The U-Shaped Cost of Job Loss

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Job displacement causes large and lasting earnings losses. Challenging the common view that these losses increase monotonically with age, we document a clear U-shaped pattern in French administrative data: both young and older workers lose significantly more than those in mid-career. We identify distinct age-specific mechanisms behind this pattern. Young workers face prolonged job instability, whereas older workers encounter poor reemployment prospects and steep wage declines. We develop a search-and-matching model with human capital accumulation and obsolescence that reproduces these dynamics. While policy debates often emphasize older displaced workers, our findings highlight the need to also support displaced youth. (JEL J24, J64, J65)

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1 Introduction

Job displacement causes large, persistent, and countercyclical earnings losses. These patterns are well documented across time periods, countries, and occupations.[1] Despite this extensive evidence, less is known about how earnings losses evolve over a worker's career. A common view in labor economics is that the cost of displacement rises monotonically with age.[2] The logic is intuitive: young workers typically earn low wages and hold few firm-specific skills, so their losses are modest. Older workers, by contrast, accumulate substantial human capital that displacement renders obsolete and have fewer years until retirement. As a result, they face weaker reemployment prospects and steeper wage declines. This conventional wisdom suggests that policy interventions should primarily target older workers.

In this paper, we challenge this view and show that the cost of job loss is not a monotonic function of age. Instead, it follows a pronounced U-shaped pattern. In relative terms, workers displaced in their twenties experience larger earnings losses than those displaced in their thirties. Losses rise again for workers in their forties and fifties. This novel finding reveals a key insight: the early stage of a career is critical for shaping lifetime earnings. Job loss at a young age can have long-lasting, detrimental consequences, indicating that young workers, too, deserve targeted policy support.

To establish this result, we use administrative employer-employee data covering a representative sample of French workers aged 18–62 between 2001 and 2021. We exploit mass layoffs and employ an event-study design to compare displaced workers with a matched control group of non-displaced workers sharing similar pre-displacement characteristics, including gender, age, sector, contract type, tenure, earnings, and firm size. We measure losses as the present discounted value of workers' earnings shortfalls relative to their pre-displacement earnings. This metric goes beyond simple monetary losses, enabling com-

[1]See Ruhm (1991); Jacobson, LaLonde, and Sullivan (1993); Couch and Placzek (2010); Davis and von Wachter (2011); Seim (2019); Lachowska, Mas, and Woodbury (2020); Fackler, Mueller, and Stegmaier (2021); Bertheau, Acabbi, Barceló, Gulyas, Lombardi, and Saggio (2023); Schmieder, von Wachter, and Heining (2023).

[2]This view is widely held in the literature. To cite a few examples, Michelacci and Ruffo (2015) write that "wage losses upon displacement . . . increase substantially with age as is documented in Davis and von Wachter (2011)." Jung and Kuhn (2019) find that "earnings losses are almost linear in age, so that the effect at the mean and the mean effect are identical," and Salvanes, Willage, and Willén (2024) report that "adverse labor market impacts generally increase with age."

parison of income trajectories across career stages and capturing a welfare-relevant cost of displacement.

Our main empirical finding is as follows. Early in the career, job displacement reduces long-term earnings by an amount equivalent to 1.7 years of pre-displacement earnings. This loss is roughly twice as large as that faced by mid-career workers aged 33–36. Earnings losses rise again at later career stages, with workers aged 50 and above losing up to 1.35 years of earnings. Thus, both younger and older workers emerge as the most vulnerable to displacement.

The U-shaped cost of job loss proves remarkably robust across a wide range of job characteristics, including sector (manufacturing vs services), occupation (low- vs high-skilled), working time (full- vs part-time), and contract type (permanent vs temporary). The pattern appears both in normal times and during recessions. It also persists under alternative definitions of earnings losses and across various model specifications, such as different thresholds for pre- and post-displacement tenure and firm size. Taken together, these results indicate that the non-monotonic age profile of displacement costs is a fundamental feature of labor markets.[3]

What drives the high cost of job loss for both young and older workers? We find that the underlying mechanisms differ by age. We first decompose total earnings into hours worked and hourly wages. For younger workers, nearly all earnings losses stem from reduced hours, as their hourly wages remain largely unchanged. For older workers, in contrast, wage declines play a larger role, accounting for about 25–30 percent of their total losses. This suggests that the cost of job loss for the young primarily reflects difficulty reentering employment rather than wage penalties.

We then examine four labor market outcomes: the probability of finding a job, the likelihood of obtaining a permanent contract, the number of jobs held over a given period, and the risk of labor force exit. Three years after displacement, young workers are about as likely to be employed as their mid-career peers, but they are less likely to secure permanent positions and more likely to move between multiple jobs—consistent with the idea that job loss perpetuates further instability. Older workers, by contrast, remain out of work longer, tend to earn lower wages when reemployed, and are more prone to exit the labor force al-

[3]Job-finding rates and separation rates decline with age in many labor markets beyond France (Créchet, Lalé, and Tarasonis 2025). As we discuss below, since these dynamics underpin the U-shaped profile of earnings losses, similar patterns are likely to arise in other countries.

together. Overall, the evidence points to a dual mechanism behind the U-shaped cost of job loss: young workers endure prolonged labor market instability, while older workers face high barriers to reemployment coupled with wages penalties. Both channels contribute to sustained earnings losses following displacement.

Can modern theories of the labor market account for the non-monotonic cost of job loss? Our answer is yes, provided they capture the observed transition dynamics—most notably the high separation rate early in the career. We write down a simple life-cycle search-and-matching model featuring human capital accumulation and obsolescence. The model generates earnings losses that first decline and then rise with age. The intuition is as follows. Early in their career, workers hold unstable, low-paying jobs but experience rapid human capital growth. Job loss at this stage is particularly costly because it interrupts steep skill acquisition, often trapping workers in a sequence of unstable positions. Older workers, in contrast, command stable, high-paying jobs. Displacement at this age entails a large income drop and limited reemployment opportunities. Middle-aged workers fall in between: they have already accumulated most of their human capital and wage growth while still enjoying relatively strong job prospects, so they fare better after displacement.

We calibrate the model to French administrative data by matching key labor market moments—wages, job-finding rates, and separation rates—across different ages. The model naturally produces a U-shaped pattern of earnings losses over the life cycle. In particular, workers around age 25 experience earnings losses equivalent to up to 1.55 years of earnings, those aged 30–40 lose about 0.9 years of earnings, and those around age 50 lose roughly 1.2 years of earnings. These magnitudes broadly align with the data for all age groups. To our knowledge, this study is the first to replicate the nonlinear profile of post-displacement earnings over the life cycle.

We perform a decomposition exercise to identify the main drivers of earnings losses. For young workers, two forces dominate: job instability early in the career and lack of skill accumulation during unemployment. Entering the labor market with little human capital, young workers face a high risk of layoff. Unemployment spells reduce earnings by delaying skill acquisition, keeping workers in low-paying, high-turnover jobs for longer periods. For older workers, the story differs. As they age, a growing share of accumulated knowledge becomes obsolete and cannot be redeployed in new jobs. In addition, employers' expected profits from opening vacancies decline as workers approach retirement. These forces jointly reduce older workers' job-finding probabilities and post-displacement wages, raising the cost of displacement. In sum, our analysis confirms that the sources of earnings losses vary across the life cycle; no single explanation accounts for all ages.

Our findings carry clear policy implications. While governments devote vast resources to supporting jobs and workers—particularly older ones—the dual mechanism we identify suggests interventions may need to be age-specific. We simulate two types of targeted, welfare-equivalent policies: those designed to stimulate job creation (e.g. targeted guidance for youth or hiring subsidies) and those aimed at limiting job destruction (e.g. firing taxes or taxes on temporary contracts). Job creation policies more effectively reduce earnings losses for young displaced workers, whereas separation-reducing measures better lower overall unemployment. This highlights a tradeoff for policymakers: focus support on the relatively few unemployed or protect all workers. Considering the relative feasibility of each approach, measures that foster rapid reemployment appear better suited to shield young workers from the long-lasting scars of displacement.

This paper contributes to the empirical literature on the costs of displacement. Many studies find that earnings losses tend to rise with age (Topel 1990; Carrington 1993; Jacobson, LaLonde, and Sullivan 1993, 2005; Farber 1997; Couch and Placzek 2010; Salvanes, Willage, and Willén 2024; Gulyas and Pytka 2025; Leenders and Wallenius 2025).[4] However, this pattern largely reflects the fact that older workers earn higher wages, making their absolute losses mechanically larger. To enable meaningful comparisons across age groups, we measure foregone earnings in present value relative to a pre-displacement baseline. Using this metric, we find that the cost of displacement follows a pronounced U-shaped pattern over the life cycle.[5] Our results therefore reinterpret existing evidence and challenge the prevailing view: young workers bear a large share of the welfare burden of displacement.[6] Finally, we are the first to decompose earnings losses into hours and wages by age, revealing distinct age-specific channels through which job loss affects earnings.

We also contribute to the theoretical literature on the sources of earnings losses. Existing models either abstract from age (Krolikowski 2017; Burdett, Carrillo-Tudela, and Coles 2020; Huckfeldt 2022; Jarosch 2023; Audoly, De Pace, and Fella 2024) or predict that dis-

[4]Most studies identify displacement effects through mass layoffs. Recent work proposes alternative strategies, such as using the stated reason for separation (Flaaen, Shapiro, and Sorkin 2019; Brandily, Hémet, and Malgouyres 2022; Birinci, Park, and See 2023) or exploiting seniority rules like last-in-first-out (Cederlöf 2024).

[5]Consistent with prior work, we also find that absolute monetary losses increase steadily with age.

[6]This interpretation resonates with research showing that the timing of labor market entry has lasting effects on earnings (Kahn 2010; Oreopoulos, von Wachter, and Heisz 2012; Guo 2018; von Wachter 2020).

placement costs rise monotonically with age (Michelacci and Ruffo 2015; Cozzi and Fella 2016; Jung and Kuhn 2019), leaving age-specific mechanisms largely unexplored.[7] We explicitly model career stages, breaking down the effects across the working life and showing why young workers can incur disproportionately large losses. Because separations are more frequent when skills are still limited, early-career displacement disrupts human capital accumulation and can lock workers in unstable jobs. Our life-cycle framework thus yields new insights into labor market dynamics and the origins of post-displacement earnings losses.

The paper proceeds as follows. Section 2 describes the data and methodology. Section 3 reports the empirical findings. Section 4 investigates the underlying mechanisms. Section 5 presents the model and its calibration. Section 6 provides the quantitative results. Section 7 concludes.

2 Data and Method

2.1 Data

We use administrative data provided by the French National Institute of Statistics and Economic Studies. Our primary source is the *Déclaration Annuelle des Données Sociales* (DADS), a matched employer-employee panel dataset that covers a representative 8 percent sample of all wage earners in France. DADS contains rich information on each employment spell, including contract type, occupation, hours worked, duration, compensation, sector, and firm characteristics at the establishment level, as well as demographic variables such as age and gender. A key advantage of the dataset is that it records hours worked and occupation, which allows us to better understand the sources of displacement-induced earnings losses. Our sample spans the two decades from 2001 to 2021. We are thus able to track the employment histories of a large number of workers over an extended period.

We complement this with FH-DADS, a file that links DADS records to administrative registers from *Pôle Emploi*, the French public employment service. FH-DADS provides

[7] Jung and Kuhn (2019) is often cited in discussions of displacements cost over the life cycle. Our approach differs in several key respects. They calibrate their model to external evidence from Couch and Placzek (2010) rather than estimating earnings losses directly, and they focus on average costs—effectively centered on mid-career workers. While they report some age-specific results, they do not analyze the mechanisms operating across career stages. In contrast, we estimate present-value losses directly from administrative data, document a clear U-shape with especially large early-career losses, and decompose the underlying channels by age.

information on unemployment spells, which we use to measure labor market flows such as transitions into and out of employment.

2.2 Labor Market Features in France

We provide some brief background on the French labor market to help interpret our data.

Contract Type.—The French labor market is dual (Cahuc, Charlot, and Malherbet 2016; Cahuc and Palladino 2024). Permanent contracts (*contrats à durée indéterminée*) offer strong job protection and severance pay, whereas temporary contracts (*contrats à durée déterminée*, CDD) are short-term, flexible, and easier to terminate. CDDs are widely used for young and less experienced workers, accounting for about 15% of all contracts.[8]

Severance Pay.—Employers are required to pay severance to workers on permanent contracts when they are dismissed. Statutory severance is based on tenure and equals one quarter of a month's salary per year of service for the first ten years, and one third of a month's salary per year thereafter. Severance payments explain why workers' income typically spikes at the time of dismissal.

Skilled Occupations.—Although the data do not contain information on workers' educational attainment, they allow us to distinguish between low- and high-skilled occupations. Each salaried worker is classified into one of four broad occupational categories: blue-collar workers, employees, intermediate professions, and managers and professionals. We group blue-collar workers and employees as low-skilled occupations, and intermediate professions and managers and professionals as high-skilled occupations.

Retirement Age.—France operates a pay-as-you-go pension system in which all workers are required to participate. Pensions are defined-benefit and calculated based on the average of a worker's 25 highest-earning years. Prior to the 2023 reform, the legal retirement age is 62, although early retirement is possible under certain conditions. The relatively low retirement age contributes to lower employment rates among workers aged 55–64 compared with other European countries (Hairault, Sopraseuth, and Langot 2010).

[8]In France, individual dismissals are often carried out through "separation by mutual agreement" (Carry and Schoefer 2024). Our analysis, however, focuses on collective dismissals.

2.3 Job Displacement in Mass Layoffs

We follow standard practice in the literature by studying job displacement due to mass layoffs. Mass layoffs typically arise from firm- or industry-level shocks—such as plant closures, large-scale downsizing, or macroeconomic downturns—rather than from individual factors like performance or health. Thus, they help mitigate concerns about the endogeneity of separation and provide a credible setting for estimating the causal effects of job loss.

We adopt the usual definition of a mass layoff as a sharp decline in employment of at least 30 percent at a given establishment. Our analysis restricts to firms with at least 50 employees in the year preceding the layoff, consistent with the literature. We also impose standard tenure requirements: all workers must have been employed at the firm for at least one year prior to the layoff, and non-displaced workers must remain with the firm for at least two years following it. These criteria ensure we study individuals with stable employment relationships who were likely to have stayed in their jobs absent the mass layoff. We perform a series of robustness checks to ensure that our results do not depend on these assumptions.

Treated and Control Workers.—We construct our sample as follows. Using data from 2004 to 2011, we identify male individuals aged 21 to 55 who have been employed for at least one year in a private-sector establishment with 50 or more employees. Let d denote the year of a displacement event.

The treated group consists of workers who lose their job in year d as part of a mass layoff. The control group comprises workers who are not displaced between $d-1$ and d, and who remain continuously employed with their main employer through $d+2$. We track all individuals over a 14-year window around the displacement year, from $d-3$ to $d+10$, yielding a full sample period of 2001–2021.

To construct the control group, we adopt a standard matching procedure (Bertheau et al. 2023; Schmieder, von Wachter, and Heining 2023). We partition workers into cells defined by gender, age (20–29, 30–39, 40–49, 50+), sector (manufacturing vs services), and contract type (permanent vs temporary). Within each cell, we estimate a probit model for the probability of displacement, using earnings in $d-2$ and $d-3$, tenure, and establishment size as predictors. A one-to-one nearest-neighbor matching procedure then assigns a control worker to each displaced worker.

Table 1 reports descriptive statistics for our displaced workers and their matched non-displaced counterparts by age group. Within each age bracket, the two groups are well

Table 1: Summary Statistics

Age		Hours worked	Annual earnings	Tenure	Full-time	Permanent contract	Manu-facturing	High-skilled	Number of workers
21–24	Treated	1,649	17,954	1.5	0.87	0.66	0.29	0.16	1,551
	Control	1,781	18,330	1.5	0.93	0.71	0.28	0.15	
25–28	Treated	1,740	23,892	2.2	0.91	0.83	0.32	0.38	5,214
	Control	1,813	23,859	2.2	0.94	0.82	0.30	0.35	
29–32	Treated	1,775	28,753	3.1	0.93	0.89	0.34	0.45	6,990
	Control	1,829	28,105	3.1	0.94	0.88	0.35	0.42	
33–36	Treated	1,793	31,233	3.8	0.93	0.89	0.40	0.42	7,655
	Control	1,837	30,672	3.8	0.94	0.90	0.40	0.40	
37–40	Treated	1,805	33,452	4.6	0.92	0.90	0.45	0.43	7,914
	Control	1,832	33,036	4.4	0.94	0.90	0.45	0.40	
41–44	Treated	1,810	35,259	5.2	0.92	0.89	0.48	0.43	7,862
	Control	1,841	33,962	5.4	0.94	0.88	0.49	0.38	
45–48	Treated	1,818	36,074	5.9	0.93	0.85	0.52	0.41	7,438
	Control	1,839	35,538	6.0	0.94	0.85	0.52	0.39	
49–52	Treated	1,797	36,760	6.6	0.92	0.83	0.56	0.43	6,774
	Control	1,830	36,094	6.5	0.93	0.84	0.55	0.40	
53–55	Treated	1,796	36,107	6.9	0.93	0.85	0.55	0.43	4,606
	Control	1,821	36,787	6.6	0.94	0.85	0.54	0.42	

Notes: Average pre-displacement characteristics of displaced (treated) and non-displaced (control) workers in the matched sample, by age group. All covariates are measured one year prior to displacement, except annual earnings which are measured two years prior. Earnings are expressed in 2010 euros, tenure is measured in years, and all other variables are shares.

balanced. They work similar annual hours, earn comparable wages, and display nearly identical tenure, full-time employment rates, contract types, sectoral composition, and skill distribution.

Differences across age groups are more substantial, but these reflect life-cycle patterns rather than selection into displacement. Relative to older workers, younger workers earn lower wages, are less likely to hold full-time permanent positions, are less represented in manufacturing, and are less likely to be employed in high-skill occupations. These characteristics evolve naturally over the career, as the table illustrates. In the next section, we show that the age-specific cost of job loss we document is not primarily driven by selection into non-manufacturing and low-skilled occupations.

Overall, the strong within–age-group balance across observed characteristics indicates that treated and control workers are similar prior to displacement.

2.4 Event Study

We conduct a standard event study to estimate the dynamic effects of job displacement. Let y_{it} denote the outcome of interest for worker i in year t; recall d_i is the year in which worker

i is displaced. We estimate the following regression

$$y_{it} = \sum_{k=-3}^{7} \beta_k \times \mathbf{1}\{t = d_i + k\} \times \text{displaced}_i + \sum_{k=-3}^{7} \gamma_k \times \mathbf{1}\{t = d_i + k\} + \alpha_i + \lambda_t + \varepsilon_{it}, \quad (1)$$

where displaced_i is an indicator equal to one if worker i belongs to the treated group and $\mathbf{1}\{t = d_i + k\}$ are event-time indicators that equal one if year t is k years relative to the displacement year d_i. We control for event-time fixed effects γ_k, individual worker fixed effects α_i, and calendar-year fixed effects λ_t.[9] Under the assumption of parallel trends, the coefficients of interest β_k measure the causal effect of job loss at event time k.

2.5 Measuring Present-Value Losses

Raw earnings losses are not directly comparable across workers of different ages. Older workers typically earn more—for example, 50-year-olds earn about twice as much as 25-year-olds—and therefore incur mechanically larger absolute losses when displaced. For this reason, many authors measure job-loss costs in relative, present-value terms, either by expressing them as a multiple of pre-displacement earnings or relative to a no-displacement counterfactual (Davis and von Wachter 2011; Krolikowski 2017; Jung and Kuhn 2019; Lachowska, Mas, and Woodbury 2020; Huckfeldt 2022; Jarosch 2023; Rud et al. 2024). This approach provides a consistent, welfare-relevant metric of job-loss costs across workers with different earning profiles.

Following this method, we define the cost of job loss as the present discounted value of displaced workers' earnings shortfall, expressed as a multiple of pre-displacement annual earnings. Formally,

$$\text{cost} = \sum_{k=0}^{7} (1+r)^{-k} \cdot |\beta_k| \Big/ \overline{\text{earnings}}_{-2}, \quad (2)$$

where r is the annual discount rate set to 0.05, β_k is the estimated loss in year k, and $\overline{\text{earnings}}_{-2}$ denotes average earnings two years prior to displacement.

We adopt a seven-year horizon for all age groups to ensure comparability. This window is long enough to capture the persistent scarring effects of displacement, yet short enough to limit confounding from retirement, as we track displacements up to age 55 while the statutory retirement age in France during our sample is 62.

For robustness, we also consider five- and ten-year horizons, as well as an alternative measure that scales losses by the present discounted value of counterfactual earnings ab-

[9]We obtain very similar results when excluding worker fixed effects α_i.

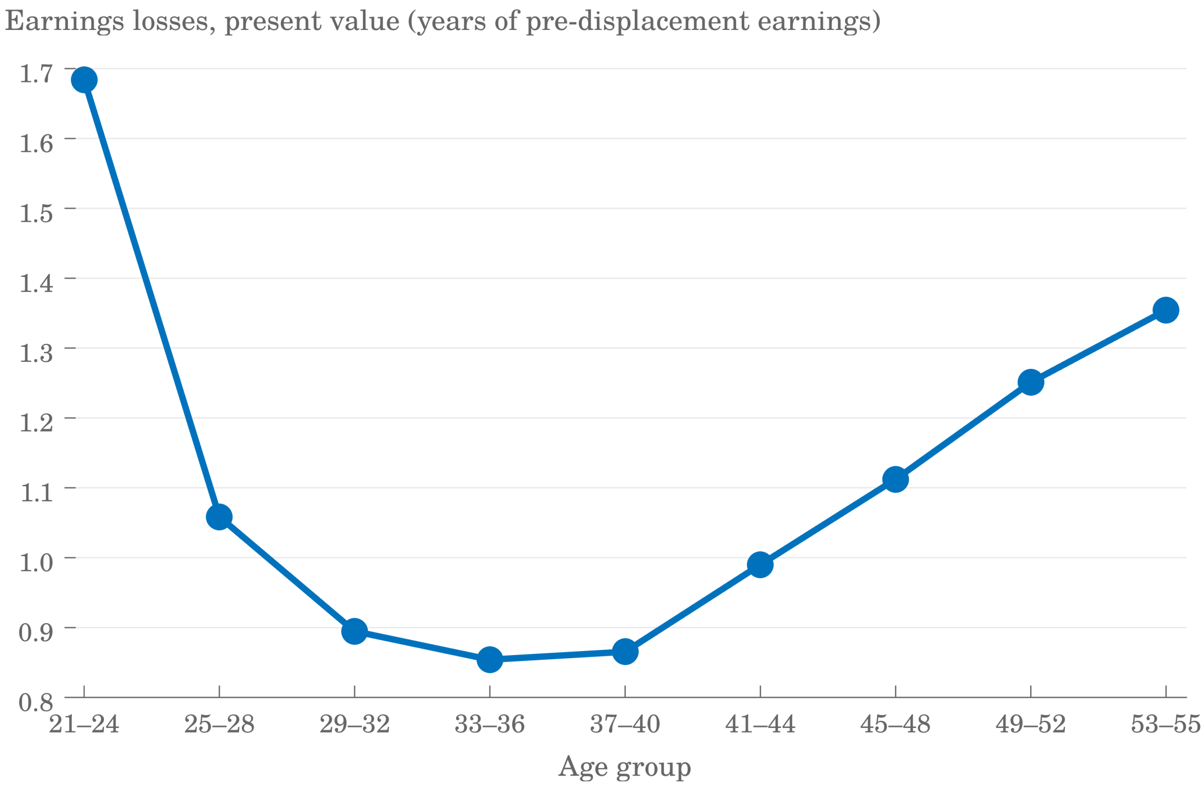

Figure 1: The U-Shaped Cost of Job Loss

Notes: Present value of earnings losses following displacement, expressed as a multiple of pre-displacement annual earnings. Present values are computed according to equation (2) over a seven-year horizon using a 5 percent annual discount rate. Age brackets refer to age at the time of displacement.

sent displacement. Formally,

$$\text{cost} = 100 \times \sum_{k=0}^{7}(1+r)^{-k} \cdot |\beta_k| \bigg/ \left[\sum_{k=0}^{7}(1+r)^{-k} \cdot (\overline{\text{earnings}}_k + |\beta_k|)\right]. \tag{3}$$

As we show in the next section, our results are not affected by these alternative definitions.

3 The Cost of Job Loss By Age

This section presents our empirical findings on how the consequences of job loss vary over the life cycle.

3.1 The U-Shape

We begin with our central result. Figure 1 plots present-value earnings losses after mass layoffs by age at the time of displacement, expressed relative to pre-displacement earnings.

Earnings losses follow a striking U-shape. Workers displaced in their twenties experience steep and persistent declines, while those displaced in their thirties incur the smallest losses. Losses rise again for workers in their forties and fifties. The magnitudes are large: early-career displacement (ages 21–24) reduces the present value of earnings by up to 1.7 years of pre-displacement earnings—roughly twice the 0.85 years of earnings loss observed for mid-career workers (ages 33–36). Even workers displaced later in their twenties (ages 25–28) experience losses about 25 percent larger than those in mid-career. For late-career workers (ages 53–55), losses reach as much as 1.35 years of pre-displacement earnings. Appendix Figure A1 presents the full earnings trajectories by age group, and Appendix Table A1 reports the associated standard errors, confirming that these differences are statistically significant.

To ensure that these findings are not driven by the youngest age group, we consider coarser age bins. Appendix Figure A2 reports results using five age groups (21–27, 28–34, 35–41, 42–48, 49–55). Earnings losses continue to exhibit a U-shaped pattern, with workers in the youngest group (21–27) losing about 35 percent more than those in mid-career (35–41). Similar patterns obtain when using four or three age bins.

This study is the first to document such a clear U-shaped relationship between age and the cost of job loss. The results suggest that workers are particularly vulnerable at the start of their career, a phase often marked by limited experience and job instability. While large losses faced by older workers are well established, our findings highlight the long-lasting scars of early-career displacement—a topic that has received much less attention in the literature.

3.2 The Persistent U-Shape

The U-shaped pattern of earnings losses proves robust. It emerges across job characteristics, during recessions and normal times, under alternative definitions of earnings losses, and under varying model assumptions.

Jobs.—Figure 2 reproduces the age profile of relative losses separately by job characteristic, focusing on employment in manufacturing, high-skilled occupations, full-time jobs, and temporary contracts.

Along all dimensions, earnings losses are larger for younger and older workers than for their mid-career peers. Although magnitudes vary somewhat by job characteristic, the

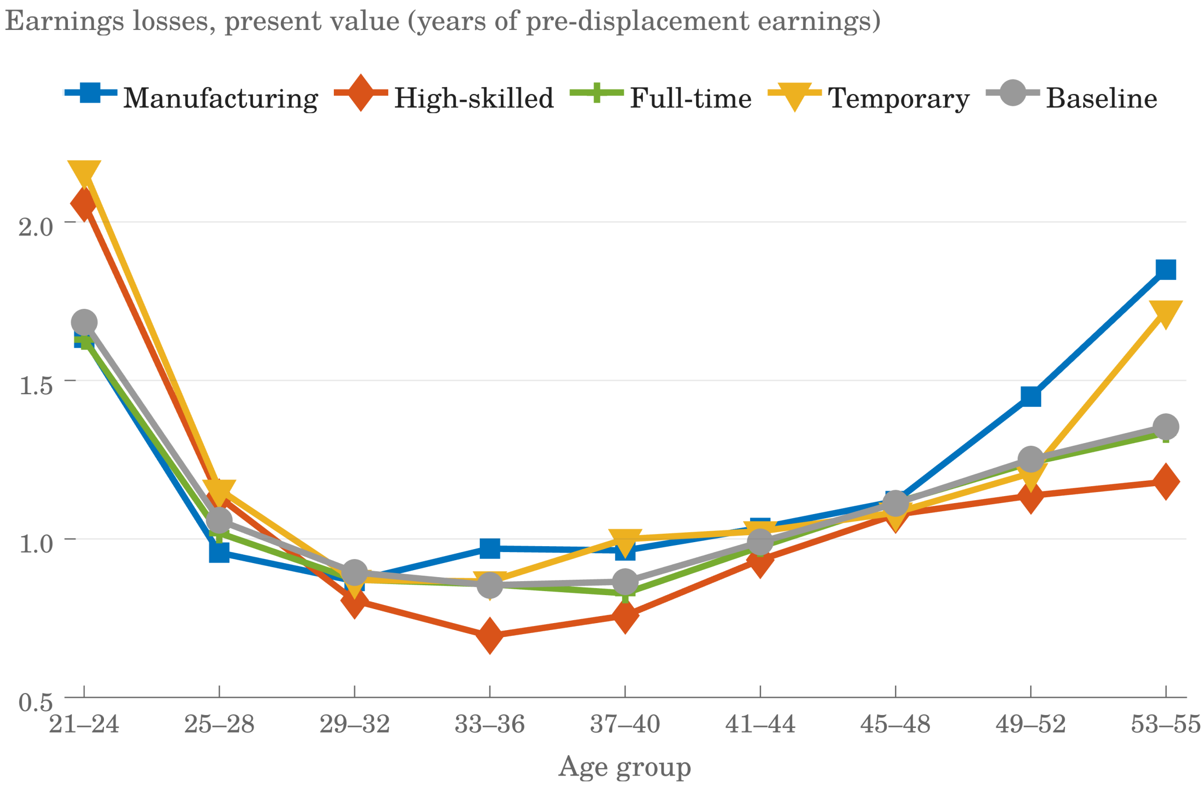

Figure 2: The U-Shaped Cost Across Job Characteristics

Notes: Present value of earnings losses following displacement, expressed as a multiple of pre-displacement annual earnings. Present values are computed over a seven-year horizon using a 5 percent annual discount rate. The baseline corresponds to the full sample of workers.

age profiles largely overlap. Workers in manufacturing and non-manufacturing sectors experience nearly identical losses. Among young workers, losses in high-skilled occupations exceed those in the baseline, implying that low-skilled workers incur smaller losses. This is an important result, as it indicates that the high cost of early-career displacement is unlikely to be driven by selection into low-skilled jobs. Workers aged 21–24 are predominantly low-skilled, both because they have had limited time to accumulate skills and because some remain in education and have not yet entered the labor force. The fact that young high-skilled workers nonetheless experience larger losses suggests that the U-shaped pattern could be even more pronounced if skill composition of younger workers more closely resembled that of older age groups. In mid- and late-career, this pattern reverses: losses for high-skilled workers fall below the baseline, implying larger losses for low-skilled workers, consistent with prior evidence (Carrington and Fallick 2017; Guvenen et al. 2017). Finally, full-time workers experience less pronounced losses than part-time workers, while temporary workers incur larger losses than workers on permanent contracts.

Time.—The U-shaped pattern holds both in normal times and during recessions. Our sample period includes the 2008–2009 financial crisis, which we classify as recession years. Appendix Figure A3 plots the corresponding losses for workers displaced during these years. The entire U-shape shifts upward, indicating larger losses across all age groups in recessions. This pattern echoes the findings of Davis and von Wachter (2011) and Schmieder, von Wachter, and Heining (2023). Moreover, the U-shape becomes even more pronounced: young workers experience especially large losses in downturns (1.9 versus 1.7 years of earnings in the first age bin).

Definitions.—The seven-year horizon used in our baseline may appear arbitrary. Appendix Figure A4 shows that the same U-shaped pattern emerges with five- and ten-year horizons. Losses are larger under a ten-year horizon, but results for the oldest age group (53–55) may be affected by retirement behavior.

We also consider an alternative measure that scales losses relative to the present value of counterfactual earnings absent displacement, as is standard in the structural labor literature. Appendix Figure A5 shows that losses follow the same U-shape over the life cycle, regardless of the horizon (five, seven, and ten years). These results confirm that the pattern is not driven by the time horizon or the loss metric.

Assumptions.—The U-shape is not an artifact of our modeling choices. Appendix Figure A6 presents analogous estimates under alternative assumptions, including varying thresholds for pre- and post-displacement tenure and different firm-size cutoffs.

While the magnitude of losses varies modestly across specifications, the U-shaped age profile remains notably stable. The pre-displacement tenure criterion has limited impact on the results.[10] Imposing a post-displacement tenure requirement of one year reduces overall losses, as expected, since the control group now includes more unstable workers, but it actually accentuates the U-shape. A potential concern is that young workers who initially join larger firms may perform particularly well, which could inflate observed losses (indeed, Arellano-Bover (2024) finds that starting a first job at a larger firm improves labor market

[10]The link between pre-displacement tenure and the cost of job loss is theoretically ambiguous. On the one hand, longer tenure implies greater firm-specific human capital and higher wages, suggesting larger losses upon displacement. On the other hand, workers with shorter tenure may experience longer unemployment spells and are more likely to transition into unstable, low-quality jobs, which can also amplify losses.

prospects). To address this potential selection bias, we consider firms with 30+ employees instead of 50+, which does not substantially affect the results.

Together, these checks show that the U-shaped cost of job loss is not driven by sample composition, time horizon, loss metric, or modeling assumptions. Rather, it reflects a fundamental feature of the data.

3.3 Reinterpreting Prior Evidence

At first glance, it may seem surprising that the literature has overlooked such a stark result. Yet our findings align closely with two well-established facts: (i) older workers are particularly vulnerable to displacement, and (ii) younger workers experience smaller *absolute* earnings losses. Indeed, Appendix Figure A1 confirms that euro-denominated losses rise monotonically with age at displacement, consistent with recent evidence (Salvanes, Willage, and Willén 2024; Gulyas and Pytka 2025).

Our contribution is to shift perspective. By expressing earnings in relative, present-value terms, we capture the full long-term cost of job loss. This perspective reveals that younger workers—despite smaller absolute losses—incur disproportionately large setbacks relative to their expected career earnings.

Since our results complement rather than contradict prior work, there is good reason to believe that the U-shaped pattern is not unique to France. Many countries exhibit similar life-cycle labor market dynamics, with high unemployment among young workers driven by initially high separation rates that decline with age (Créchet, Lalé, and Tarasonis 2025).[11] As we show next, these transition dynamics are central to generating the high cost of job loss among young workers. We view our study as a first step and hope future research using administrative data will investigate whether similar age-specific displacement costs emerge in other countries.

4 Understanding the Mechanisms

The U-shaped pattern of earnings losses naturally raises the question: why are losses disproportionately severe for those displaced at the beginning or end of their career? This

[11] The presence of a dual labor market is also not unique to France. Recent evidence suggests the U.S. labor market is dual as well: workers in a primary sector are almost always employed, while those in a secondary sector face seasonal and business-cycle fluctuations and are much more likely to be unemployed (Ahn, Hobijn, and Şahin 2023).

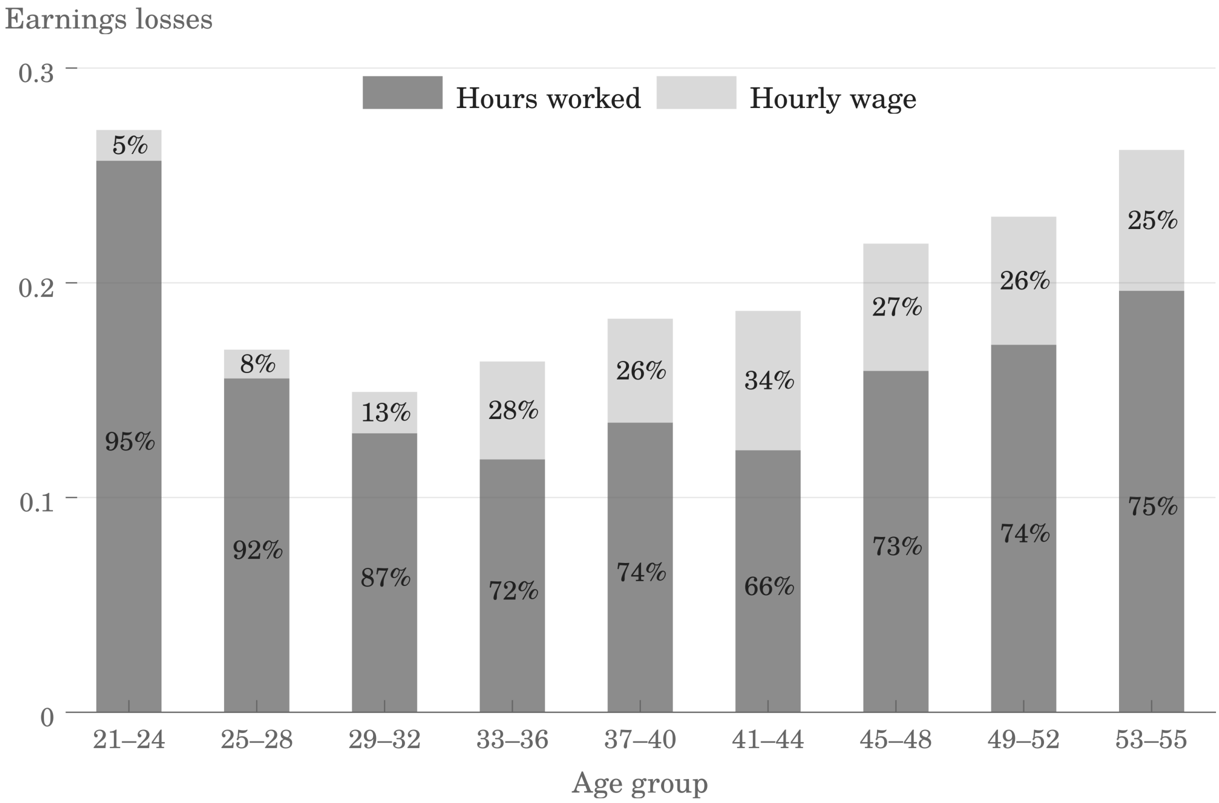

Figure 3: Decomposing Earnings Losses

Notes: Decomposition of earnings losses into changes in hours worked and hourly wages. We estimate equation (1) separately using log earnings and log hours worked as dependent variables. The share of losses due to hours worked (dark gray) is computed as the mean of the ratio of the estimated coefficients, $\beta_k^{\text{hours}}/\beta_k^{\text{earnings}}$, over the seven-year period. The remaining share is attributed to changes in hourly wages (light gray).

section investigates the mechanisms underlying these patterns.

4.1 Decomposing Earnings Losses

To understand the sources of earnings declines, we begin by decomposing total earnings into hours worked and hourly wages. Taking logarithms gives

$$\log(\textbf{total earnings})_{it} = \log(\textbf{hours worked})_{it} + \log(\textbf{hourly wage})_{it}. \tag{4}$$

Figure 3 presents a decomposition for nine age groups, with values averaged over the seven years following displacement. The full time-series dynamics are shown in Appendix Figure A7.

Across all age groups, reductions in hours worked account for the bulk of earnings losses, in line with recent work (Brandily, Hémet, and Malgouyres 2022; Bertheau et al. 2023). This effect is particularly pronounced among younger workers, whose hourly wages remain largely unchanged and explain only about 5 percent of total losses.[12] As workers age, wage declines become increasingly more important: for those aged 41–44, wages account for roughly one-third of total losses. Beyond this point, reductions in hours again play a larger role; for workers aged 53–55, wages explain a quarter of total losses.

Overall, this decomposition indicates that for younger workers, the high cost of displacement primarily reflects difficulty in regaining employment rather than wage penalties or occupational downgrading. For older workers, both hours and wages contribute meaningfully to total losses.

4.2 Uncovering Age-Dependent Causes

Having established the relative contributions of hours and wages, we now turn to the labor market dynamics driving these age-specific patterns. Figure 4 reports four outcomes three years after displacement for our nine age groups: employment probability, likelihood of securing a permanent contract, number of jobs held, and probability of exiting the labor force. Appendix Figure A8 presents two additional outcomes: job duration and hours worked per day of employment.

Relative to mid-career workers (29–40), young displaced workers (21–28) are about as likely to be employed but face lower chances of holding a permanent position and are more prone to cycle through multiple jobs, with shorter job duration. This pattern is consistent with the notion that job loss triggers further labor market instability (Stevens 1997; Jarosch 2023). Their labor force exit rate is not substantially higher than that of mid-career workers, suggesting these dynamics are not driven by young workers returning to education.

By contrast, older displaced workers (49–55) are far less likely to find a job, let alone a permanent one, and are more likely to work part-time. They experience little job turnover but face a substantially higher risk of leaving the labor force altogether, likely via early retirement.

In sum, the evidence points to a dual mechanism underlying the U-shaped cost of job loss: younger workers suffer mainly from persistent instability and job churning, whereas older workers confront barriers to reemployment and elevated exit rates. Both channels contribute to sustained earnings losses after displacement.

[12] Rose and Shem-Tov (2024) show that in the United States, earnings losses from displacements in low-paid jobs are driven mainly by declines in employment and hours rather than wage rates. Because younger workers are overrepresented in low-wage jobs, our finding is consistent with this evidence.

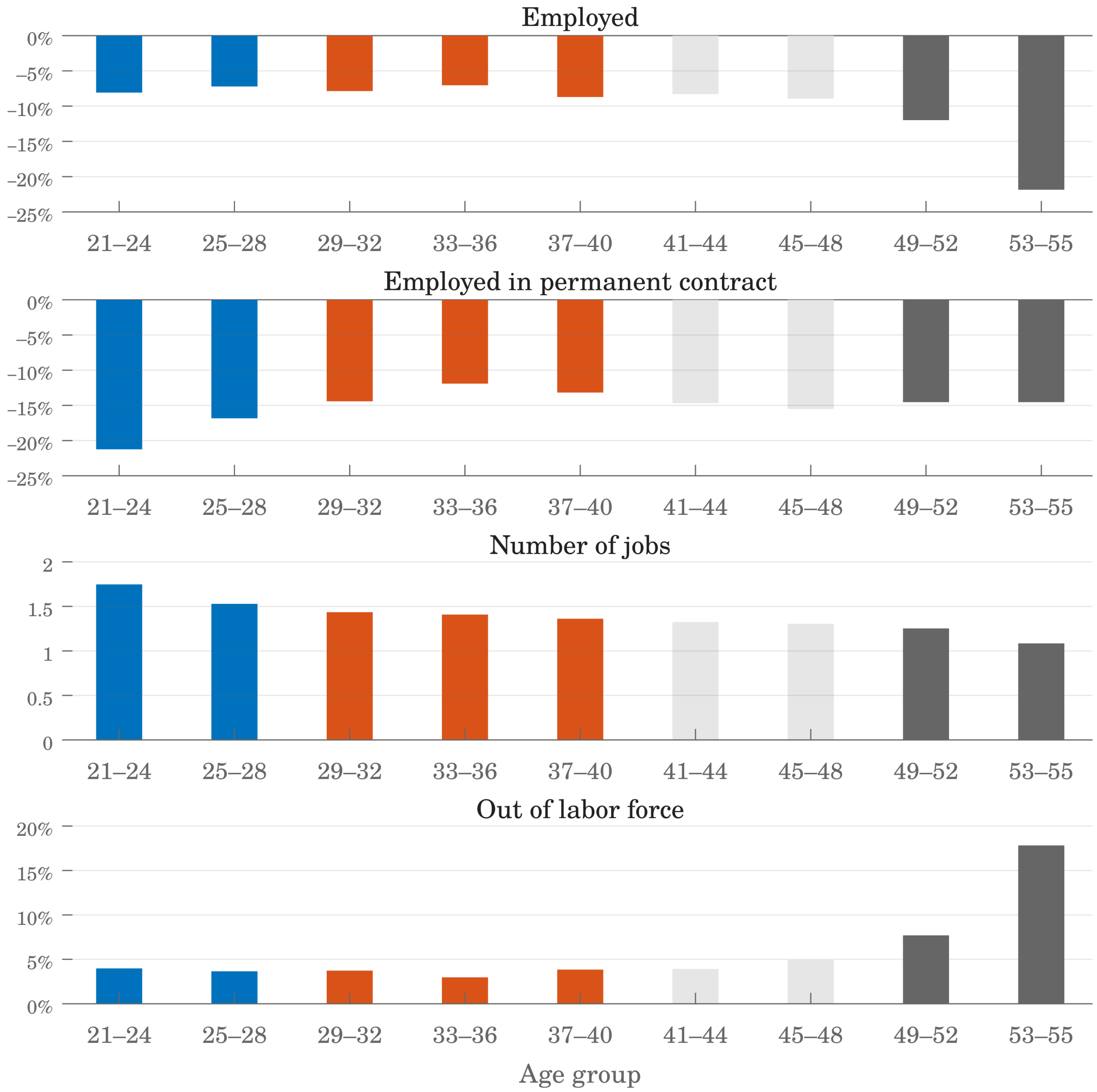

Figure 4: Different Ages, Different Mechanisms

Notes: Labor market outcomes three years after displacement. All values are normalized relative to the control group within the same age bin. All panels show probabilities, except the third panel, which displays absolute values. For example, workers displaced at ages 21–24 are 22% less likely to be employed in a permanent contract three years after displacement than non-displaced workers of the same age.

5 A Life-Cycle Model

We present a life-cycle model of the labor market capable of reproducing the U-shaped cost of job loss. The framework is intentionally parsimonious, focusing on the minimum set of ingredients needed to match the data: search and matching frictions, human capital accumulation, and human capital obsolescence.

5.1 Environment

Time is discrete and infinite. The economy consists of workers and firms. Workers live for T periods, supply one unit of labor each period, and derive utility from income. They differ along three dimensions: age t, human capital h, and employment status (employed or unemployed).

Human capital evolves endogenously, following Ljungqvist and Sargent (1998). While employed, workers accumulate skills through learning by doing. If they lose their job, their human capital may become obsolete and non-transferable across firms. This setup captures both general and firm-specific components of human capital. We assume that the probability of obsolescence is increasing and convex in age. Because workers remain employed most of their career, wages rise with age on average, consistent with empirical evidence.

On the production side, a continuum of firms post vacancies. Technology exhibits constant returns to scale: one unit of human capital produces one unit of output. Wages are proportional to human capital: each worker earns αh, where $\alpha \in (0,1)$ is an exogenous piece rate.

The labor market is frictional. Unemployed workers and firms meet through a standard matching function $M(u,v)$, where u denotes unemployment and v vacancies. Following Menzio, Telyukova, and Visschers (2016), the market is segmented: there is one submarket for each (t,h) pair. An unemployed worker of type (t,h) searches only in that submarket, and employed workers cannot search on the job. Let $\theta_t(h) = v_t(h)/u_t(h)$ denote tightness in submarket (t,h). The job-finding rate for workers is $p(\theta_t(h)) = \frac{M(u_t(h),v_t(h))}{u_t(h)}$, and the vacancy filling rate for firms is $q(\theta_t(h)) = \frac{M(u_t(h),v_t(h))}{v_t(h)}$. Free entry holds in each submarket.

Timing.—Each period unfolds as follows. Production occurs. A separation shock may dissolve the match. If the match survives, the worker may experience a positive human capital shock. If the match ends, the worker becomes unemployed and may face a one-time obsolescence shock that reduces their human capital.

Value Functions.—Let h' denote the next-period value of h. Workers discount the future at rate $\beta \in (0,1)$. The value of an employed worker of age t and human capital h is

$$W_t(h) = \alpha h + \beta \cdot \mathbb{E}\left\{[1-\delta(h)]W_{t+1}(h') + \delta(h)U_{t+1}(h')\right\}, \tag{5}$$

where $\delta(h)$ is the separation rate and $U_t(h)$ the value of unemployment. We assume $\delta(h)$ decreases in h to capture the fact that job stability rises with both age and earnings. This assumption is key: it implies that job loss reduces not only current income but also subsequent job security. The value of an unemployed worker is

$$U_t(h) = \beta \left\{ p(\theta_{t+1}(h)) W_{t+1}(h) + [1 - p(\theta_{t+1}(h))] U_{t+1}(h) \right\}. \tag{6}$$

Unemployment yields no intrinsic utility, neither benefits nor leisure value. This assumption reflects the empirical setup, where out-of-work individuals are assigned zero earnings.[13]

For firms, the value of a filled job in submarket (t, h) reads

$$J_t(h) = (1 - \alpha)h + \beta[1 - \delta(h)] \cdot \mathbb{E}\left\{ J_{t+1}(h') \right\}, \tag{7}$$

while the value of a vacancy is

$$V_t(h) = -\kappa(h) + q(\theta_t(h)) J_t(h), \tag{8}$$

where $\kappa(h)$ is the vacancy-posting cost. Free entry implies $V_t(h) = 0$ or

$$q(\theta_t(h)) J_t(h) = \kappa(h). \tag{9}$$

Together, equations (7) and (9) determine the equilibrium job-finding rate, independent of workers' decisions.

Equilibrium.—Given the law of motion for shocks, an equilibrium for each (t, h) consists of worker value functions (5)–(6), firm value functions (7) and free-entry conditions (9), and the human capital process. Existence and uniqueness follow from standard arguments (Menzio and Shi 2011).

5.2 Calibration

We calibrate the model to French data at quarterly frequency. Table 2 summarizes parameter values and their corresponding targets. Workers enter the labor force at age 20 unemployed, remain active for 42 years ($T = 168$ quarters), and retire at 62. The quarterly discount factor $\beta = 0.988$ corresponds to an annual interest rate of 5 percent. Output is split evenly between workers and firms, implying a piece rate $\alpha = 0.5$.

[13] Allowing for unemployment utility would not change results, as wages, separation, and job-finding rates do not depend on it.

Table 2: Calibration

Parameter		Value	Target/source	Model	Data
Number of periods	T	168	42-year career, age 20 to 62		
Discount factor	β	0.988	5% annual interest rate		
Piece rate	α	0.5	Equally split surplus		
Matching elasticity	γ	0.65	Chaumont and Shi (2022)		
Matching efficiency	μ	0.575	Job-finding rate at 25	0.40	0.40
Vacancy cost	κ_0	1.05	Job-finding rate at 50	0.36	0.36
Early human capital increment	Δ_0	0.26	Mean wage at 30	1.95	1.95
Late human capital increment	Δ_1	0.10	Mean wage at 40	2.49	2.48
Maximum human capital	$\bar{h}$	2.94	Mean wage at 50	2.76	2.74
Separation rate level	δ_0	0.102	Separation rate at 25	0.035	0.035
Separation rate curvature	δ_1	0.735	Separation rate at 50	0.013	0.012
Obsolescence risk level	ε_0	0.423	Cost of job loss at 53–55	0.23	0.23
Obsolescence risk curvature	ε_1	4.6	Cost ratio 45–48 to 53–55	0.66	0.66

Notes: Calibrated parameters and their corresponding empirical targets. All flows are measured quarterly. Model-implied values are averages over 100,000 simulated worker histories, starting with workers unemployed and endowed with the lowest level of human capital. Costs of job loss are expressed in present value, as described in Section 5.2.

The matching function is such that the job-finding probability takes the form

$$p(\theta_t(h)) = \mu[1 + \theta_t(h)^{-\gamma}]^{-1/\gamma}, \tag{10}$$

with matching efficiency μ and elasticity γ. We adopt $\gamma = 0.65$ from Chaumont and Shi (2022), and set $\mu = 0.58$ to match the empirical job-finding rate at age 25. To capture the sharp decline in job-finding rates near retirement, we let vacancy posting costs rise with worker human capital, $\kappa(h) = \kappa_0 h$, and calibrate $\kappa_0 = 1.05$ to reproduce the job-finding rate observed at age 50.

Human capital evolves on a grid $[\underline{h}, \bar{h}]$, with $\underline{h} = 1$. For employed workers,

$$h' = \begin{cases} h + \Delta & \text{with probability } 1/8, \\ h & \text{with probability } 7/8. \end{cases} \tag{11}$$

Hence, human capital increases by one increment Δ every two years of employment, on average. To capture the concave life-cycle profile of wages, we allow the growth increment to vary with age: $\Delta = \Delta_0$ early in the career and $\Delta = \Delta_1$ later on. The parameters Δ_0 and Δ_1 are calibrated to 0.26 and 0.10 to match mean wages at ages 30 and 40, respectively, while $\overline{h}$ is set at 2.94 to match the career wage ceiling. Upon displacement, human capital may depreciate according to

$$h' = \begin{cases} \underline{h} & \text{with probability } e_t, \\ h & \text{with probability } 1 - e_t. \end{cases} \tag{12}$$

If obsolescence strikes, human capital falls to $\underline{h}$; otherwise it is preserved. The obsolescence probability follows

$$e_t = \varepsilon_0(t^{\varepsilon_1} - 1)T^{-\varepsilon_1}, \tag{13}$$

which implies $e_1 = 0$ and $\lim_{T\to\infty} e_T = \varepsilon_0$. That is, young workers are unaffected, and older workers hold more specific, non-transferable human capital. We set $\varepsilon_0 = 0.42$ and $\varepsilon_1 = 4.6$ to match both the level and curvature of displacement costs at older ages.[14]

Finally, separation rates decline with human capital

$$\delta(h) = \delta_0 \exp(-\delta_1 \cdot h/\underline{h}), \tag{14}$$

with δ_0 and δ_1 calibrated to 0.10 and 0.74 to replicate observed separation rates at ages 25 and 50.

Measuring Present-Value Losses.—To maintain consistency with the structural labor literature, we express earnings losses as a percentage of the present value of counterfactual earnings, as defined in equation (3). We also consider the alternative metric that scales losses by pre-displacement earnings, obtaining similar results. Mirroring the empirical analysis, we compute present values over a seven-year horizon. Workers enter the treatment and control groups if they have at least one year of tenure at the time of displacement. Control workers must remain with the same firm for at least two more years.

We simulate employment histories, select tenure-eligible workers, and group them by age–human capital pair (t, h). For each (t, h), we calculate the present value of earnings for displaced and non-displaced individuals and define losses as their difference, expressed as a percentage of the control group's earnings. We then average these losses across h for each age t.

5.3 Model Fit

Figure 5 compares the model's predictions with the data for three key labor market moments over the life cycle: wage, job-finding rate, and separation rate.[15]

[14]This calibration corresponds to an obsolescence risk of 0.42 at the very end of the career and 0.19 at age 55.

[15]Overall, our empirical moments align well with those in existing work (Hairault, Langot, and Sopraseuth 2019; Le Barbanchon, Rathelot, and Roulet 2021). Minor differences in levels with Créchet, Lalé, and Tarasonis (2025) likely arise because we use administrative data, whereas they rely on labor force surveys; see Hairault, Le Barbanchon, and Sopraseuth (2015) for a discussion.

Figure 5: Model Fit

Notes: Average labor market moments over the life cycle. The wage is normalized to 1 at age 20. The job-finding and separation rates are expressed at a quarterly frequency.

The model closely matches the data across all dimensions. Wages increase steeply early in the career and nearly triple between ages 20 and 60. In parallel, employment stability improves: the quarterly job-finding rate declines from about 41% to 25% and the separation rate falls from 4% to 1%. The model captures both the steep wage growth and the gradual reduction in labor market frictions observed with age.

6 Quantitative Results

We first show that the calibrated model reproduces the observed age profile of earnings losses. We then analyze the channels underlying the nonlinear pattern of losses over the life cycle. Finally, we assess whether policy interventions can mitigate the cost of displacement.

6.1 The U-Shaped Cost of Job Loss

Figure 6 compares model-implied earnings losses to those observed in the data. The solid blue line shows present-value losses by age, expressed as a percentage of counterfactual present-value earnings. Red circles plot the corresponding estimates from our data for workers aged 21–24, 25–28, 29–32, 33–36, 37–40, 41–44, 45–48, 49–52, and 53–55, as reported in Figure A5.

Earnings losses display a clear U-shape. Early in the career, displacement is particularly costly, lowering long-term earnings by as much as 17 percentage points. Losses then decline with age, reaching a minimum of about 13.5 percent around age 40. Beyond this point, they

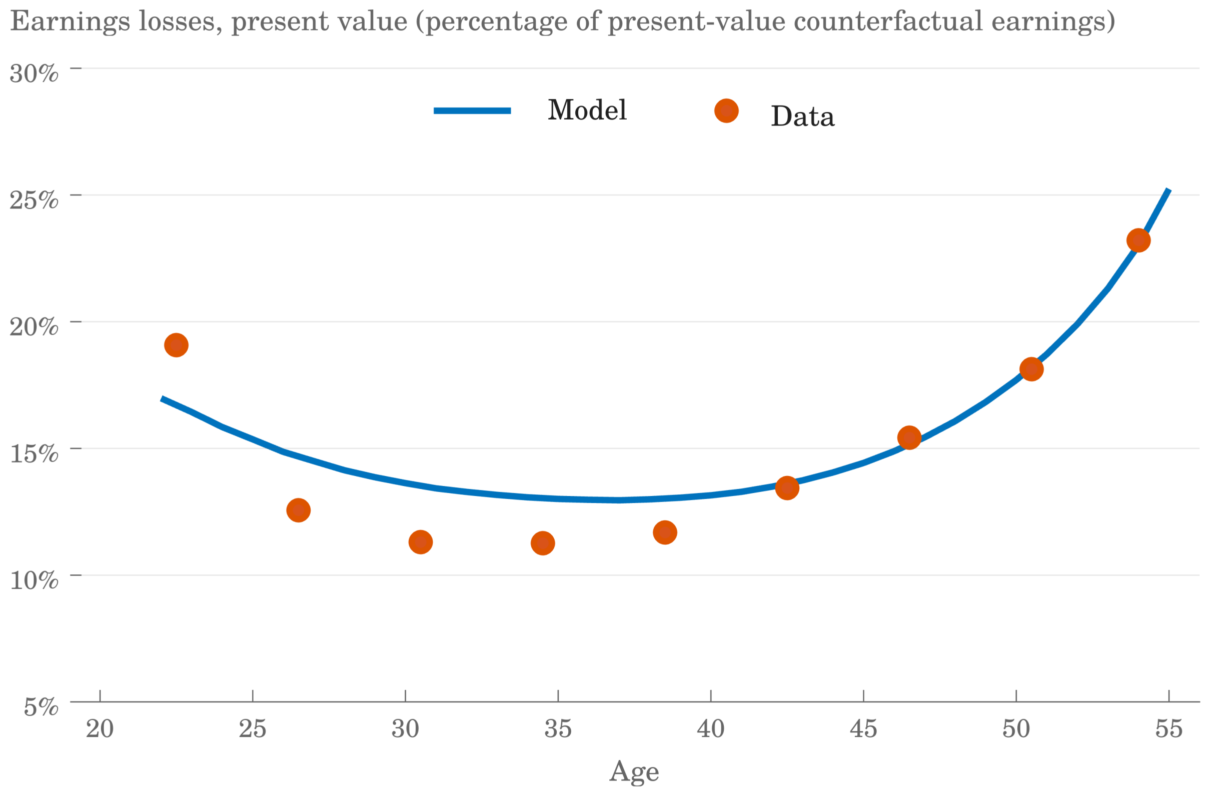

Figure 6: The Cost of Job Loss, Model vs Data

Notes: Present value of earnings losses following displacement, expressed as a percentage of the present value of counterfactual earnings in the absence of displacement. Present values are computed over a seven-year horizon using a 5 percent annual discount rate. Data values are the same as reported in Figure 1. Model-implied values are computed for all displacements.

rise sharply: workers in their mid-fifties experience the largest losses, around 24 percent.

The model successfully reproduces the U-shaped pattern observed in the data. It slightly understates losses for the youngest workers and modestly overstates them for mid-career workers, but it captures both the qualitative shape and the overall magnitudes. As far as we know, no previous study matches this nonlinear life-cycle profile.

6.2 Inspecting the Mechanisms

Why are earnings losses U-shaped in age? To isolate the drivers, we sequentially switch off key elements of the model. Figure 7 displays the results.

Panel A holds human capital constant at the lowest level $\underline{h}$ across all workers. In this scenario, losses remain flat between ages 20 and 45. Workers have similar wages, job-finding probabilities, and separation rates—all of which depend on h—so they face comparable displacement costs. Losses rise sharply after age 45, however, because older displaced workers

Figure 7: Isolating the Channels

Notes: Present value of earnings losses, expressed as a percentage of the present value of counterfactual earnings in the absence of displacement. Present values are computed over a seven-year horizon using a 5 percent annual discount rate. Panel A holds human capital fixed at its minimum level $\underline{h} = 1$. Panels B and C fix, respectively, the separation rate and the job-finding rate to their mean values across all ages. Panel D abstracts from obsolescence risk. The gray dashed line reproduces losses from the baseline model.

have a harder time regaining employment. As they approach retirement, the expected duration of matches shortens, reducing their attractiveness to firms and lowering job creation for this group. Thus, a standard life-cycle model without human capital accumulation partly explains high late-career losses but cannot account for the elevated costs experienced by the young.

Panel B fixes the job separation rate at its mean across all ages. This flattens the left side of the U-shape, lowering losses for young workers. Early in their career, workers start with low human capital and gradually build skills through learning by doing, which reduces their risk of separation. By removing the age gradient in separations, we eliminate early-career instability, revealing it as a key driver of the high cost faced by young workers.

Panel C fixes the job-finding rate at its average. This has little effect on the overall shape, except that younger workers fare slightly worse while older workers fare somewhat better. Because reemployment frictions mainly affect older workers, age differences in job-finding rates do not explain the disproportionately high losses borne by the young.[16]

Panel D turns off skill obsolescence. Losses now decline monotonically with age until around 50, then rise modestly, demonstrating that skill obsolescence is a major driver of late-career losses. Two channels are at work. First, as workers age, a growing share of their human capital becomes firm- or job-specific and thus non-transferable, forcing displaced workers to accept lower wages in new positions. Second, obsolete skills combined with proximity to retirement make them less appealing to employers, lowering their job-finding rates. Together, wage cuts and limited reemployment opportunities explain the high earnings losses observed among older cohorts.

To summarize, the high cost of job loss *early* in the career reflects heightened job instability. In contrast, *late* in the career, losses are driven by poor reemployment prospects and wage penalties due to the obsolescence of skills. Ultimately, the U-shaped profile of displacement costs emerges from the age-dependent interaction of human capital dynamics with labor market transitions.

6.3 Policy Experiments

Young workers bear disproportionately large costs when displaced, posing the question: can policy help cushion these early-career losses? We use our model to evaluate two broad categories of targeted interventions—those that stimulate job creation and those that limit job destruction.[17]

The first category aims to raise job-finding rates through measures like better-funded public employment services, job-search workshops, targeted guidance for youth, or hiring and commuting subsidies. The second category seeks to reduce separation rates, for in-

[16]To be clear, *differences* in job-finding rates over the career do not drive the left side of the U-shape, as these rates remain relatively flat during the first 30 years of a worker's career. However, the *absolute* level of job-finding rates is critical for determining the magnitude of losses at all ages. The next subsection provides further detail on this distinction.

[17]We focus on young workers, for whom the high cost of job loss is the paper's main novel finding.

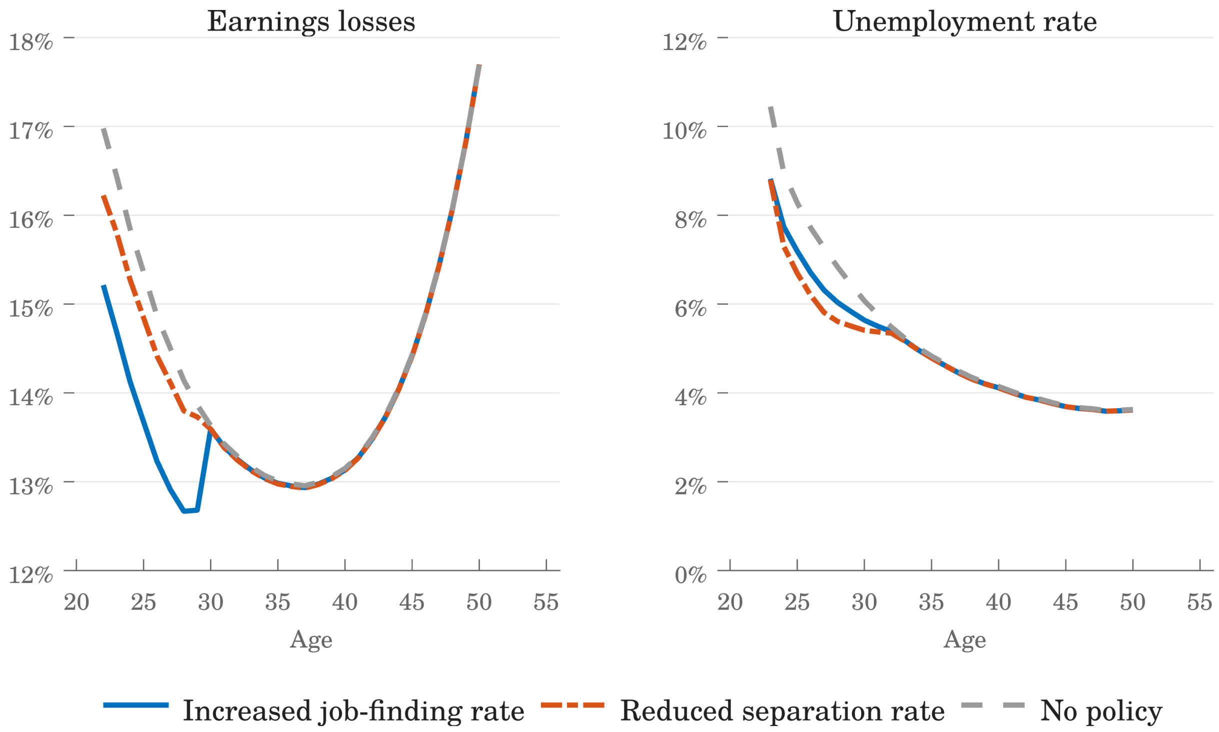

Figure 8: Welfare-Equivalent Policy Interventions

Notes: Model-implied present-value earnings losses (left panel) and unemployment rates (right panel) under two welfare-equivalent policy experiments. The job-finding rate policy raises the job-finding rate by 12 percent through higher matching efficiency μ. The job-separation policy lowers separations by 20 percent through a reduction in separation parameter δ_0. The gray dashed line shows the no-policy baseline.

stance through firing taxes or taxes on temporary contracts. Both types of policies have been implemented to varying degrees in France.[18]

We simulate two illustrative interventions targeting workers aged 20–29: (i) a 12 percent increase in the job-finding rate via higher matching efficiency μ, and (ii) a 20 percent reduction in the separation rate via lower parameter δ_0 (while holding job finding constant). These magnitudes are chosen so that each policy generates the same aggregate welfare gain of 1 percent relative to baseline, where welfare is defined as the expected lifetime utility of a worker entering the labor market at age 20 with no job and the lowest level of human capital $\underline{h}$. Figure 8 reports the resulting earnings losses and unemployment rates. Since we abstract from fiscal costs, these estimates should be viewed as illustrative of potential effects rather than precise cost-benefit calculations.

Both policies reduce post-displacement earnings losses and unemployment rates among

[18]See Schoefer (2025) for a recent discussion of various policy interventions in Europe.

young workers. The job-finding policy performs better at mitigating earnings losses, while the separation-reducing policy is more effective at lowering unemployment. This illustrates a fundamental trade-off between the two interventions. Boosting job creation primarily benefits displaced workers, who value rapid reemployment. In contrast, reducing layoffs protects all workers from displacement but delivers smaller gains for those already unemployed. Since the two policies are welfare-equivalent by construction, neither dominates in overall desirability.

In terms of feasibility, however, the job-finding intervention appears more realistic. Achieving a 12 percent increase in the job-finding rate may be attainable through enhanced employment services or targeted job-search support. By contrast, reducing separations by 20 percent would likely require deep institutional reforms—such as stricter firing regulations or major changes to contract law—that are difficult to implement in France's already tightly regulated labor market.

Several caveats apply. We treat job finding and separations as independent, whereas in reality the two margins are jointly determined; restricting layoffs may discourage job creation in the first place. Moreover, not all separations are inefficient: job mobility can promote reallocation toward better matches (Gervais et al. 2016) or more productive firms (Brandily, Hémet, and Malgouyres 2022), a mechanism our framework does not capture. These points suggest that the welfare gains from reducing separations may be overstated relative to those from policies that accelerate reemployment.

A broader lesson emerges. Reducing the cost of job loss for young workers is possible in theory. Policies that foster swift reemployment appear more plausible and less distortive than those that restrict mobility.

6.4 Discussion

Our model generates a non-monotonic cost of job loss over the life cycle. We deliberately keep the framework parsimonious in order to single out the core economic forces at play. The literature has developed substantially richer models to study displacement costs. One may ask whether these more elaborate frameworks are also capable of generating the U-shaped pattern.

The central mechanism is a declining separation rate as human capital accumulates. Job loss slows this accumulation and raises future employment instability. This "slippery job ladder" mechanism is closely related to that in Jarosch (2023), who models jobs that differ in productivity and security. While his model does not feature age explicitly, extending it along this dimension could plausibly generate a U-shape as well.

By contrast, models with stable or exogenous separation rates are likely to have difficulty reproducing the U-shape. These frameworks typically impose a specific tenure either at the match level (Cozzi and Fella 2016; Audoly, De Pace, and Fella 2024) or at the occupation level while allowing workers to switch endogenously across occupations (Huckfeldt 2022). In such environments, losing a job early in the career is unlikely to be particularly costly.

Similarly, theories of backloaded wages can generate declining separation rates, but not through layoffs. In these models, wages increase with tenure to discourage quits (Burdett, Carrillo-Tudela, and Coles 2020). While such theories predict large losses late in the career—when workers forgo accumulated rents—it is less clear how they could account for sizable losses early in the career.

Finally, theories of unobserved worker heterogeneity offer a potential alternative explanation for early-career losses. Employers may interpret an initial layoff as a negative signal of worker quality and respond by discriminating against displaced workers. However, this channel appears limited in the French context, where job-finding rates among young displaced workers remain high relative to their peers.

Our model could be extended in several directions. First, introducing firm-side heterogeneity together with on-the-job search would generate firm effects on earnings and further endogenize separations by distinguishing quits from layoffs, as in Jung and Kuhn (2019). Second, while we abstract from the distinction between general and specific human capital by modeling large shocks in the spirit of Ljungqvist and Sargent (1998) and Huckfeldt (2022), we could introduce such a distinction, following Audoly, De Pace, and Fella (2024). Finally, incorporating consumption and savings would enable a richer welfare and policy analysis of age-specific labor market interventions.

7 Conclusion

This paper revisits the life-cycle profile of earnings losses after job displacement. Using French administrative data and mass-layoff event studies, we document a new empirical fact: the cost of job loss is U-shaped in age. Workers displaced in their twenties and fifties suffer larger relative earnings losses than those displaced in mid-career.

At first glance, this pattern may seem counterintuitive, since younger workers enter the labor market with little experience and low salaries. We offer an intuitive explanation. Early in the career, high separation rates delay the accumulation of human capital—a key source of both wage growth and job stability. As a result, young displaced workers are more likely to be trapped in low-paying, high-turnover jobs, making job instability the primary driver of their losses. Older workers are also vulnerable, especially in France, where poor reemployment prospects lead to long unemployment spells, wage cuts upon rehiring, and frequent exits from the labor force. By contrast, workers in their thirties and early forties have usually accumulated substantial human capital while remaining highly employable, which explains their smaller displacement losses.

We develop a simple life-cycle search model that captures these mechanisms. Its key ingredients are on-the-job human capital accumulation and off-the-job depreciation through skill obsolescence. Calibrated to French administrative data, the model successfully reproduces the U-shaped profile of earnings losses. A decomposition shows that both separation rates—especially for young workers—and job-finding rates at all ages jointly determine the magnitude of displacement costs.

Because job-finding and separation rates decline steadily with age in many countries, the underlying mechanism is likely relevant beyond France. Extending this analysis to cross-country administrative data using a harmonized research design would therefore be a natural next step. More broadly, life-cycle evidence can help discriminate between competing theories of job-loss costs by highlighting the age-specific channels through which displacement operates. Focusing on young workers is especially timely in the context of technology-driven reallocations, such as those induced by artificial intelligence. We leave these promising avenues for future work.

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Appendix

Table A1: Earnings Following Job Displacement

	$d-1$	$d+1$		$d+5$	
Age group	Mean earnings	Coefficient	(SE)	Coefficient	(SE)
21–24	20,599	−6,351	(498)	−3,669	(726)
25–28	26,543	−5,383	(318)	−3,400	(475)
29–32	30,567	−5,738	(299)	−3,316	(442)
33–36	33,041	−6,502	(301)	−3,734	(435)
37–40	35,476	−6,679	(318)	−4,505	(440)
41–44	36,651	−7,362	(313)	−5,462	(421)
45–48	37,878	−8,054	(356)	−6,244	(446)
49–52	38,346	−7,986	(362)	−7,986	(507)
53–55	37,827	−10,343	(438)	−8,065	(672)

Notes: Regression estimates of the effect of job displacement on annual earnings at $d+1$ and $d+5$, where d denotes the year of displacement. The column labeled $d-1$ reports mean annual earnings one year prior to displacement. Standard errors are reported in parentheses. All earnings are expressed in euros at 2010 prices.

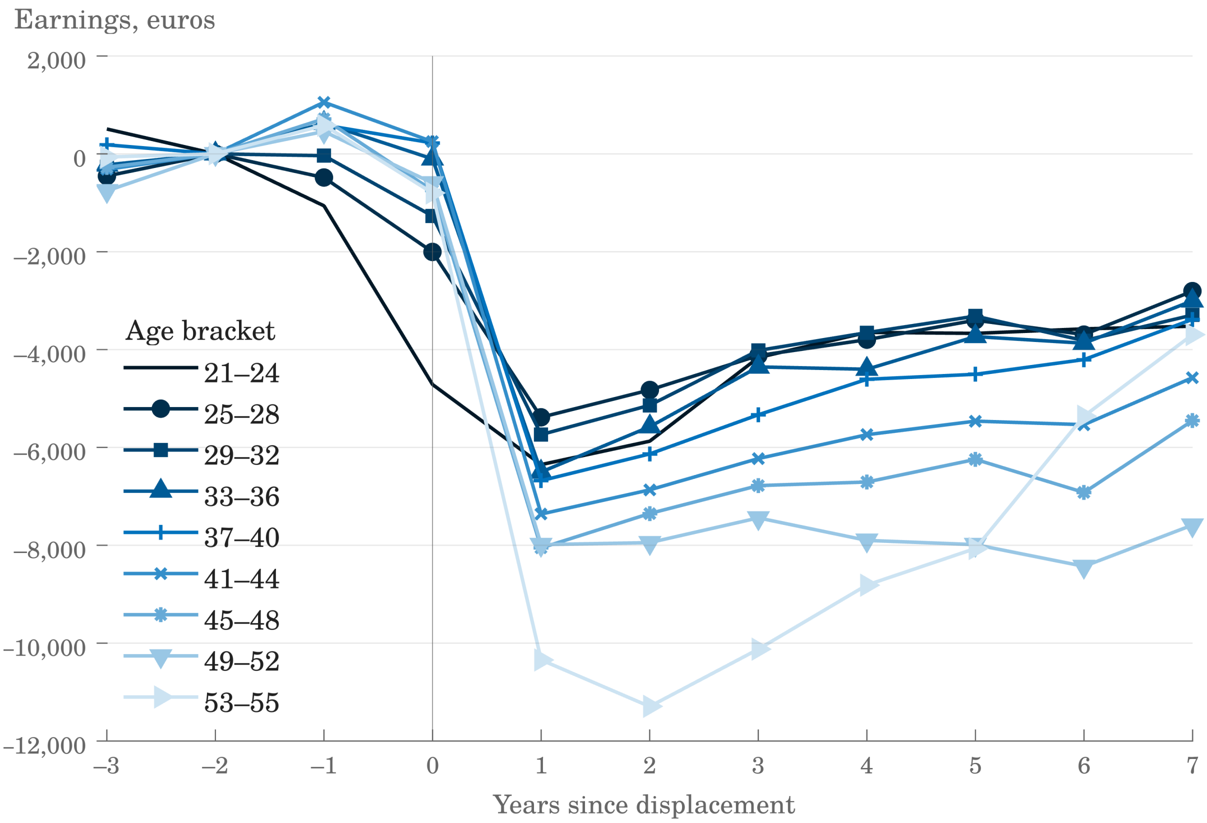

Figure A1: Earnings Dynamics

Notes: Annual earnings following job displacement, expressed in euros at 2010 prices. Periods of non-employment are coded as zero earnings.

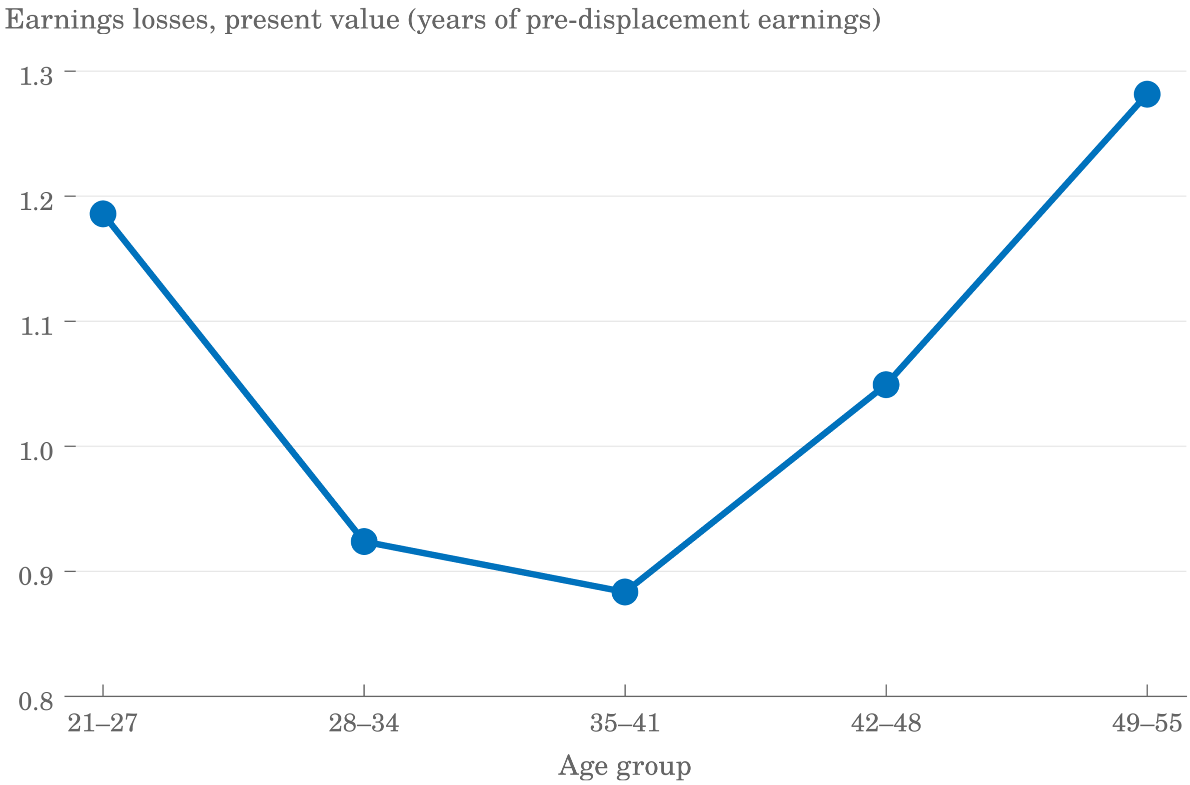

Figure A2: Earnings Losses for Different Age Bins

Notes: Present value of earnings losses following displacement, expressed as a multiple of pre-displacement annual earnings. Present values are computed over three different horizons using a 5 percent annual discount rate.

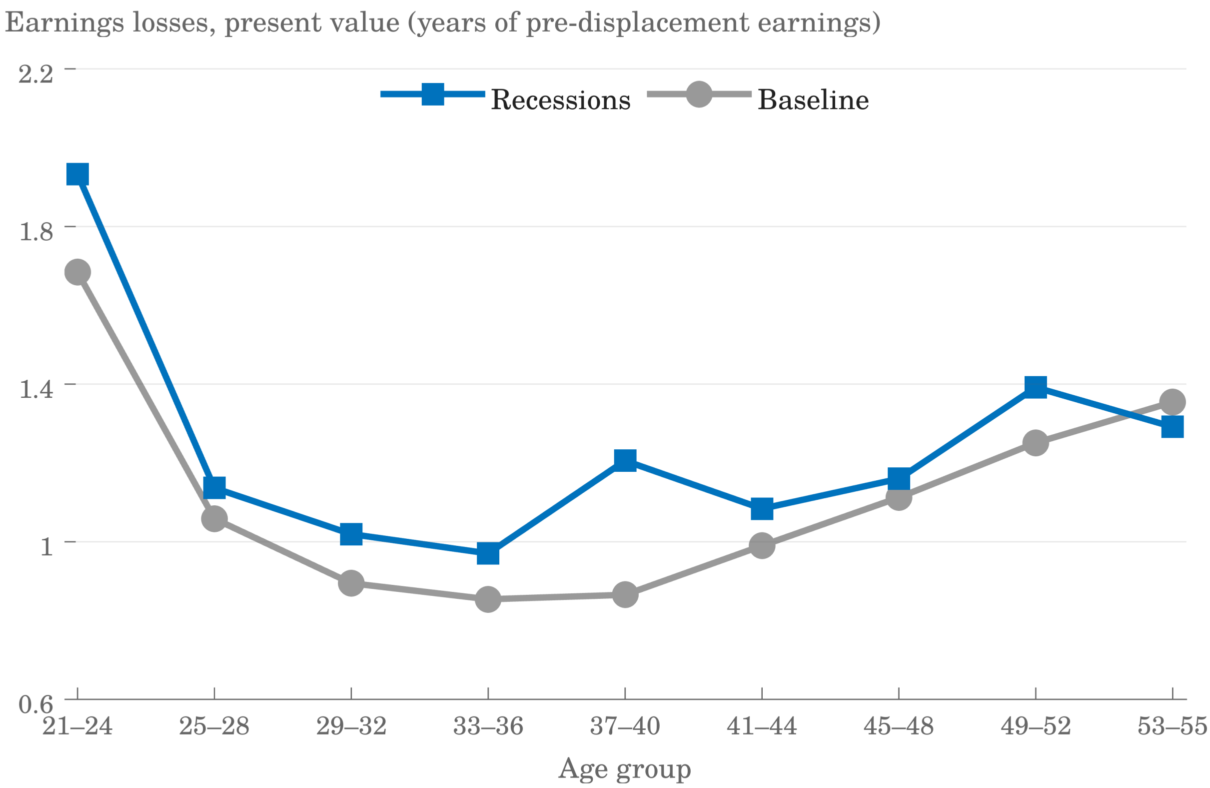

Figure A3: Losses In Recessions

Notes: Present value of earnings losses following displacement, expressed as a multiple of pre-displacement annual earnings. Present values are computed over a seven-year horizon using a 5 percent annual discount rate. Recession years correspond to 2008 and 2009.

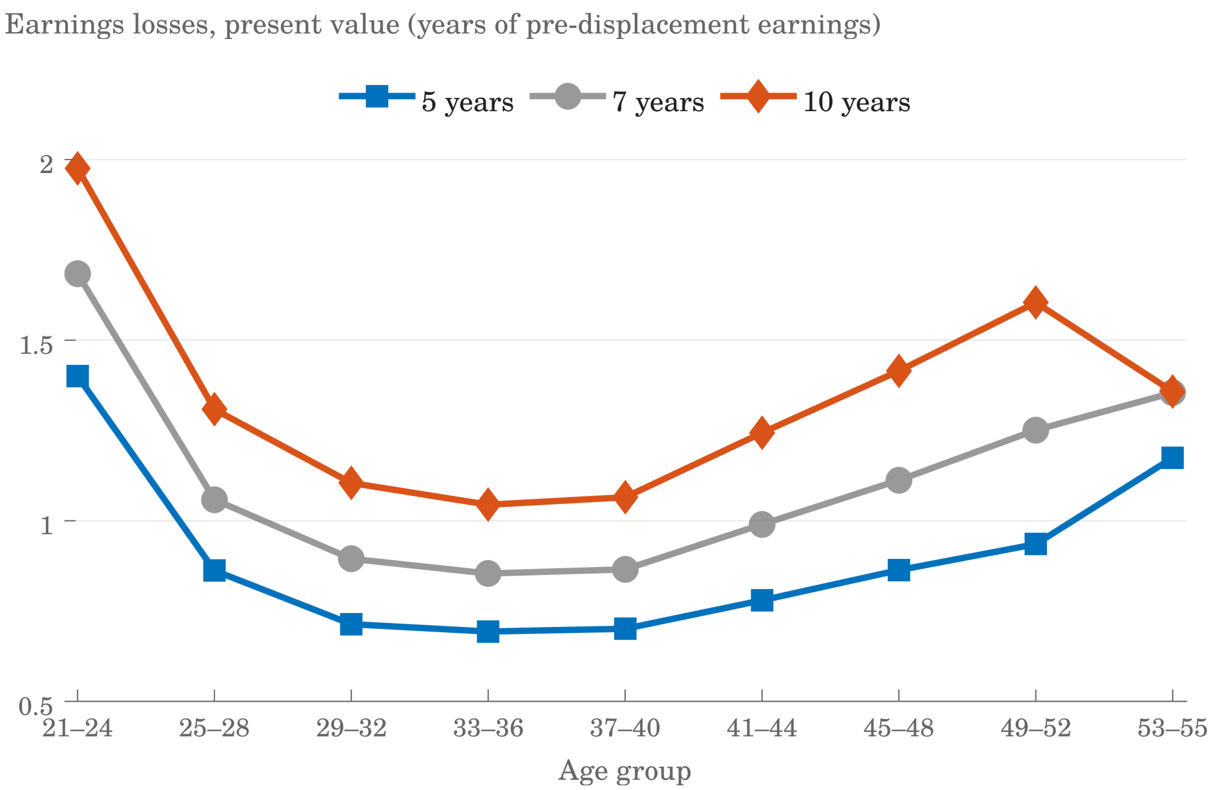

Figure A4: Losses Over Different Horizons

Notes: Present value of earnings losses following displacement, expressed as a multiple of pre-displacement annual earnings. Present values are computed over three different horizons using a 5 percent annual discount rate. The gray circled line represents the baseline estimate (seven-year horizon).

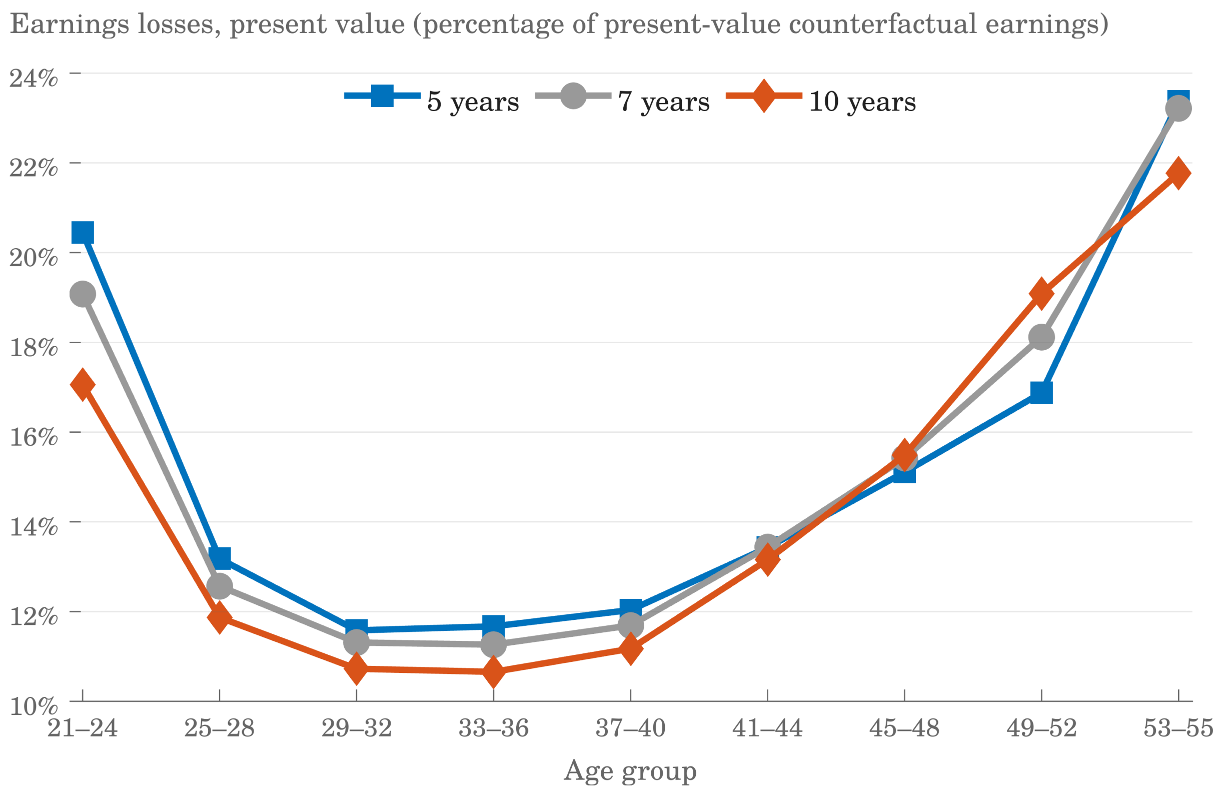

Figure A5: Losses as a Percentage of Present-Value Counterfactual Earnings

Notes: Present value of earnings losses following displacement, expressed as a percentage of the present value of earnings absent displacement. Present values are computed over three different horizons using a 5 percent annual discount rate.

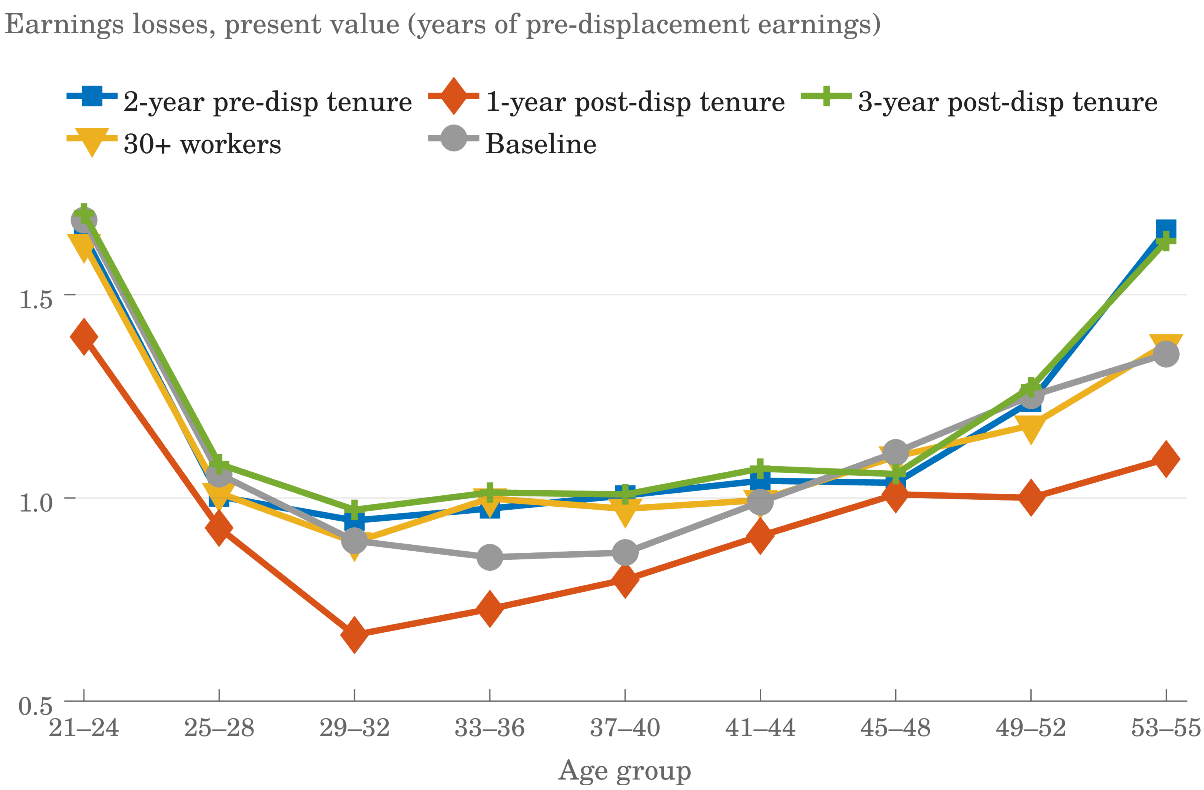

Figure A6: Losses for Different Model Assumptions

Notes: Present value of earnings losses following displacement, expressed as a multiple of pre-displacement annual earnings. Present values are computed over a seven-year horizon using a 5 percent annual discount rate. Each line shows results for a specific model assumption. The gray circled line reproduces the estimate for the baseline specification.

Figure A7: Decomposing Earnings Losses

Notes: Evolution of log earnings (solid black line), log hours worked (dark gray area), and log hourly wage (light gray area) following displacement. These are obtained by estimating equation (1) separately using log earnings, log hours worked, and log hourly wage as dependent variables. The reported contribution of hours to total earnings is calculated as the share of the dark gray area relative to the combined dark and light gray areas over the seven years following displacement (time 0 to 7).

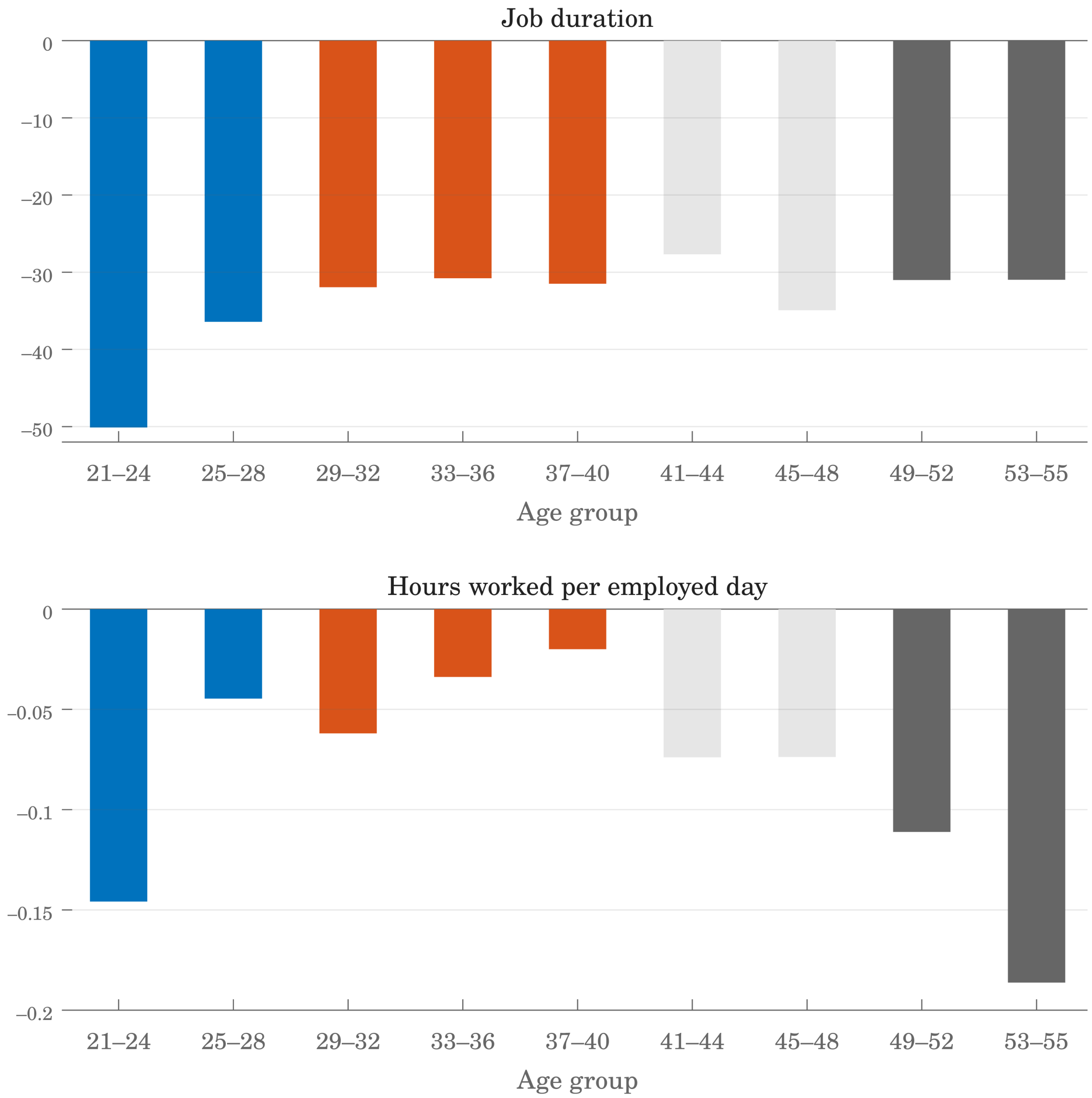

Figure A8: Job Duration and Hours Worked

Notes: Two labor market outcomes three years after displacement. All values are normalized relative to the control group within the same age bin. Job duration is measured in days.