

# Conclusion

This study contributes to the literature by providing an in-depth analysis of the impact of plant closure on workers' careers and lives. Looking at the economic, social and psychological consequences of job loss, it provides a comprehensive understanding of how individuals who were well integrated into the labor market are affected in their career prospects through an exogenous – non-self-inflicted – shock. In addition to our contribution to the scholarly debate, we offer insights on how effective policies may be shaped that assist workers in adjusting to adverse conditions.

We draw on a unique dataset on workers displaced because their plant closed down. Analyzing occupational transitions after plant closure allows us to address the problem of endogeneity inherent in the study of unemployment. If a plant closes down completely, it is unlikely that workers lose their job because they worked poorly. We can thus infer that the reason for job loss is exogenous and that changes in workers' lives in the aftermath of displacement are caused by the plant closure. An additional advantage of plant closure studies is that reverse causality can be excluded. If we find that job loss is accompanied by a strong decrease in workers' well-being we can assume that the drop in well-being is a result of plant closure and not the other way round.

The dataset includes 1203 manufacturing workers who lost their job in 2009 or 2010 and who were surveyed about 2 years later, in 2011. The survey data was complemented with register data from the public unemployment insurance and the plants, a strategy that allows us to control for a number of issues typically occurring in surveys such as nonresponse bias and measurement error. A control group of non-displaced workers, based on data from the Swiss Household Panel, provides us with a counterfactual outcome. This approach enables us to carry out a difference-in-difference analysis, comparing the labor market experiences of displaced workers with those of non-displaced workers. These features of our rich dataset provide us with an exceptional opportunity to understand potential causal mechanisms behind labor reallocation.

## Robust Job Prospects in Manufacturing

Two years after plant closure, more than two-thirds of the workers had returned to a job. Among them, more than two-thirds were reemployed in manufacturing. In addition, more than half of the machine operators and craft workers were able to find a new job in the same occupation as before displacement. Accordingly, the service sector does not constitute a collecting vessel of displaced manufacturing workers. This finding is probably due to the slow pace of deindustrialization in Switzerland: although the crisis of 2008 was accompanied by labor churning in the secondary sector, employment recovered soon afterwards.

However, the Swiss labor market and economy are not as particular as is often assumed. Switzerland shares some common features with Austria and Southern Germany, such as low levels of unemployment, a high importance of vocational education and a flexible manufacturing sector. It is thus legitimate to expect that a survey on plant closure in the adjacent regions of Austria and Germany – Salzburg, Stuttgart or Munich – would produce comparable results to those presented here. Although we cannot assess whether our sample is representative for all displaced workers in Switzerland, it seems to be representative for workers in the manufacturing sector.

In a nutshell, a large share of workers returned to jobs that were similar, in terms of occupation and sector, to their pre-displacement employment. This outcome has the positive implication that workers were able to continue using the skills and knowledge they had acquired through education, on-the-job training and work experience. In addition, a close skill match in the new job is likely to be valorizing for the workers since they were able to retain their social status and identity.

Research on labor market churning and worker turnover (Stevens 1997: 172; Pries 2004: 214; OECD 2009; Autor et al. 2013) as well as quantitative and anecdotal evidence from our study suggests that manufacturing workers have to put up with multiple job loss during their career. Although it seems that they usually manage to return quickly to the labor force after a job loss, the requirement to adapt repeatedly to new jobs is likely to be stressful and represents a great demand in social and psychological skills. In light of accelerating technological advance we may expect that in the future more workers will need to change job several times over their career and adapt to new environments.

## Polarization in Labor Market Experiences

Although a large share of the workers experienced a smooth transition after plant closure, job loss had harmful effects on a small group of workers. The labor market experiences of the workers in our study thus are strongly divergent. Referring to a concept from life-course sociology, plant closure constitutes a “transition” for the majority of the workers – describing an adjustment to their new occupational

situation without major frictions. Within this group are the more than two-thirds of workers who returned to employment. Among them, almost half found their new job very quickly. More than four-fifths of them were reemployed on permanent contracts and about a third experienced an increase in their wages. In their relationships with their spouse, family and friends they experienced more frequently positive than negative changes.

The worker subgroups for whom plant closure constitutes a “transition” within their life course, are characterized by a young age – or, if they are older, having retired early –, high levels of education and having been employed in Plant 5 (NWS 2). More precisely, workers under 30 found new jobs most quickly and workers in their 30s had the highest reemployment rates. With respect to wage changes they were the most likely to see their wages increase. Highly qualified workers returned more quickly to a job and were more likely to be reemployed. In addition, high levels of education provided workers with a much higher chance of being reemployed in their pre-displacement occupation. Workers from Plant 5 had the highest reemployment rate and were the most likely to continue working in the manufacturing sector. With respect to workers’ life satisfaction, the reemployed and retired workers experienced stability and were thus cushioned from negative effects on their well-being.

However, a small proportion of workers suffered substantial hardship in the aftermath of job loss. For these workers, plant closure constitutes a “turning point”, an event that crucially affects their ensuing lives by shifting the direction of their occupational and life trajectory. They were often long-term unemployed and subsequently reemployed in jobs of lower quality. More specifically, they were hired in insecure jobs and jobs which match only little with their skills. Others were unable to return to a job and were still, or again, searching for a job when we surveyed them. Unemployed workers and workers who dropped out of the labor force were particularly prone to find their subjective well-being decreasing. Moreover, they were likely to experience a negative impact of job loss on their social relationships. Overall, plant closure had a clearly detrimental effect for their careers and lives.

This group mainly consists of low-qualified workers, workers who were employed in Plant 1 (Geneva) and older workers. Workers with only compulsory education took longer to find a new job, had lower reemployment rates and were the most likely to be pushed out of their pre-displacement occupations. Workers from Plant 1 had labor market experiences which are in many ways different from workers in other plants, which is possibly due to the particular labor market context of Geneva and the high proportion of workers who live in France and thus were assisted by a different unemployment insurance system. Workers from Plant 1 took by far the most time to find a new job and had the lowest reemployment rate. If they found a job, they were by far the most likely to be reemployed in non-permanent jobs and saw their wages decrease the most strongly. They were also the most likely to be reemployed in the service sector, particularly in often low-paid distributive consumer service jobs.

## Old Age as the Main Disadvantage

Our most noteworthy finding is that whether workers experienced job displacement as a “transition” or as a “turning point” was most strongly determined by their age. Being aged over 55 led to disadvantages in almost every respect. More precisely, older workers not only took longer to find a job but were in the end also less likely to return to employment. If they managed to find a job, they experienced the severest cuts in wages and job quality of all age cohorts.

This finding is in line with a recent report by the OECD (2014: 118) and another study based on survey and register data (Egger et al. 2008: 61) about the employment situation of older workers in Switzerland. The report shows that although Switzerland is among the five countries with the highest employment rates of workers between 55 and 64, older job seekers face high hurdles in the hiring process. This result is striking in the context of the current demographic development. With the baby boomer generation being in this age group during the next 15 years, this phenomenon may concern large shares of displaced workers in the years to come.

This result is surprising and seems difficult to explain from a theoretical point of view. With respect to *reemployment*, human capital theory suggests that employers may try avoid hiring older workers because they have to train them for several years, the investment until the workers’ retirement for the company being higher than the returns. Consequently, we would expect employers to be particularly reluctant to hire older workers formerly employed in another occupation. This expectation is however not confirmed by our results which show that older workers experience difficulties independent of whether they change occupation between their pre- and post-displacement job. Our result however contradicts the descriptive analysis by Egger et al. (2008: 63) who find differences in reemployment prospects of older workers by occupation – workers in service occupations having better reemployment prospects than manufacturing workers. However, the authors did not test these findings with regression analyses and thus did not examine whether the results may be confounded by other explanatory factors such as workers’ tenure or education. With respect to *wage losses*, human capital theory would predict that older workers experience wage decreases because they had high tenure in the pre-displacement plant and thus acquired a large amount of firm-specific skills on which the returns in the new company are low. However, our models control for tenure but a considerable age effect persists.

Alternatively, unobserved factors may explain the finding of older workers’ difficulties in finding a job. For instance, older workers may be more likely to be in poor health conditions than younger workers and thus be less productive. However, this view does not seem to hold, as age *per se* does not provide reliable information about workers’ productivity. Indeed, a study from Austria that measures productivity at the firm level finds no link between age and productivity (Mahlberg et al. 2013: 11). A Dutch study shows that although *physical* productivity decreases after the age of 40, *cognitive* productivity is not affected by age (van Ours 2010: 457). Accordingly, if we control for occupation and education, the age effect would be

picked up. However, in our data we find no evidence that older workers' encounter less difficulties in finding a new job if they have an occupation that demands foremost cognitive skills.

Although the literature suggests that cognitive productivity of the working-aged population is little affected by their aging, it has been argued that younger cohorts are more productive than older ones as they are more adept in using new technologies and keeping up with technological change (Meyer 2011). However, if this argument is valid, we would expect the age disadvantage in our study to increase stepwise by age group. But in contrast there is a threshold at the age of 55 with similar results for all age groups below the threshold. Accordingly, our findings do not seem to comply with this argument. In addition, a study based on German data shows that older workers who remained working during their entire life adapted well to technological changes (Romeu Gordo and Skirbekk 2013: 65). Nevertheless, the Swiss study based on a survey among employees indicates that with increasing age a larger share of workers believe that they are less capable of adapting to new work environments and technologies (Egger et al. 2008: 55).

From the perspective of the human capital theory, older workers may cope with a potential loss of productivity by accepting a lower wage. Since older workers tend to earn more than younger worker in the exact same job, and the employers' old-age pension contributions are higher for older workers, reducing their reservation wage may be a strategy for older workers to enhance their reemployment chances. An experimental study from Switzerland has examined the effect of reducing the reservation wage on reemployment prospects (Arni 2010). The author found that a decline in the reservation wage reduced workers' job search durations but their reemployment rate was not significantly enhanced. Another explanation that has been brought forward to explain older workers' barriers to reemployment is that companies do not want to hire older workers because they will profit for less long from their investment in continuous and on-the-job training. Yet with young workers employers do not have a guarantee that they will stay longer in their company than older workers.

Finally, there is the possibility that our results can be explained by discrimination based on age-related stereotypes. The older age of a job candidate may act as a signal for particular characteristics – positive or negative – such as being difficult to train or high reliability (Brooke and Taylor 2005: 416). Studies by the Eurofound (2013: 42) and the OECD (2014: 119, 150) come to the conclusions for Europe in general and Switzerland in particular that such mechanisms may be at work. In contrast, the Swiss study based on a survey among employees and employers does not find evidence for a negative image of older workers held by employers or younger employees (Egger et al. 2008: 53–4). However, from vignette and correspondence studies we know that employers are reluctant to admit or are unconscious of discriminatory behavior (Jackson and Cox 2013: 40). Nevertheless, discrimination is very difficult to assess and these assumptions thus have to be carefully tested. More research into this question is therefore needed.

## Tackling the Plight of Older Workers

In order to address the hurdles older workers face when searching for a job, knowledge of the mechanisms behind this phenomenon is of central importance. However, as long as there is only little evidence of the triggering factors, policy makers may take measures that seem to improve the workers' situation in any case.

A first measure may be to promote lifelong learning. Our survey included a question on continuous training, but the question referred specifically to training attended during the job search phase after their plant closed down and not to training attended during their entire working life. In Switzerland, workers over 55 are less likely to have undertaken continuous training during their career than younger age cohorts (Bundesamt für Statistik 2007: 14). Accordingly, encouraging workers to engage in continuous training throughout their entire working life may enhance older workers' reemployment prospects (Dieckhoff 2007: 302; Gallie 2003: 69). Particularly in sectors where automation is advancing rapidly, consecutive training on new machines and devices may help workers to keep up with technological change. To enhance older workers' reemployment prospects in the event of job loss, human capital theory suggests that the focus of continuous education should be placed on transferable skills that are valuable in other companies.

Second, employers' awareness of the weak relationship between workers' productivity and their age may be raised. Employers may be sensitized to the importance of the integration of older job seekers into the labor market from the perspective of society as a whole. A study conducted by the European Foundation for the Improvement of Living and Working Conditions recommends initiatives to enhance awareness of the effects of exclusion of older job seekers in the light of current demographic change (Eurofound 2013: 13). The OECD (2014: 124) recommends that employers be better informed about the possibilities of the management of aging and the advantage of mixed-age teams within companies.

Third, investments in age-based workplaces have been shown to be an effective means to keep older workers in the labor force. The adoption of certain features of the workplace – such as the provision of equipment that reduces hearing or vision problems – help to maintain older workers' productivity (Göbel and Zwick 2013: 87). The authors of an experimental study find that cooperation is highest in mixed-age teams and that such teams are consequently more productive as they capitalize synergies between younger and older workers (Charness and Villevall 2007: 21).

Finally, a policy framework that enables a transition into early retirement in the event of job loss is a helpful means to attenuate the negative effects of job displacement for older workers. This may be implemented within the legislation on mass displacements or the unemployment insurance. While such a measure would clearly provide workers with financial security, their social integration may be impaired by early withdrawal from the labor market. A possible policy would therefore ideally provide older workers with financial security in the event of continuous unemployment and simultaneously foster their efforts to return to the labor force.

In sum, our study provides insights into how plant closure affects workers' careers, social lives and well-being. By considering a large array of outcomes, it contributes to a more comprehensive understanding of the impact of this critical event on the workers concerned. We shed light on the question of which worker subgroups are particularly vulnerable in the face of plant closure by taking into account how their socio-demographic characteristics, the coping strategies and the labor market situation mediate their career outcomes after job loss.

# Annex

## Tables

**Table A.1** OLS-regression analysis of the determinants of the pre-displacement wages on the basis of the survey and register data

	Dependent variable: pre-displacement wage (in CHF)	
	Survey data	Register data
Age (ref. < 30)		
30–34	1119 (898)	1108 (639)*
35–39	1180 (929)	1141 (662)*
40–44	1395 (824)*	1563 (587)***
45–49	2121 (739)***	1957 (526)***
50–54	1578 (734)**	1475 (523)***
55–59	1857 (746)**	2180 (531)***
>59	1956 (754)**	1751 (537)***
Sex (ref. women)		
Men	1562 (376)***	1645 (268)***
Nationality (ref. Swiss)		
France, Germany, Italy and Austria	697 (715)	734 (509)
Spain and Portugal	–560 (727)	–64 (517)
Non-EU countries	–683 (716)	–445 (509)
Education (ref. less than upper secondary education)		
Upper secondary education	450 (622)	428 (442)
Tertiary education	2532 (675)***	2073 (480)***
Constant	1301 (1081)	1145 (770)
Adjusted R2	0.26	0.38
N	157	157

Note: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table A.2** Coefficients for a bivariate probit model with Heckman selection correction on the probability of being employed in the service sector as compared to manufacturing, conditional on being reemployed

	Outcome equation on being reemployed in services (as compared to being reemployed in manufacturing)		Selection equation on being reemployed (as compared to being unemployed or out of the labor force)	
	Coef.	(SE)	Coef.	(SE)
Sex (ref. woman)	-0.37**	(0.17)		
Men				
Education (ref. less than upper secondary)				
Upper secondary	0.09	(0.15)	0.59***	(0.14)
Tertiary	0.07	(0.20)	0.85***	(0.16)
Tenure (ref. < 2 years)				
2–5 years	0.10	(0.12)	0.66***	(0.22)
6–10 years	0.16	(0.13)	0.32***	(0.12)
11–20 years	0.28	(0.27)	0.08	(0.23)
>20 years	-0.16	(0.15)	-0.06	(0.28)
Occupation (ref. white-collar)				
Blue-collar	-0.04	(0.08)		
Unemployment duration (ref. < 3 months)				
3–6 months	0.26	(0.20)		
7–12 months	0.22	(0.16)		
13–24 months	0.31**	(0.14)		
Age in years (ref. < 30)				
30–39			0.32	(0.22)
40–49			0.25	(0.20)
50–54			0.01	(0.41)
55–59			-0.86***	(0.27)
>59			-2.26***	(0.23)
Plant (ref. Plant 1 (Geneva))				
Plant 2 (Biel)	-0.58***	(0.31)	1.12***	(0.07)
Plant 3 (NWS 1)	-0.89***	(0.44)	1.00***	(0.11)
Plant 4 (Bern)	-0.83***	(0.59)	0.62***	(0.04)
Plant 5 (NWS 2)	-1.12***	(0.31)	1.26***	(0.11)
Civil status (ref. married)				
Single			-0.24**	(0.09)
District unemployment rate	-0.03			
Constant	-0.06	(0.14)	-0.54	(0.41)
Rho			0.26	(0.16)

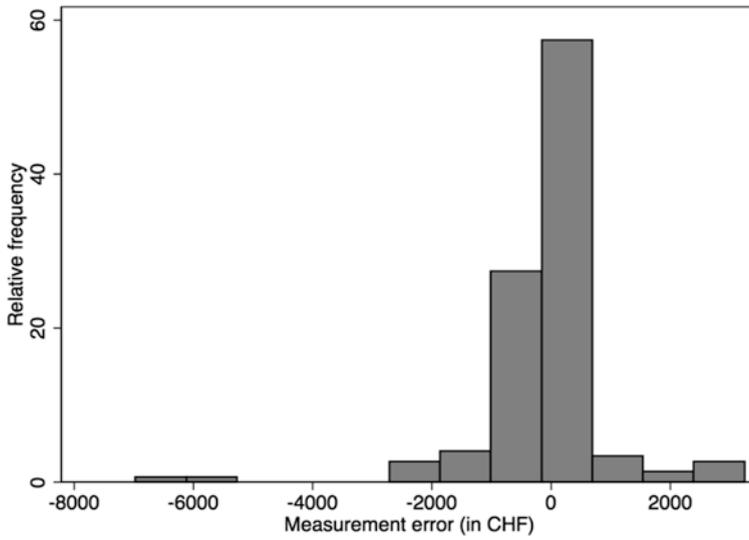
Note: The outcome equation contains the same variables as Fig. 6.2

N observations: 658; censored observations: 220

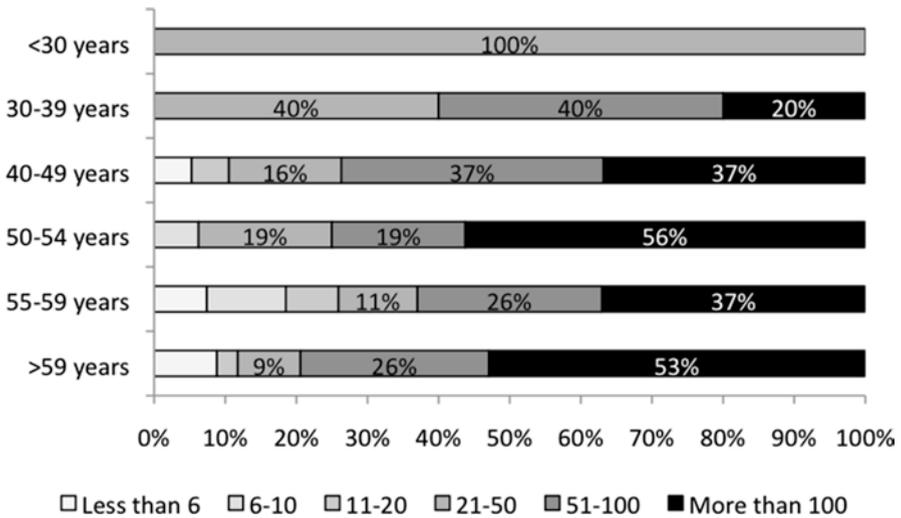
Standard errors are clustered at the plant level. Significance levels: \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

The Wald test is not significant ( $p = 0.12$ )

**Figures**



**Fig. A.1** Relative frequency of the measurement error for pre-displacement wages. N=150



**Fig. A.2** Number of job applications for the still or again unemployed workers by age category. N=102

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