requiring no experience in businesses with high fluctuations in demand. Large firms are more attracted to the characteristics of agency work than small firms. Contract work is often used for specific purposes, if a worker has specific knowledge that a firm needs for a short time. This contract type is not very attractive for regular vacancies. Contracting is more attractive in case higher education and more experience are required, for management or IT functions in the service sectors that experience many fluctuations in demand. Small firms are more susceptible to the positive aspects of contracting than large firms, which seems logical because small firms are bound to experience more situations in which they will need specific knowledge they do not have in-house. Freelance work, like contracting, is relatively attractive for IT and management functions. But surprisingly it is also relatively attractive in cases where little experience is needed and in education, where in practise freelance employment is not used so often, even though it does exist in private education. On-call work is, as expected, most attractive in sectors that experience high fluctuations in demand, in service sectors and education, in large firms, for low educated jobs requiring no experience. However, regular personnel that is willing to work flexible hours is as attractive as on-call work in most cases.

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Appendix 1 Table A1 Estimation results of conjoint data using different estimation techniques

	OLS	Tobit	Ordered logit	Rank order logit	Fixed effect	Random effect	Tobit (random effects)	Ordered logit # (random effects)
Availability (in months, range 0-5 months)	-0.139** (0.048)	-0.145** (0.051)	-0.125** (0.044)	-0.104** (0.035)	-0.107** (0.039)	-0.112** (0.038)	-0.113** (0.041)	-0.070** (0.026)
Selection (reference: self)								
Recruitment agency (0-1)	-0.398** (0.054)	-0.411** (0.057)	-0.396** (0.050)	-0.346** (0.039)	-0.398** (0.043)	-0.398** (0.043)	-0.414** (0.046)	-0.222** (0.029)
Contracting company (0-1)	-0.500** (0.072)	-0.514** (0.077)	-0.511** (0.067)	-0.448** (0.052)	-0.524** (0.058)	-0.520** (0.058)	-0.538** (0.062)	-0.286** (0.039)
Temporary help agency (0-1)	-0.512** (0.084)	-0.524** (0.090)	-0.540** (0.078)	-0.544** (0.060)	-0.584** (0.068)	-0.574** (0.067)	-0.588** (0.071)	-0.299** (0.045)
Long term expectations (reference: employee likely to remain with you on the current level)								
Employee likely to become valuable experienced employee (0-1)	0.041 (0.057)	0.036 (0.061)	0.063 (0.053)	0.096* (0.040)	0.080 (0.046)	0.074 (0.046)	0.076 (0.048)	0.030 (0.030)
Employee likely to leave for another employer soon (0-1)	-1.360** (0.051)	-1.422** (0.054)	-1.293** (0.048)	-1.212** (0.039)	-1.368** (0.041)	-1.367** (0.041)	-1.432** (0.043)	-0.740** (0.028)
Term of notice for employee (reference: 1 month)								
Employee cannot leave before the end of the Contract (0-1)	0.019 (0.068)	0.024 (0.073)	-0.008 (0.063)	0.001 (0.049)	0.006 (0.055)	0.008 (0.054)	0.008 (0.058)	-0.007 (0.036)
Term of notice two months (0-1)	-0.053 (0.059)	-0.050 (0.063)	-0.076 (0.054)	-0.034 (0.042)	-0.023 (0.047)	-0.027 (0.047)	-0.022 (0.050)	-0.035 (0.031)
No term of notice (0-1)	-0.248** (0.064)	-0.250** (0.069)	-0.280** (0.060)	-0.245** (0.047)	-0.197** (0.052)	-0.204** (0.052)	-0.212** (0.055)	-0.144** (0.034)
Replacement (reference: no replacement)								
Replacement immediately taken care of (0-1)	0.207** (0.044)	0.212** (0.047)	0.219** (0.041)	0.261** (0.032)	0.260** (0.035)	0.253** (0.035)	0.267** (0.038)	0.122** (0.023)
Working hours (reference: only during fixed hours)								
On-call basis (0-1)	0.521** (0.061)	0.542** (0.065)	0.513** (0.056)	0.488** (0.045)	0.554** (0.049)	0.549** (0.049)	0.567** (0.052)	0.296** (0.033)
Irregular working hours not a problem (0-1)	0.548** (0.054)	0.573** (0.058)	0.535** (0.050)	0.529** (0.040)	0.573** (0.044)	0.569** (0.043)	0.594** (0.046)	0.311** (0.029)
Term of notice for employer (reference: 2 months)								
No term of notice (0-1)	0.137 (0.087)	0.142 (0.093)	0.130 (0.081)	0.178** (0.062)	0.193** (0.070)	0.185** (0.070)	0.195** (0.074)	0.078 (0.047)
Immediate layoff at end of contract (0-1)	0.173* (0.080)	0.187* (0.086)	0.155* (0.075)	0.130* (0.057)	0.129* (0.064)	0.153* (0.064)	0.144* (0.069)	0.096* (0.043)
Layoff cost (severance payment in monthly wage per year worked, range 0-6 months)	-0.166** (0.058)	-0.168** (0.062)	-0.179** (0.054)	-0.172** (0.041)	-0.175** (0.047)	-0.174** (0.047)	-0.179** (0.050)	-0.101** (0.031)
Wage cost – gross wage (gap in percentage, range 0-50%)	-2.614** (0.429)	-2.672** (0.459)	-2.679** (0.397)	-2.930** (0.311)	-3.013** (0.346)	-2.957** (0.345)	-3.047** (0.367)	-1.488** (0.230)
Intercept	6.629** (0.196)	6.612** (0.210)	-	-	6.651** (0.159)	6.648** (0.162)	6.648** (0.173)	-

\*\* = statistically significant at 99% confidence level

\* = statistically significant at 95% confidence level

#: estimated with GLLAMM procedure in Stata 8 (without adaptive quadrature)

Table A2 Correlation between residuals of profiles 1-10

	$e_1$	$e_2$	$e_3$	$e_4$	$e_5$	$e_6$	$e_7$	$e_8$	$e_9$	$e_{10}$
$e_1$	1.000									
$e_2$	0.478	1.000								
$e_3$	0.384	0.485	1.000							
$e_4$	0.352	0.425	0.446	1.000						
$e_5$	0.356	0.425	0.416	0.461	1.000					
$e_6$	0.342	0.435	0.399	0.440	0.447	1.000				
$e_7$	0.328	0.429	0.408	0.442	0.403	0.487	1.000			
$e_8$	0.332	0.382	0.414	0.422	0.426	0.408	0.463	1.000		
$e_9$	0.281	0.328	0.379	0.407	0.403	0.417	0.439	0.519	1.000	
$e_{10}$	0.289	0.320	0.375	0.376	0.350	0.443	0.406	0.436	0.500	1.000

Table A3 Results (random effect tobit) by sensitivity to business cycle (standard deviation in parentheses)

	Not or hardly sensitive to business cycle	Very or rather sensitive to business cycle
Availability (in months, range 0-5 months)	-0.178* (0.075)	-0.081 (0.085)
Selection (reference: self)		
Recruitment agency (0-1)	-0.462** (0.084)	-0.409** (0.094)
Contracting company (0-1)	-0.648** (0.112)	-0.450** (0.128)
Temporary help agency (0-1)	-0.650** (0.131)	-0.554 ** (0.148)
Long term expectations (reference: employee likely to remain with you on the current level)		
Employee likely to become valuable experienced employee (0-1)	0.255** (0.089)	0.225* (0.101)
Employee likely to leave for another employer soon (0-1)	<b><i>-1.474**</i></b> <b><i>(0.079)</i></b>	<b><i>-1.132**</i></b> <b><i>(0.090)</i></b>
Term of notice for employee (reference: 1 month)		
Employee cannot leave before the end of the contract (0-1)	0.177 (0.107)	0.064 (0.148)
Term of notice two months (0-1)	0.126 (0.090)	0.019 (0.105)
No term of notice (0-1)	-0.251* (0.099)	-0.020 (0.114)
Replacement (reference: no replacement)		
Replacement immediately taken care of (0-1)	0.306** (0.068)	0.298** (0.077)
Working hours (reference: only during fixed hours)		
On-call basis (0-1)	0.610 ** (0.096)	0.584** (0.109)
Irregular working hours not a problem (0-1)	0.589** (0.084)	0.610 ** (0.095)
Term of notice for employer (reference: 2 months)		
No term of notice (0-1)	0.200 (0.136)	0.225 (0.153)
Immediate layoff at end of contract (0-1)	0.120 (0.127)	0.153 (0.142)
Layoff cost (severance payment in monthly wage per year worked, range 0-6 months)	-0.192* (0.091)	-0.197* (0.100)
Wage cost – gross wage (gap in percentage, range 0-50%)	-3.762** (0.671)	-3.278 ** (0.761)
Intercept	6.778 ** (0.317)	6.451 ** (0.357)
	N=313	N=241

\*\* = statistically significant at 99% confidence level    bold italic = difference statistically significant at 99% confidence level, bold at 95%, italic at 90%  
\* = statistically significant at 95% confidence level

Table A4 Results (random effect tobit) by industry (standard deviation in parentheses)

	Business services	Other services	Trade	Manufacturing	Health care and social work	Education
Availability (in months, range 0-5 months)	-0.176 (0.095)	-0.141 (0.115)	0.068 (0.115)	-0.093 (0.147)	-0.133 (0.120)	-0.084 (0.155)
Selection (reference: self)						
Recruitment agency (0-1)	<b>-0.426**</b> (0.106)	<b>-0.252</b> (0.128)	<b>-0.339**</b> (0.127)	<b>-0.160</b> (0.172)	<b>-0.728**</b> (0.131)	<b>-0.666**</b> (0.175)
Contracting company (0-1)	<b>-0.605**</b> (0.144)	<b>-0.427**</b> (0.173)	<b>-0.497**</b> (0.171)	<b>-0.356</b> (0.230)	<b>-0.605**</b> (0.174)	<b>-0.938**</b> (0.221)
Temporary help agency (0-1)	<b>-0.688**</b> (0.164)	<b>-0.531**</b> (0.194)	<b>-0.495**</b> (0.197)	<b>-0.499*</b> (0.266)	<b>-0.798**</b> (0.205)	<b>-0.638**</b> (0.267)
Long term expectations (reference: employee likely to remain with you on the current level)						
Employee likely to become valuable experienced employee (0-1)	0.037 (0.114)	<b>0.255</b> (0.132)	0.059 (0.132)	<i>-0.105</i> (0.191)	<b>-0.132</b> (0.140)	<b>0.353*</b> (0.175)
Employee likely to leave for another employer soon (0-1)	<b>-1.381**</b> (0.099)	<b>-1.233**</b> (0.123)	<b>-1.593**</b> (0.116)	<b>-1.654**</b> (0.162)	<b>-1.554**</b> (0.127)	<b>-1.069**</b> (0.170)
Term of notice for employee (reference: 1 month)						
Employee cannot leave before the end of the contract (0-1)	-0.017 (0.134)	<i>0.225</i> (0.167)	<i>-0.190</i> (0.162)	-0.203 (0.217)	0.078 (0.165)	0.084 (0.222)
Term of notice two months (0-1)	<b>-0.186</b> (0.117)	<b>0.193</b> (0.141)	-0.123 (0.138)	<i>-0.235</i> (0.188)	-0.003 (0.141)	0.096 (0.189)
No term of notice (0-1)	-0.200 (0.129)	<i>0.001</i> (0.155)	-0.064 (0.148)	<i>-0.396*</i> (0.202)	-0.256 (0.158)	<i>-0.466*</i> (0.204)
Replacement (reference: no replacement)						
Replacement immediately taken care of (0-1)	<b>0.102</b> (0.088)	<i>0.342**</i> (0.103)	<b>0.494**</b> (0.101)	0.326* (0.141)	<b>0.043</b> (0.110)	<i>0.391**</i> (0.139)
Working hours (reference: only during fixed hours)						
On-call basis (0-1)	0.467** (0.123)	0.659** (0.145)	0.615** (0.146)	0.507** (0.189)	0.458** (0.149)	0.409* (0.204)
Irregular working hours not a problem (0-1)	<i>0.421**</i> (0.107)	<i>0.705**</i> (0.130)	<i>0.581**</i> (0.128)	<i>0.497**</i> (0.168)	<i>0.622**</i> (0.132)	<i>0.452**</i> (0.174)
Term of notice for employer (reference: 2 months)						
No term of notice (0-1)	0.486** (0.174)	0.055 (0.215)	0.225 (0.197)	0.270 (0.278)	0.175 (0.211)	0.285 (0.275)
Immediate layoff at end of contract (0-1)	0.232 (0.159)	0.160 (0.195)	0.298 (0.183)	0.020 (0.262)	-0.019 (0.201)	0.162 (0.260)
Layoff cost (severance payment in monthly wage per year worked, range 0-6 months)	-0.094 (0.117)	-0.171 (0.138)	0.028 (0.134)	<i>-0.346*</i> (0.186)	-0.182 (0.144)	-0.089 (0.186)
Wage cost – gross wage (gap in percentage, range 0-50%)	<b>-3.455**</b> (0.860)	<b>-3.443**</b> (1.038)	<b>-2.294**</b> (1.020)	<b>-3.903**</b> (1.312)	-1.961 (1.058)	<b>-2.759*</b> (1.348)
Intercept	7.005** (0.396)	6.045** (0.498)	5.982* (0.469)	7.121** (0.619)	7.004** (0.514)	6.086** (0.677)
Number of observations	N=183	N=128	N=132	N=70	N=120	N=71

\*\* = statistically significant at 99% confidence level

bold italic = difference statistically significant at 99% confidence level, bold at 95%, italic at 90%

\* = statistically significant at 95% confidence level

Table A5 Results (random effect tobit) by firm size (standard deviation in parentheses)

	1-10 employees	10-50 employees	50-200 employees	200-500 employees	>500 employees
Availability (in months, range 0-5 months)	-0.093 (0.095)	-0.049 (0.105)	0.050 (0.113)	-0.129 (0.134)	-0.233 (0.172)
Selection (reference: self)					
Recruitment agency (0-1)	<i>-0.510**</i> (0.105)	<i>-0.477**</i> (0.120)	<i>-0.411**</i> (0.126)	<i>-0.176</i> (0.145)	<i>-0.288</i> (0.192)
Contracting company (0-1)	<i>-0.650**</i> (0.144)	<i>-0.641**</i> (0.163)	<i>-0.525**</i> (0.166)	<i>-0.419*</i> (0.193)	<i>-0.667**</i> (0.263)
Temporary help agency (0-1)	<i>-0.612**</i> (0.168)	<i>-0.665**</i> (0.189)	<i>-0.462**</i> (0.198)	<i>-0.492*</i> (0.216)	<i>-0.666**</i> (0.360)
Long term expectations (reference: employee likely to remain with you on the current level)					
Employee likely to become valuable experienced employee (0-1)	0.052 (0.115)	0.144 (0.124)	-0.005 (0.138)	-0.145 (0.156)	0.070 (0.204)
Employee likely to leave for another employer soon (0-1)	<i>-1.331**</i> (0.101)	<i>-1.608**</i> (0.114)	<i>-1.378**</i> (0.121)	<i>-1.387**</i> (0.131)	<i>-1.265**</i> (0.179)
Term of notice for employee (reference: 1 month)					
Employee cannot leave before the end of the contract (0-1)	-0.146 (0.138)	0.125 (0.145)	0.134 (0.163)	0.003 (0.178)	-0.136 (0.248)
Term of notice two months (0-1)	-0.082 (0.118)	-0.028 (0.131)	0.116 (0.139)	-0.139 (0.162)	0.099 (0.207)
No term of notice (0-1)	-0.152 (0.129)	<i>-0.397**</i> (0.142)	<i>-0.048</i> (0.151)	-0.124 (0.169)	0.056 (0.243)
Replacement (reference: no replacement)					
Replacement immediately taken care of (0-1)	0.319** (0.087)	0.339** (0.099)	0.133 (0.104)	0.293** (0.111)	0.160 (0.163)
Working hours (reference: only during fixed hours)					
On-call basis (0-1)	0.417** (0.124)	0.384** (0.138)	0.599** (0.150)	0.575** (0.156)	0.803** (0.220)
Irregular working hours not a problem (0-1)	0.467** (0.111)	0.561** (0.120)	0.594** (0.128)	0.350** (0.143)	0.740** (0.191)
Term of notice for employer (reference: 2 months)					
No term of notice (0-1)	<i>0.084</i> (0.177)	<i>0.588**</i> (0.195)	0.217 (0.206)	0.153 (0.237)	0.095 (0.312)
Immediate layoff at end of contract (0-1)	0.089 (0.162)	0.412* (0.178)	0.261 (0.189)	0.016 (0.230)	0.082 (0.276)
Layoff cost (severance payment in monthly wage per year worked, range 0-6 months)	-0.221* (0.114)	0.022 (0.131)	-0.235* (0.139)	-0.105 (0.164)	-0.230 (0.204)
Wage cost – gross wage (gap in percentage, range 0-50%)	<i>-3.412**</i> (0.852)	<i>-3.361**</i> (0.960)	<i>-3.296**</i> (1.016)	<i>-2.288*</i> (1.149)	<i>-3.331**</i> (1.598)
Intercept	6.058** (0.384)	6.175** (0.452)	6.375** (0.464)	6.189** (0.516)	6.449** (0.705)
Number of observations	N=202	N=168	N=79	N=66	N=121

\*\* = statistically significant at 99% confidence level

bold italic = difference statistically significant at 99% confidence level, bold at 95%, italic at 90%

\* = statistically significant at 95% confidence level

Table A6 Results (random effect tobit) by minimum required education level (standard deviation in parentheses)

	Low	Medium	High
Availability (in months, range 0-5 months)	-0.076 (0.080)	-0.134* (0.068)	-0.126 (0.067)
Selection (reference: self)			
Recruitment agency (0-1)	-0.407** (0.089)	-0.383** (0.076)	-0.441** (0.075)
Contracting company (0-1)	-0.480** (0.122)	-0.447** (0.102)	-0.645** (0.100)
Temporary help agency (0-1)	-0.618** (0.139)	-0.542** (0.119)	-0.596** (0.116)
Long term expectations (reference: employee likely to remain with you on the current level)			
Employee likely to become valuable experienced employee (0-1)	<i>0.152</i> (0.095)	<b>-0.067</b> (0.081)	<b>0.155*</b> (0.078)
Employee likely to leave for another employer soon (0-1)	<b>-1.263**</b> (0.083)	<b>-1.542**</b> (0.072)	-1.450** (0.071)
Term of notice for employee (reference: 1 month)			
Employee cannot leave before the end of the contract (0-1)	-0.044 (0.112)	0.106 (0.097)	-0.037 (0.094)
Term of notice two months (0-1)	-0.066 (0.097)	0.033 (0.084)	-0.032 (0.082)
No term of notice (0-1)	-0.125 (0.106)	-0.137 (0.093)	-0.336** (0.090)
Replacement (reference: no replacement)			
Replacement immediately taken care of (0-1)	<b>0.408**</b> (0.073)	<i>0.232**</i> (0.062)	<b>0.199**</b> (0.062)
Working hours (reference: only during fixed hours)			
On-call basis (0-1)	<b>0.804**</b> (0.102)	<i>0.577**</i> (0.086)	<b>0.379**</b> (0.086)
Irregular working hours not a problem (0-1)	<i>0.701**</i> (0.090)	<i>0.587**</i> (0.077)	<i>0.518**</i> (0.074)
Term of notice for employer (reference: 2 months)			
No term of notice (0-1)	0.055 (0.144)	0.180 (0.124)	0.287* (0.121)
Immediate layoff at end of contract (0-1)	0.153 (0.133)	0.194 (0.114)	0.068 (0.112)
Layoff cost (severance payment in monthly wage per year worked, range 0-6 months)	-0.186* (0.096)	-0.185* (0.083)	-0.177* (0.081)
Wage cost – gross wage (gap in percentage, range 0-50%)	-2.464** (0.715)	-3.332** (0.609)	-3.168** (0.596)
Intercept	6.137** (0.335)	6.708** (0.285)	6.982** (0.283)
Number of observations	N=264	N=354	N=368

\*\* = statistically significant at 99% confidence level

bold italic = difference statistically significant at 99% confidence level, bold at 95%, italic at 90%

\* = statistically significant at 95% confidence level

Table A7 Results (random effect tobit) by required work experience (standard deviation in parentheses)

	No experience required	One to three years experience required	Four or five years experience required
Availability (in months, range 0-5 months)	-0.186* (0.076)	-0.082 (0.060)	-0.137 (0.087)
Selection (reference: self)			
Recruitment agency (0-1)	-0.423** (0.085)	-0.462** (0.068)	-0.334** (0.097)
Contracting company (0-1)	-0.612** (0.114)	-0.518** (0.091)	-0.499** (0.132)
Temporary help agency (0-1)	-0.583** (0.130)	-0.673** (0.106)	-0.449** (0.154)
Long term expectations (reference: employee likely to remain with you on the current level)			
Employee likely to become valuable experienced employee (0-1)	0.220* (0.087)	0.065 (0.072)	-0.076 (0.105)
Employee likely to leave for another employer soon (0-1)	<b>-1.399**</b> (0.081)	<b>-1.389**</b> (0.064)	<b>-1.625**</b> (0.092)
Term of notice for employee (reference: 1 month)			
Employee cannot leave before the end of the contract (0-1)	0.139 (0.108)	0.035 (0.086)	-0.161 (0.121)
Term of notice two months (0-1)	0.074 (0.093)	0.017 (0.074)	-0.157 (0.106)
No term of notice (0-1)	-0.178 (0.102)	-0.163* (0.082)	-0.345** (0.147)
Replacement (reference: no replacement)			
Replacement immediately taken care of (0-1)	0.371** (0.070)	0.255** (0.055)	0.262** (0.079)
Working hours (reference: only during fixed hours)			
On-call basis (0-1)	<b>0.728**</b> (0.097)	0.557** (0.078)	<b>0.433**</b> (0.111)
Irregular working hours not a problem (0-1)	<b>0.733**</b> (0.086)	0.594** (0.068)	<b>0.452**</b> (0.096)
Term of notice for employer (reference: 2 months)			
No term of notice (0-1)	0.279 (0.136)	0.217* (0.111)	0.080 (0.157)
Immediate layoff at end of contract (0-1)	0.212 (0.126)	0.174 (0.102)	-0.027 (0.146)
Layoff cost (severance payment in monthly wage per year worked, range 0-6 months)	-0.132 (0.091)	-0.178* (0.074)	-0.251* (0.106)
Wage cost – gross wage (gap in percentage, range 0-50%)	-2.933** (0.675)	-3.220** (0.543)	-3.127** (0.781)
Intercept	6.193** (0.319)	6.714** (0.257)	7.189** (0.386)
Number of observations	N=291	N=444	N=291

\*\* = statistically significant at 99% confidence level

bold italic = difference statistically significant at 99% confidence level, bold at 95%, italic at 90%

\* = statistically significant at 95% confidence level



Table A8 Results (random effect tobit) by occupation (standard deviation in parentheses)

	Administrative/ Secretarial	Technicians/ Production personnel	Shop assistant/ Sales personnel	Management function	IT personnel	Medical personnel
Availability (in months, range 0-5 months)	-0.135 (0.097)	-0.154 (0.116)	0.111 (0.126)	-0.027 (0.143)	-0.148 (0.143)	-0.089 (0.152)
Selection (reference: self)						
Recruitment agency (0-1)	<b>-0.383**</b> (0.109)	<b>-0.419**</b> (0.133)	<b>-0.370*</b> (0.136)	<b>-0.076</b> (0.161)	<b>-0.405**</b> (0.158)	<b>-0.883**</b> (0.167)
Contracting company (0-1)	<b>-0.618**</b> (0.145)	<b>-0.663**</b> (0.181)	<b>-0.443*</b> (0.185)	<b>-0.290</b> (0.216)	<b>-0.426*</b> (0.218)	<b>-0.531*</b> (0.220)
Temporary help agency (0-1)	<b>-0.667**</b> (0.166)	<b>-0.652**</b> (0.214)	<b>-0.460*</b> (0.217)	<b>-0.180</b> (0.240)	<b>-0.649**</b> (0.244)	<b>-0.855**</b> (0.264)
Long term expectations (reference: employee likely to remain with you on the current level)						
Employee likely to become valuable experienced employee (0-1)	0.062 (0.115)	<i>0.266</i> (0.145)	<i>-0.100</i> (0.148)	-0.024 (0.170)	<i>0.327</i> (0.171)	<i>-0.134</i> (0.172)
Employee likely to leave for another employer soon (0-1)	<b>-1.496**</b> (0.101)	<b>-1.476**</b> (0.128)	<b>-1.463**</b> (0.128)	<b>-1.581**</b> (0.153)	<b>-1.323**</b> (0.148)	<b>-1.324**</b> (0.168)
Term of notice for employee (reference: 1 month)						
Employee cannot leave before the end of the contract (0-1)	-0.095 (0.136)	-0.068 (0.168)	-0.048 (0.180)	-0.088 (0.195)	0.165 (0.199)	0.133 (0.206)
Term of notice two months (0-1)	-0.008 (0.118)	0.115 (0.148)	-0.242 (0.153)	0.059 (0.172)	0.069 (0.174)	0.043 (0.185)
No term of notice (0-1)	-0.197 (0.132)	-0.127 (0.162)	-0.140 (0.167)	-0.052 (0.196)	-0.319 (0.186)	-0.386 (0.196)
Replacement (reference: no replacement)						
Replacement immediately taken care of (0-1)	0.317** (0.088)	<b><i>0.539**</i></b> (0.111)	<b><i>0.210</i></b> (0.112)	<b><i>0.086</i></b> (0.126)	<b><i>0.059</i></b> (0.140)	0.284* (0.141)
Working hours (reference: only during fixed hours)						
On-call basis (0-1)	0.507** (0.123)	0.703** (0.152)	0.519** (0.160)	0.525** (0.177)	0.315 (0.181)	0.448* (0.189)
Irregular working hours not a problem (0-1)	0.541** (0.109)	0.679** (0.136)	0.497** (0.142)	0.575** (0.154)	0.402* (0.159)	0.607** (0.171)
Term of notice for employer (reference: 2 months)						
No term of notice (0-1)	0.010 (0.179)	-0.052 (0.219)	0.243 (0.224)	0.055 (0.256)	0.252 (0.263)	0.032 (0.270)
Immediate layoff at end of contract (0-1)	0.016 (0.161)	<b>-0.287</b> (0.207)	<b><i>0.405*</i></b> (0.203)	0.033 (0.236)	<i>0.197</i> (0.236)	-0.094 (0.256)
Layoff cost (severance payment in monthly wage per year worked, range 0-6 months)	-0.319** (0.119)	<b>-0.457**</b> (0.147)	<b>-0.039</b> (0.149)	-0.351* (0.173)	-0.113 (0.172)	-0.097 (0.181)
Wage cost – gross wage (gap in percentage, range 0-50%)	<b>-4.016**</b> (0.866)	<b>-4.771**</b> (1.058)	<b>-1.469</b> (1.117)	<b>-2.616*</b> (1.270)	<b>-3.501**</b> (1.294)	<b>-1.941</b> (1.313)
Intercept	7.358** (0.411)	7.234** (0.501)	5.967** (0.509)	6.714** (0.606)	6.763** (0.592)	6.700** (0.652)
Number of observations	N=169	N=109	N=104	N=81	N=80	N=71

\*\* = statistically significant at 99% confidence level

bold italic = difference statistically significant at 99% confidence level, bold at 95%, italic at 90%

\* = statistically significant at 95% confidence level

## Appendix 2 Response overview

In order to make respondents familiar with the response scale and to stabilize answers, I started each conjoint set with two warm-up profiles. One of these profiles was the combination of attribute levels I considered to be the worst and the other the best. Like all other profiles these ‘best’ and ‘worst’ profile related to an applicant who meets the minimum requirements of the vacancy. These are stated – together with the accessory monthly wage – on top of the profiles.

Education = high school Work experience = 1 year Gross monthly wage = 1500 Euro Hours per week = 40	Education = high school Work experience = 1 year Gross monthly wage = 1500 Euro Hours per week = 40
Available in 2 months	Directly available
Selection by temporary help agency	You select the worker yourself
High probability that employee leaves for another employer soon	High probability that workers becomes valuable senior employee in your organization
Employee has no term of notice	Employee may not leave before end of contract
You take care of replacement in case of sickness yourself	Replacement in case of illness or quit taken care of
Employee available during standard working hours only	Employee works the hours per week that you need
You have a term of notice of 2 months, severance payment 2 gross monthly wages per year of service	You can fire the employee directly at no cost
Wage cost = 2250 Euro per month	Wage cost = 1500 Euro per month

Respondents were asked to rate the attractiveness of these profiles on a scale from 1 to 10. These profiles were not used in my analysis, they were just meant to give respondents a feeling of what is good and what is bad. Figure A1 and A2 show that respondents indeed gave low ratings to the ‘worst’ profile and high ratings to the ‘best’ profile.

Figure A1 Ratings of the 'worst' profile

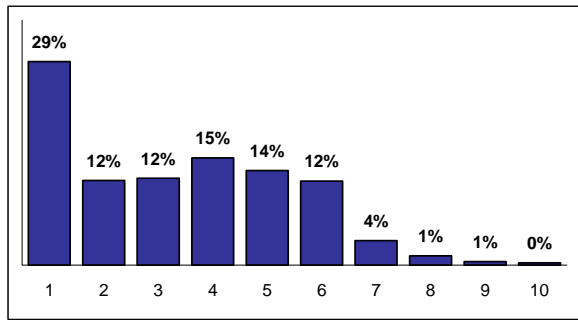
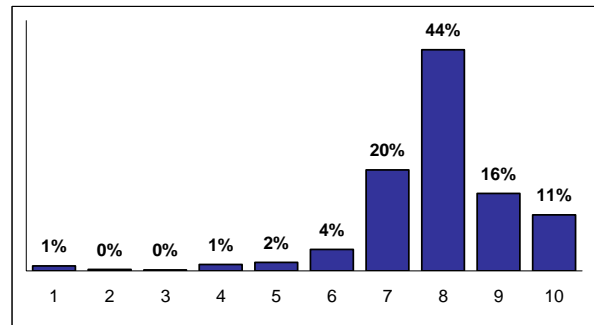
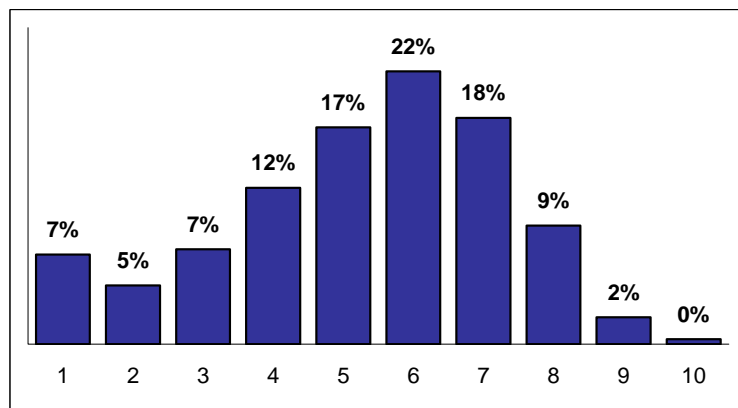


Figure A2 Ratings of the 'best' profile



Subsequently each respondent was given a random selection of ten profiles of the hundred orthogonally designed profiles that I made in total. Respondents were again asked to rate the attractiveness of these profiles on a scale from 1 to 10. These are the profiles that I used in my analysis. OLS assumes normality. Eyeballing Figure A3 this seems to be a reasonable assumption in my case. The only deviation from the regular clock-shaped normal distribution is the high occurrence of rating 1. As a result the measures for skewness and kurtosis depart somewhat from those of the normal distribution (skewness 0, kurtosis 3). This is a signal that respondents feel the lower bound of 1 to be not low enough, which is a reason to prefer tobit estimation.

Figure A3



mean = 5.294  
 st.dev. = 2.003  
 skewness = -0.454  
 kurtosis = 2.629