February 2011

The price for flexibility – the temp worker wage gap in Sweden

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Abstract

Temporary employment agency work has rapidly expanded during the last decades in Sweden as in many other countries. The sector was deregulated in the early 1990s with few remaining restrictions. It was part of the trend towards a less regulated labour market in order to promote flexibility. Agency work in Sweden, however, is not only regulated by law but also by collective agreements covering a large part of those employed in the sector. The unions have accepted temporary agency work but are worried that there is a price for the flexibility introduced by temporary agency work that is paid by those employed in the sector in form of low wages and unfavourable prospects afterwards. In this paper we study the wages when employed in the sector and wages after being employed in the sector. Regarding the wages when employed in the sector we find some negative effects. For men, the wage differential declines when controlling for observable characteristics and even more when we include controls for individual fixed effects. For women the wage differential is more or less the same irrespective of controls. For men there are negative wage effects in later employment for having been employed by a temporary employment agency. But the effects are rather small when introducing controls. For women a (very small) negative wage effect is only found in the year after being employed by a temporary employment agency.

JEL Classification: J31, J42, J62

Keywords: temporary agency employment, wages

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1. Introduction

Until the 1990s temporary help agencies, together with private employment agencies, were forbidden in many countries or regulated in such a way that their activities remained limited. This market was deregulated, however, in a number of countries in the 1990s. This was the case also in Sweden.[1] The temporary help service industry therefore has a rather short history in most countries, but has grown rapidly in Sweden as in many other countries. In 1998, the sector had only about 11,000 employees in Sweden, but this number increased to about 51,000 in 2008 corresponding to 1.2 percent of all employed.[2]

Sweden went from prohibition to a state with very few restrictions besides those valid also for employers in other sectors. The main exception is that it is illegal to charge a fee to those who are looking for a job or are hired out. It is only allowed to charge fees to employers who hire a worker or rent a temp. In some other countries there are other restrictions, for example regarding in which occupations or industries it is possible to hire workers from a temp agency or regarding the length of the hiring period.

The temporary employment agencies in Sweden are also regulated by collective agreements. The collective agreements regulate wages and other working conditions for the temps, and there are also agreements with trade unions in industries hiring temps regarding to what extent the employers are allowed to hire temporary workers. These latter agreements, which are not between the unions in which the temps are members and the employer association of the temp industry, but with the unions of those employed at the workplaces that hire temps, was one of the main issues in the collective agreements of 2010.

During the last few years, wages and other working conditions of temp workers have become a widely debated question in Sweden, but little is in fact known about wages of temp

[1] For the early history of temporary agencies in Sweden, see Wadensjö (1990), Friberg, Olli and Wadensjö (1999) and Johnson (2010).
[2] Own calculations based on the Employment Register at Statistics Sweden for 1998 and 2008.

workers and about the effect of temp work on future earnings. In this paper we take a first look at these questions.

There are reasons to expect both higher and lower wages among temp workers.[3] The theory of compensating wage differentials (Rosen 1986) suggests that workers with less appealing jobs should be compensated for this in terms of higher wages. There is some empirical evidence of that temp work is associated with lower tenure (Antoni and Jahn 2009) and a higher incidence of work related injuries (Fabiano et al. 2008). One argument for why wages should be *lower* in the temp sector is that employment in this sector is seen as an investment in human capital and as such, the worker accepts a lower wage in expectation that the investment will pay off in terms of a higher wage in the future. Another argument is that the temp agency offers free general training instead of paying higher wages (Autor 2001).

Wages and other conditions of the temp workers have been the topic of studies in different countries and most of them find that temp workers receive lower wages than workers with other employment arrangements. One early study that analyzes the temp wage gap is Segal and Sullivan (1998) who use administrative data for one state in the US. They find that temp wages are about 10 percent lower than wages for non-temp jobs. An early study for Germany finds that also German temp workers have lower wages than workers in other sectors of the economy (Kvasnicka and Werwatz 2002). More recent studies for Germany analyze the temp wage gap after the regulations of the temp sector were considerably relaxed (Jahn 2010 and 2010a). She finds that the wages are much lower for those employed by temporary help agencies than for other employees but that the main part of the difference disappears when controls are included for different characteristics such as education and when a specification with individual fixed effects is estimated. The remaining wage difference, however, is not negligible; 15 percent lower wages. When the future careers of the temporary

[3] See Jahn (2010) for a thorough discussion of the arguments.

help agency workers are studied the result is that there are no long-lasting negative effects of having been employed by a temporary help agency – the wage reduction is only in the period as a temp.

Forde and Slater (2005) analyze the temp wage gap in Britain and find that male agency workers have about 11 percent lower wages and female agency workers have about 6 percent lower wages. Böheim and Cardoso (2009) study the wages of temp workers in Portugal in 1995-2000. They find that on average the wages are considerably lower for temp workers than for those employed in other industries; they receive about 23 percent lower wages. Controlling for different characteristics such as education, the difference is reduced to 9 percent. When studying those who change industry through the inclusion of individual fixed effects, the wage difference is reduced to 3 percent. A study of separate age groups shows that young people get a higher wage when working in the temporary agency industry and older workers a lower wage, in both cases compared to work in other industries.

In this paper we use register data for the period 1998-2008 to analyze the temp wage gap in Sweden. The Swedish labour market differs in many respects from that in the US and other European countries which makes a study for Sweden an important contribution to the existing literature. The fact that the working conditions for temp workers have become a widely debated question in Sweden also calls for an analysis of the temp wage gap.

We find that temp workers suffer from a wage penalty of about 6 percent for men and 4 percent for women, even after controlling for individual fixed effects and other important time-varying factors.

The outline of the rest of the paper is as follows: in section two the data and some sample statistics are presented, in section three we analyze how average wages in the temp sector have evolved over time and compare them to wages in the rest of the private sector, in section four we analyze the factors that contribute to explaining the temp wage gap and in section five

we study the effects of having had temp work on future wages. Section six summarizes and concludes the paper.

2. Data and descriptive statistics

Our analysis of the wages in the temporary agency sector is based on individual data from Statistics Sweden's annual register over the Swedish population during the period 1998-2008.[4] The register covers everyone who had been employed in this period. An individual is employed in a year according to Statistics Sweden's definition[5] if the individual was employed in November of that year. The fact that November has been selected means that many seasonal employed are not included as the summer is the time when seasonal employment is most common in Sweden.

The outcome variable in our regressions is full time equivalent monthly earnings. Wage information exists for all workers in the public sector by September 1 each year. In the private sector information on wages is collected by Statistics Sweden for a sample of firms and organizations only.[6] They use stratified sampling in order to collect this information and it is estimated that about 50 per cent of the employees in the private sector are included in the sample.[7]

We present results from both unweighted and weighted regressions. However, we estimate only unweighted versions of the fixed effect model due to computational difficulties. The results from these estimations are compared to the results from an unweighted pooled OLS regression.

[4] For a detailed presentation of the statistics regarding temporary employment agencies see Andersson and Wadensjö (2004).
[5] See SCB, Registerbaserad arbetsmarknadsstatistik (RAMS), http://www.scb.se/Pages/List____259025.aspx
[6] For more detailed information of these statistics, see "Lönestrukturstatistiken", www.scb.se.
[7] The weights that are used by Statistics Sweden are defined as the number of firms in the strata divided by the number of responding firms in the same strata. In this way, the weight adjusts both for the sampling and the response rate.

In addition to monthly wage, we have information on work place, employer and industry out of which one is the temporary work industry. We also have information on large set of individual characteristics including; age, gender, municipality of residence, family status, number of children, country of origin, education and occupation.

The administrative personnel at the temporary employment agency are also included among those who are employed by a temporary employment agency. We cannot separate them from the temp workers, but they constitute only a small part of those employed by the temporary employment agencies.

In Table 1 we present sample means for temp workers and employees in the private sector 1998 and 2008. Temp workers are 8 years younger on average than workers in other parts of the private sector. If the sample is divided into five age groups it becomes evident that there is a large overrepresentation of workers between 16 and 24 years in the temp industry. The age group 25-34 is also overrepresented but not as much as the youngest group. The share of women in the temp sector was almost 70 percent in 1998 but had declined to below 50 percent in 2008. The women share is still substantially higher, however, than in the rest of the private sector. Immigrants, especially those from non-Western countries, are also overrepresented in the temp industry. The educational level among workers in the temp sector is slightly higher than in the rest of the private sector. In 1998, there was a wage difference of 3,600 SEK and in 2008 this difference had increased to about 7,200 SEK.[8]

[TABLE 1 ABOUT HERE]

3. The temps' wages

We first look at the wages of temporary agency workers compared to those employed in other industries in the private sector without controlling for any characteristics of the workers.

[8] The wages in SEK can be divided by 10 to get the approximate wage in Euros.

The average full-time monthly earnings[9] are lower for the temporary agency workers than for those working in other parts of the private sector. The difference in monthly earnings was around 3,600 SEK in 1998 and 7,200 SEK in 2008. This means that the monthly wage was 19.6 percent higher in 1998 and 34.9 percent higher in 2008 for those in other parts of the private sector.

Figure 1 and 2 show how the monthly earnings have developed in the temporary agency industry compared to those employed in other parts of the private sector.[10] It is important to remember that we do not control here for any differences between the groups. Those employed in the temporary employment industry, for example, are younger than those in other parts of the private sector, which could be part of the explanation for the differences that are found.

The differences in average monthly earnings are large,[11] larger for men than for women. When we study the development over time we find an interesting pattern. Up to 2001 wages increased faster in the temporary help agency industry than in the rest of the private sector. For women the average wage was more or less the same in the two sectors in 2001. After 2001 the average wage declined in the temporary help agency industry, a development not found in the rest of the private sector. A part of the explanation is probably the economic down-turn in the early 2000s for parts of the temporary help agency industry, parts with relatively high wages.

Another explanation for the different time trends in the development of wages in the temp industry and the rest of the private sector is that the composition of the workforce has changed in the temp industry making average wages decline. Estimating wage regressions for each year separately and controlling for age, education, marital status, number of children, place of residence and occupation we still find that the wage differential between the temp

[9] Statistics Sweden recalculates the wage information received from the employers to full-time monthly earnings.
[10] Wages are adjusted using the consumer price index and are expressed in 2008 SEK.
[11] See SCB, Lönestrukturstatistik, privat sektor (SLP), http://www.scb.se/Pages/Product____7528.aspx

industry and other industries in the private sector has increased over time. See table A1 for estimation for men and women, respectively.

[FIGURE 1 & 2 ABOUT HERE]

In figure 1 we see that the average wage for employees in temporary help agencies increased considerably between 2000 and 2001 but declined after that. We do not find the same development for the rest of the private sector. A possible explanation is a change in the composition of the workforce of the temporary employment agencies. We know for example that the number of medical doctors increased much in the sector in the late 1990s and early 2000s but that several county councils, which are in charge of the hospitals, introduced a stop for hiring medical doctors from temporary help agencies in the years that followed. Table A2 shows the development for medical doctors over time.[12] Up to 2000 there were only a few medical doctors employed by temporary help agencies and if they are excluded from the calculation of average wages, the development seen in figure 1 changes – see figure 3. The increase between 2000 and 2001 is smaller and the decline between 2003 and 2004 is also less pronounced.

[FIGURE 3 ABOUT HERE]

Another way to try to explain the large variation in the period 2000-2002 in relative wage development is to estimate wage equations for only those employed by temporary help agencies and study if the difference between the years changes if we introduce different controls. See table 2. The wages were 6 percent higher on average in 2001 than in 2000 and 3 percent lower in 2002 than in 2001. If these differences are explained by compositional changes we could expect the effects to decline when we control for the different individual characteristics. See column 2 and 3. The controls contribute to explain a large part of the wage increase between 2000 and 2001, but not to the wage decline between 2001 and 2002.

[12] The medical doctors have been identified by Statistics Sweden by using a combination of educational level and type of education.

[TABLE 2 ABOUT HERE]

As a last step in our attempt to explain the large variation in monthly earnings in the period 2000-2002 in the temp industry we estimate a model corresponding to that in column 3 in table 2 but exclude medical doctors in column 1-2 and IT-specialists in column 3-4.[13] See table 3. The reason for excluding IT-specialists is the crisis in the IT-sector in 2001. When the medical doctors are excluded we get the same result as seen in figure 3; the wage differences between the three years decline but are still significant. The exclusion of the IT-specialists does not change the results.

4. Which factors contribute to explain the wage differences?

In the previous section, we found that the wages are lower in the temporary help agencies than in the rest of the private sector and that the gap is larger among men than among women. In this section we will study these wage differences in more detail.

There may be several explanations for the wage differences found. Those working as temps are younger on average and we know that wages increase with experience and thereby with age. With regression analysis it is possible to study the wage differences controlling for characteristics such as age and education. We have estimated regressions using observations from the period 2001-2008. The reason for starting with 2001 is that information on occupation only exists in the registers from 2001 on and that this variable may be important in explaining the wage differentials.

We present the results for both unweighted and weighted regressions. In general, estimates of the wage differential are larger in the weighted regressions. This could possibly be explained by that small firms, which are given a larger weight in the weighted regression,

[13] The IT-specialist group includes individuals with the following educations: vocational computer education at the secondary school level, vocational education including at least 20 weeks of study within computer science at a university or a university college, programming and related education on university level, and engineer or civil engineer exam in IT-related fields.

pay lower wages and that the share of workers in small firms differs between the temp sector and other parts of the private sector.

The fixed effects regressions are all estimated without weights due to computational difficulties. Since we want to compare the estimates in the OLS regressions to the ones in the fixed effects regression, we refer primarily to the results of the unweighted regressions presented in table 4.

In the first regression, we only include year dummies and find that men employed by a temporary help agency have 30 percent lower wages on average than men in other parts of the private sector. Among women the difference is much smaller, only 10 percent. When controlling for age, education and several other variables, the difference declines to around 16 percent for men and to 9.5 percent for women. For men the variables included explain a rather large part of the wage difference but the difference is still much larger for men than for women. In a third step occupation is included. It contributes to explain much of the wage variation (the R^2-value increases), but the effects on the wage differential are small. For men the unexplained wage differential does almost not change at all, but for women it increases to 11 percent.

We have also estimated fixed-effect regressions. It means that the effect is identified by those who have change between being employed by a temporary help agency and being employed in another part of the private sector during our observation period. In the fixed effects regression we are able to control for time-invariant individual-specific variables which we do not have information on but which may be important determinants of wages.

Results from the fixed-effect regressions also show that individuals have lower wages when they work in a temporary help agency compared to when they work in another part of the private sector. The gap is about 11 percent for men and about 8 percent for women. The

result that the temp wage gap is larger for men than for women is in line with the findings in Forde and Slater (2005).

[TABLE 4 & 5 ABOUT HERE]

In the fixed-effect models the wage effect is identified by both those who leave temporary employment agencies for another sector and those who leave another sector for a job in a temporary help agency. In an attempt to study in more detail what happens to wages when changing industry, we have studied how the wages change for those who moved in one of the two directions or remained in one of the industries between 2007 and 2008.[14] So far we have only included the private sector, but we will now also include those who move back and forth between the public sector and temporary employment agencies. Most of those who leave a temporary employment agency for work in another sector, however, go to other parts of the private sector; 91 percent of men and 77 percent of women.

Table 6 and 7 present the average wages in 2007 and 2008 for men and women for different groups. Those who leave temporary help agencies get the highest wage increase. Note that those who belong to this group had the lowest wages of all groups in 2007, the year they worked in a temporary help agency, and in 2008 they still had lower wages than most other groups. The pattern is the same for men and women. One factor behind this form of mobility may be that employees leave temporary employment agencies due to the low wages.

[TABLE 6 & 7 ABOUT HERE]

When controlling for characteristics like age and education we still find that the wage increase is largest for those who go from employment in temporary help agencies to employment in another sector. See table A3 and A4 for the results for men and women, respectively.

[14] The group remaining in temporary help agencies has been divided in two groups: Those who change employer and those who stay with the same employer. Only very few, 69 men and 50 women, change employer but stay in the temporary employment agency industry. We have therefore not made a separate analysis for this group.

5. Temporary employment agency work and effect on future wages

A related question is if work in a temporary help agency has a negative effect on future wages not only in the short run but also in the long run. In a study regarding Denmark, Jahn and Rosholm (2010) find that unemployed who work in a temp agency during an unemployment spell get a higher post-unemployment wage than comparable workers who did not work in a temp agency during their unemployment spell.

To study the effect of working as a temp on future wages we estimate the relation between working in a temporary employment agency in different years prior to 2008 and the wage in 2008. Here we have included employment both in the private sector (including temporary agency work) and the public sector. In the regression analysis we include a dummy variable that indicates if the individual is still employed in a temporary employment agency in 2008.

The regression analysis shows that men employed in temporary help agencies in 1998 had about 2.4 percent lower wages in 2008 on average than workers with the same characteristics who did not work as a temp in 1998. See table 8. If we do not control for other characteristics the difference is almost 9 percent. We have repeated the analysis separately for different age groups. See table 9. The result is that we only find a negative effect on wages for those aged 25-34 years and a small and barely significant negative effect for the youngest age group, but not for those who were older. Böheim and Cardoso (2009) do not find any stigma effect of temp work on subsequent earnings for young workers. The insignificant estimate for the older age group may be due to that only few workers aged 35 years and older worked in a temporary help agency in 2001, making the estimate imprecise.

We have also estimated models in which the time between the year with temporary agency work and 2008 varies. When we do not control for any characteristics (column 1), the wage difference is rather large. The estimates are smaller the more time that has passed since

the year in which they worked in a temp agency. When controlling for characteristics (column 2 and 3), the wage difference is much smaller and less dependent on how long it was since the individual worked in the industry.

[TABLE 8 & 9 ABOUT HERE]

When doing the corresponding analysis for women we find another pattern.[15] See Table 10. The first specification with no controls (column 1) shows that women who had worked in a temporary help agency in the period 1998-2003 had slightly higher wages on average in 2008 than women who had not done so. This wage advantage increases when we introduce different characteristics (column 2) and disappears in some years when we introduce occupation. For those who worked in a temporary employment agency in 2004 or later we find a wage disadvantage, but if we control for characteristics other than occupation (column 2) it turns to an advantage which disappear, when we add controls for occupation (column 3).

[TABLE 10 ABOUT HERE]

6. Conclusion

Since the temporary employment agencies were legalized in Sweden in the early 1990s there has been a worry that the conditions for those being employed in the sector are worse than for those employed in other sectors of the economy. In this paper we study the wages of those employed in the temporary employment agencies. The average wage in the sector is lower than for those employed in other parts of the private sector; 30 percent for men and 10 percent for women relying on unweighted OLS regressions. There are large variations over time, which are partly explained by changes in the composition of the groups employed by the agencies. The wage differential is reduced for men to 16 percent and is almost unaffected for women when controls are introduced for a number of characteristics in the wage equation. In

[15] The explanation for that the regressions for women have more observations than those for men is that we have wage information for everyone in the public sector and women are overrepresented in this sector.

the fixed effect regression, we find a wage differential of 11 percent for men and 8 percent for women. Men who leave temporary agency work for work in another the sector gains in terms of higher wages, but the wage is still lower than for other employed outside the sector with the same observable characteristics. The difference is largest the first year after leaving temporary agency work. For women only a very small negative effect is found in the year after having worked at a temporary employment agency. In some cases we even find a positive effect of temp work on future wages for women.

To conclude, there is a price to pay for the flexibility of working in a temporary employment agency in the form of lower wages – but the price is lower than what we find in some other countries. In this paper we have not dealt with a related issue; that work as a temp for some may be a stepping stone from unemployment to employment.

Tables and Figures

Table 1 Sample means for temp workers and employees in the private sector, 2001 and 2008.

	2001		2008	
	Temp workers	**Private sector**	**Temp workers**	**Private sector**
Age (years)	33.1	41.2	33.3	41.9
Age				
16-24	25.6	8.2	26.1	9.0
25-34	36.8	24.4	35.8	21.2
35-44	20.0	26.5	20.6	27.7
45-54	12.3	24.3	11.2	23.2
55 years and older	5.3	16.5	6.2	18.9
Female	62.8	36.9	47.5	38.4
Country of birth				
Sweden, parents Sweden	76.2	81.7	71.5	80.0
Sweden, parents Western immigrants	6.5	4.9	5.7	5.2
Sweden, parents non-Western immigrants	2.9	2.3	3.5	2.2
Western immigrants	3.9	4.9	3.2	4.2
Non-Western immigrants	10.5	6.2	16.1	8.4
Education				
Primary school	9.0	18.5	8.4	13.5
Upper secondary school	59.8	54.6	53.4	52.6
Higher education	30.7	26.6	37.4	33.6
Family				
Married	25.8	45.1	25.9	43.4
Children under the age of 7	17.4	17.7	18.8	19.2
Monthly wage, SEK	22,073	24,614	20,749	27,984
Number of observations	10,964	1,063,077	21,113	1,098,994

Figure 1 Development of monthly earnings in temporary help agencies and other parts of the private sector, MEN, 1998-2008

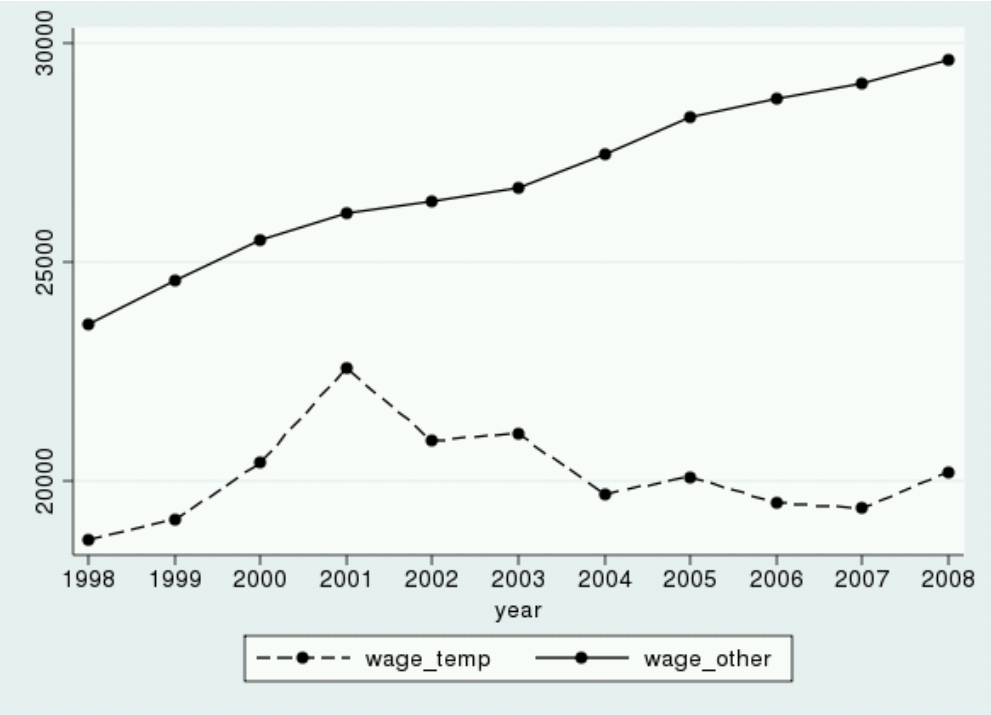

Figure 2 Development of monthly earnings in temporary help agencies and other parts of the private sector, WOMEN, 1998-2008

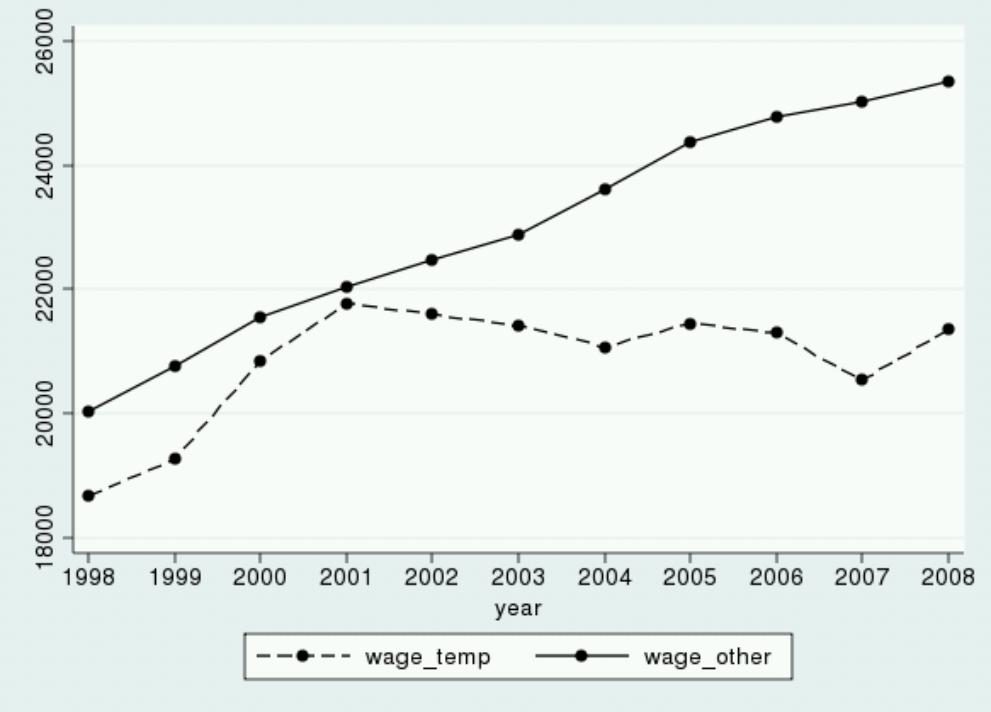

Figure 3 Development of monthly earnings in temporary help agencies and other parts of the private sector, MEN, 1998-2008. Medical doctors excluded

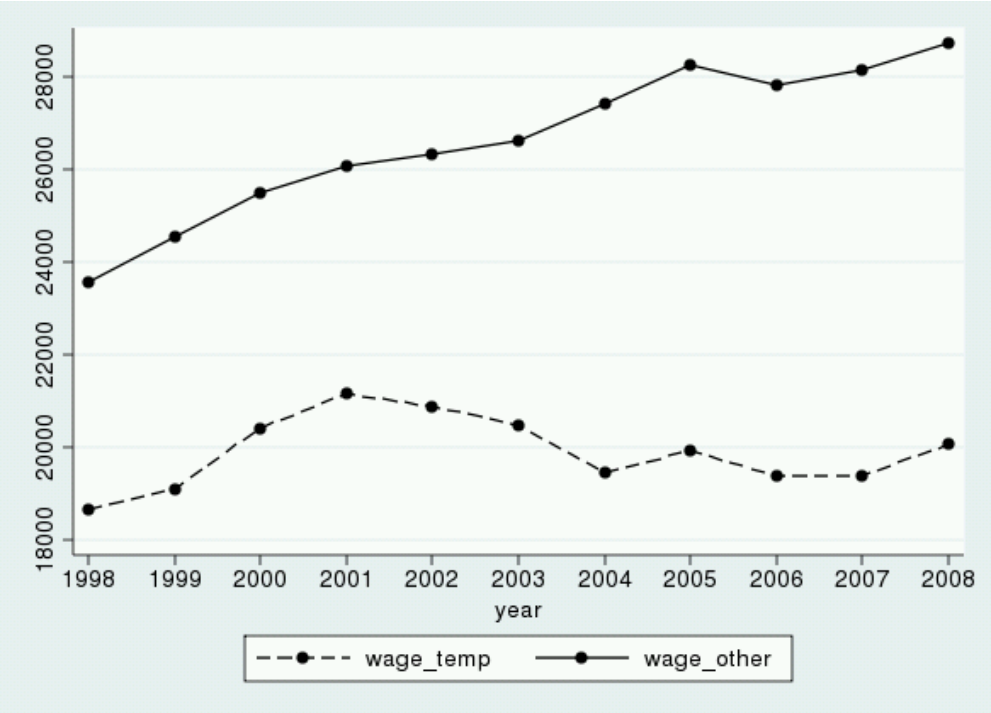

Table 2 Wage differences in 2000, 2001 and 2002 for MEN employed in temporary help agencies.

Variables	Unweighted regression			Weighted regression		
Year	I	II	III	I	II	III
2000	-0.066**	-0.033**	-0.025**	-0.180**	-0.119**	-0.078**
	(0.007)	(0.006)	(0.005)	(0.025)	(0.013)	(0.010)
2001			Reference			
2002	-0.032**	-0.056**	-0.048**	-0.118**	-0.123**	-0.107**
	(0.007)	(0.006)	(0.005)	(0.026)	(0.013)	(0.012)
Age, education					Yes	Yes
country of origin, married, small children, municipality					Yes	Yes
Type of education						Yes
Number of observations	12,573	12,573	12,573	11,397	11,397	11,397
R^2	0.008	0.402	0.500	0.045	0.508	0.620

Robust standard errors within parentheses. ** p<0.01, * p<0.05

Table 3 Wage differences in 2000, 2001 and 2002 for MEN employed in temporary help agencies.

Variables	Medical doctors excluded		IT-specialists excluded	
	Unweighted regression	Weighted regression	Unweighted regression	Weighted regression
Year				
2000	-0.013*	-0.035**	-0.026**	-0.078**
	(0.005)	(0.009)	(0.006)	(0.011)
2001		reference		
2002	-0.026**	-0.030**	-0.050**	-0.115**
	(0.005)	(0.010)	(0.006)	(0.013)
Age, education	Yes	Yes	Yes	Yes
Country of origin, family status, small children	Yes	Yes	Yes	Yes
Municipality	Yes	Yes	Yes	Yes
Type of education	Yes	Yes	Yes	Yes
Number of observations	12,376	11,220	11,425	10,354
R^2	0.449	0.457	0.510	0.629

Standard errors within parentheses. ** p<0.01, * p<0.05

Table 4 (Log)Wages in private sector 2001-2008. Men and women. **Unweighted** OLS regression and FE regression

	Model I OLS	Model II OLS	Model III OLS	Model I FE	Model II FE	Model III FE
MEN						
Temporary help agencies	-0.307**	-0.161**	-0.158**	-0.110**	-0.108**	-0.111**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Year (2002-2008)	Yes	Yes	Yes	Yes	Yes	Yes
Age, education, family status, small children, country of origin, municipality		Yes	Yes		Yes	Yes
Occupation (3-digit level)			Yes			Yes
Number of observations	5,403,806	5,403,806	5,365,717	5,403,806	5,403,806	5,365,717
R^2	0.021	0.432	0.657	0.300	0.338	0.354
WOMEN						
Temporary help agencies	-0.102**	-0.095**	-0.108**	-0.078**	-0.078**	-0.082**
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Year (2002-2008)	Yes	Yes	Yes	Yes	Yes	Yes
Age, education, family status, small children, country of origin, municipality		Yes	Yes		Yes	Yes
Occupation (3-digit level)			Yes			Yes
Number of observations	3,199,094	3,199,094	3,189,136	3,199,094	3,199,094	3,189,136
R^2	0.026	0.430	0.649	0.343	0.378	0.398

Note. OLS = Ordinary Least Squares. FE=regression with individual fixed effects. Standard errors within parentheses. ** p<0.01, * p<0.05

Table 5 (Log)Wages in private sector 2001-2008. Men and women. **Weighted** OLS regression

	Model I OLS	Model II OLS	Model III OLS
MEN			
Temporary help agencies	-0.199**	-0.108**	-0.093**
	(0.005)	(0.003)	(0.003)
Year (2001-2008)	Yes	Yes	Yes
Age, education, family status, small children, country of origin, municipality		Yes	Yes
Occupation (3-digit level)			Yes
Number of observations	5,271,636	5,271,636	5,235,399
R^2	0.016	0.399	0.605
WOMEN			
Temporary help agencies	-0.029**	-0.045**	-0.059**
	(0.004)	(0.003)	(0.003)
Year (2001-2008)	Yes	Yes	Yes
Age, education, family status, small children, country of origin, municipality		Yes	Yes
Occupation (3-digit level)			Yes
Number of observations	3,103,700	3,103,700	3,094,716
R^2	0.021	0.410	0.623

Note. OLS = Ordinary Least Squares. Robust standard errors within parentheses. ** p<0.01, * p<0.05

Table 6 Average wages in 2007 and 2008, all sectors. MEN.

Group (number of individuals in parentheses)	Wage 2007 SEK	Wage 2008 SEK	Wage change (2008-2007) SEK
Leave the temporary help agency industry (1,868)	19,223	22,748	3,525
Start in the temporary help agency industry (919)	21,171	20,157	-1,014
Remain in the temporary help agency industry (4,213)	20,203	20,927	724
Change employer but not in the temporary help agency industry (40,549)	27,466	28,898	1,432
Remain in the same company but not in the temporary help agency industry (777,910)	29,010	29,736	726

Table 7 Wages in 2007 and 2008, all sectors. WOMEN

Group (number of individuals in parentheses)	Wage 2007 SEK	Wage 2008 SEK	Wage change (2008-2007) SEK
Leave the temporary help agency industry (1,687)	19,870	23,587	3,717
Start in the temporary help agency industry (1,033)	20,833	20,780	-53
Remain in the temporary help agency industry (4,071)	21,510	22,550	1,040
Change employer but not in the temporary help agency industry (62,353)	21,258	22,691	1,433
Remain in the same company but not in the temporary help agency industry (109,6883)	23,476	24,099	623

Table 8 Association between experience from temporary help agency work in 1998-2007 and wage in 2008 ((log)Wage). MEN

	Covariates measured in 2008			
Temp agency work in year	None	age, education, sector, county, married, small children, country of origin, temporary help agency work in 2008	and occupation	Number of observations
1998	-0.088**	-0.019	-0.024*	468,833
	(0.016)	(0.014)	(0.011)	
1999	-0.106**	-0.031**	-0.040**	504,931
	(0.011)	(0.010)	(0.007)	
2000	-0.128**	-0.019**	-0.036**	558,820
	(0.008)	(0.007)	(0.005)	
2001	-0.097**	-0.000	-0.024**	577,944
	(0.008)	(0.007)	(0.005)	
2002	-0.095**	-0.001	-0.027**	609,949
	(0.008)	(0.007)	(0.005)	
2003	-0.099**	0.013*	-0.020**	636,891
	(0.007)	(0.006)	(0.005)	
2004	-0.189**	-0.023**	-0.038**	662,820
	(0.006)	(0.005)	(0.004)	
2005	-0.206**	-0.024**	-0.039**	697,420
	(0.005)	(0.005)	(0.004)	
2006	-0.234**	-0.018**	-0.045**	756,164
	(0.004)	(0.004)	(0.003)	
2007	-0.298**	-0.036**	-0.048**	820,540
	(0.003)	(0.004)	(0.004)	

Note: Every estimate is from a separate estimation. Therefore the table based on 30 different regressions. Robust Standard errors within parentheses. ** p<0.01, * p<0.05

Table 9 Association between experience from temporary help agency work in 2001 and wage in 2008. Separate estimations for different age groups. MEN

Model III	(log)Wage 2008				
Age groups in 2001	16-24	25-34	35-44	45-54	>54
Temp agency work in 2001	-0.015*	-0.033**	-0.013	-0.016	-0.015
	(0.007)	(0.009)	(0.014)	(0.019)	(0.045)
Number of observations	33,340	138,525	174,642	183,529	47,492
R^2	0.415	0.610	0.662	0.675	0.680

Note: The model has controls for age, education, sector, county, married, small children, country of origin, employed in a temporary help agency in 2005 and occupation. Standard errors within parentheses. ** p<0.01, * p<0.05

Table 10 Association between experience from temporary help agency work in 1998-2007 and wage in 2008 ((log)Wage). WOMEN

	Covariates measured in 2008			
Temp agency work in year	None	age, education, sector, county, married, small children, country of origin, temporary help agency work in 2008	and occupation	Number of observations
1998	0.045**	0.049**	0.017**	689,020
	(0.008)	(0.007)	(0.006)	
1999	0.013*	0.026**	0.003	732,999
	(0.005)	(0.005)	(0.004)	
2000	0.024**	0.039**	0.008*	782,764
	(0.005)	(0.004)	(0.003)	
2001	0.024**	0.040**	0.009**	813,911
	(0.004)	(0.004)	(0.003)	
2002	0.024**	0.039**	0.016**	851,228
	(0.004)	(0.004)	(0.003)	
2003	0.020**	0.048**	0.019**	881,471
	(0.004)	(0.004)	(0.003)	
2004	-0.022**	0.031**	0.008*	912,215
	(0.004)	(0.004)	(0.004)	
2005	-0.026**	0.035**	0.006	950,605
	(0.004)	(0.004)	(0.003)	
2006	-0.031**	0.044**	0.004	1,056,535
	(0.004)	(0.004)	(0.003)	
2007	-0.081**	0.023**	-0.014**	1,126,128
	(0.003)	(0.004)	(0.003)	

Note: Every estimate is from a separate estimation. Therefore the table based on 30 different regressions. Robust Standard errors within parentheses. ** p<0.01, * p<0.05

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Appendix

Table A1 Wage differential between workers in the temp industry and workers in other industries in the private sector. MEN and WOMEN

MEN	2001	2002	2003	2004	2005	2006	2007	2008
Temp worker	-0.007	-0.078**	-0.110**	-0.146**	-0.162**	-0.188**	-0.197**	-0.188**
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)
Observations	660,390	670,408	665,509	666,118	668,539	669,732	677,480	687,541
R-squared	0.654	0.660	0.662	0.652	0.650	0.654	0.653	0.651
WOMEN								
Temp worker	0.011**	-0.020**	-0.052**	-0.100**	-0.119**	-0.151**	-0.184**	-0.175**
	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)
Observations	395,755	401,574	393,706	389,305	387,650	390,337	399,272	431,537
R-squared	0.630	0.639	0.649	0.636	0.641	0.646	0.660	0.659

Note: The model include controls for age, age squared, education, county, married, small children, country of origin, and occupation. Robust standard errors within parentheses. ** p<0.01, * p<0.05

Table A2 Male medical doctors in temporary help agencies, 1998-2008

Year	**Male** medical doctors in temporary help agencies.
1998	0
1999	0
2000	3 (0.07)
2001	104 (2.6)
2002	53 (1.3)
2003	87 (1.9)
2004	26 (0.5)
2005	42 (0.2)
2006	15 (0.2)
2007	4 (0.04)
2008	25 (0.23)

Note. Male medical doctors as a percentage share of all men employed as temps with wage information within parentheses

Table A3 Wage change between 2007 and 2008, Men

	Wage change, SEK		
	I	II	III
Leave the temp industry	2,090**	1,967**	2,078**
	(119.8)	(119.8)	(119.3)
Start in the temp industry	-2,446**	-2,532**	-2,450**
	(224.2)	(223.6)	(221.3)
Remain in the temp industry	-707**	-747**	-644.1**
	(51.4)	(51.2)	(51.5)
Change employer outside the temp industry	-796**	-538*	-575**
	(34.3)	(244.3)	(34.4)
Remain in the same company outside the temp industry	reference	reference	reference
Age		Yes	Yes
Education		Yes	Yes
Married, small children, country of origin, county		Yes	Yes
Occupation			Yes
Number of observations	825,678	825,678	825,678
R^2	0.002	0.005	0.012

Robust standard errors in parentheses. ** p<0.01, * p<0.05

Table A4 Wage change between 2007 and 2008, Women

	Wage change, SEK		
	I	II	III
Leave the temp industry	2,284**	2,273**	2,397**
	(97.1)	(97.0)	(95.7)
Start in the temp industry	-1,487**	-1,485**	-1,306**
	(219.6)	(219.8)	(217.8)
Remain in the temp industry	-391**	-414**	-239**
	(57.6)	(57.8)	(58.3)
Change employer outside the	-810**	-823**	-786**
temp industry	(26.2)	(26.7)	(26.7)
Remain in the same company	reference	reference	reference
outside the temp industry			
Age		Yes	Yes
Education		Yes	Yes
Married, small children, country of origin, county		Yes	Yes
Occupation			Yes
Number of observations	1,166,242	1,166,242	1,166,242
R^2	0.002	0.004	0.009