Chapter 7
Wages

The two preceding chapters suggest that displaced manufacturing workers in Switzerland have comparatively good reemployment chances – with the exception of the older workers. However, finding a job *per se* does not guarantee that displaced workers will experience a successful occupational transition after plant closure and that they can continue their careers without major ruptures. Indeed, workers may have accepted major wage losses.

The human capital theory introduced by Gary Becker (1962) suggests that wages represent returns on workers' productivity. According to this logic, wage change following job change is an expression of how the new employer values the workers' skills as compared with the former employer. Wage losses can be the consequence of low transferability of the workers' skills to a new employer. Accordingly, workers who have skills that are very specific to the former employer or sector[1] may experience larger wage losses upon reemployment than workers who mainly possess general skills that are transferable to any company or sector (Neal 1995: 656). The share of specific skills as compared with that of general skills is higher for workers who have completed on-the-job training or worked in the same company for many years. We therefore expect that the high-tenured, the low-qualified and workers who changed sector or occupation are most strongly affected by wage losses (hypothesis H6, see Sect. 1.4).

An alternative explanation has been provided by the signaling theory, which suggests that episodes of unemployment are signals of job candidates' low productivity to potential employers (Spence 1973). Accordingly, employers are likely to offer job seekers wages which are below their pre-displacement wage. Finally, wage losses can be a result of skill depreciation in a long phase of unemployment (Arulampalam 2001: F603; Flückiger 2002: 15). Based on these arguments, in the

[1] Such specific skills may be the knowledge required to use machines or software that are only used in a particular sector or contacts with the clients and markets of a particular firm. This knowledge may be important in the workers' pre-displacement firm, but if the worker changes job his or her skills and contacts may be of little use to the new employer.

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second part of hypothesis H6 we expect that workers who were unemployed for a long period experience substantial wage losses.

In this chapter we start by examining the wage distribution before and after displacement. We present our results of average wage changes for displaced workers and in comparison with the control group of non-displaced workers in the Swiss Household Panel. We then analyze the factors that are linked to wage losses.

7.1 Wage Distribution Before and After Displacement

We start with the presentation of the distribution of workers' wages. In Table 7.1 we show the distribution before and after displacement. This analysis is mainly based on a question asked in the survey on workers' precise gross monthly pre- and post-displacement wage.[2]

Standardizing wages for 40 h per week and 12 monthly salaries per year,[3] we find that wages under CHF 4000 – which corresponds to 66 % of the Swiss national median wage for all sectors and positions – were less frequent before displacement than after. Before the plants closed down, 6 % of the workers earned CHF 4000 or less for a full-time job of 40 h per week. After the closure, 9 % did – among the

Table 7.1 Distribution of gross monthly wages before and after displacement in CHF (standardized for 40 h per week and 12 salaries per year)

	Before displacement	After displacement
5 %	4000	3111
10 %	4409	3702
25 %	5159	4190
50 % (median)	6000	5700
75 %	6950	6857
90 %	8450	8457
95 %	10,850	11,429
Mean	6220	6039
N	*749*	*401*

Reading example: 5 % of the workers earned CHF 4000 or less before displacement. After displacement, 5 % of the workers earned CHF 3111 or less

Note: Before displacement the median wage was close to the Swiss median of CHF 5979

[2] Information about wages is sensitive data and its assessment is often subject to measurement error. As discussed in Chap. 2, a strategy to address this issue was to use register data. An analysis of the measurement error in fact revealed that the data collected with the survey deviates by about 2 % from the register data. However, register data is only available for 365 (30 %) of the 1203 workers in our sample and the information presented in Table 7.1 is thus approximate.

[3] The 13th monthly wage was included in the calculation if workers declared having had one.

subgroup of workers who found a job. At the top end of the wage distribution there was no significant change: before displacement 2.4 % of the workers earned CHF 10,000 or more, after displacement this was the case for 3 % of the workers– which is not significantly different. In parallel, the median wage fell from CHF 6000 to CHF 5700.

Compared to the situation before displacement, the wage distribution has become more unequal: the relation between the wage at the 95th and the 5th percentile (p95/p5) has increased from 2.71 to 3.67, at the 90th and the 10th percentile (p90/p10) from 1.92 to 2.02 and at the 75th and the 25th percentile (p75/p25) from 1.35 to 1.38. The plant closures thus seem to have increased the inequality in workers' wages. This finding may also reflect the fact that the wages of high income earners have generally risen whereas wages at the bottom end of the wage distribution have either stagnated or decreased.

Since only a proportion of the displaced workers have searched for a job and been reemployed, we have almost twice as many observations for the wages before displacement as after displacement. Accordingly, in Table 7.1 we compare two different subsamples and this gives us only limited information about changes in the individual workers' earning situation. We therefore continue with an individual-level analysis of the wage change, focusing on the reemployed workers.

7.2 Average Wage Change

We start with the analysis of the *average* wage change. In order to produce results that are comparable with earlier findings in the literature, we examine wage changes in four different ways. First, we compute the changes exclusively for the reemployed workers – measuring the difference between pre- and post-displacement wage and then calculating the average wage change as has been done for example in the study by Bender et al. (2002: 56). Second, we measure wage change for reemployed and unemployed workers together – replacing the unemployed workers' income with zero as has been done in several studies from the US (e.g. Jacobson et al. 1993) or by Balestra and Backes-Gellner (2016) for Switzerland.[4] Third, we analyze wage change only for workers in our sample with two and more or five and more years of tenure, respectively. This allows us to compare our results with American studies based on the Displaced Worker Survey (DWS).

Fourth, we compare our results with workers from the Swiss Household Panel who did not lose their job in 2009.[5] We assess their wage change over time by

[4] We carry out this analysis only for the purposes of comparison with other studies. The large majority of Swiss workers do not face an income of zero in the case of unemployment. Instead if they claim unemployment benefits they obtain between 70 and 80 % of their former wage for workers with dependent children or a pre-displacement wage below about 60 % of the median wage).

[5] The workers in our sample were matched to workers in the SHP by means of radius caliper propensity score matching with a radius of 0.001, based on the socio-demographic characteristics sex,

Table 7.2 Difference in wages before and after displacement for different worker subgroups

	Difference before-after	Difference before-after for tenure of 2 years and more	Difference before-after for tenure of 5 years and more
(1) Reemployed	−4 % (n = 377)	−4 % (n = 341)	−5 % (n = 253)
(2) Reemployed and unemployed	−29 % (n = 468)		
(3) Non-displaced (SHP)	+2 % (n = 1444)		

Note: The wages are inflation-adjusted. Consumer prices in Switzerland rose by 0.7 % between 2009 and 2010 and 0.2 % between 2010 and 2011 (OECD Statistics). Reading example: The average wage loss of the reemployed displaced workers is 4 %. If we take only the reemployed displaced workers with 5 and more years of tenure into account, their average wage loss is 5 %

following them through 2011. This approach allows us to make a difference-in-difference analysis that considers how wages would have evolved if the workers had not been displaced. This control group provides us with a counterfactual and thus enables us to make a causal interpretation of our findings about workers' wage losses after redundancy.

As a fifth option, some authors use log post-displacement wages as the dependent variable in order to take account of the fact that the same absolute amount of wage loss is larger in relative terms for workers with low pre-displacement wages than for those with high pre-displacement wages (e.g. Zwick 2012: 15). We do not follow this approach since our dependent variable is wage *difference* between the pre- and post-displacement job rather than the post-displacement wage used by Zwick (2012). However, we use the percentage difference to take this issue into consideration.

The following analysis is based on a combination of survey and register data for the pre-displacement wage and on survey data only for the post-displacement wage since for the latter measure there was no register data available. Table 7.2 shows that the displaced workers who were reemployed at the moment of the survey experienced, on average, an inflation-adjusted wage loss of 4 %. The result remains unchanged if we include only workers with pre-displacement tenure of more than 2 years into the analysis. If we calculate the wage difference between the job before and the job after displacement for reemployed workers who were tenured more than 5 years in their former plant, we find slightly larger wage losses of 5 %. For the reemployed and unemployed workers together the average wage loss amounts to 29 %.

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education, age and sector. Our calculation is based on workers who were employed in 2009 *and* 2011 – in order to assess their wage *differential* – whereby some of them may have changed job while others have remained in the same job. Only full-time workers who worked at least 35 h a week were included in the analysis. Wages in both the treatment and the control group were standardized for 40 h per week (see Chap. 2).

Over the period of the study the wages of our control group of *non-displaced* workers in the Swiss Household Panel (SHP) increased by 2 %. Consequently, if we compare the change in wages of the *displaced* workers with the *non-displaced*, we find that the reemployed displaced workers lost on average 6 % of their wages by having been laid off – without counting wages foregone in possible phases of unemployment.[6]

As the control group, constructed based on the Swiss Household Panel, differs from the treatment group in terms of education and sex – as discussed in Chap. 2 – we test the robustness of the control group by using data from the Swiss Federal Office of Statistics on the evolution of real wages (corrected for inflation).[7] We compare the real wage change between 2009 and 2011 of the control group with the wage change of the entire working population of Switzerland over the same period. Between 2009 and 2010, real wages in Switzerland increased by 0.1 % and between 2010 and 2011 by 0.7 %. Taking the period from 2009 to 2011 together, the increase was 0.8007 %. As Table 7.2 above shows, the real wage increase of the control group was 2 % over the same period and thus higher than for average Swiss workers. Using our control group, we therefore may overestimate the counterfactual wage increase – the increase of the displaced workers' wages if they had not been displaced. Accordingly, considering the real wage change of the entire Swiss working population, we find that displaced workers experience wage losses of 4.8 % – instead of 6 % as computed based on the SHP control group.

How do our results compare with earlier findings in the literature? We first look at studies that assess the wage changes for reemployed workers without comparing them with a control group. Abe et al. (2002: 236) examining wage losses of displaced workers in Japan, find that male workers who were displaced in 1995 experienced on average wage losses of 4 %. Carrington (1993: 443), who analyzes data from the US Displaced Worker Survey, reports wage losses of 12 %. The findings from Japan are close to our own results for Switzerland, while post-displacement wage losses in the US are much larger. A possible explanation for the high wage losses reported by Carrington may be that the Displaced Worker Survey includes only workers with more than 3 years of tenure. However, even if we take workers' tenure into consideration, we find substantially lower wage losses than this US study.

Carneiro and Portugal (2006: 15–6) measure wages losses of displaced workers in Portugal who managed to get back into the labor force and compare them with a non-displaced control group. The authors find that the workers' wages decreased by 4 % between the year before and the year after displacement. A German study that follows the same approach reports wage losses of a similar extent: Burda and

[6] The findings from our survey regarding the wage differences for different tenure categories cannot be compared to the data from the Swiss Household Panel as in the Panel different tenure categories are used.

[7] Bundesamt für Statistik. T 39 Entwicklung der Nominallöhne, der Konsumentenpreise und der Reallöhne (1939–2014). http://www.bfs.admin.ch/bfs/portal/de/index/themen/03/04/blank/data/02.html

Mertens (2001: 30) find losses of 3 %. These results are similar to our own finding of 6 %. In contrast, a study that uses this approach based on US data again reveals much larger losses of 12 % (Farber 1997: 112).

Finally, some studies assess displaced workers' wage losses by considering reemployed and unemployed workers, setting the unemployed workers' post-displacement wage at zero and comparing the outcome to non-displaced workers. Based on this approach, Jacobson et al. (1993: 697) report 25 % wage losses for high-tenured workers in Pennsylvania 6 years after displacement. A study that follows the same analytical procedure but uses data from Connecticut finds losses of 32 % (Couch and Placzek 2010: 585). A Swiss study focusing on involuntary job losses in general – which is a much broader category than displaced workers – finds losses of 17 % 1 year after job loss and 16 % 4 years after job loss (Balestra and Backes-Gellner 2016: 13). The losses are thus comparable to our own survey.

Overall, the wage losses are substantially larger in the US context. What might explain these different outcomes in terms of wage losses in the United States compared to Europe? A first reason is probably that the US Bureau of Lab or Statistics has defined displaced workers as high-tenured adults who, after holding a job for 3 years or more, lost that job (Fallick 1996: 6). This definition has been integrated into the major US surveys such as the Current Population Survey and the Displaced Worker Survey (Devens 1986: 40). Some authors have used less or more restrictive definitions: Fallick (1993: 319) focused on displaced workers whose job tenure was at least 1 year and Jacobson et al. (1993: 689) on workers with more than 5 years of tenure. Such restrictions are not made in most European (or Japanese) studies. Displaced workers analyzed in US studies are thus a more selective group who are much more attached to their firms – because of higher tenure – and therefore may find it more difficult to find as good a job match as they did in their old job. However, as our own analysis suggests, this factor alone does probably not explain the consistently larger wage losses in US than in European (or Japanese) studies.

Another potential explanation for the differences between US and European studies lies in institutional factors such as unemployment benefits. Low replacement rates and short benefit durations – as is the case in the United States – may compel displaced workers to find a job quickly, and force them to reduce their reservation wage more strongly (Gangl 2004: 174; Lentz 2009: 50; Feather 1997).[8] In addition, it has been argued that in the US unionized firms provide workers with rents which are lost upon job loss (Jacobson et al. 1993). Finally, differences in wage losses may also be due to differences in the business cycle. Appelqvist (2007: 26–7) found for Finland earning losses of 9 % in a period of recession but zero losses in a situation of economic growth. Similarly, Farber (1997: 101) or Kletzer (2001) find that losses are larger in economic downturns than in boom phases.

[8] The OECD has developed measures to compare unemployment benefit entitlements across countries. We consider the net replacement rate in 2012 for an unemployed person having earned before job loss a wage at the national average, being the main breadwinner and having two children. The net replacement rate for the United States was 43 %, for Finland 65 %, Germany 70 % and Switzerland 86 %.

A problem that likely arises in our way of calculating wage losses is the fact that we assess the workers' pre-displacement wage directly before displacement. As scholars have pointed out, this way of calculating probably underestimates the workers' wage losses as many companies reduced their workers' wages when they started having economic difficulties (Jacobson et al. 1993: 691; Arulampalam 2001: F587; Carneiro and Portugal 2006: 13).

Indeed, for the plant in our sample located in Biel we know that this happened: workers accepted wage cuts 1 year before the closure in order to enhance the plant's chances of continuing to operate. If we compare the median pre-displacement wage of the (matched) workers in our sample with the workers in the Swiss Household Panel we find a lower value for workers in our sample (CHF 6239) than for workers in the SHP (CHF 6667). This supports the argument that displaced workers experienced wage cuts – or periods of wage stagnation – before the plant closure happens.

7.3 Distribution of Wage Change

So far, we have analyzed the reemployed workers' average wage change. We now turn to the examination of how the wage changes are distributed among the reemployed workers. We start out with the computation of the wage changes in percentages, based on the precise assessment of workers pre- and post-displacement wage. We then collapse the individuals into seven categories as presented in Fig. 7.1. On the side of the workers who experienced wage losses, we find that 14 % of the workers experienced large wages losses of over 20 %. Twenty percent of the workers experienced intermediate wage losses of between 10 and 20 %. Twenty four percent experienced small wage losses of between 1 and 9 %. Five percent of the workers experienced almost no change in wages, earning 1 % more or less in their new job as compared to their old job. On the side of the workers who experienced wage gains, 20 % experienced small wage gains of between 1 and 9 %. Ten percent

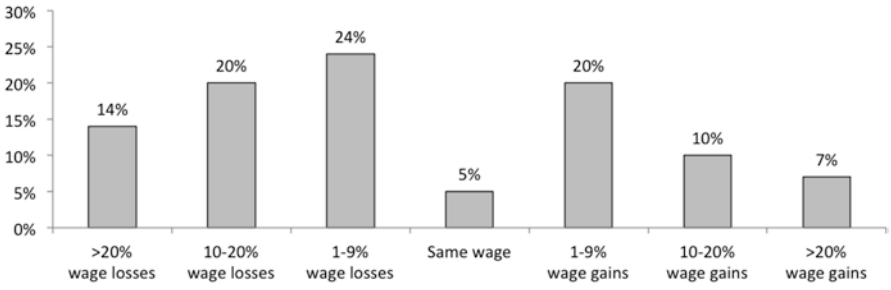

Fig. 7.1 Distribution of wage difference (based on numerical assessment of workers' wages) of the reemployed workers. N = 387. Reading example: 14 % of the reemployed had wage losses of 20 % or more in their new job relative to their pre-displacement job

experienced intermediate wage gains of between 10 and 20 %. Seven percent experienced large wage gains of over 20 %.

In a nutshell, the proportion of the reemployed workers who experienced wage losses is clearly larger (58 %) than the proportion of those who experienced wage gains (37 %). If we focus on the substantial wage changes of 10 % and more, we find that twice as many workers experienced strong wage losses (34 %) as strong wage gains (17 %). At the same time, for about a seventh (14 %) of all reemployed workers the losses were larger than 20 % and thus very substantial.

Workers who were (still or again) unemployed when we surveyed them are not included in this analysis. It is likely that, if these workers managed to find a job after our survey, they experienced, on average, wage losses – as long unemployment durations may act as a signal of low productivity for employers and the workers' skills may depreciate during a long spell of unemployment. Accordingly, we consider the unemployed workers together with those who experienced strong wage losses to be the most negatively affected workers after a plant closure.

The surveys conducted by Weder and Wyss (2010: 38) in Switzerland and by Jolkkonen et al. (2012: 91–92) in Finland find that about a third of the reemployed workers experience a wage increase and about a third a decrease. Thus the comparison shows that workers in our survey experienced larger losses than workers examined in these other studies. While these surveys were conducted in a context of economic growth, ours was carried out in a phase of economic downturn. The higher proportions of workers experiencing wage losses in our study may thus stem from a more adverse labor market situation.[9]

In a next step we analyze the question put to the survey respondents of whether their current wage was much lower, slightly lower, about the same, slightly higher or much higher than their pre-displacement wage. The advantage of this measure is that a larger number of workers were willing to answer this question as compared with the more sensitive question about their wage in a numerical format (n = 495 as compared to n = 387).

Figure 7.2 shows that 22 % of the reemployed indicated their post-displacement wage as being much lower and 23 % as slightly lower than their pre-displacement wage. 13 % of them earned – according to their own assessment – about the same, 31 % slightly more and 11 % much more than before their plant closed down. If we compare the proportion of workers who experienced wage losses with the proportion of workers who experienced wage increases, 45 % earned less than before displacement and 41 % earned more. Accordingly, the losses and gains are balanced although the proportion of workers who indicated a strong wage decrease (22 %) is clearly larger than the proportion who indicated a strong increase (11 %).

Comparing the results from Figs. 7.1 and 7.2 suggests that either the higher number of survey responses changed the composition of the workers and accordingly the distribution of wage change or that those workers experiencing wage losses tended to indicate a better – or positively biased – wage development than they actu-

[9] Interestingly, however, our results do not greatly differ from the studies by Weder and Wyss (2010) and Jolkkonen et al. (2012) in terms of the post-displacement reemployment rate.

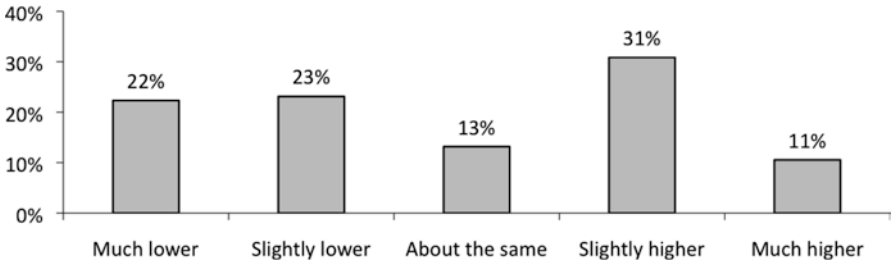

Fig. 7.2 Distribution of perceived wage change of the reemployed workers. N = 495. Note: This figure represents the answer to the survey question: "As compared to your pre-displacement job, your current wage is …" Reading example: 22 % of the reemployed indicated earning much lower wages in their new job relative to their pre-displacement job

ally experienced. With respect to the latter option, it is remarkable that the share of workers who indicate a wage increase is similar in Figs. 7.1 and 7.2 (37 % vs. 42 %). There is however a stronger difference between Figs. 7.1 and 7.2 with respect to wage losses (58 % vs. 45 %).

This result is surprising in the light of the prospect theory, developed by Tversky and Kahneman (1992), which suggests that the same amount of objectively measured (e.g. financial) losses and gains do not have the same effect on the – subjectively perceived – decrease and increase in utility. In contrast to the conventional utility theory, prospect theory suggests that individuals are negatively biased and experience losses as a stronger burden than gains provide an advantage. If this mechanism were at work in our findings, we would observe that in Fig. 7.2 "much lower" and "slightly lower" wages are overrepresented as compared to Fig. 7.1. This does however not seem to be the case. For this reason, the other option, namely that the fact that individuals who responded to the question represented in Fig. 7.2 more frequently experienced positive changes than respondents to the question represented in Fig. 7.1, seems to be more plausible.

7.4 Determinants of Wage Change

Earlier research has shown that different worker subgroups are affected unequally by wage changes. If we analyze wage change in categories by different sociodemographic characteristics, we find the largest differences according to age. Figure 7.3 shows that the large majority of the youngest cohort earn more after displacement: 39 % of them answered that, as compared with their pre-displacement job, their post-displacement wage was much higher and 37 % of them that it was slightly higher. In contrast, the majority of the two oldest age cohorts earned less after reemployment than before: 36 % of the workers aged between 55 and 59 earned much less and 34 % earned slightly less than before displacement. With

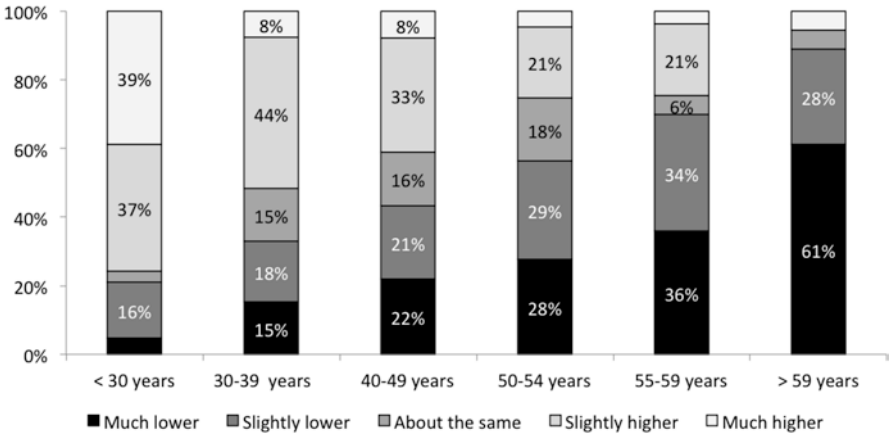

Fig. 7.3 Distribution of perceived wage difference of the reemployed workers by age. N = 489. Note: This figure represents the answer to the survey question: "As compared to your pre-displacement job, your current wage is …". Shares of less than 5 % were not labeled in the figure. Reading example: 61 % of the reemployed over 59 years had in their new job a wage that was much lower than in their pre-displacement job

respect to the workers aged over 60, 61 % earned much less and 28 % slightly less. For the age cohorts in between, the wage change was gradually linked to age: the older the cohort, the larger was the proportion of workers who experience wage losses and the smaller the proportion of workers who experience wage gains. If we use instead the other wage difference variable where we constructed the difference by subtracting the current wage from the former wage, we obtain slightly different results, but the pattern that wage losses increased with age remains the same.

However, this age difference may possibly be explained by the workers' tenure. In fact, the theory suggests that, with longer tenure, workers accumulate more firm-specific skills that do not generate financial returns in a new company (Cha and Morgan 2010: 1145). Moreover, it has been argued that firms reward seniority by paying wages for workers with higher tenure that are higher than their productivity, while younger workers are paid below their productivity (Daniel and Heywood 2007: 49). In the case of a job separation, the seniority and consequently the seniority bonus are lost and the workers thus experience wage losses.

We argued that the change in workers' wages may be linked to their level of education, their pre-displacement tenure, the duration of a potential spell of unemployment and whether they changed occupation. We test these hypotheses by running an OLS regression on inflation-adjusted percentage wage change with these variables, controlling for age, sex, collar, nationality,[10] district unemployment rate and plant.[11]

[10] We use here a proxy based on workers' surnames.

[11] In contrast to the last section, we now use the wage difference measure that indicates the percentage wage change for each individual. We use this measure in order to have a linear instead of an ordinal dependent variable.

Since not all displaced workers found a new job, the analysis of change in wages is likely to be affected by selection bias. We test for this risk by using a Heckman selection correction analysis, using education as an instrumental variable (results not shown).[12] The results suggest that selection into employment is not a major problem for our analysis of wage change (i.e. we obtain similar findings without the selection correction).

The results are presented in Fig. 7.4. The regression results confirm the descriptive findings from above that age has a negative effect on wage change. Compared to women, men's wage reduction was about 7 percentage points larger. Blue-collar workers experienced 4 percentage points larger losses than white-collar workers. With respect to the nationality proxy we find that workers with surnames from non-EU countries experienced a wage drop that is about 4 percentage points greater than for workers with local surnames. Workers from Plants 3 and 4 experienced wage increases that are 8 percentage points higher than those in the reference category (Plant 1).

We now turn to the independent variables of interest. As expected, long unemployment durations are associated with negative wage changes. Workers with intermediate unemployment duration of 3–12 months experienced a wage loss of 5 percentage points relative to workers who found their new job within 2 months. Workers who were unemployed for more than 12 months lost 11 percentage points in wages as compared to workers who found their job within 2 months. This finding may be due to the negative effect of long unemployment durations on workers' post-displacement wages – because of skill depreciation in long spells of unemployment or a negative signaling effect of such spells. Alternatively, it may also be due to a selection effect: the most dynamic and productive job seekers leave unemployment first, the least dynamic and productive workers last (Machin and Manning 1999: 18).

The next independent variables we consider are change of sector and change of occupation. Changing sector means that workers were reemployed in the services, while changing occupation means that workers were reemployed in a different ISCO 1-digit occupation category than the one in which they worked before displacement. With respect to change of sector we only distinguish between service and manufacturing sector since the literature suggests that this distinction matters most with respect to wage (Jacobson et al. 1993). We do not find a statistically significant effect for change of sector. In contrast, we change of occupation is significant although it is relatively small. The result suggests that workers who are reemployed in a different occupational group experienced a 3 percentage points decrease in wages as compared to those reemployed in their pre-displacement occupation. This result is in line with the literature on skill regimes which suggests that, in highly standardized vocational training systems such as the Swiss system, workers transit smoothly between jobs within the same sector. This outcome results from workers acquiring sector-specific skills rather than solely firm-specific skills during vocational education.

[12] There is a correlation between the outcome equation and the selection equation (rho = 0.78) and accordingly the Wald test is not significant.

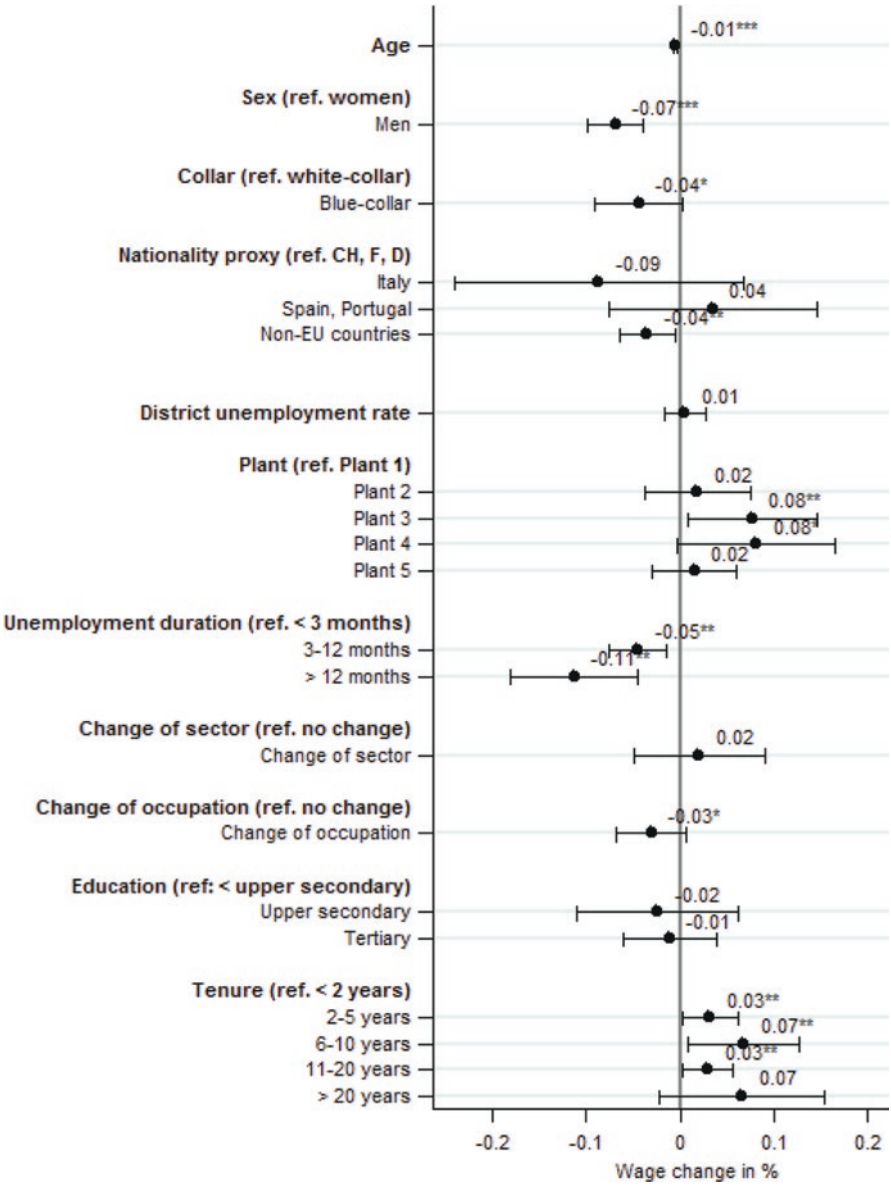

Fig. 7.4 Coefficients for an OLS regression for wage change (in %) between the job before and after displacement. N = 341. Note: We also ran models where we entered plant as a control variable. The results were not affected by this variable. Significance levels: * $p<0.1$, ** $p<0.05$, *** $p<0.01$. Standard errors are clustered at the plant level. Reading example: For each year in age, the wage loss is 1 percentage point

With respect to education our findings do not confirm our expectations. The effects are small and statistically non-significant. This suggests that while low levels of education reduce the chances of reemployment, they do not increase the risk of wage loss relative to intermediate or high levels of education.

Finally, tenure reveals significant effects but they run in the opposite direction to our prediction and the link is not linear. In order to test the robustness of this effect, we run a model without the age variable. However, the result is similar with small positive but significant effects for 2–5 years of tenure and 6–10 years of tenure. Consequently, our hypotheses with respect to education and tenure cannot be supported by these findings.

Overall, we find less support for the human capital theory which explains workers' wage losses after job separations as a consequence of lower returns on their skills. With respect to the finding that long spells of unemployment considerably affect workers' wage changes, it is not clear whether this result is due to a skill depreciation effect, a signaling effect or a selection effect. But since the other findings – in particular with regard to education and type of collar – provide little evidence for human capital mechanisms being at work, signaling theory is perhaps a better explanation. The fact that we find a negative wage effect for workers with surnames originating from non-EU countries may also point to this mechanism. With respect to nationality and ethnic background, it has indeed been shown for Switzerland that simply changing the name (and thus implicitly the nationality or migration background) on a job application negatively affects the job seekers' chances of being invited to an interview (Fibbi et al. 2003).

If we compare our results with earlier findings, Carneiro and Portugal (2006: 18) also find that the duration of joblessness has an important effect on earning losses. They report that this factor explains about a third of the losses. But in contrast to our analysis they find that job tenure even explains a larger proportion of the wage losses, namely about 50 %. Other authors have pointed out that changes from the manufacturing sector to the service sector are particularly costly. Cha and Morgan (2010: 1144) reveal wage losses of 35 % for workers who changed from the secondary to the tertiary sector. These findings are not confirmed by our analysis for Switzerland. An additional descriptive analysis that simply compares the average wage changes for workers reemployed in manufacturing and the services reveals almost no difference between "stayers" and "switchers".

Only our result that change of occupation is a more important determinant than change of sector seems to correspond to earlier findings. Haynes et al. (2002: 250) report that individuals with a sector tenure of 10 years lost around 1 % of their wages when switching sector while workers with an occupation tenure of 15 years lost 15 % of their wages when changing occupation. While we also find that change of occupation is more relevant than change of sector, the effects for the workers in our sample are much smaller.

7.5 Conclusion

The analysis of the reemployed workers' wages has revealed the costs of job loss that workers experience even if they are reemployed. On average, they are confronted with moderate wage losses if we compare their pre- and post-displacement wages. However, the full amount of wage losses can only be assessed if we compare these losses with the counterfactual outcome – the outcome of workers who did not lose their jobs. Comparing the wage losses of the displaced workers with the wage development of non-displaced workers from the Swiss Household Panel, we find that the full losses of displaced workers amount on average to 6 %. As discussed in more detail in Chap. 2, the control and the treatment group are alike in terms of age but not in terms of education and sex. The control group contains a larger share of women and of workers with higher levels of education. Our estimation of the counterfactual outcome may therefore overestimate the wage losses since our analysis suggests that men and higher skilled workers experience stronger wage losses after job displacement than women and lower skilled workers. At the same time, since the control and treatment group are alike with respect to the variable that affects wage development most strongly, age – minus one percent for each year of age –, the counterfactual outcome may not be too strongly misspecified.

Our expectations that high-tenured workers, low-qualified workers and workers who were reemployed in another sector or occupation experience the highest wage losses cannot be corroborated. But we find that long unemployment durations are linked to wages losses, which is in line with our hypothesis H6. However, wage changes are most strongly affected by age. Reemployed workers of the oldest cohort, the over 60s, are much more likely to experience wage losses than the other age groups – even after controlling for other socio-demographic factors. On average, younger workers experienced substantial increases in their hourly wages (+8 % for those under 30), whereas reemployed older workers had to put up with substantial wage cuts (−14 % for those aged 55–59, −17 % for those aged 60–65). Older workers thus do not only have bleaker reemployment chances after a plant closure, but they also have to accept substantial wage losses. In contrast, the great majority of younger workers experience successful occupational transitions after plant closure which tend to be accompanied by increased wages.

In this chapter we have shown that there is huge variation in how wages are affected by non-self-inflicted job loss. Although the average wage loss is an important number to estimate because it allows for comparison with studies from other countries, it provides only limited information. From a scientific point of view it is important to understand how different worker subgroups are affected. This allows receiving a better understanding of the mechanisms underlying workers' wage losses. As workers' wage curve tends to steadily increase during the first decades of their careers, it usually slightly declines towards the end of the career. Finding that the older workers in our study are confronted with the highest wages is thus not surprising at first glance. However, the decreases are strong – even if we consider only those who returned to a job –, which seems to give a hint that other mechanisms

are at work. The large wage losses of older workers seem to be an indicator for the low interest employers take in hiring them.

The consequences on an individual level are that these workers have to put up with lower wages and lower old-age pension savings. Lower wages may be less of a problem as children, if there are any, are no longer likely to be financially dependent on their parents. In contrast, substantial reductions in old-age pension savings may leave workers with long-lasting hardship and deprive them for instance from making life-changing investments in their health. From a societal point of view losing one's job – in particular at the end of the career – is a trigger of economic inequalities, leaving displaced workers with substantial economic and social disadvantages as compared to non-displaced workers.

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