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Amilon, Anna; Wallette, Mårten

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ABSENCE OF ABSENTEEISM AND OVERTIME WORK – SIGNALLING FACTORS FOR TEMPORARY WORKERS?

Anna Meyer[†‡]
Mårten Wallette[ª*]

Abstract

According to theories of screening and signaling, a temporary worker who shows effort should increase the probability of obtaining a permanent contract. We use two types of signals of effort: overtime and low levels of absenteeism to investigate i) whether temporary workers show more effort and ii) whether effort has a positive effect on the exit probability into permanent employment. We find that temporary workers have lower levels of absenteeism than permanent ones, but also lower levels of overtime work. Effort has little effect on the exit probability into permanent employment. However, using a competing risks model we find that working overtime decreases the probability of becoming unemployed.

1   INTRODUCTION

A majority of temporary jobholders in Sweden prefers a permanent job to their present temporary one (see e.g. Aronsson & Göransson, 1997, and SOU, 1999). One interpretation of these findings is that temporary jobs are involuntary. If this is the case, one would expect temporary jobholders to have incentives to try to increase their probability of exiting to permanent jobs. One way for temporary workers to do this might be to signal productivity, loyalty, interest and motivation to the employer by increasing their level of effort.

The aim of this study is to examine the relation between signals of worker effort (as defined in this paper) and temporary jobs in the Swedish labour market. Two questions are in focus. First, do temporary jobholders differ from permanent ones as regards the level of worker effort? Second, does worker effort increase the probability for temporary jobholders to exit to permanent jobs? We are not interested in the exit probabilities *per se*, but in the effects that worker effort might have on the transition from temporary jobs to permanent jobs. We use two definitions of worker effort: low levels of absenteeism and overtime work.[1] The types of absenteeism we consider are sick leave, vacation and temporary parental leave.[2] We include vacation as a measure of absenteeism since we believe that it is possible that temporary workers might take vacation instead of sick leave or temporary parental leave in order to avoid sending negative signals to the employer. The types of temporary jobs that we focus on are replacement, probation, project, and on-call temporary jobs. Empirical evidence suggests that temporary jobs should be analysed separately rather than being aggregated into one group, the reason being that the

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[1] The measures of overtime that we include in our analysis are paid and unpaid overtime, and working hours in excess of the usual number of working hours for part-time workers (*mertid*).
[2] A worker who needs to be absent from work to care of a sick child takes *temporary parental leave*. The individual is compensated financially by the Swedish public insurance system during the absence.

heterogeneity among temporary jobs (and temporary jobholders) can be rather substantial with respect to, for example, job satisfaction, requested degree of human capital, the probability of exiting to permanent jobs, and the probability to receive on-the-job training.[3] Throughout our analysis we also look especially at differences between males and females, and between Swedish-born and foreign-born workers.[4]

The paper is structured as follows. In *section 2* we discuss the theoretical framework with respect to worker absenteeism and overtime work. *Section 3* gives a review of previous empirical work in this area. *Section 4* presents our data set, and descriptive statistics are provided in *section 5*. S*ection 6* presents our empirical results and s*ection 7* summarizes our findings and gives some concluding remarks.

2 THEORETICAL DISCUSSION

Our aim in this section is to discuss different theoretical models that can explain why temporary workers would benefit from signalling effort, and why high levels of effort might increase the probability of obtaining a permanent job. In *section 2.1* we define our effort-measures, and in *sections 2.2-2.4* we discuss theoretical aspects of why worker effort can be expected to affect the exit probability from temporary jobs to permanent ones.

2.1 Absenteeism and overtime work as measures of worker effort

Clearly, both of our measures of worker effort, absenteeism and overtime work, might in some cases be bad predictors of worker productivity and motivation. For example, overtime work might be a demand-related factor. Likewise, there might be situations in which a worker cannot choose between work and absenteeism (for example in the case

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[3] See, for example, Wallette (2004), Engellandt & Riphahn (2003), Håkansson (2001), Dolado, Garcia-Serrano & Jimeno (2002), and Booth, Francesconi & Frank (2002).

of a serious illness). Moreover, the extent to which a worker can use these behavioural indicators differs between different types of employment contracts. However, it is not unlikely that temporary jobholders have more to gain from minimising absenteeism and maximising the amount of overtime than permanent jobholders. It is also likely that different forms of absenteeism differ in "strength". For example, sick leave is a particularly negative form of absenteeism from the employer's point of view, as the employer bears the burden of the pecuniary costs during the first 21 days (in Sweden). In addition, the employer might be forced to engage a replacement worker, which increases the costs. Both sick leave and temporary parental leave also have the disadvantage of being (usually) unexpected, and as such they are difficult to be prepared for by the employer. By avoiding such types of absenteeism, a temporary worker might be able to signal, for example, productivity and motivation, to the employer and therefore a temporary jobholder might try to choose other forms of absence (for example vacation) in case of own illness, or illness of a dependent child.[5] However, all types of absenteeism might not be available to all types of temporary jobholders. One such form of absence is vacation, which instead might be replaced by a pecuniary compensation if the worker is hired on a temporary basis.[6] However, temporary workers who are hired on a long-term basis have usually the right to a certain number of vacation days.

2.2   Temporary jobs and worker effort from the employers' perspective

An employer may have different reasons to offer temporary jobs.[7] One such reason is that temporary jobs can be used to screen the worker before offering him/her a

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[4] The only information we have about the foreign-born group is country of origin. We have no information about, for example, language skills or amount of time spent in Sweden.

[5] Another reason for using vacation instead of sick leave or temporary parental leave is that the replacement rate of these insurances is only 80 per cent, with a ceiling of approximately 24,000 Swedish crowns per month. If the individual has a right to vacation, the compensation rate is 100 per cent of the ordinary salary. However, the number of such vacations days is regulated by law and in collective agreements.

[6] This compensation pay (*semesterersättning*) amounts to approximately 12 per cent of gross wages.

permanent job. Another reason might be to enhance workplace flexibility. Screening might be important since the labour market is characterised by imperfect information with respect to, for example, the productivity of a potential employee. Screening is thus assumed to make this information available to the employer.[8] If an employer uses temporary jobs with the purpose of screening workers for permanent jobs, temporary jobholders who show high levels of effort (i.e. those who have low levels of absenteeism and/or who work overtime) can be expected to have higher probabilities, other things being equal, of being offered permanent jobs than other temporary workers.

Workers, who hold temporary jobs that are created only to enhance flexibility in the firm, are likely to have a lower probability of being offered permanent jobs than temporary jobholders who hold "screening-jobs". However, it is not unlikely that an employer combines a flexibility-job with screening in order to gain knowledge about workers.

2.3   Temporary jobs and worker effort from the employees' perspective

As presented in, for example, SOU (1999), a majority of temporary jobholders prefers permanent jobs. However, there are factors that might increase the probability that a worker accepts a temporary job.[9] One such factor is that temporary jobs might be stepping-stones into permanent employment. If we assume that a temporary jobholder is opting for a permanent job, he/she will try to signal, for example, productivity, motivation, and ability to the employer.[10] Spence (1973, p. 357) defines signals as "…observable characteristics attached to the individual that are subject to manipulation by him". However, signals involve costs. In our case, a worker who is present at work despite the fact that he/she is ill risks worsening his/her health. By working overtime,

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[7] See for example the discussion in Wallette (2004).
[8] See for example Wolpin (1977), Stiglitz (1975) and Arrow (1973) for the theory of screening.
[9] See the discussion in Wallette (2004).

the individual reduces his/her consumption of leisure; alternatively lower his/her production of household goods. In optimum, the worker tries to maximise the difference between offered (future) wages and the costs of signalling.

In addition, there is an income-related aspect of absence and overtime work that is potentially more important for temporary jobholders than for permanent ones, due to higher insecurity regarding future income and, in some cases, lower wages for temporary workers.[11]

2.4   Further aspects of temporary jobs and the effects of worker effort

The analysis in the previous sections can be extended to also include several complicating factors. One such factor is labour market discrimination that is solely related to individual and/or group characteristics and/or their attributes (see Becker, 1957). In our case the outcome of such discrimination might be that some types of temporary workers might have to show higher levels of effort before they are "qualified" to receive permanent jobs, compared to non-discriminated temporary jobholders.

Related to our previous discussion of imperfect information is also the notion of so-called statistical discrimination.[12] Such discrimination typically concerns the assumed productivity of a certain group of workers. An employer might base his/her beliefs of the productivity of a particular worker on the mean productivity of the group that this worker belongs to.[13] Groups of temporary workers that might be affected by statistical discrimination are, for example, foreign-born workers and women. In the case of foreign-born workers, the employer might assume that all foreign-born workers have

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[10] See Spence (1973) for a discussion of the theory of signalling.
[11] Indications of this are found in, for example, Booth *et al.* (2002), and in Eriksson & Jensen (2003).
[12] See Phelps (1972), and Lundberg & Starz (1983).

lower degrees of Sweden-specific human capital compared to native workers and therefore prefer to hire native workers on a permanent basis. For women, an employer might base his beliefs of an individual woman's productivity on the fact that most women are absent from work due to childbirth and therefore rather employ a man than a woman permanently, *ceteris paribus*.

To summarize the discussion in this section, temporary jobholders, on average, prefer permanent jobs to temporary ones. Therefore, we expect temporary workers to try to increase the probability of obtaining such jobs. By applying theories of signalling we hypothesise that low levels of absenteeism and/or overtime should be higher for temporary than for permanent jobholders. Theories of screening lead us to hypothesize that low levels of absenteeism and high levels of overtime work increase the probability of a temporary worker obtaining a permanent job. Our discussion of discrimination and statistical discrimination indicates that the gender and origin of a temporary worker might influence his/her probability of obtaining a permanent job.

3   PREVIOUS EMPIRICAL STUDIES

The issue of differences in worker effort between permanent and temporary jobholders is a relatively unexplored empirical question. Engellandt & Riphahn (2003) analyse work absence and overtime work as measures of worker effort for temporary jobholders in Switzerland. Their results show that the level of absenteeism does not vary between temporary and permanent workers. There is, however, a significant difference with respect to overtime work. The study does not report any differences between the genders. Booth *et al.* (2002) use the number of weekly hours of unpaid overtime usually worked as a proxy for worker effort in the UK. The results show that overtime work

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[13] See for example the discussion in Wallette (2004).

increases the exit probability to permanent jobs for female temporary workers, while there is no effect for male temporary workers. Ichino & Riphahn (2001) find that the number of absence days increases for white-collar bank employees in Italy when the probation period is completed (and employment protection is strengthened). This result thus lends support for absence of absenteeism as a signalling device for temporary workers. However, results in Barmby & Treble (1989) and Brown (1999) show that temporary workers are more often absent from work than permanent ones.

Wallette (2004) analyses exits from temporary jobs to permanent jobs in Sweden.[14] Overtime work is included as a variable, but the study does not explicitly analyse this overtime in the sense of worker effort. The effect of overtime work is only statistically significant with respect to on-call temporary jobs.

Our study contributes to the literature in several important ways. Firstly, the effect of worker effort on the probability of obtaining a permanent job in the Swedish context has never been analysed before. Secondly, by applying a competing risk model, we further investigate the reasons for signalling behaviour of temporary workers, which is a previously unexplored issue (see section 6.3). Lastly, we investigate differences between foreign-born and Swedish workers in order to detect signs of discrimination or of a dual labour market.

4   THE DATA

Our data comes from the *Swedish Labour Force Surveys* (LFS), undertaken by *Statistics Sweden*. We use quarterly data for the period 1991 to 1999. The LFS is an interview based rotating panel survey conducted monthly. Our measures of overtime and absenteeism are

based on a question in the LFS which indicates whether the individual worked, on an aggregated level, less or more than usual during a certain week. Although the individual can give two reasons for why he/she worked less/more than usual, our measures of overtime and absenteeism are based on the *main* reason for doing so. A particular individual is interviewed once every quarter, and can be part of the survey for a maximum consecutive period of two years.[15] We focus on workers who hold a salaried employment, and therefore we exclude all observations that are not characterised as such (this also applies to self-employment). With these restriction applied our initial sample contains roughly 360,000 observations. As the maximum observation period is two years, our study should be considered to be a short-term analysis.

5   DESCRIPTIVE STATISTICS

In this section we give a descriptive picture of worker absenteeism and overtime in the Swedish labour market during 1991-1999, based on our data set.[16] Information regarding immigrant status was not included in the data prior to 1991. *Table 1* presents the incidence of overtime work, by gender and origin, and by employment type.

Table 1 here

There are large differences between different employment contracts regarding overtime work. Men who hold permanent jobs have a higher incidence of overtime work than temporary male workers, regardless of origin. For females the pattern is slightly different. The incidence of overtime work is higher for Swedish-born females who hold probation and project jobs than for those who hold permanent contracts. For foreign-born females,

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[14] Håkansson (2001) also examines whether temporary jobs are stepping-stones to open-ended jobs in the Swedish labour market.

[15] See Statistics Sweden (1993) for a thorough description of the Swedish LFS.

[16] A thorough description regarding different aspects of temporary jobs in Sweden is provided in Wallette (2004).

the differences between employment contracts are very small. Regardless of gender and origin, on-call workers have the lowest incidence of overtime work. In general, the incidence of overtime is higher for males than for females, and higher for Swedish-born than for foreign-born workers.

In *table 2* we present the incidence of absenteeism during our sample period. Regardless of gender and regardless of origin, workers who hold permanent contracts have a higher incidence of absenteeism than temporary jobholders. Females, regardless of origin, are more frequently absent than male workers, and the incidence of absenteeism seems to be slightly lower for foreign-born than for Swedish-born workers.

Table 2 here

6   EMPIRICAL STRATEGIES

The binary response model

Our first question is related to overtime work. The individual answers yes or no to the question whether he/she has worked any overtime or not, i.e. a discrete binary response. The model we use in this case is a probit model. As we have a panel data set it might be the case that panel effects are important to control for. For this purpose we use a binary panel model, and in our case we use a random effects probit model.[17] The model is defined as: $y_{it} = \beta' X_{it} + \varepsilon_{it}$, where *(i = 1, …, N), (t = 1, ..., T),* where *x* contains individual and job characteristics and β is a vector of coefficients.

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[17] See for example Baltagi (1995), and Maddala (1987).

The multinomial logit model

Our second question is related to differences between temporary jobholders and permanent jobholders with respect to work absence. We use different measures of absenteeism, and one possible model to use for such discrete multiple responses is a multinomial logit model (MNL).[18] The outcome variable is in this case coded 1, …, J, where each *j* corresponds to a specific choice (at work, sick-leave, temporary parental leave, and vacation). For the model to be identified, one of the outcomes must act as a base category, and in our case we let the outcome "at work" act as the base, i.e $\beta_1 = 0$. The probability for an outcome *j* is then expressed as:

$$Pr(Y_i = j) = \frac{exp(\beta_j' X_i)}{1 + \sum_{k=2}^{J} exp(\beta_k' X_i)} \qquad (j = 2, ..., J,),$$

where *X* and *β* have the usual interpretations. A strong assumption in the MNL model is the property of *independence of irrelevant alternatives* (IIA).[19] This assumption requires that if a new alternative should be available (in our case a new type of reason for being absent) to the individual, all probabilities prior to the availability of this new alternative must adjust to maintain the original odds for all pairs of the initial outcomes. We test for the assumption of IIA by applying a Hausman test suggested by Hausman & McFadden (1984).

As our data set is a panel data set it might be the case that we have unobserved heterogeneity between individuals. That is, individuals might differ in characteristics that we are not able to observe in our data, for example ability and motivation. To control for the robustness of our estimates we will also estimated a set of panel models and compare the results of these estimations with the ones obtained from the MNL model.

The time-discrete duration model

The final question concerns the effect that worker effort might have on the probability of exiting from temporary jobs to permanent jobs. Observations for the individuals in our data set range from one to a maximum of eight, and they are all measured at a

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[18] See for example Greene (2000), Long (1997), and Maddala (1983).

particular point in time. For the purpose of analysing this question we use a time-discrete logit duration model identical to the model outlined in Wallette (2004). We observe n independent individuals, and a dependent variable indicating whether an individual has exited ($y_i=1$) to a permanent job or not ($y_i=0$).[20] The hazard rate is defined as: $P_{it} = Pr[T_i = t \mid T_i \geq t, X_{it}] = P(T_i = t)/P(T_i \geq t)$, where T_i is the discrete random variable giving the time of occurrence of an event. P_{it} gives the probability that an event occurs at time t, given that it has not occurred before, and X_{it} is a vector of individual-specific variables. To control for unobserved heterogeneity we include a random variable ε, with zero mean and finite variance.[21] The random effects logit model is thus expressed as: $log[P_{it}/(1 - P_{it})] = \alpha_t + \beta' X_{it} + \varepsilon_{it}$.[22] For the baseline hazard function, α, we use a non-parametric baseline.

6.1 Empirical Results

In this section we present the results from our different empirical estimations. We only report the results obtained for the variables that are of specific interest in this study, i.e. temporary jobs and our measures of worker effort.[23] Definitions and summary statistics for all the included variables are listed in *appendix A*.

6.2   Empirical results of the probability of working overtime from holding a temporary job

In *appendix B* (column I) the results regarding the effects of holding temporary jobs on the probability of working overtime are reported.[24] As can be seen from the table, workers who hold any type of temporary job, but for probation jobs, have a significantly *lower* probability of working overtime than permanent workers, other things equal. The largest negative effect is reported for project jobs and on-call jobs. As discussed earlier,

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[19] See for instance Hausman & McFadden (1984), and Long (1997).
[20] See Wallette (2004) for an extensive description of how the data is arranged in order to be estimated in a time-discrete duration framework.
[21] Se Jenkins (2002).
[22] See for example Baltagi (1995), and Greene (2000).
[23] A list with the complete results is available from the authors upon request.
[24] The category "other temporary jobs" is included in the analysis, but we do not discuss the results due to that this group is highly heterogeneous.

overtime work, possibly to a large extent, is demand driven, and the results we obtain might thus indicate that the employer chooses to assign the overtime work needed to permanent workers. However, it might also be the case that temporary jobholders are, on average, less motivated and/or less able than permanent ones. As regards the insignificant effect for probationary workers, this may indicate that the employer sees such workers as a permanent part of the firm's labour force and that any signalling therefore is unnecessary.

How about the effects of gender and origin on the probability of working overtime? In *appendix B* we have interacted all types of jobs with the gender and the origin variables. Holding a temporary job and being female implies, in all cases but for probation jobs, a lower probability of working overtime compared to male temporary workers. One possible explanation to this finding is that Swedish females, on average, undertake more unpaid household than Swedish males, and thus might choose not to work overtime.[25] Finally, regarding the differences between Swedish-born and foreign-born workers the results are in general negative, but the only significant effect is found for probationary jobs. This difference is, however, rather difficult to explain. One possible explanation is differences in motivation and/or ability between Swedish-born and foreign-born probation workers, and another is the presence of labour market discrimination (i.e. that the foreign-born workers are being neglected when it comes to overtime work).

6.3   Empirical results of the probability of being absent from holding a temporary job

Our second question is related to differences between temporary and permanent jobholders with respect to absenteeism. The results are presented in *appendix B* (columns

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[25] The amount of unpaid household work undertaken by Swedish women is twice as high than by Swedish men, see Statistics Sweden http://www.scb.se/templates/tableOrChart___27501.asp (link existed on 031127)

II-IV).[26] The reference category is being at work, against which different types of absenteeism are measured.[27] To illuminate the results in a more pedagogic way we also use a so-called odds-ratio plot, see *figure 1*. The odds-ratio plot presents the estimated coefficients in exponential form, i.e. $\exp^{\beta}$, and the results are relative to the base category 1 (at work). A line connecting to outcomes indicates that they are not significantly different from each other at a ten percent significance level. The outcomes appear at different vertical levels in order to make these lines more visible, i.e. the vertical spacing between outcomes has no substantive meaning. The odds-ratio plot shows that regardless of type of temporary job, the probability of being absent from work is significantly lower than for permanent workers. For replacement jobs there is no statistically significant difference between the absence types. Workers who hold probation jobs are statistically significantly less likely to be absent due to vacation than due to sick leave. The smallest differences are found between project workers and permanent ones. On-call workers are least likely to be absent from work.

Figure 1 here

We have also interacted the effects of holding temporary jobs with the effects of being female and being a foreign-born worker. The results show that being female implies a higher probability of being absent, compared to male workers. The effect is substantial in several cases. Regarding the effect of being born outside Sweden, we only find a few statistically significant results. However, these results are in all cases negative, which might indicate that foreign-born temporary workers are, at least to some extent, aware of

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[26] To control for the robustness of our estimates we estimate a set of binary panel models and compare the results of these estimations with the ones obtained from the MNLM. The results did not differ significantly.

the positive signal they may send to the employer by being at work instead of being absent.

6.3   Empirical results on the probability of exiting to a permanent job and worker effort

Finally, we turn to the effects of worker effort on the probability of obtaining a permanent job. For the purpose of analysing this question we use a time-discrete duration model identical to the model outlined in Wallette (2004). We limit our discussion to the results for the variables indicating worker effort.[28]

The results presented in Appendix C1 show that our measures of worker effort, absence and overtime work, have a very limited effect on the probability of obtaining permanent employment. Only on-call workers can increase their probability of obtaining a permanent job by working overtime. As regards absence, only replacement temporary workers reduce their probability of exiting by taking temporary parental leave. Otherwise, absenteeism and overtime do not have any statistically significant effect on the exit probabilities into permanent employment. The negative effect for replacement workers of temporary parental leave might be explained by the fact that most replacement workers are female and most female workers have children. The result indicates that individuals who do not take temporary parental leave are viewed as more productive and / or more loyal to the employer, which increases the probability of obtaining a permanent contract. One interpretation of this result is that the amount of temporary parental leave taken by the temporary worker works as a screening device for the employer.

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[27] We have tested the model for the assumption of IIA, and we have tested if outcomes can be combined. The results from the tests show in favour of the multinomial model, and are available from the authors upon request.

Our analysis so far shows that temporary workers work less overtime, but have lower levels of absenteeism than permanent workers. However, these factors had nearly no effect on the probability of obtaining permanent employment. The demand driven side of overtime is a possible explanation to the lower levels for temporary workers. But why are temporary workers absent to a lower extent than permanent ones, i.e. why do they signal high productivity and pay the thereby associated costs, if this has no effect on the chance of obtaining a permanent job? We can think of at least four possible answers to this question:

1. Temporary workers do not know that signalling productivity through low levels of absenteeism do not increase the probability of obtaining a permanent contract.

2. Temporary workers want to reduce the risk of unemployment by signalling productivity through low levels of absenteeism.

3. Temporary workers are not absent from work since they do not want to lose income

4. The positive effect of low levels of absenteeism does not "kick in" until after a longer time period than what we can monitor.

Of course, these explanations are not mutually exclusive. We can only test explanation 2. To do this, we run a competing risks hazard model in which the probability of exiting from a temporary job into unemployment is estimated. The results (presented in *appendix C2*) show that females (both Swedish and foreign-born) have a lower probability of getting unemployed than Swedish men. Foreign-born men do not differ from Swedish men, apart from those on replacement jobs, who have a lower risk of unemployment. Working overtime has a significant and negative effect on the probability of being

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[28] A complete list of results is available from the authors upon request.

unemployed, regardless of type of temporary contract. For our measures of absenteeism, only vacation has a significant, negative effect, i.e. individuals who take vacation have a lower probability of exiting to unemployment. This result is probably explained by the fact that temporary workers who have the right to take vacation (instead of getting a pecuniary compensation) probably are hired on a long-term basis and therefore have a lower probability of becoming unemployed.

7   CONCLUSION

Are overtime work and low levels of absenteeism signalling factors for temporary workers? We find some support for this indeed being the case. For example, temporary workers have lower levels of absenteeism than permanent ones, which could indicate that temporary workers try to signal high productivity through this measure. However, absenteeism had, in general, no effect on the probability of exiting to either a permanent job or to unemployment. Consequently, we find some support for low levels of absenteeism as signalling factors for temporary workers, although our results are not unambiguous. Temporary workers do not work more overtime than permanent ones, which might be explained by the demand driven side of overtime. However, working overtime had a negative effect on the probability of becoming unemployed, and a positive effect on the probability of getting a permanent job for on-call workers. As regards the effect of overtime work, we find some evidence for that the employer uses it as a means to screen workers, although we find no evidence of overtime as a signalling device. Another important result of our study is that foreign-born workers have lower probabilities of obtaining permanent employment that native Swedes and that this is especially true for foreign-born women. In addition, (foreign-born) women have a lower probability of becoming unemployed than Swedish men. One possible interpretation of

these results is that a dual labour market, in which foreign-born women have to content

themselves with temporary jobs, is emerging.

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Variable	Definition	Mean
Temporary	= 1 if temporary job.	0.128
Type of employment contract		
Open-ended	= 1 if open-ended job.	0.872
Replacement	= 1 if replacement job.	0.047
Probation	= 1 if probation job.	0.009
Project	= 1 if project job.	0.02
On-call	= 1 if on-call job.	0.018
Others	= 1 if other temporary job.	0.033
Absence	= 1 if work absence.	0.439
Type of work absence		
Sick leave	= 1 if sick leave.	0.081
Vacation	= 1 if vacation.	0.231
TPL	= 1 if temporary parental leave.	0.015
Overtime	= 1 if overtime work.	0.098
Swefem	= 1 Swedish-born female.	0.469
Swemale	= 1 Swedish-born male.	0.444
Forfem	= 1 Foreign-born female.	0.047
Formale	= 1 Foreign-born male.	0.04
Age1	= 1 if Age 16-24.	0.122
Age2	= 1 if Age 25-34.	0.243
Age3	= 1 if Age 35-44.	0.247
Age4	= 1 if Age 45-54.	0.254
Age5	= 1 if Age 55-64.	0.133
Single	= 1 if single.	0.285
No_children	= 1 if no dependent children.	0.524
Education1	= 1 if comprehensive school.	0.239
Education2	= 1 if upper secondary school.	0.486
Education3	= 1 if university or higher.	0.275
Socio_ec1	= 1 if unskilled blue-collar worker.	0.303
Socio_ec2	= 1 if skilled blue-collar worker.	0.182
Socio_ec3	= 1 if low-skilled white-collar worker.	0.176
Socio_ec4	= 1 if medium skilled white-collar worker.	0.217
Socio_ec5	= 1 if high skilled white-collar worker.	0.123
Lm_sector1	= 1 if government sector.	0.081
Lm_sector3	= 1 if municipality sector.	0.232
Lm_sector3	= 1 if county council sector.	0.084
Lm_sector4	= 1 if private sector.	0.603
No_union	= 1 if not a union member.	0.176
Hour1	= 1 if short part-time (1-19h/week).	0.045
Hour2	= 1 if long part-time (20-34h/week).	0.215
Hour3	= 1 if full-time (>34h/week).	0.739
Industry1	= 1 if primary sectors.	0.012
Industry2	= 1 if manufacturing, mining, and engineering.	0.216
Industry3	= 1 if construction sector.	0.054
Industry4	= 1 if communications & trade sector.	0.18
Industry5	= 1 if financial services.	0.098
Industry6	= 1 if education & research sector.	0.088
Industry7	= 1 if health & care sector.	0.224

Industry8	= 1 if personal & cultural services.	0.067
Industry9	= 1 if public administration sector.	0.06
Year1991-year1999	= Year-dummies, 1991-1999.	
UE-region	= Rel. (%) UE rates for 21 Swedish counties. 1991-1999.	6.627

Effects of overtime work and work absence from holding a temporary job.

	RE logit	Multinomial logit		
	Overtime work	*Sick leave*	*Vacation*	*TPL*
Replacement job	-0.152	-0.687	-0.698	-0.360
	(0.074)**	(0.114)***	(0.055)***	(0.245)
Probation job	-0.052	-0.329	-0.665	-0.810
	(0.092)	(0.148)**	(0.085)***	(0.399)**
Project job	-0.220	-0.703	-0.643	-0.292
	(0.074)***	(0.119)***	(0.054)***	(0.247)
On-call job	-0.407	-1.044	-1.357	-1.437
	(0.108)***	(0.192)***	(0.114)***	(0.728)**
Others	-0.397	-0.623	-0.809	-0.792
	(0.066)***	(0.093)***	(0.051)***	(0.348)**
Female*open-ended	-0.483	0.539	0.122	0.749
	(0.023)***	(0.021)***	(0.012)***	(0.052)***
Female*replacement	-0.182	0.530	0.230	0.549
	(0.085)**	(0.121)***	(0.061)***	(0.261)**
Female*probation	-0.228	0.680	0.215	1.312
	(0.145)	(0.202)***	(0.125)*	(0.500)***
Female*project	-0.348	0.924	0.271	0.787
	(0.114)***	(0.153)***	(0.077)***	(0.302)***
Female*on-call	-0.270	0.494	0.144	1.112
	(0.135)**	(0.212)**	(0.131)	(0.760)
Female*others	-0.414	0.316	-0.065	0.946
	(0.097)***	(0.122)***	(0.071)	(0.394)**
Foreign*open-ended	-0.279	0.225	-0.119	-0.374
	(0.037)***	(0.027)***	(0.018)***	(0.083)***
Foreign*replacement	-0.065	0.109	-0.199	-0.983
	(0.128)	(0.133)	(0.085)**	(0.372)***
Foreign*probation	-0.412	-0.620	-0.596	-0.517
	(0.228)*	(0.329)*	(0.205)***	(0.653)
Foreign*project	-0.206	0.196	-0.166	-0.698
	(0.177)	(0.209)	(0.115)	(0.486)
Foreign*on-call	0.009	0.412	-0.050	-0.997
	(0.225)	(0.256)	(0.203)	(1.041)
Foreign*others	-0.752	-0.326	-0.198	0.054
	(0.214)***	(0.232)	(0.129)	(0.460)
Observations	361353	284379	284379	284379
Number of id	67619			

Standard errors in parentheses (robust standard errors in the multinomial model).
* significant at 10%; ** significant at 5%; *** significant at 1%

Note: The regression models also include several other variables such as age, working time, education, year dummies, industry dummies, unemployment regions, socio-economic status, labour market sector, etc.

Appendix C1   **Effects of overtime work and work absence on the probability of exiting to permanent jobs.**

Variables	Exit from replacement jobs	Exit from probation jobs	Exit from on-call jobs	Exit from project jobs	Exit from temporary jobs
swefem	-0.723	-0.156	-0.235	-0.953	-0.576
	(0.230)***	(0.266)	(0.234)	(0.349)***	(0.098)***
forfem	-1.447	-1.636	-0.220	-1.988	-1.238
	(0.408)***	(0.727)**	(0.445)	(0.710)***	(0.200)***
formal	-0.485	-1.367	-0.136	-1.476	-0.870
	(0.451)	(0.573)**	(0.526)	(0.618)**	(0.196)***
overtime	0.213	0.213	0.762	0.201	0.288
	(0.195)	(0.277)	(0.286)***	(0.281)	(0.100)***
sickleave	0.425	-0.397	-1.077	0.385	0.188
	(0.296)	(0.535)	(0.735)	(0.477)	(0.171)
vacation	0.212	-0.110	0.073	-0.351	0.051
	(0.150)	(0.274)	(0.309)	(0.253)	(0.089)
TPL	-1.128	0.500	0.242	0.277	-0.138
	(0.597)*	(0.969)	(1.374)	(0.720)	(0.334)
other	-0.116	0.250	0.058	-0.000	-0.052
	(0.144)	(0.234)	(0.209)	(0.230)	(0.076)
Observations	*13707*	*3719*	*5498*	*6523*	*35551*
Number of id	*5125*	*1750*	*2591*	*2611*	*14504*
Estimated rho	*0.73*	*0.71*	*0.52*	*0.80*	*0.61*
LR test of rho=0	*85.03*	*16.79*	*15.73*	*45.34*	*187.16*
Log-Likelihood	*-2823.44*	*-1256.71*	*-868.91*	*-1396.15*	*-7886.40*

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Note: The regression models also include several other variables such as age, working time, education, year dummies, industry dummies, unemployment regions, socio-economic status, labour market sector, etc.

Variables	Exit from replacement	Exit from probation	Exit from on-call	Exit from project	Exit from temporary jobs
swefem	-1.175	-1.694	-0.663	-0.566	-0.858
	(0.198)***	(0.568)***	(0.151)***	(0.235)**	(0.103)***
forfem	-1.136	-1.737	-0.859	-0.172	-0.670
	(0.291)***	(0.894)*	(0.291)***	(0.406)	(0.159)***
formale	-1.098	-0.384	-0.061	0.073	-0.208
	(0.391)***	(0.678)	(0.308)	(0.332)	(0.156)
overtime	-0.885	-1.525	-0.423	-0.489	-0.598
	(0.253)***	(0.662)**	(0.255)*	(0.264)*	(0.127)***
Sickleave	-0.128	-1.652	0.046	-0.670	-0.318
	(0.309)	(1.239)	(0.377)	(0.447)	(0.184)*
Vacation	-1.010	-2.183	-1.731	-1.194	-1.210
	(0.205)***	(0.815)***	(0.417)***	(0.280)***	(0.129)***
TPL	-0.037	-0.833	1.098	-0.977	-0.238
	(0.526)	(1.984)	(0.729)	(1.020)	(0.356)
Other	-0.330	-1.058	-0.567	-0.532	-0.474
	(0.140)**	(0.511)**	(0.160)***	(0.207)***	(0.082)***
Observations	*14930*	*3283*	*6123*	*6804*	*37716*
Number of id	*5342*	*1774*	*2682*	*2638*	*14901*
Estimated rho	*0.59*	*0.83*	*0.07*	*0.54*	*0.52*
LR test of rho=0	*43.38*	*18.48*	*5.35*	*19.68*	*96.45*
Log-Likelihood	*-2469.56*	*-522.03*	*-1049.68*	*-1345.05*	*-7012.27*

Appendix C2 — *Effects of overtime and work absence on the probability of exiting to unemployment.*

Standard errors in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Note: The regression models also include several other variables such as age, working time, education, year dummies, industry dummies, unemployment regions, socio-economic status, labour market sector, etc.

Table 1 *Relative (%) and absolute overtime work, by employment contracts, and by gender and origin. Pooled 1991-1999.*

Type of employment	Swedish-born females		Foreign-born females		Swedish-born males		Foreign-born males	
	%		%		%		%	
Open-ended	7.5	11,064	6.1	858	13.4	19,442	10.0	1,248
Replacement	6.6	757	6.4	88	9.3	358	8.8	49
Probation	10.6	122	6.5	14	12.3	210	8.9	25
Project	8.1	218	6.1	27	10.1	370	9.2	46
On-call	4.7	188	5.0	23	7.0	147	5.1	12
Others	5.0	271	3.2	18	7.7	438	3.2	17
Total	*7.3*	*12,620*	*6.0*	*1,028*	*12.9*	*20,965*	*9.6*	*1,397*

Note: The category "other temporary jobs" includes categories such as "seasonal work", "work during holidays", and different labour market programmes that are coded as temporary jobs by Statistics Sweden (mostly programmes for youths). Overtime work includes both unpaid and paid overtime and so-called supplementary added time (mertid) i.e. overtime for part-time workers.
*Source:* Calculations from the Swedish LFS.

Table 2 *Relative (%) and absolute worker absenteeism, by employment contracts, and by gender and origin. Pooled 1991-1999.*

Type of employment	Swedish-born females		Foreign-born females		Swedish-born males		Foreign-born males	
	%		%		%		%	
Open-ended	47,2	65,993	46,1	6,213	41,6	60,302	40,0	4,958
Replacement	37,2	4,244	35,0	477	30,7	1,175	30,4	169
Probation	36,5	418	29,6	64	30,2	514	28,8	81
Project	35,9	937	31,1	137	31,8	1,160	29,5	147
On-call	28,4	1,124	30,6	141	24,5	511	19,2	45
Others	28,1	1,508	26,3	147	25,3	1,436	23,9	126
Total	*45,1*	*74,224*	*43,5*	*7,179*	*40,2*	*65,098*	*38,1*	*5,526*

Note: See note to *table 1*. The rate of absenteeism is calculated for each group separately as share of total employment.
Source: Calculations from the Swedish LFS.

Figure 1   Odds-ratio plot for the effect on worker absenteeism of holding temporary jobs.

Factor Change Scale Relative to Category 1
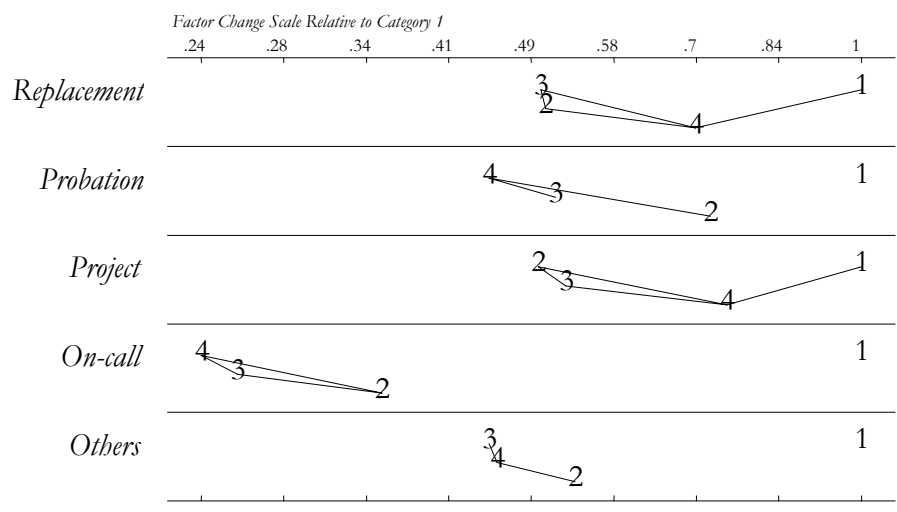
Note: The different outcomes are; 1=at work, 2=sick leave, 3=vacation, 4=temporary parental leave.