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# Consumer and Firm Perceptions of the Aggregate Labor Market Conditions\*

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## Abstract

In the pre-pandemic period, measures of consumer labor market perceptions correlated well with the aggregate unemployment rate. However, for more than a year during the pandemic, consumers perceived labor markets as much tighter than the high aggregate unemployment rate implied. In contrast, there is no such a departure from the historic relation if we use the jobless unemployment rate—unemployment for reasons other than temporary layoffs—as a measure of labor market tightness. Using a measure of the firm labor market perceptions from the National Federation of Independent Business, we find that during the post-pandemic period, firms perceived labor market as being tighter than what consumers perceived, given the historic relation between the two series. Furthermore, despite the vacancy-unemployment ratio was at its historic high levels during the post-pandemic period, our measure of firm perceptions signaled that the labor market was even tighter. In June-July 2024, the relations between consumer and firm perceptions and between various measures of labor market tightness are back to its pre-pandemic patterns.

JEL: E32, J63, J64.

Keywords: Consumer Perceptions. Firm Perceptions. Unemployment. Jobless Unemployment. Recession. Temporary Layoff.

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# 1 Introduction

We examine whether individuals are aware of the aggregate labor market conditions. Using measures of labor market perceptions from the Conference Board’s Consumer Confidence Survey, we find that these measures correlate well with the total unemployment rate in the pre-pandemic period. During the pandemic the relation broke. For more than a year, consumers perceived the labor market as much healthier than the high aggregate unemployment rate implied.

During the pandemic, however, total unemployment did not adequately capture the labor market tightness because of the surge in temporary layoffs. Typically, temporary laid off workers do not lose their jobs but wait to be recalled. Using the jobless unemployment rate, which focuses on the unemployed for reasons other than temporary layoff, as a measure of labor market tightness, we find that the relationship between consumer labor market perceptions and labor market tightness remained tight during the pandemic except for April-May 2020.

This finding suggests that the public correctly perceives the health of the aggregate labor market. The consumer perceptions series can be used to gauge the state of the labor market, especially because the preliminary values of these series come out earlier than the unemployment rates from the Bureau of Labor Statistics. Most recently, consumer perceptions reached their cyclical peak in March 2022; while the aggregate and jobless unemployment rates bottomed out a year later.

Turning to the firm perceptions of the aggregate labor market, we use the data from the survey question “Do you have any job openings that you are not able to fill right now?” from the National Federation of Independent Business (notwithstanding the sample representativeness caveats) available via the Conference Board. First, we find that in the post-pandemic period, firm perceptions reached levels higher than was historically the case. This is consistent with the measures of the labor market tightness that involve vacancy measures. But it is in contrast to the measures of consumer labor market perceptions which remained within the levels seen prior to 2020. Second, firm labor market perceptions signalled tighter labor market than the consumer perceptions index did, given their pre-pandemic relation.

In June-July 2024, the relations between consumer and firm perceptions and between various measures of labor market tightness are back to its pre-pandemic patterns.

## 2 Data on Consumer Perceptions of the Labor Market Conditions

Our consumer perceptions data come from the Consumer Confidence Survey (CCS) conducted by the Conference Board. The survey is conducted monthly from June 1977. Prior to May 2021, the CCS was a mail survey for American consumers (Conference (2021)). Since then, the survey has been conducted online through four weekly waves during a month, surveying approximately 3,000 individuals. For historical comparability, the CCS has used the same concepts and questions throughout the survey's history.

The monthly series from the CCS are released on the final Tuesday of each month. The release includes preliminary data for the contemporaneous month (from the first three waves of the survey) and finalized data for the previous month (from all the waves of the survey). The Bureau of Labor Statistics (BLS) publishes unemployment rates for a month (using the reference week that includes the 12th of the month) on the first Friday of the following month (BLS (2020)). As such, the consumers are surveyed regarding the labor market before the official unemployment rate for the month is published; and the preliminary data on consumer confidence are available almost ten days prior to the official unemployment rate. We use finalized data from June 1977 through June 2024 and preliminary data for July 2024.

We use two survey questions that report individuals' perceptions surrounding current employment conditions—the share of consumers that say jobs are plentiful and the share of consumers that say jobs hard to get. Figure 1 shows the two series.

The share of the consumers who say that jobs are plentiful take low values when the labor market is weak and high values when the labor market is strong (blue line in Figure 1). The series tend to fall sharply during recessions and climb gradually during business cycle recoveries. Over the period from June 1977 to December 2019, the series' correlation with the unemployment rate was -0.85. The correlation is statistically significant at the 1% confidence level as are the rest of the correlations that we report below.

Figure 1 also shows the share of the consumers who say that jobs are hard to get (green line). The series spike during recessions and slowly decreases as the labor market recovers. Over the period from June 1977 to December 2019, the series correlation with the unemployment rate was 0.95. The shares of the consumers who say that jobs are plentiful and those who say that jobs are hard to get move in opposite directions, their correlation being -0.91.

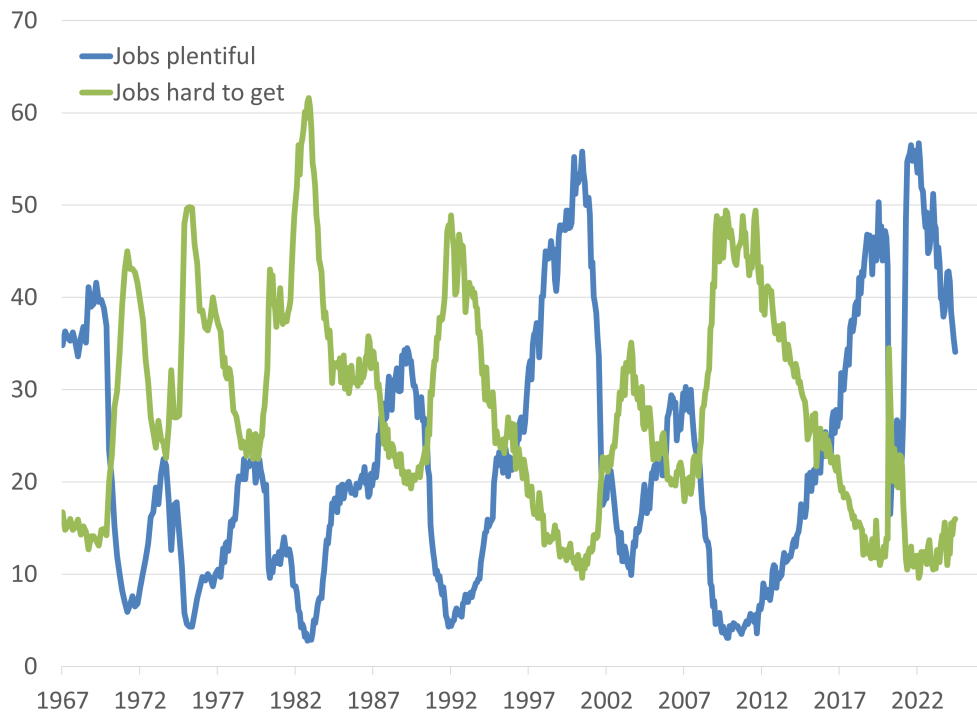


Figure 1: Consumer Perceptions about Job Availability

Note: The figure shows the share of the consumers who say that jobs are plentiful and the share of the consumers who say that jobs are hard to find. Monthly data from the Conference Board® through July 2024.

## 3 Consumer Labor Market Perceptions and the Labor Market Tightness

### 3.1 Consumer Perceptions and the Unemployment Rate

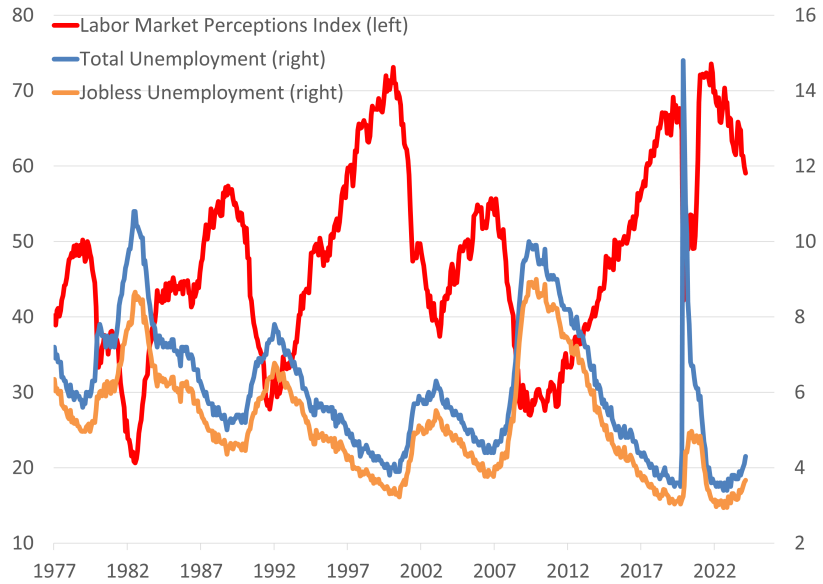
To construct a single labor market perceptions (LMP) index, we combine the two series on the consumer perceptions on job availability into a diffusion index of the percentage of consumers that think jobs are plentiful versus the percentage of households that think jobs are hard to get  $((\% \text{plentiful} - \% \text{hard to get} + 100)/2)$ . The index can range between 0 and 100 with a high value associated with a strong labor market. Weidner and Williams (2011) document that the labor market perceptions index has been closely related to labor market slack.

Figure 2 shows the labor market perceptions index (red line) and the aggregate unemployment rate (blue line). Panel (a) shows the entire series, and panel (b) zooms out on the 2017-2024 period. There is a close relationship between the LMP index and the unemployment rate, especially pre-pandemic, with the correlation between the two series of -0.92. At the onset of a recession, the consumer perceptions index rapidly falls as the unemployment rate quickly rises. Following a recession, the labor market perceptions index slowly recovers, while the unemployment rate slowly falls.

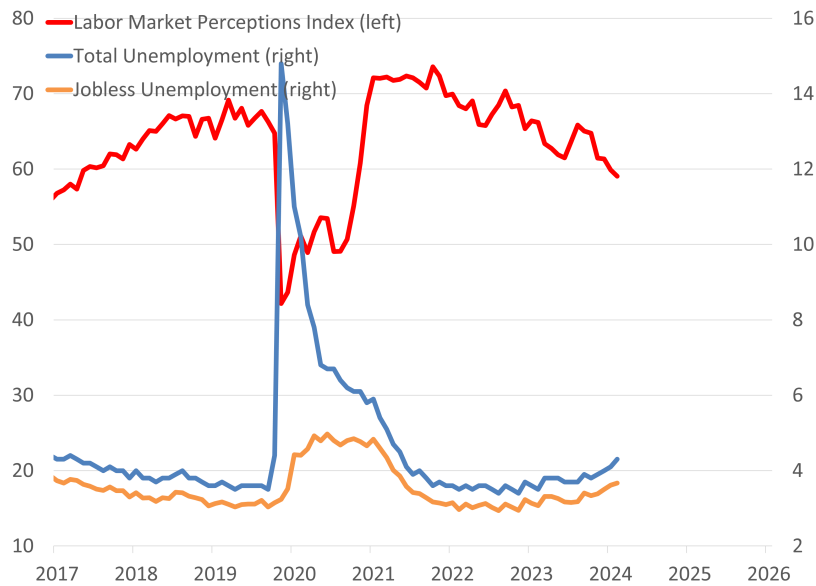
Prior to 2019, the LMP index reached its peak value of 73.1 in July 2000, just a month after the unemployment rate bottomed out prior to the 2001 NBER recession. This value of the LMP index was substantially higher than its cyclical peaks in 2007 and 1987, 57.4 and 55.7, respectively.

During the pandemic recession, the index plummeted from 64.6 in March 2020 to 42.2 in April-May 2020. It then recovered somewhat, and then recovered at a much higher than historical speed between February and May 2021. Most recently, the consumer perceptions index reached its cyclical peak in March 2022, at 73.6, while the unemployment rate reached its local trough in April 2023.

To closer examine the relationship between consumer labor market perceptions and the unemployment rate, we plot the series as a scatter plot of monthly observations of the overall unemployment rate (on the y-axis) against the LMP index (on the x-axis) in Figure 3. Although the figure loses the time dimension, it allows us to see what levels of one series corresponds to the levels of the other. The scatterplot is negatively-sloped, indicating that, historically, the relationship between labor market perceptions and the aggregate unemployment rate has been negative. We separately color-code observations from three periods: (1) the pre-pandemic period, June 1977 - February 2020 (in blue); (2) the pandemic period, March 2020 - December 2021 (in mahogany), and (3) the post-pandemic period, January



(a) 1977-2024



(b) 2017-2024

Figure 2: Labor Market Perceptions and Unemployment Rates

Note: The labor market perceptions index is the percent of the consumers who say that jobs are plentiful minus the percent of the consumers who say that jobs are hard to find, plus 100 and divided by 2, constructed from the Conference Board data. The jobless unemployment rate series are authors' calculation using BLS data. Data through July 2024; monthly, seasonally adjusted.

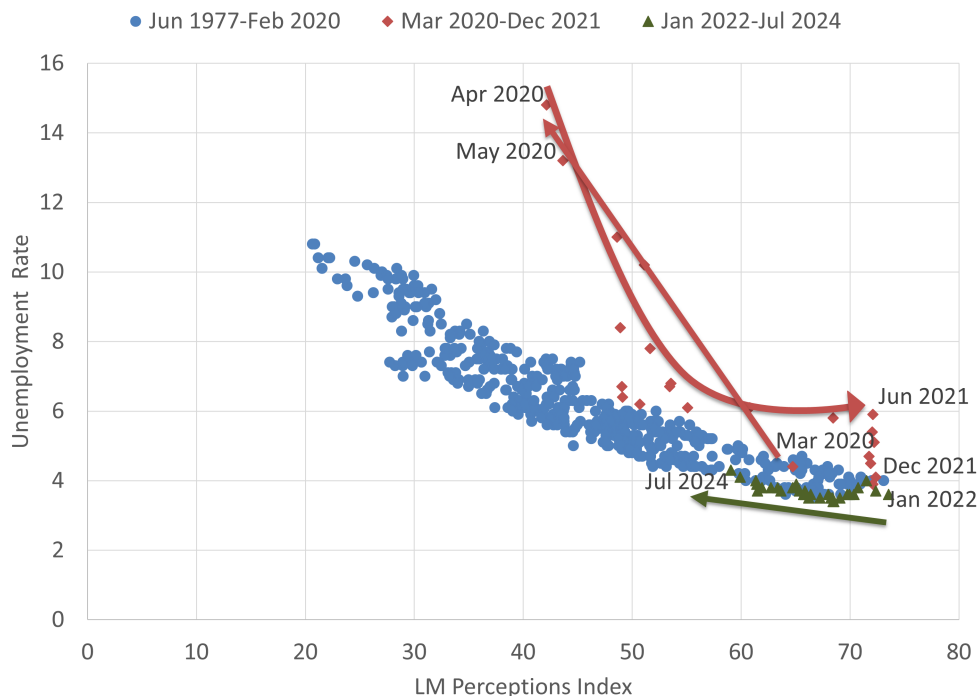


Figure 3: Consumer Labor Market Perceptions and Unemployment

Note: The labor market perceptions index is the percent of the consumers who say that jobs are plentiful minus the percent of the consumers who say that jobs are hard to find, plus 100 and divided by 2, constructed from the Conference Board data. Data through July 2024.

2022 - July 2024 (green). We chose where to end the second period and to start the last period based on when the share of the unemployed on temporary layoff in the labor force stabilized at its typical historical value of close to a half percentage point.

Figure 3 shows that pre-pandemic, there was a tight downward-sloping relationship between the unemployment rate and the LMP index (blue dots). Higher values of the LMP index are associated with lower unemployment rates.

After February 2020 and into 2021, the historical relationship between the unemployment rate and the LMP index broke (Figure 3). Consumers perceived the labor market as being in a better shape than the aggregate unemployment rate indicated. Specifically, between March and April 2020, unemployment jumped up sharply outside its historical range (see the mahogany arrow pointing from March to April). This caused the April 2020 observation to appear well above the historical cloud of observations. While unemployment jumped up to its historic highs, the LMP index remained in the middle of its historical range. Thereafter, unemployment continued to fall while labor market perceptions continued to improve (as indicated by the curved downward mahogany arrow). Between June and December 2021,



the unemployment rate was falling faster than its historical pace. Meanwhile, labor market perceptions lingered at its local peak level. This is indicated by the almost vertical cloud of mahogany-colored dots. Overall, the observations from April 2020 to December 2021 being above the historical observations indicate that (1) the unemployment rate during that period was above its historical values; (2) the unemployment rate was higher for any level of the LMP index than the historical relationship would predict.

After December 2021, the relationship between the unemployment rate and the LMP index appears to be back to its pre-pandemic association (the green dots in Figure 3). Recently, the unemployment rate has been slowly increasing while the LMP index slowly decreasing, in sync with their historic relationship.

Next, we try to understand why the historic relation between consumers labor market perceptions and the aggregate unemployment rate was broken during the pandemic period.

### **3.2 Consumer Perceptions and the Jobless Unemployment Rate**

An important feature of the pandemic recession was that the entire run-up of unemployment between March and April 2020 came from temporary layoffs (Kudlyak and Wolcott (2020)). Hall and Kudlyak (2020) show that to understand the labor market during the pandemic and its aftermath, one should examine separately temporary-layoff unemployment and unemployment due to other reasons—jobless unemployment. The unemployed on temporary layoff wait to be called back to their jobs; while the jobless unemployed go through the time-consuming search and matching process to find jobs. Hall and Kudlyak show that the jobless unemployment rate better captures the labor market tightness than the total unemployment rate.

The jobless unemployment rate series are plotted in Figure 2 (see orange line). The figure shows that during the pandemic, the aggregate unemployment reached its peak of 14.7% in April 2020. In contrast, the jobless unemployment rate reached its peak on 4.9% in November 2020, a modest increase by historic standards.

We then examine the relation between the labor market perceptions index and the jobless unemployment rate. These are orange, red, and brown dots in Figure 4, representing the pre-pandemic (June 197—February 2020), pandemic (March 2020—December 2021), and the most recent (January 2022—July 2024) periods, respectively. Most of the unemployment pre-pandemic was of a jobless kind (see Figure 2). Therefore, given the tight pre-pandemic relation between the LMP index and the overall unemployment rate described above, it is not surprising that pre-pandemic, there was a tight negatively-sloping relationship between the jobless unemployment rate and the LMP index as well (orange dots).

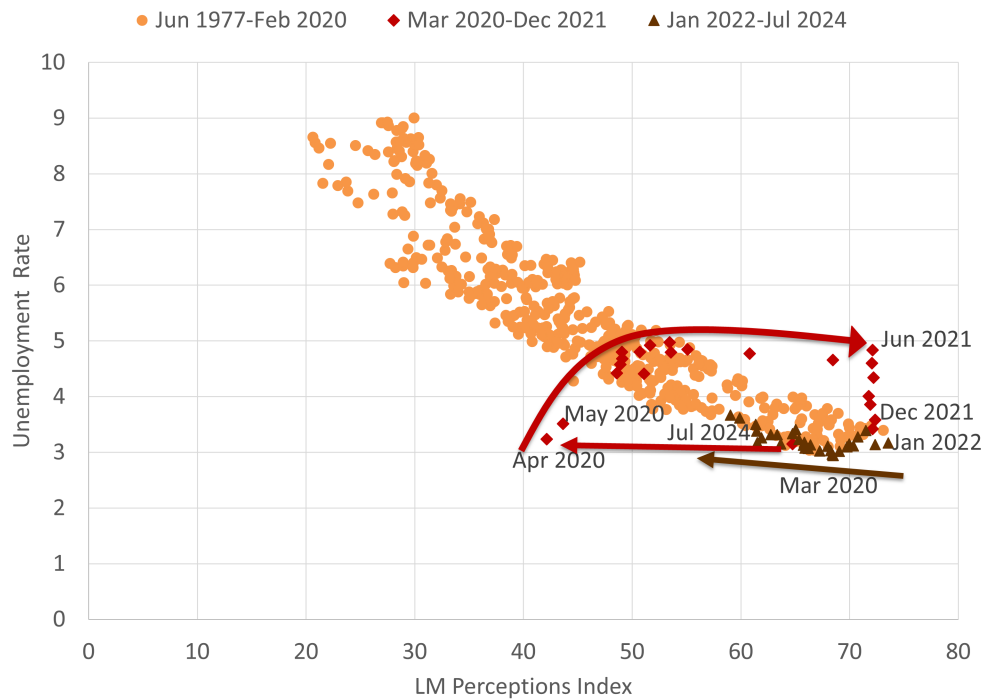


Figure 4: Consumer Labor Market Perceptions and the Jobless Unemployment Rate

Note: The labor market perceptions index is the percent of the consumers who say that jobs are plentiful minus the percent of the consumers who say that jobs are hard to find, plus 100 and divided by 2, constructed from the Conference Board data. The jobless unemployment rate is calculated by the authors' using the BLS data. Data through July 2024.

Between March and April 2020, the jobless unemployment rate did not change materially from its lowest historical point, while the LMP index decreased. This horizontal move on the scatter is depicted by the red arrow pointing from March to April 2020. The two red dots lie somewhat below the historic cloud of orange dots. This indicates that during these two months, March-April 2020, consumers perceived the labor market somewhat worse than the level of contemporaneous jobless unemployment would have indicated historically.

After April 2020, the red dots generally lay close to the historical relationship between the LMP index and the jobless unemployment rate. This is in stark contrast to the relationship between the total unemployment rate and the LMP index during the same period: whereby for the given level of the LMP index, the total unemployment rate was signalling *too slack* a labor market for more than a year, while the jobless unemployment rate was signalling *too tight* a labor market for only two months, given their respective historic relations with the LMP index.

Finally, during the most recent period (brown dots), the jobless unemployment rate has been slightly rising while labor market perceptions—declining, in-line with the historical pattern.

Summarizing, these findings suggest that there is a closer association between jobless unemployment and labor market perceptions than between the overall unemployment rate and the perceptions, with the exception of the onset of the pandemic in April—May 2020.

## 4 Firm Perceptions and the Aggregate Labor Market

### 4.1 Data on Firm Perceptions

Our firm perceptions data come from the National Federation of Independent Business (NFIB) via the Conference Board. The NFIB Research Center has published Small Business Economic Trends Data of its member firms since 1973 (Dunkelberg and Wade (2024)). Randomly selected respondents are mailed a questionnaire. Each small business surveyed is weighted equally.

The NFIB publishes a monthly jobs report on the second Tuesday of the month, which discusses results from the prior month’s survey. The BLS releases its Job Openings and Labor Turnover Summary (JOLTS) approximately one month following the end of the reference month. Thus, the data from the NFIB survey are available about two weeks prior to the BLS JOLTS release. We utilize NFIB survey data from November 1973 through July 2024.

We use the survey question “Do you have any job openings that you are not able to fill right now?” The Conference Board reports the series monthly as the percentage of firms with jobs not able to fill right now. This includes any firms with at least one unopened position

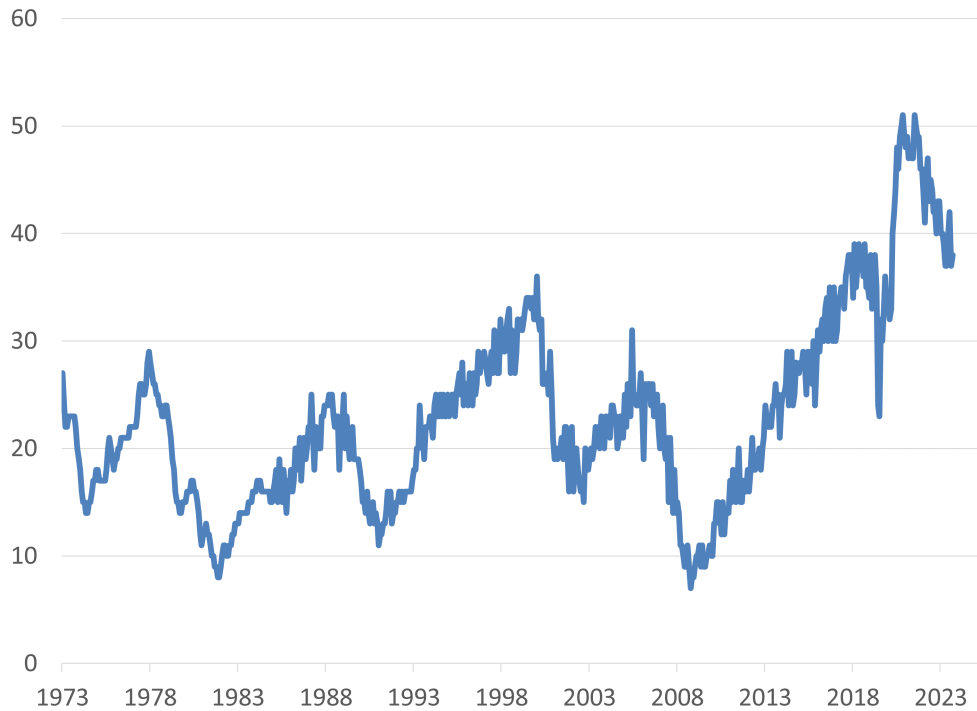


Figure 5: A Measure of Firm Labor Market Perceptions

Note: Data from the National Federation of Independent Business (NFIB) via the Conference Board. Data through July 2024.

at the time of the survey. In what follows we refer to the series as firm perceptions of the labor market, with the caveat in mind that the series refer to the perceptions of the firms that are members of the NFIB.

## 4.2 Firm Perceptions

Figure 5 shows the series of the firms labor market perceptions as provided by the Conference Board. Between 1973 and 2024, the percent of small firms with at least one unfilled opening has ranged from a little below 10% to 50%. Higher values indicate more small businesses have positions that they are not able to fill. The series are cyclical, falling during recessions and climbing through recoveries.

During the pandemic, the series plummeted between February and April 2020. They recovered quickly and since and as of 2024 have remained higher than ever previously, reaching its peak in 2021-2022 and decreasing thereafter.

### 4.3 Firm Perceptions and Unemployment

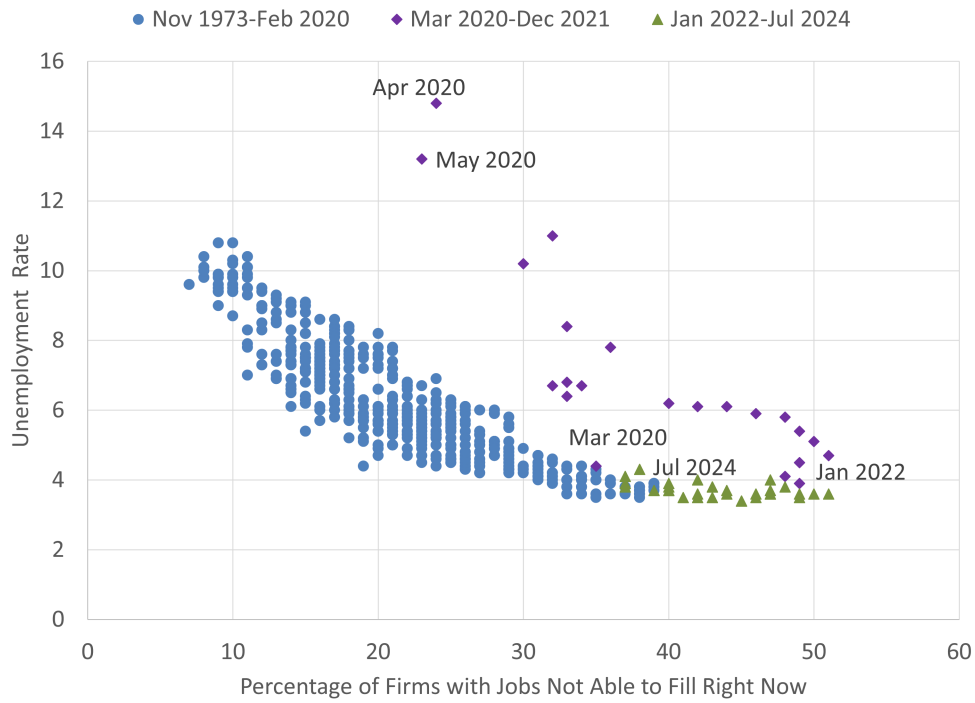
Figure 6 shows the scatter plot of the unemployment rate (on the y-axis) and the firms labor market perceptions series (on the x-axis). Panel (a) uses the aggregate unemployment rate; and panel (b) uses the jobless unemployment rate. We separately color-code the three periods as before: (1) the pre-pandemic period, June 1977 - February 2020; (2) the pandemic period, March 2020 - December 2021, and (3) the post-pandemic period. The figure shows that there was a tight relationship between the firms labor market perceptions and the aggregate unemployment rate or the jobless unemployment rate prior to the pandemic.

During the pandemic the relationship with the total unemployment broke in a manner similar to the break that occurred with the consumer labor market perceptions: the firms perceived the labor market as tighter than the level signalled by the unemployment rate. The relationship has been back to its historic pattern after 2021. There was less disconnect with the historic pattern between the firms perception measure and the jobless unemployment rate. However, from the mid-2020 to the end of 2021, firm perceptions were somewhat higher than the level of the jobless unemployment rate would signal. Figure 6 also shows that post-pandemic the observations lie further to the right than their historical values, indicating that firms labor market perceptions were higher than before.

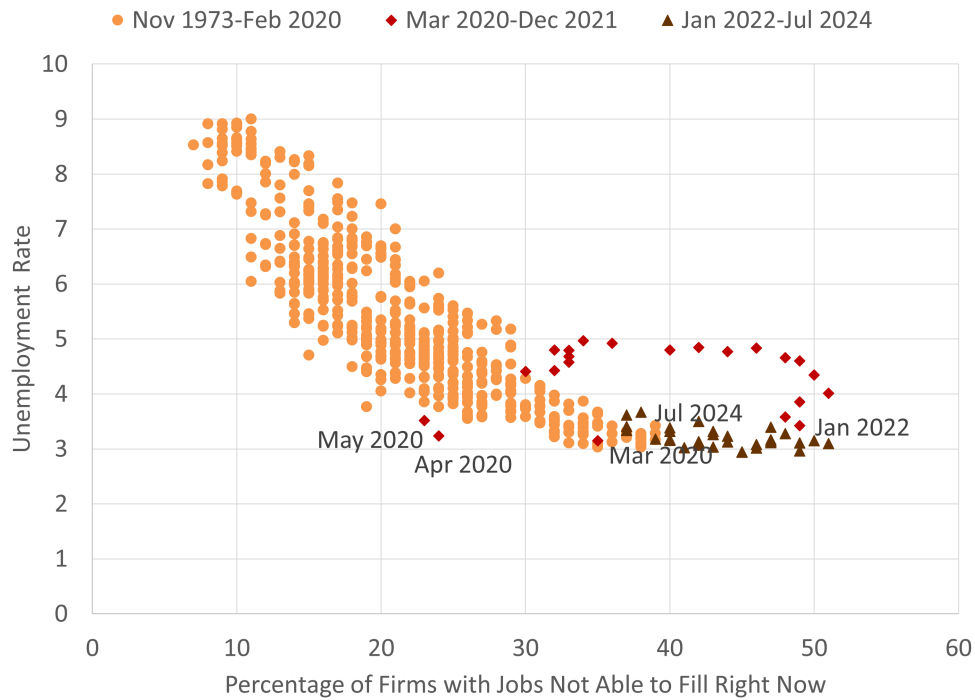
### 4.4 Firm Perceptions and Vacancy Measures

We now turn to the relationship between the measure of firm perceptions and the vacancy-unemployment measures. Figure 7 shows the vacancy-to-unemployment ratios, one calculated using total unemployment and the other - using jobless unemployment in the denominator (see Hall and Kudlyak (2020)). The vacancy-to-jobless unemployment ratio did not plummet as much during the pandemic recession as the vacancy-to-total unemployment ratio did. However, post-pandemic, both series reached much higher than their historical levels. A similar story emerges while examining the duration of vacancy (see Figure 8; see Hall and Schulhofer-Wohl (2018) for the description of the measure).

Figure 9 casts the relationship between the firm labor market perceptions and the aggregate labor market tightness in a scatter plot of the log of the vacancy-unemployment ratio (on the y-axis) and the firms labor market perceptions series (on the x-axis). Panel (a) uses the aggregate unemployment rate and panel (b) uses the jobless unemployment rate in the denominator of the vacancy-unemployment ratio, respectively. We separately color-code the three periods as before, plus we add the fourth—we separately distinguish the March-May of 2020 (black squares). For each of the three periods we estimate a linear regression model



(a) The Aggregate Unemployment Rate



(b) The Jobless Unemployment Rate

Figure 6: Firm Labor Market Perceptions and Unemployment Rates

Note: The firms labor market perceptions data are from the National Federation of Independent Business (NFIB) via the Conference Board. The unemployment rates data are authors' calculations using the data from the BLS. Data through June 2024.

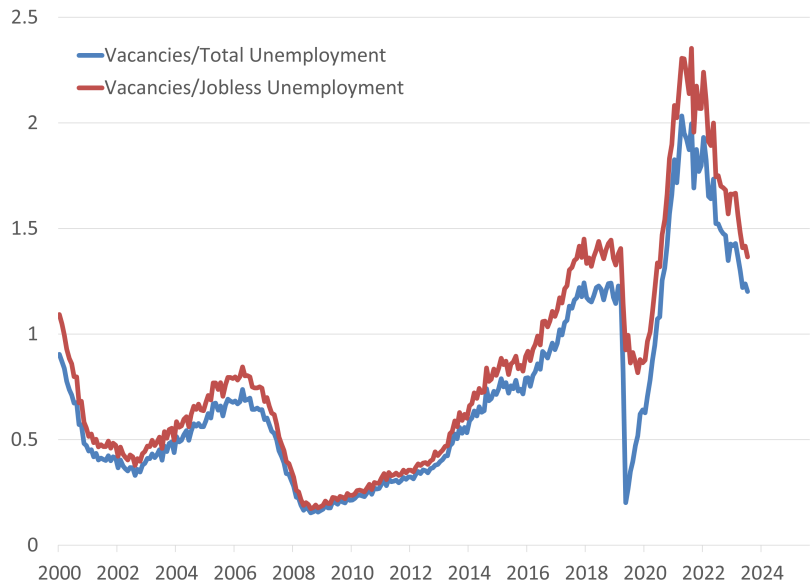


Figure 7: Vacancy-Unemployment Ratios

Note: Vacancy data from the BLS via the Job Openings and Labor Turnover Survey (JOLTS). The unemployment rates data are authors' calculations using the data from the BLS. Data through June 2024.

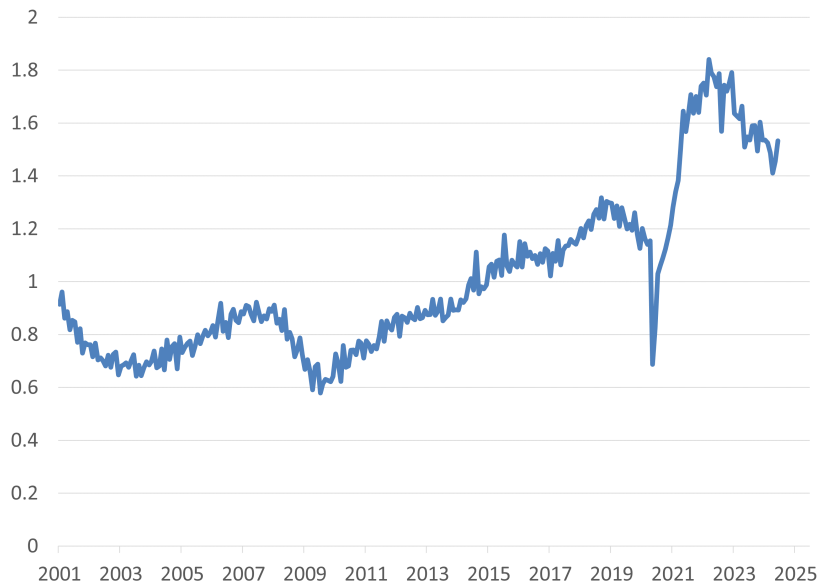


Figure 8: Average Duration of Vacancy

Note: Vacancy and hires data from the BLS via the Job Openings and Labor Turnover Survey (JOLTS), through June 2024.

of the relation between the log of the vacancy-unemployment ratio and the measure of the firm labor market perceptions. The corresponding  $R^2$ 's are reported in the note to Figure 9.

We find that prior to March 2020, there was a tight linear relation between the log of vacancy-unemployment ratio and the measure of the firm labor market perceptions (blue fitted line in Figure 9).

During June 2020-December 2021, the relation exhibited an almost parallel shift down (purple line). That is, the vacancy-unemployment ratio signalled a *less tight* labor market than the firms perceived, as compared to their historical association; and that discrepancy remained approximately constant for every level of the perceptions measure.

Finally, during the 2022-2024 period, the relationship shifted back up; but the slope is flatter than pre-pandemic. That is, during the period, the vacancy-unemployment ratio still signals a *less tight* labor market than the firms perceive, as compared to their historical association. However, the discrepancy decreases as the measure of perception decline (see the distance between the green line and the dotted blue line). In fact, most recently, the relationship is back to its pre-pandemic association.

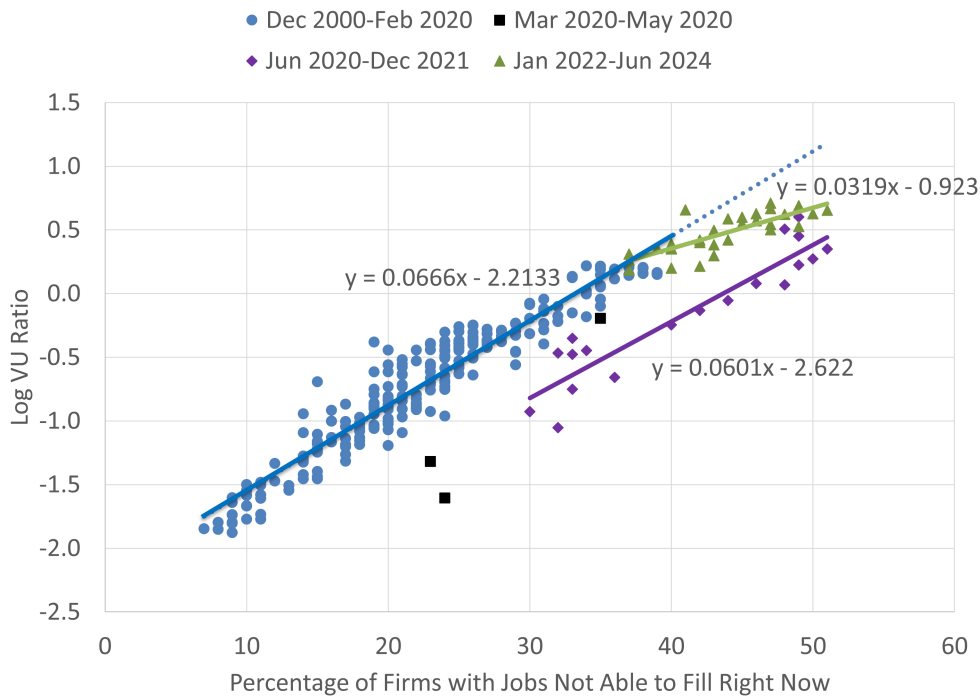
The story is qualitatively similar if we use the jobless unemployment rate instead of the total unemployment rate as the denominator in the vacancy-unemployment ratio (see panel (b), Figure 9), with the exception of the two months from April to May 2020 (black squares).

Overall, despite historically high vacancy-unemployment ratio post-pandemic, firms perceived the labor market as being even tighter than the pre-pandemic relation between the vacancy-unemployment ratio and the firm perceptions would indicate. We should add the caveat that the firm perceptions series that we were able to obtain might not be representative of the perceptions of the firms of all sizes.

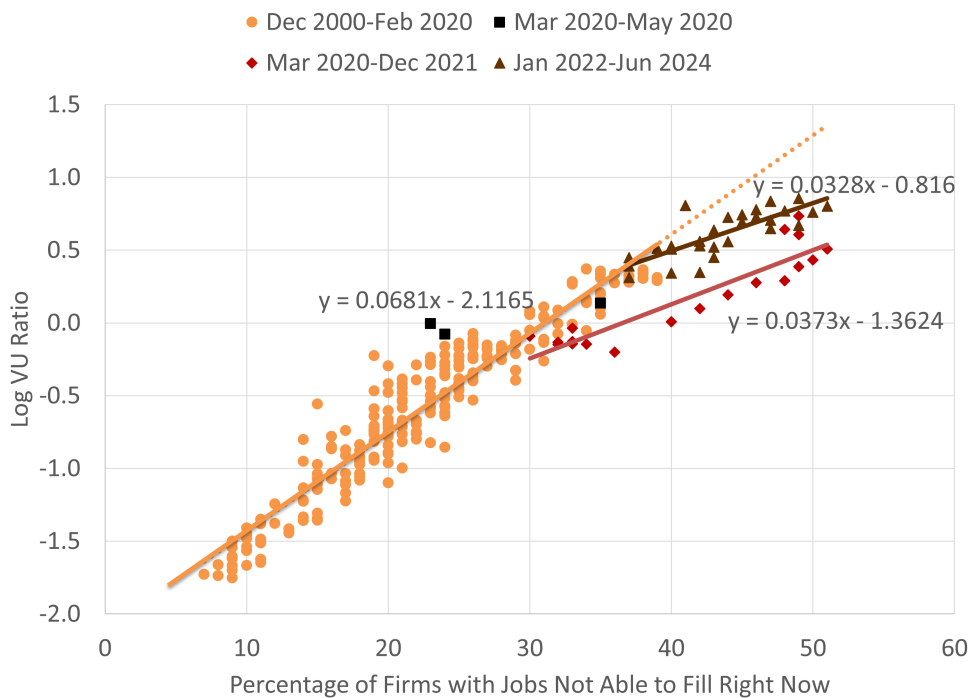
## 5 Consumer and Firm Labor Market Perceptions

Finally, Figure 9 shows a scatter plot of the consumer LMP index (y-axis) and the measure of firm labor market perceptions (x-axis). The two series are positively related. Two observations stand out. First, in the post-pandemic, firm perceptions reached levels higher than was historically the case. This is consistent with the measures of the labor market tightness that involve vacancy measures. This is in contrast to the measures of consumer labor market perceptions which remained within the levels seen prior to 2020. Second, firm labor market perceptions signalled tighter labor market than the consumer perceptions index did, given their pre-pandemic relation. Most recently, the relation between the two series is close to its pre-pandemic pattern.





(a) Using Vacancy-to-Unemployment Ratio



(b) Using Vacancy-to-Jobless Unemployment Ratio

Figure 9: Firm Labor Market Perceptions and Vacancy-to-Unemployment Ratios

Note: The firms labor market perceptions data are from the NFIB via the Conference Board. The vacancy data are from JOLTS. The unemployment data are authors' calculations using data from the BLS. The  $R^2$  for panel (a) are 0.92, 0.86, 0.63, for each of the three subsequent periods, respectively; for panel (b)  $R^2$ : 0.91, 0.85, 0.64. Data through July 2024.

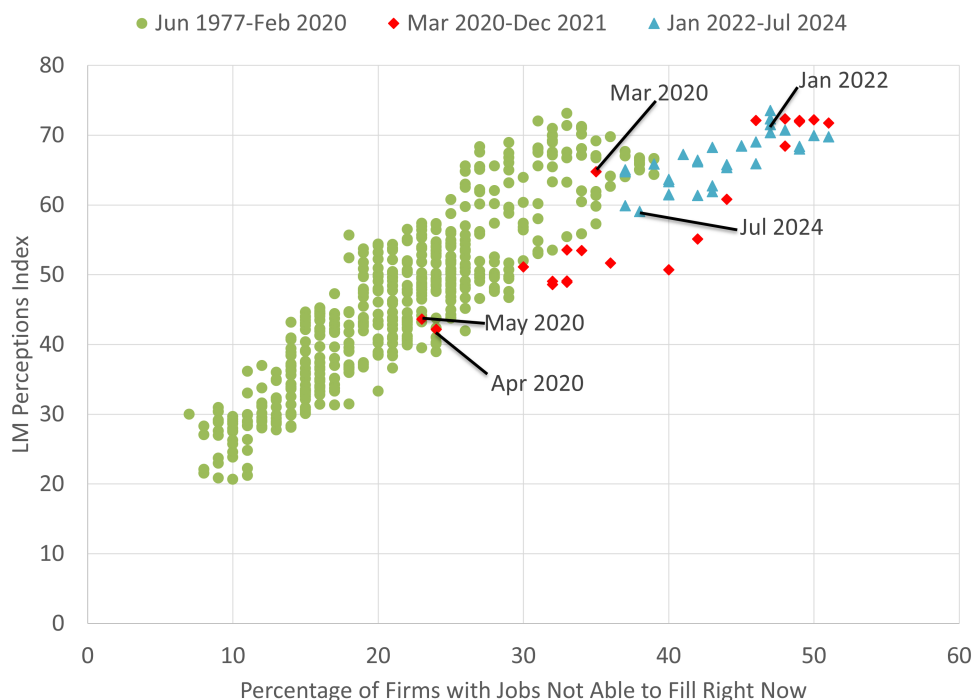


Figure 10: Consumer and Firm Labor Market Perceptions

Note: The labor market perceptions index is the percent of the consumers who say that jobs are plentiful minus the percent of the consumers who say that jobs are hard to find, plus 100 and divided by 2, constructed from the Conference Board data. The firms labor market perceptions data are from the NFIB via the Conference Board. Data through July 2024.

## 6 Conclusion

We find that consumers are aware of the aggregate labor market conditions. Consumer labor market perceptions have historically had a tight relationship with the aggregate labor market conditions. Higher levels of perceptions are associated with lower unemployment rates. During the pandemic, the relationship was broken for more than a year, with the labor market perceptions signalling a much tighter labor market than would have been suggested by the aggregate unemployment rate. This was also the period of an unusually high share of temporary laid-off workers in the pool of the unemployed.

We show that consumer labor market perceptions are better aligned with the jobless unemployment rate, e.g., the share of the unemployed for reasons other than temporary layoff in the labor force. During the pandemic, both series signalled a tighter labor market than was predicted by the aggregate unemployment rate.

Using a measure of the firm labor market perceptions from the National Federation of Independent Business (notwithstanding the sample representativeness caveats), we find that during the post-pandemic period, firms perceived labor market as being tighter than what consumers perceived, given the historic relation between two perception series. Interestingly, despite the vacancy-unemployment ratio was at its historic high levels during the post-pandemic period, our measure of firm perceptions signalled that the labor market was even tighter. In June-July 2024, the relations between consumer and firm perceptions and between various measures of labor market tightness are back to its pre-pandemic relations.

A potentially fruitful direction for future work is to examine the relation between the consumer perceptions of the aggregate labor market conditions and about their own job finding and job losing prospects. The latter studies include Santos-Pinto and de la Rosa (2020), Mueller, Spinnewijn and Topa (2021), Menzio (2023), He and Kircher (2023), Kosar and van der Klaauw (2023), Balleer, Duernecker, Forstner and Goensch (2023), Hartmann and Leth-Petersen (2024), Mitra (2024), among others.

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