

# Youth Hiring and Labor Market Tightness

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## Abstract

It is well-known that recessions can lead to long-term scarring for young workers. I show that employers hire fewer young workers when there are few job openings per unemployed job seeker, while hiring rates for workers with more than 10 years of potential experience are much less cyclically volatile. During the COVID-19 pandemic, youth employment rates rebounded particularly quickly compared with other groups and historic patterns. I show this is consistent with the historic relationship between tightness and youth hiring rates, suggesting youth scarring from the COVID-19 pandemic may be less severe compared with previous recessions.

## 1 Introduction

Youth unemployment rates exhibit disproportionately large increases during recessions, and new labor market entrants are known to suffer long-term earnings losses during recessions.<sup>1</sup> In previous work (Forsythe, 2022), I have shown that firms disproportionately reduce hiring of young workers during periods of high unemployment rates, compared with older workers. This is illustrated by Figure 1, which shows how hiring rates for individuals who have less than 10 years of potential experience declined during the 2001 recession and the Great Recession, while hiring rates for experienced workers remained relatively flat.

However, during the COVID-19 pandemic, the relationship appears to have broken down. Instead of declining youth hiring, we see that youth hiring increased. In this paper, I offer an explanation: hiring rates respond to labor market tightness, rather than the unemployment rate. In typical recessions, the unemployment rate and labor market tightness move in

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<sup>1</sup>See, for instance, Kahn (2010), Oreopoulos, Von Wachter, and Heisz (2012), Rinz (2021), Rothstein (2021).



Figure 1: Share of working age individuals who are hired each month, aggregated to the annual level to remove seasonality. Young defined as individuals with less than 10 years of potential experience, experience defined as the balance.

tandem. However, the COVID-19 pandemic has been characterized by exceptionally tight labor markets, despite the economic downturn. In particular, during the peak unemployment during April through July 2020, most unemployed were individuals on temporary layoff who were not searching for work (Forsythe, Kahn, Lange, & Wiczer, 2020). These individuals did not contribute to congestion in the labor market, and thus led to relatively many job openings per job seeker despite the economic contraction.

Labor market tightness is defined as the ratio between the stock of job openings and the stock of job seekers, typically measured using the number of unemployed. When labor markets are tight, there are fewer job seekers per vacancy. This means that it is more costly for employers to be choosy. The more restrictive a firm’s hiring standards (such as requiring a particular number of years of experience or a particular degree), the smaller the potential pool of applicants. This means it may take longer to fill the position. Forsythe (2022) develops a partial equilibrium model that shows how employers may optimally respond to slack labor markets by restricting hiring to more experienced workers and shows that cyclical wage movements are consistent with the model.

Prior to the COVID-19 period, labor market tightness and the unemployment rate moved in tandem. Although labor market tightness is often the more relevant theoretical object, data availability has led many researchers to use unemployment rates instead. However, dur-

ing the COVID-19 period the unemployment rate became a less reliable proxy for tightness. Fortunately, in 2019 the Bureau of Labor Statistics began producing state-level job openings estimates (Skopovi, Calhoun, & Akinyooye, 2021), allowing state-level labor market tightness to be measured for the first time. In this paper I update and extend the analysis from Forsythe (2022), to measure the relationship between hiring, worker labor market experience, and labor market tightness.

## 2 Methodology

I use Current Population Survey data from December 2000 through November 2021, the time period for which the Job Openings and Turnover Survey (JOLTS) is available. To measure labor market flows, I match individuals across adjacent months in the survey, restricting to matches that have consistent sex, race, and age, following the Madrian and Lefgren (1999) procedure. I define hiring as either individuals who were non-employed in the prior month who are now employed, or as individuals who were employed in the prior month but indicate they have changed employer. In total I use 15.5 million paired observations.

Tightness is measured using aggregated data from JOLTS and the Local Area Unemployment Statistics (LAUS). Both series model state-level statistics using national and sub-national data as well as other predictors.<sup>2</sup> I define tightness as the stock of vacancies divided by the stock of unemployed, measured at the state by month by year level. In addition, I construct an adjusted national tightness measure using nation-wide estimates and the national unemployment rate excluding individuals who were on temporary layoff and not searching for work. Individuals who are not searching do not contribute to labor market tightness. During normal times this makes little difference, but during the summer of 2020 there was a large increase in the stock of individuals on temporary layoff. Since the state-level measures are modeled, it is not possible to construct the adjusted series at the state-level. Both series are similar, with mean tightness over the 20 year time period of 0.63 openings per unemployed in the state-level series and 0.60 openings per unemployed in the adjusted national series. However, the state-level series has more volatility, with a standard deviation of 0.41 versus 0.34 for the national adjusted measure.

I estimate the following empirical specification:

$$D_{ikst}^{\text{hired}} = \alpha_s + \delta_t + \sum_{k=1}^2 (\beta_k D_k^{\text{PE}} + \gamma_k \times D_k^{\text{PE}} \times \text{State Tightness}_{st}) + \epsilon_{ikst}, \quad (1)$$

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<sup>2</sup>See <https://www.bls.gov/jlt/jlt-statedata.htm> and <https://www.bls.gov/lau/laumthd.htm> for more details on the estimation procedures.

where  $D^{\text{hired}}$  is an indicator that is equal to 100 if individual worker  $i$  is hired in month  $t$ , given worker  $i$  is in potential experience group  $k$ , resides in state  $s$ , and is observed in month-years  $t-1$  and  $t$ .  $D_k^{\text{PE}}$  is an indicator equal to 1 if the worker is in potential experience group  $k$ . Since the object of interest is the different evolution of hiring for workers across experience categories, I exclude the main effect of the state unemployment rate in exchange for including the interaction of each potential experience group with the state tightness measure. Specifications include state ( $\alpha_s$ ) and month-year ( $\delta_t$ ) fixed effects. In addition, I include non-parametric demographic controls.<sup>3</sup>

Potential experience is defined as age less education less 6. I focus on two potential experience groups: individuals with less than ten years of potential experience and individuals with more than 10 years of potential experience. In Forsythe (2022), I find that 10 years of potential experience is the approximate break point, in which hiring declines with the state unemployment rate only for individuals with under 10 years of potential experience.

### 3 Results

Table 1: Hiring Over the Business Cycle: Young and Experienced

Outcome: Pr(Hired)x100	(1)	(2)	(3)	(4)
PE $\leq$ 10	2.462*** (0.13)	1.113*** (0.0542)	1.658*** (0.259)	3.697*** (0.329)
PE $\leq$ 10 $\times$ Tightness	0.442*** (0.0665)	0.251*** (0.0489)	9.018*** (0.621)	1.358*** (0.109)
PE $>$ 10 $\times$ Tightness	-0.00407 (0.066)	0.115** (0.0427)	6.393*** (0.651)	-0.0885 (0.158)
N	15,527,476	9,731,035	594,145	5,201,653
R-sq	0.007	0.003	0.025	0.015
Wald Test	21.84***	8.88**	42.69***	48.82***
	All	Employed	Unemployed	NILF

Note: December 2000 through November 2021. All specifications include state and month-year fixed effects, as well as non-parametric demographic controls.

Table 1 shows the main results. In column (1), I show that hiring rates are 2.5 pp larger for workers with less than 10 years of potential experience compared with more experienced workers. For each additional unit of tightness (e.g. one additional job opening per unemployed worker), young workers are hired at 0.44 pp higher rate, while for experienced workers,

<sup>3</sup>Cells are defined as the interaction of race (white, non-white), Hispanic status, gender, and education (no high school degree, high school degree, some college, 4-year college degree, masters degree, professional degree, PhD.)

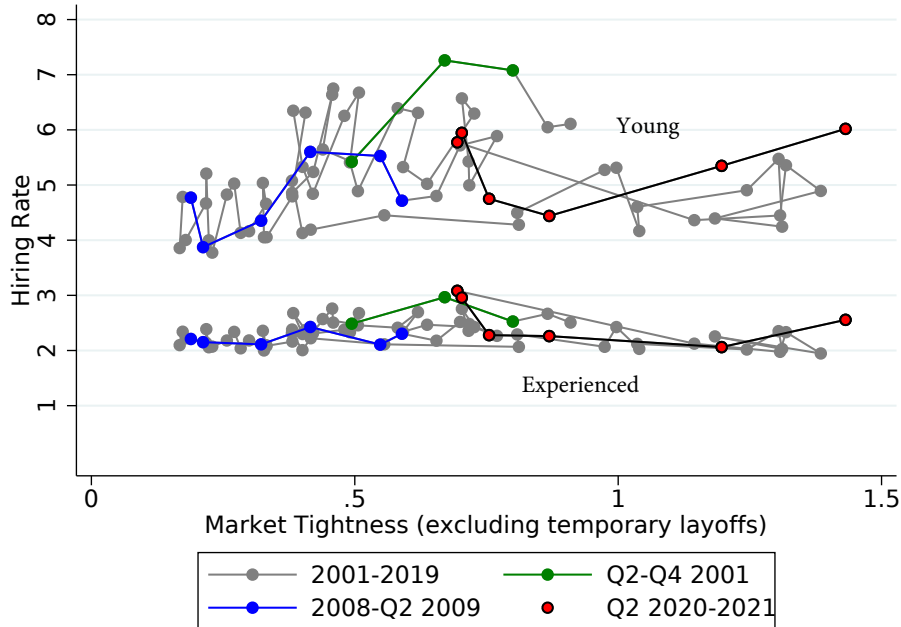


Figure 2: Each connected graph plots the hiring rate and market tightness by month for young workers (top) and experienced workers (bottom). Market tightness is defined at the national level and excludes individuals who are on temporary layoff and not searching for work.

there is no cyclical change in the hiring rate. In columns (2) through (4), I show that hiring rates increase faster with tightness for young workers compared with experienced workers even when restricted to each labor force status (employed, unemployed, and not-in-the-labor-force (NILF)). For all specifications, I show that we can reject that the coefficients are equal for young and experienced workers. These results are consistent with Forsythe (2022), which finds hiring rates fall faster with the state unemployment rate for young workers compared with more experienced workers.

In Figure 2, I plot the hiring rate for young and experienced workers against the nationwide labor market tightness measure, now excluding individuals on temporary layoff. The colored dots indicate the three recessionary periods since 2001: the 2001 recession (green), the Great Recession (blue), and the COVID-19 period (red). For each period, we see that youth hiring rates exhibit a much steeper slope with aggregate market tightness compared with experienced workers, for whom hiring rates are nearly flatter. Thus, consistent with the regression results in Table 1, youth hiring rates are more volatile, a pattern that we see in all three recent recessionary periods.

During the COVID-19 period, we see that labor markets are substantially tighter compared with the 2001 recession and Great Recession, despite the fact that the unemployment

rate peak in April 2020 was substantially higher than the previous peak (14.8% versus 10% in October 2009). This is due to the unique labor supply phenomenon of the COVID-19 economic shock, by which many individuals entered temporary layoff or exited the labor market. The non-participation margin remains elevated as of December 2021. Thus, compared with other recessions, a much smaller fraction of the individuals who left employment were searching for new jobs, leading labor market tightness to remain elevated throughout the pandemic period.

This phenomenon has important implications for young workers. Previous recessions have led to long-term scarring of new labor market entrants. However, the unique characteristics of the COVID-19 recession has resulted in robust hiring for young workers, with employment rebounding more swiftly for workers under 25 compared with older workers, in stark contrast to the trajectory after the Great Recession (Cortes & Forsythe, 2022). This suggests that historic patterns of employment and wage scarring due to entering during a recession may be less severe.

## References

- Cortes, G. M., & Forsythe, E. (2022). The heterogeneous labor market impacts of the covid-19 pandemic. *Industrial and Labor Relations Review*.
- Forsythe, E. (2022). Why Don't Firms Hire Young Workers During Recessions? *The Economic Journal*.
- Forsythe, E., Kahn, L. B., Lange, F., & Wiczer, D. G. (2020). *Searching, recalls, and tightness: An interim report on the covid labor market* (Tech. Rep.). National Bureau of Economic Research.
- Kahn, L. B. (2010). The Long-Term Labor Market Consequences of Graduating from College in a Bad Economy. *Labour Economics*, 17(2), 303-316.
- Madrian, B. C., & Lefgren, L. J. (1999). A Note on Longitudinally Matching Current Population Survey (CPS) Respondents. *NBER Working Paper No. t0247*.
- Oreopoulos, P., Von Wachter, T., & Heisz, A. (2012). The short-and long-term career effects of graduating in a recession. *American Economic Journal: Applied Economics*, 4(1), 1–29.
- Rinz, K. (2021). Did timing matter? life cycle differences in effects of exposure to the great recession. *Journal of Labor Economics*.
- Rothstein, J. (2021). The lost generation? labor market outcomes for post great recession entrants. *Journal of Human Resources*, 0920–11206R1.

Skopovi, S., Calhoun, P., & Akinyooye, L. (2021). Job openings and labor turnover trends for states in 2020. *Beyond the Numbers: Employment and Unemployment*. Retrieved from <https://www.bls.gov/opub/btn/volume-10/jolts-2020-state-estimates.htm>