Seismo

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Subjective Career Success of Industrial Workers a Decade After Mass Redundancy

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Abstract: This study examines which factors influence the long-term subjective career success of industrial workers, who experienced mass redundancy during the Great Recession. We used two tailor-made surveys to analyze how workers assess the impact of plant closure on their subjective career success. Higher educational attainment and a more internal locus of control correlate with a more positive assessment of post-redundancy career success. We also observe differences in workers' evaluations due to differing plant closure modalities on the meso-level.

Keywords: Plant closure, labour market, subjective career success, longitudinal, meso-level

Réussite professionnelle subjective des personnes travaillant dans l'industrie une décennie après un licenciement collectif

Résumé : Cette étude examine les facteurs influençant la réussite professionnelle subjective à long terme des personnes travaillant dans l'industrie ayant connu un licenciement collectif de 2008 à 2010. Nous analysons l'impact de la fermeture des usines sur la réussite professionnelle subjective à l'aide de deux enquêtes. Un niveau d'éducation élevé et un locus de contrôle interne sont corrélés à une évaluation plus positive de la réussite professionnelle. Nous observons également des différences liées aux modalités de fermeture des usines au niveau mésoscopique.

Mots-clés : Fermeture d'usine, marché du travail, réussite professionnelle subjective, étude longitudinale, niveau mésoscopique

Subjektiver beruflicher Erfolg von Industriebeschäftigten ein Jahrzehnt nach der Massenentlassung

Zusammenfassung: Diese Studie untersucht, welche Faktoren den langfristigen subjektiven Karriereerfolg von Industriebeschäftigten beeinflussen, die eine Massenentlassung aufgrund der Weltfinanzkrise erlebt haben. Anhand zweier Umfragen analysieren wir, den Einfluss der Betriebsschliessung auf den subjektiv wahrgenommenen Karriereerfolg. Höhere Bildung und eine internale Kontrollüberzeugung korrelieren mit einer positiveren Bewertung des Karriereerfolgs. Zudem beobachten wir Bewertungsunterschiede aufgrund verschiedener Betriebsschliessungsmodalitäten auf Mesoebene.

Schlüsselwörter: Betriebsschliessung, Arbeitsmarkt, subjektiver Berufserfolg, Längsschnittstudie, Mesoebene

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1 Introduction

The consequences of mass redundancies are often severe and can leave long-lasting scars that impede the career development and well-being of affected workers. Possible negative outcomes encompass periods of unemployment and income reductions upon re-employment (Jolkkonen et al. 2012; Oesch and Baumann 2015), decreased job quality (Brand 2006), a decline in subjective well-being (Kassenboehmer and Haisken-DeNew 2009), resulting in reduced life satisfaction for both the affected workers and their spouses in cases of unemployment (Nikolova and Ayhan 2018), as well as adverse effects on mental (Mendolia 2014; Marcus 2013) and physical health (Gallo et al. 2000). The negative consequences of plant closures can persist throughout careers (Eliason and Storrie 2006), but not all affected workers experience their job loss as equally adverse.

Our study investigates the influence of personal characteristics and meso-level factors on long-term subjective career success. We use data from two tailor-made surveys conducted among manufacturing workers in Switzerland who experienced plant closures during the Great Recession – a sector known for its high risk of dismissals, automation, and low employment growth (Nedelkoska and Quintini 2018). The surveys were carried out, at time intervals of two years and ten years after plant closures. By focusing our analysis on the subjective long-term assessment of previously displaced workers, we examine which characteristics helped them to overcome this critical life event.

A large amount of literature has investigated the effects of job loss on objective career components, such as wages and promotions. However, subjective components of careers, such as satisfaction and feelings of gratification, have received comparatively little attention. Particularly the long-term consequences of job loss on subjective career success have been under-researched, albeit they appear to be associated with health implications (Faragher et al. 2005). To address this research gap, our analysis focuses on the subjective assessment of career success a decade after plant closures.

We measure subjective assessment – the dependent variable of our study – with an additive scale that captures workers' assessment of their career development, their social status, and the impact that the layoff had on their financial situation. The characteristics that we examined to see which aspects affected the subjective assessment of mass redundancy are socio-demographic attributes (age and gender), acquired resources (education and occupational class), as well as a personality trait (locus of control) and meso-level differences due to company affiliation. Our analysis enables us to evaluate how these attributes, resources, and a personality trait are associated with workers' retrospective evaluation of plant closures and the continuation of their career. Since differing modalities of company closures cannot be controlled nor separated from each other, we carefully reflect and discuss the impact of company affiliation on subjective career success.

2 Theoretical Framework and Hypotheses

2.1 Mass Redundancy as a Critical Life Event

Unlike varying but to some extent predictable life events, like the beginning of school or work life, critical life events such as mass redundancies occur rather abruptly. Individuals do not generally expect them to happen during their lifetime, they are unrelated to age, and have a lower probability to arise, which means that a minority of individuals experience them (Filipp 2001). Mass redundancies disrupt careers and leave former workers without employment or steady income, and have the potential to decrease individuals' subjective well-being (Gardiner et al. 2009; Kassenboehmer and Haisken-DeNew 2009). In contrast to dismissals, which often arise from shortcomings of individual workers, plant closures of mid-sized or large companies are primarily exogenous events (Brand 2015). The job loss experienced by affected workers cannot be attributed to their own lack of performance. Instead, external circumstances, such as the Great Recession, can prompt plant closures and entail mass redundancies. In cases of plant closures, targeted policies are more likely to provide noticeable improvements for numerous laid off workers. Hence, case studies are indispensable as they allow to take historical, geographical, and company-specific differences into account.

A growing number of studies describe the negative consequences of plant closures and mass layoffs. Individuals may face a reduction or lack of income (Oesch and Baumann 2015), a decrease in job quality following re-employment (Brand 2006; Farber 2017), a decline of psychological (Marcus 2013; Mendolia 2014; Andreeva et al. 2015) and physical health (Gallo et al. 2000), including an increased risk of mortality (Sullivan and von Wachter 2009), as well as a decrease in life satisfaction (Kassenboehmer and Haisken-DeNew 2009; Nikolova and Ayhan 2018). However, the majority of these studies focus on short- to mid-term consequences.

Workers who lost their jobs due to mass layoffs or downsizing have been found to struggle with a decrease of well-being due to psychological side-effects. They are more likely to develop depressive symptoms and post-traumatic stress disorder when compared to continuously employed counterfactual groups (McKee-Ryan et al. 2009; Andreeva et al. 2015). Beyond a decline of psychological well-being, Sullivan and von Wachter (2009) examined the impact of mass layoffs on mortality rates in companies with a significant reduction in employment (30% or above). Their findings reveal an increase in mortality rates during the first year following job loss, ranging from 50–100%. The mortality rates decline over time but remain elevated by 10–15% for the investigated period of 20 years. However, it must be noted that their sample consisted of displaced older male workers, hence it is unclear whether these findings apply to women or younger individuals (Sullivan and von Wachter 2009).

We expect three types of features to have a decisive impact on the evaluation of mass redundancy and the consequences of plant closures on career trajectories on the micro-level: Socio-demographic attributes such as age and gender, acquired resources such as education and occupational class, and the personality trait locus of control.

Although workers of all five manufacturing plants experienced mass redundancy during the Great Recession and thus largely simultaneously within this study, regional unemployment rates and plant closure modalities varied. For example, a worker who received a sixth-month advance notice regarding plant closure likely had better chances to avoid temporary unemployment compared to someone who received only a three-month notice. As multiple factors interact at the meso-level, e.g., timing of advance notices, the scope of social plans, regional unemployment rates, we refrain from formulating hypotheses regarding the company-specific impact. However, we examine meso-level differences and reflect upon them carefully.

2.2 Career Success

The literature on job trajectories comprises a large body of studies that focus on objective components of career success and occupational trajectories after the occurrence of job loss. However, the subjective evaluation of workers arguably explains their well-being better than objective factors. It is essential to understand the components that define a successful career in order to predict which sub-groups of workers are more likely to struggle after a layoff. A successful career can be defined as "the positive psychological or work-related outcomes or achievements one accumulates as a result of work experiences" (Seibert et al. 1999, 417). During the last few decades, the definition has evolved from considering exclusively external and quantifiable factors to include subjective and therefore internal factors of success. Objective components of career success are often measured through differences in wages, numbers of promotions, and whether individuals gain higher hierarchical positions during their work life (Barley 1989). Subjective components, on the other hand, focus on personal evaluations and include whether individuals feel satisfied with their careers, whether they were able to meet their ambitions and achieve self-imposed accomplishments (Judge et al. 1995).

Previous research has shown that objective and subjective components correlate positively, but weakly (Ng et al. 2005), hence indicating that individuals who experienced several promotions, continuously climbed the hierarchical ladder, and increased their income steadily, do not necessarily feel satisfied with their accomplishments. Or vice versa: Individuals who did not benefit from numerous promotions, had a constant level of income, and remained in the same hierarchical position, can be completely satisfied with their careers due to valuing the intrinsic importance of their work and the accomplishments that it brings.

2.3 Socio-Demographic Attributes: Age and Gender

With rising age workers accumulate expertise and gain a broader range of skills, making them more valuable over time (Judge et al. 1995; Ng et al. 2005). However, the positive impact of age on occupational trajectories changes notably in the event of job loss.

The loss of firm-specific capital for workers with high tenures, as well as a possibly necessary change to a related but new occupation, confronts older workers with less favourable labour market outcomes when they try to find and adapt to re-employment (Eliason and Storrie 2006; Oesch and Baumann 2015). Previous research has shown that workers above the age of 55 face an elevated risk of finding re-employment after job loss, with notably longer unemployment periods compared to younger workers, which should have a negative impact on their career satisfaction (Chan and Stevens 1999; Oesch and Baumann 2015). Although a majority of older workers manage to find re-employment within two years of being laid off or business closure, the probability that they quit their newfound job shortly after is twice as high compared to continuously employed older workers (Chan and Stevens 1999). Meaning that financial reasons seem to pressure older workers to lower their standards to accept jobs that do not match their expectations or for which they feel overqualified. The difficulties of older workers who are not close to retirement age yet may be aggravated through age discrimination by employers and their greater reluctance to relocate for a new job to avoid longer periods of unemployment (Tempest and Coupland 2017; Oesch 2020).

A gap between expectations regarding a new employment and individuals' satisfaction with it can also occur among younger workers. The likelihood to find a suitable subsequent job that matches their expectations, however, is higher, which can partially be attributed to the fact that they have lower expectations towards their income and hierarchical position. This provides them with a wider range of opportunities, as there are more positions available. Workers who are close to reaching the retirement age, however, should perceive their job loss as a neutral or positive event as long as they are able to retire without substantial pension losses. This leads us to formulate the following hypothesis:

> *H1: Young workers and those who experienced plant closure shortly before reaching the retirement age assess the consequences on their career success as less severe than middle-aged workers.*

Apart from age, gender differences influence the reintegration into the labour market after experiencing mass redundancy, as well as the subjective evaluation of this critical life event. For instance, women are more likely than men to switch from the manufacturing sector to the service sector for re-employment (Herz 1990; Oesch

and Baumann 2015). Considering the fact that women are often perceived as fitting candidates for occupations that require social and interpersonal skills in particular, the reorientation towards the service sector appears more feasible for them, broadening their search range while looking for re-employment (Lease et al. 2020).

Different prerequisites, such as wage gaps between women and men, contribute to deviating perceptions regarding the consequences of plant closures as well. On average, women earn less than men, even when the type of occupation, field of work and number of working hours are controlled for (Ng et al. 2005; Van der Heijden et al. 2009). Albeit both women and men suffer from wage losses following plant closure, women are likely to suffer proportionately less because they have lower wages to begin with (Oesch and Baumann 2015).

Moreover, women and men tend to emphasise different aspects of career success (Dyke and Murphy 2006). Previous research has found that men value objective factors of career success such as wages, status, or the capability to influence decisions within the organisation higher than women, who, in contrast, highlight the importance of work-life-balance, personal fulfilment, and their occupational contribution to society (Parker and Chusmir 1992; Dyke and Murphy 2006). These findings do not signify that financial aspects of employment are irrelevant for women, but rather that the importance of factors which represent subjective career success differ by gender.

It appears plausible that gender roles affect the importance of work and that career success is defined differently by women and men. Our hypothesis is thus:

> *H2: Men experience plant closure as more detrimental for their subjective career success than women.*

2.4 Acquired Resources: Education and Occupational Class

Across the life course individuals acquire a distinct set of skills and knowledge that contribute to their work-related productivity or economic value – their human capital. Human capital encompasses investments that are not accompanied by immediate gratification and refers to educational, personal, and professional experiences, which promote economic benefits (Becker 1964). The acquisition of skills enables individuals to achieve their career ambitions more easily and is thus likely to increase subjective feelings of gratification and satisfaction, which play a role regarding the subjective assessment of career success (Lortie-Lussier and Rinfret 2005; Ng et al. 2005).

In the aftermath of job loss, individuals with higher educational attainment experience shorter unemployment spells and have a higher probability to being re-employed (Lippmann 2008; Oesch and Baumann 2015), which should have a positive impact on workers' subjective assessment of long-term career satisfaction. Apart from the human capital theory, which postulates that workers with higher

educational attainment are more productive, the signaling theory argues that education serves as an indicator for productivity used by employers and thus promotes the employability of higher educated individuals (Spence 1973). Regardless of the precise underlying mechanism, both theories support the idea that individuals with higher educational attainment are at an advantage compared to displaced workers with lower educational attainment when looking for re-employment. This leads to the following hypothesis:

> *H3: Higher educational attainment facilitates coping with plant closure and results in a less negative assessment regarding subsequent subjective career success.*

In addition to education, the occupational class of a worker may predict how well individuals are able to cope with their job loss, thus influencing the subjective assessment of career success. After plant closures, white-collar workers from the manufacturing sector are in general less restricted regarding labour market opportunities when they search for re-employment and tend to have better chances of being re-employed compared to blue-collar workers (Jolkkonen et al. 2012; Oesch and Baumann 2015). Acquired skills in white-collar occupations are often transferable across sectors. Moreover, they do not depend on expertise in handling machinery or manual processes, which are potentially replaced by automation, hence decreasing matching job offers over time. Although firm-specific and field-specific knowledge is likely to be lost in the aftermath of mass redundancies, the transition to another occupation seems more easily achievable for managers, accountants, and secretaries, compared to welders and assemblers without accepting high income losses (Oesch and Baumann 2015). Income losses following re-employment tend to be lower for white-collar than blue-collar workers (Jacobson et al. 2005). Although this constitutes an objective component of career success, it is still likely to influence the perception of displaced workers' satisfaction with their career development. Our hypothesis thus reads as follows:

> *H4: White-collar workers assess the consequences of mass redundancy on their subjective career success as less detrimental than blue-collar workers.*

2.5 Personality Trait

Work-related achievements are influenced by individuals' characteristics, beliefs, and attitudes. A personality trait that affects the development of careers is locus of control. It determines to which degree an individual perceives his or her decisions and behaviour to influence outcomes in his or her life (Rotter 1966). Those who take the stance that what happens to them is largely dependent on their own abilities and agency have an internal locus of control. Individuals with an external

locus of control do not feel responsible for developments and changes that affect them. Instead, they appraise them as random or induced by others and out of their control.

Previous research has shown that displaced workers in Germany with an internal locus of control are more likely to experience shorter unemployment spells and have higher chances of being re-employed than those with an external locus of control (Uhlendorff 2004). A study that investigated the job search behaviour of unemployed Canadian workers between 1979 and 1986 adds to these findings that an internal locus of control is linked to more intensive job search behaviour and higher expectations for salaries compared to unemployed individuals with an external locus of control (McGee 2015). Caliendo and colleagues (2015) complement this finding by showing an interaction between locus of control and the number of applications that were submitted by German job seekers. Those with an internal locus of control believed that the act of sending out more applications was positively related to receiving suitable job offers. This finding suggests that locus of control affects job search behaviour based on one's attitude towards agency.

The predictive effect of locus of control stems from differences in job search behaviours, which affect the extent of investments unemployed workers display and their willingness to accept a subsequent job that is not a good fit for them, leading us to formulate a last hypothesis:

> *H5: Workers with an internal locus of control evaluate the effect of plant closure on their subjective career success as less negative than workers with an external locus of control.*

3 Institutional Context and Plant Closure Modalities

Our study examines industrial workers in Switzerland who experienced plant closures in the aftermath of the Great Recession and explores which characteristics influence the evaluation of this critical life event. Between 2000 and 2020 the unemployment rate of Switzerland remained relatively stable, albeit the financial crisis led to a small increase of unemployment between 2009 and 2011, as well as in 2020 due to COVID-19, an effect that was cushioned due to short-time work. Our study focuses on the workforce of five manufacturing plants. Four of the manufacturing plants were located in German-speaking regions in the canton of Bern and Solothurn, which had unemployment rates of 1.8% and 2.3% in 2008 (SECO 2022). The fifth manufacturing plant was located in the French-speaking region of Geneva, that had a higher unemployment rate of 5.7% in 2008. A higher unemployment rate for the canton Geneva can be observed for the whole period between 2000 and 2020 (SECO 2022).

It is worth noting that the overall share of employment in the industrial sector of Switzerland decreased marginally during the financial crisis, before regaining its former level in 2011. None of the regions where manufacturing plants of our study were located,

Table 1 Overview of Plant Closure Modalities

	Product	Advance notification	Termination pay	Early retirement	District unemployment rate	Additional offers
Plant 1 Geneva	Machine tools	3 months	10 000 CHF, more depending on age and tenure	Available 3 years before retirement age	6.9%	Additional payment if workers had to move or commute 40 km more for a new job
Plant 2 Biel	Print	None	None	None	5.5%	Workers were not reimbursed for their overtime and lost shares of their retirement fund
Plant 3 Solothurn I	Chemicals	4 months	Based on age and tenure, 22 000 CHF for a 45-year-old worker with 20 years of tenure	Available 2 years before retirement age	3.3%	Additional payment if workers had to move or commute 30 km more for a new job
Plant 4 Bern	Printing machines	5–9 months	None	Available for workers aged 57 and above, generous	2.5–2.9%	Workers who found new but less well-paid jobs received additional payments to compensate the wage difference for 6–24 months
Plant 5 Solothurn II	Metal and plastic components	6 months	Based on age and tenure, 33 000 CHF for a 45-year-old worker with 20 years of tenure	Available for workers aged 58 and above, modest benefits	4.6–5.0%	Additional payment if workers had to move or commute longer distances for a new job

Source: Baumann (2016), own illustration.
Note: The district unemployment rate refers to the time of each specific plant closure.

however, experienced a noticeable decrease of employment (FSO 2022). Until 2011, Swiss workers were entitled to 70–80% of their former income in unemployment benefits for 24 months as long as they were previously employed for an equally long period.[1] The age of regular retirement in Switzerland was 65 years for men and 64 years for women at the time.

1 The rate amounted to 80% of workers' former income if they provided for one or several young children or had low wages (not more than 3797 Swiss francs per month).

Although unemployment benefits are standardized at the federal level, major differences in plant closure modalities existed between the five companies, for instance, the timing of advance notices and the presence and scope of social plans. Hence, part of the workers faced more favourable post-redundancy conditions than others. Three out of the five companies offered termination pay and four offered options for older workers to bridge the time until they could enter regular retirement with varying benefits. Only one of the plants shut down without prior notice, leaving those affected without termination pay or social plan and abrupt unemployment. The other four plants stopped their production sites with notices of 3 to 9 months, so that workers could start looking for re-employment opportunities in advance. Table 1 provides a comprehensive overview of differences in plant closure modalities.

4 Data and Measures

4.1 Data

Our analysis is based on two tailor-made surveys that address the consequences of plant closure for industrial workers. A first survey was carried out in 2011, roughly two years after plant closure, followed by a second one in 2020, over ten years after the initial job loss. The public announcement of plant closures in the media at the time enabled the examination and selection process of eligible plants. The selection criteria restricted the sample to workers who experienced plant closure during the Great Recession and mid-sized companies from the manufacturing sector. Five out of ten eligible companies agreed to participate in the study and provided address lists as well as some basic information regarding their former workers. The workers of all five plants were invited via letters to the initial survey. Around 60% of the initial participants shared their email addresses to receive further information about the study and research outcomes. Consequently, we invited all displaced workers to the follow-up survey through postal mail, and when possible, also by email.

Both surveys asked participants to provide current and retrospective information about their pre-redundancy working and life conditions. The initial survey assessed information regarding individuals' pre-redundancy conditions through a conventional question-list design, whereas the follow-up survey combined a question-list design and life history calendar.

The exogenous nature of plant closures resolves the problem of endogeneity that social studies tend to face, as unobserved characteristics such as personality traits, engagement or motivation among workers are not responsible for their job loss (Brand 2015). A circumstance that also eliminates the dilemma of reverse causality: A decline of workers' subjective career success has to be interpreted as a result of job loss rather than a factor that led to plant closures, for instance.

Out of 1202 workers 745 individuals responded to the initial survey in 2011, which constitutes a response rate of 62%. More than a decade after plant closures, 337 former workers replied to our follow-up questionnaire. Out of the 1202 workers that experienced plant closures, 293 participants replied to both surveys, which equals 24% of all workers. The response rate of the follow-up survey compared to the initial survey 9 years earlier amounts to 45%. While the initial survey was conducted with self-administered pen and paper interviews (PAPI), computer-assisted self-interviews (CASI) were used for the follow-up survey.

4.2 Measures and Method

Our dependent variable is subjective career success. It reflects how industrial workers assess the impact of plant closure on their long-term subjective career success. The variable is measured with the following three items that we subsequently use as an additive scale: "About 12 years ago you experienced a mass layoff at [participant-specific former company's name]. Please rate how this event affected the following areas of your life: career, social status, financial situation." Participants provided responses on a 7-point scale, ranging from a very positive to a very negative impact, with the option to choose a neutral answer. Approximately 20% of workers indicated that the plant closure had no impact on their career trajectory or financial situation, while this proportion increased to around 50% for social status. While the majority of workers reported a negative impact on their career trajectories and social status, the situation was reversed concerning their financial well-being. Nevertheless, a considerable number of workers regarded the consequences of the mass layoff positively.

The Cronbach's alpha coefficient of the three selected items is 0.83, which signifies a high internal consistency and justifies the creation of an additive scale that depicts workers' subjective career success a decade after plant closures. To facilitate the interpretation of the data, we transformed the dependent variable into a scale ranging from 0 to 100, where 0 indicates that the plant closure had a very negative impact on all three aspects, while 100 means that a worker experienced the plant closure as very positive regarding all three aspects. The mean value of subjective career success is 55 with a standard deviation of 22 across the sample.

We use the following independent variables: *Gender* (male/female), *age categories* referring to the time of plant closure (17–40, 41–54, 55–62, 63–65), *education categories* (no more than lower secondary education (compulsory school), upper secondary education (VET/Matura/higher vocational education/PET), and tertiary education (University/University of Applied Sciences)). Furthermore, we created a dummy variable for *occupational class* that separates blue-collar from white-collar workers – arguably the decisive hierarchical distinction within our manufacturing companies. Managers, professionals, technicians, and clerks are defined as white-collar workers and craft workers, plant and machine operators, assemblers, and elementary

jobholders as blue-collar workers. *Locus of control* was measured through a single question asking participants whether they believe that they can determine their own fate. In our analysis, 10 indicates complete self-determination and 0 that respondents believe to have no self-determination at all. By further adding a dummy variable for each of the five *companies*, we try to account for meso-level differences between workers such as the timing of advanced notices, social plans including early retirement options and termination payments as well as regional unemployment rates. Table A.1 in the appendix shows descriptive statistics for the dependent and independent variables.

We implemented weights to account for the attrition between the initial survey and the follow-up survey based on socio-demographic and acquired resource variables. Due to insufficient information provided by the companies, we were unable to assign weights to the initial sample of all 1202 workers. Missing values of our sample were logically imputed through available data of the life history calendar section of the follow-up survey or the initial survey if information was available. After this process, only 1 missing value for age and occupational class remained. Missings of socio-demographic and acquired resource variables from the initial survey were imputed through chained equations by the iterative chain equations command (ice) in Stata (Royston 2009).[2] The two missing values in our final sample were taken from the estimates of the imputed chained equation.

We mitigated systematic attrition concerns through inverse probability weighting, using logistic regression to estimate participation probabilities. The resulting weights were applied to rectify the underrepresentation of individuals expected to be particularly vulnerable to adverse long-term consequences following plant closure. The noteworthy shift in composition, from 59% blue-collar workers in the initial survey to 42% in the follow-up survey, underscores the importance of this adjustment. Furthermore, we observed a 7% decrease in participation among workers aged 55 to 62 and a 6% decline in individuals with compulsory education within our sample – groups we anticipated to be disproportionately impacted by plant closure. Distributions of gender, locus of control, and company affiliation remained largely stable across both survey waves.

5 Results

Our analysis is based on bivariate and multivariate linear regression models that assess whether socio-demographic attributes, acquired resources, the personality trait locus of control and company affiliation affect the assessment of subjective career success more than a decade after plant closure. Figure 1 shows bivariate results, which indicate variations in subjective career success across age, gender, education,

2 The proportion of missing values in the initial survey amounted to 2.3% for age, 3.4% for education and 1.8% for occupational class.

and occupational class. It reveals that workers between the age of 63 and 65 perceive the impact of plant closure on their subjective career success as the most positive on average, which may be due to an inclination to view early retirement as a satisfying end of their careers. Subsequently, we observe that 17- to 40-year-olds report the highest levels of subjective career success, which is only slightly lower for 41- to 54-year-olds. Conversely, workers aged 55 to 62 exhibit the lowest average levels of subjective career success. Furthermore, observe a small difference between women and men, and a larger confidence interval for women, which can at least partly be attributed to the comparatively small proportion of women in our sample. Regarding acquired resources, workers with upper secondary education, or a university degree appear to perceive the impact of plant closure on their subsequent career as less negative than workers with no more than compulsory education. However, the confidence interval for compulsory education is large, which suggests that former workers with compulsory education experienced the consequences of the plant closure quite differently. Blue- and white-collar workers show similar assessments regarding their subjective career success following plant closures.

Figure 1 Differences in the Assessment of Subjective Career Success (0–100%), Weighted (N = 268)

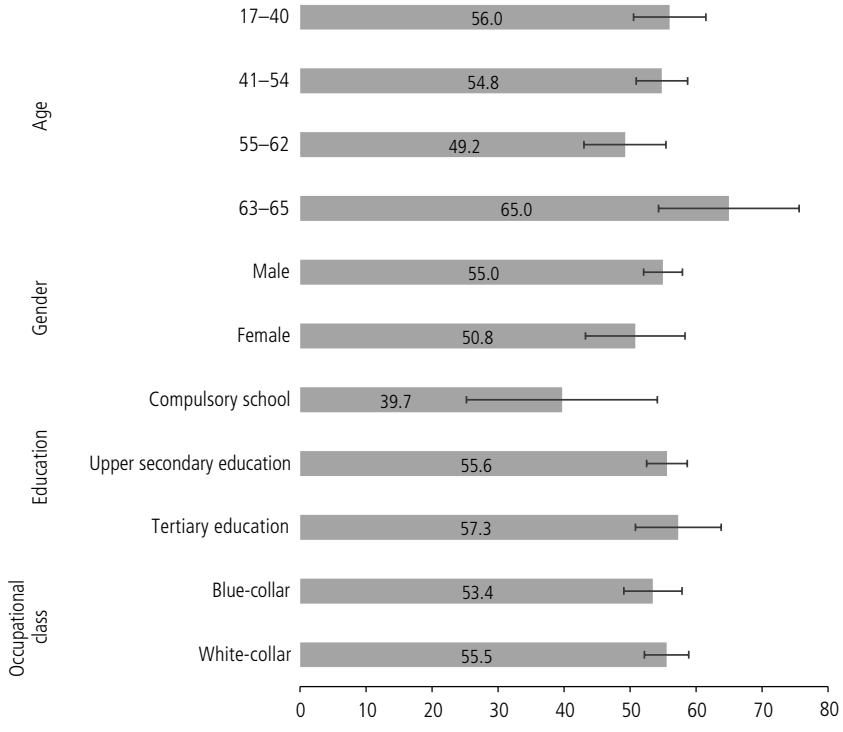

Figure 2 shows that the average assessment of subjective career success varies across age categories and between companies. Due to our limited sample size, we use age categories to visualise the results. The light blue area in the background represents the confidence interval across all plants. The high values for subjective career success for 63- to 65-year-olds across companies are consistent with our assumption that early retirement is predominantly seen as a positive outcome of mass redundancy. Only older workers of Plant 5 show a lower assessment of subjective career success compared to younger workers. Another striking observation is that the subjective career success of workers aged 55 to 62 in Plants 3 and 4 appears to be 15 to 20 points higher on average than in the other three plants.

Figure 2 Average Subjective Career Success (0–100%) Across Age Categories Divided by Company Affiliation, Weighted (N = 268)

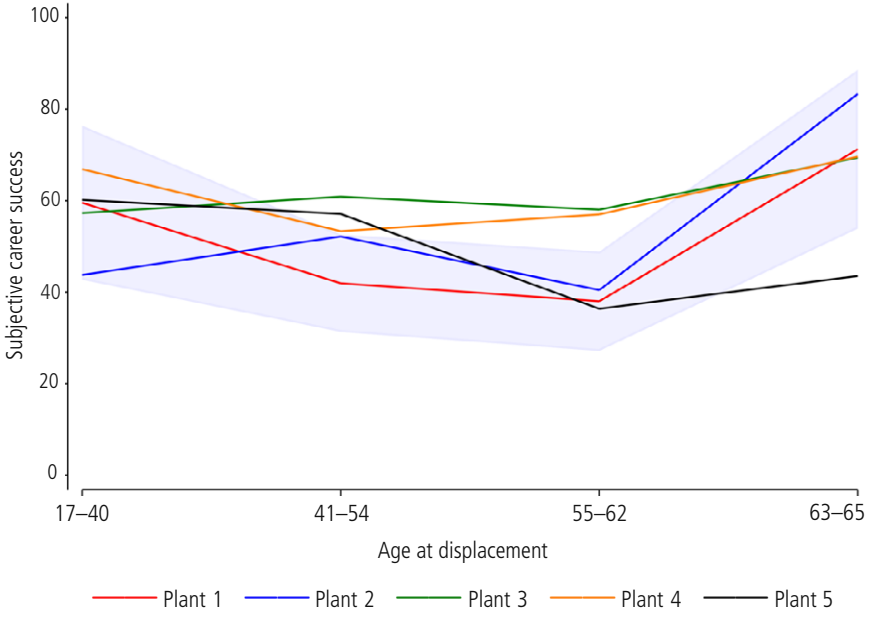

Table 2 depicts the results in more detail and shows four models, which compare how each factor influences workers' subjective career success. In what follows, we discuss findings for micro-level variables for each model and elaborate the meso-level impact of company affiliation at the end of this section.

The coefficients of model 1 indicate that former workers between the age of 17 to 54 assessed the consequences of mass redundancy on their subjective career success

similarly. Whereas those aged 55 to 62 evaluate their subjective career success on average as 6 points lower than 17- to 40-year-olds and 63- to 65-year-olds as 10 points higher. However, we do not observe a significant difference between the subjective career success of 17- to 40-year-old workers and workers of higher age categories.

Model 2 includes all socio-demographic attributes and acquired resources, namely age, sex, education, and occupational class. The association between age and subjective career success remains largely unchanged, besides a slight decrease of the coefficient for the oldest age category. Gender predicts a marginally higher assessment of subjective career success for men than for women by approximately 2 points without being statistically significant.

The coefficients of education predict a significant difference, indicating that subjective career success is on average 16 points higher for workers who had an upper secondary or tertiary education at the time of mass redundancy compared to workers with compulsory education. In contrast, we observe no tangible difference between blue- and white-collar workers.

Model 3 depicts the results of a linear regression that includes only one micro-level variable, the personality trait locus of control. A higher internal locus of control is associated with a more positive assessment of subjective career success following plant closure. Every second increase on a scale reaching from 0 to 10, signifies a 3 points higher assessment of subjective career success on average. Meaning that former workers who perceived themselves as completely self-determined at the time of plant closure, evaluate their subjective career success on average 16 points higher than those with the highest external locus of control.[3]

The final model 4 includes all independent variables and controls for company affiliation. It shows similar, often marginally smaller coefficients that are comparable to model 2. The difference between educational categories remains significant at the threshold of $p < 0.05$ for upper secondary education and $p < 0.10$ for tertiary education compared to compulsory education. While the coefficient of locus of control decreases marginally but remains significant at the $p < 0.05$ level.

In addition to the analysis of individual factors, we performed a likelihood ratio test to examine whether company affiliation had a joint effect on the assessment of subjective career success. The test reveals that company affiliation has an impact on former workers' assessment [LR $chi^2(4) = 11.49$; $Prob > chi^2 = 0.02$]. Additionally, we tested whether the coefficients of two different companies are the same using F-tests. The coefficients differed at the threshold of $p < 0.10$ between

3 Corresponding to previous findings (Preuss and Hennecke 2018), we conducted a robustness check and ran the same analysis with comparable employment states for locus of control. This check was necessary because the authors observed a slight and temporary decrease in the otherwise stable locus of control during unemployment. Hence, we used values for locus of control from the initial survey if workers were employed or retired but values from the follow-up questionnaire when they were unemployed during the initial survey and employed or retired during the follow-up survey. The results are consistent.

Plant 1 and 3 [F(2, 255) = 2.35; Prob > F = 0.10], Plant 2 and 3 [F(1, 255) = 3.61; Prob > F = 0.06] and Plant 4 and 5 [F(2, 255) = 2.92; Prob > F = 0.06]. As well as at the threshold of $p < 0.05$ between Plant 1 and 4 [F(2, 255) = 3.94; Prob > F = 0.02], Plant 2 and 4 [F(1, 255) = 5.70; Prob > F = 0.02] and Plant 3 and 4 [F(2, 255) = 3.10; Prob > F = 0.05].

Table 2 Linear Regression Models of Subjective Career Success

	Model 1		Model 2		Model 3		Model 4	
	B	SE	B	SE	B	SE	B	SE
Age (ref. 17–40)								
41–54	−0.54	3.87	−0.57	3.61			0.78	3.60
55–62	−5.98	4.70	−6.57	4.18			−5.49	4.14
63–65	10.14	6.32	7.66	6.22			8.56	6.64
Male			2.35	4.74			1.78	4.55
Education (ref. compulsory)								
Upper secondary			15.93*	6.84			14.40*	6.63
Tertiary			15.70*	7.69			14.29†	7.50
Blue-collar			0.70	3.11			1.55	3.01
Locus of control					1.64*	0.69	1.40*	0.66
Company (ref. Plant 2)								
Plant 1	−1.48	5.13	−2.37	5.26	−0.32	5.61	−0.75	5.39
Plant 3	11.40*	4.59	9.74*	4.50	9.79*	4.50	8.59†	4.51
Plant 4	11.44*	4.88	11.79*	4.66	9.67†	4.96	10.80*	4.52
Plant 5	4.13	5.55	4.51	5.25	5.92	5.41	4.97	5.18
Constant	48.73		32.79		38.63		25.44	
Adj. R^2		0.06		0.09		0.08		0.11

Note: †p < 0.10, *p < 0.05, **p < 0.01, weighted (N = 268), locus of control from initial survey.

Most of the variance of our linear regression models is explained by the personality trait locus of control (adjusted $R^2 = .08$ in bivariate analysis). The socio-demographic attributes age and gender do not add explanatory power to differences in subjective career success of laid off industrial workers and neither does occupational class. Only education, locus of control, and company affiliation explain some of the variance

that the impact of plant closure had on former worker's assessment regarding their subsequent subjective career success.

6 Discussion

The objective of this article was to determine which factors affect long-term subjective career success of industrial workers following plant closure. Given the extensive amount of literature regarding objective components of career success, such as the impact of layoffs on wages or promotions, we examined the role of workers' subjective satisfaction with their subsequent career instead. Our analysis provides four main findings:

First, socio-demographic attributes do not appear to impact industrial workers' assessment of their subjective career success more than a decade after plant closure. Although the coefficients of age categories indicate a more positive assessment of the consequences of plant closure for workers between the age of 63 and 65 compared to 17- to 54-year-olds, and a slightly lower one for those aged 55 to 62, no significant difference was found. The higher coefficient of subjective career success for workers aged 63 years and older is likely attributable to the fact that those workers perceived early retirement as a satisfying end for their careers and made use of it instead of embarking on the difficult task of finding suitable re-employment options. Men and women reported comparable levels of subjective career success, signifying that both were equally affected by the layoffs.

Second, acquired resources are partially associated with long-term subjective career success. Compulsory education seems to predict a more negative assessment of subjective career success following plant closure, however, the small number of workers in that category prevents us from drawing strong conclusions. Moreover, former workers with an upper secondary education and tertiary education assess the consequences of plant closures similarly, which contradicts our assumptions. The comparable evaluation of subjective career success between blue- and white-collar workers is likely explainable through a stable share of employment in the industrial sector before, during and after the Great Recession in Switzerland. Although, the process of automation and low employment growth is notable for the industrial sector worldwide, Switzerland was largely unaffected and maintained labour market and employment opportunities that allowed blue-collar workers to continue their career without changing professions.

Third, the personality trait locus of control, is associated with former workers' assessment of subjective career success following plant closure. The higher a worker's internal locus of control was and therefore the perception that they can influence outcomes in their lives, the more positive was their evaluation of subjective career

success. This finding is in line with our hypothesis and previous research results, which suggests that individuals' perception of agency and ability to influence outcomes in life can impact their behaviour, such as job search behaviour. However, the locus of control appears to be affected by periods of unemployment (Preuss and Hennecke 2018), which suggests a co-determined relationship between locus of control and the assessment of subjective career success after plant closure.

Fourth, company-related factors influence the perception of consequences associated with plant closures. However, we cannot determine which specific factors contribute to workers' subjective career success, because regional unemployment rates, timing of advanced notices, and social plans are intertwined. It is likely that workers aged 55 to 62 at Plant 4 reported a higher subjective career success on average due to early retirement options without significant pension losses starting from age 57. In contrast, workers at Plant 2 agreed to wage cuts a year before plant closure in an attempt to prevent it, but ultimately faced mass redundancy without advance notice or the opportunity to negotiate a social plan. This likely explains the comparatively negative assessment of the impact of plant closure on their subjective career success. Workers at Plant 1, located in the French-speaking canton of Geneva with the highest regional unemployment rate, may have had limited re-employment opportunities. Despite generous termination pay, language barriers could have prevented former workers from seeking jobs in the larger German-speaking part of Switzerland. In addition, it was the only plant that employed a notable proportion of cross-border workers before it closed. Therefore, French cross-border workers at Plant 1 may have faced even greater challenges in finding similar employment opportunities in France or nearby Swiss border regions. Due to the interconnectedness of factors at the meso-level, we can only make assumptions about what might lead to differences in the assessment of the impact that plant closure has on workers' long-term subjective career success. To shed light on the impact of these factors, future case studies on plant closures could benefit from mixed methods designs.

In terms of limitations, our data did not allow us to control for the existence of partners and their respective employment status at the time of plant closure. Coupled workers might take more time to look for suitable re-employment options if they have an economically active partner before entering the labour market again (Mazerolle and Singh 2004). However, cohabitation was also found to accelerate the re-employment process (Jacob and Kleinert 2014). Future research could therefore clarify if differences between relationship statuses and living arrangements influence the job search behaviour and long-term subjective career success of laid off workers.

Although we were able to analyse the consequences of mass redundancies for manufacturing workers during an economic crisis, our findings are not necessarily generalisable for other sectors. The share of employment in the industrial sector of Switzerland remained largely stable throughout and after the Great Recession, which

facilitated the re-employment process. However, this circumstance that does not necessarily hold true for other countries. Furthermore, we are limited to a rather small sample size and observed traces of response bias, which indicate that workers who perceived the plant closure more negatively were less likely to participate in the follow-up survey conducted in 2020. Consequently, the results of our analysis are likely to depict a more optimistic outlook on the impact of plant closures on workers' long-term subjective career success. To mitigate this issue, we applied weights to adjust our sample to the initial survey sample. However, we lack comprehensive information related to our baseline sample, which impedes us from providing weights that account for all 1 202 workers.

To conclude our findings, most displaced workers evaluated the consequences of plant closures on average as a neutral rather than a critical life event that did not influence their subjective career success substantially. Yet we observe a notable proportion of workers, who deviate towards a positive or negative assessment, without being able to predict their subjective career success through socio-demographic attributes. Education as an acquired resource and the personality trait locus of control are associated micro-level indicators of subjective career success after plant closure. Furthermore, we observed meso-level differences due to workers' company affiliation and differing plant closure modalities.

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Appendix

Table A.1 Descriptive Statistics of the Distribution of Variables of the Final Sample

		N	Percent or mean
Subjective career success		268	55.29
Age	17–40	74.31	27.73
	41–54	107.95	40.28
	55–62	69.37	25.89
	63–65	16.37	6.10
Sex	Women	44.55	16.62
	Men	223.45	83.38
Education	Compulsory education	26.43	9.86
	Upper secondary education	208.65	77.86
	Tertiary education	32.92	12.28
Occupational class	Blue-collar	159.89	59.66
	White-collar	108.11	40.34
Locus of control		268	5.93

Note: Weighted sample (N = 268).
Upper secondary education encompasses pre-apprenticeships, apprenticeships, Matura and higher vocational education. Tertiary education encompasses University and University of Applied Sciences.
Values for all independent variables correspond to 2011. Only the dependent variable subjective career success was assessed in 2020.