What Explains Black Employment Dynamics?

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October 13, 2023

1 Introduction

In the United States, employment outcomes for black workers are systematically worse than those of whites. Perhaps the most salient manifestation is the fact that the unemployment rate for blacks is approximately twice as high as that for whites. The ratio is remarkably stable, and has shown no sign of diminishing in several decades. Another symptom is that black labor force participation is systematically lower than it is for whites (see Hobijn & Şahin (2021)).

One implication of the two-to-one ratio is that the black unemployment rate is more cyclical than that of whites. The high "beta" of black employment has been documented by Aaronson *et al.* (2019), Cajner *et al.* (2017), De *et al.* (2021), and Wilson & Darity (2022), just to name a few recent examples. We investigate this possibility in section 3.

The two-to-one relationship also implies a higher *steady-state* unemployment rate. The gap narrows during booms, but widens as the economy contracts, e.g., Lang & Lehmann (2012) and Couch *et al.* (2023). This is the focus of section 4.

This paper explores the proximate causes of black unemployment; specifically, the extent to which it can be attributed to a concentration of black workers in cyclically sensitive occupations and/or industries, or those with low job security.

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Job market segregation exists, to be sure; however, we find that occupation and/or industry mix cannot explain blacks' adverse employment outcomes. Using data from the Census's Quarterly Workforce Indicators and Job-to-Job Flows databases, we find that black employment is more volatile and separation rates higher *within* industries.

Our results therefore rule out one potential source of disparities in aggregate labor market outcomes. This suggests that we need to look elsewhere for an explanation as to why blacks in a particular industry on average fare worse.

2 About the QWI and J2J data

Our analysis uses time series data from the Census Bureau's Quarterly Workforce Indicator (QWI) and Job-to-Job Flows (J2J) datasets. Both are based on administrative microdata from the Bureau's Longitudinal Employer-Household Dynamics (LEHD) program, which covers 95 percent of private-sector employment.

For our purposes, data density is the main advantage of the QWI and J2J datasets. Encompassing almost the entire labor force, it is possible to disaggregate employment more finely than would be feasible using household-level data from the Current Population Survey (CPS) or establishment-level data. For example, time series black unemployment can be obtained from the CPS, and construction employment can be obtained from the payroll data, but given the small samples involved, a CPS-based time series on black employment in the construction industry would likely be unreliable. The QWI and J2J datasets allow for additional levels of disaggregation, e.g. by firm size and geography, which would not be possible in other datasets.

3 Net flows and employment cyclicality

Variation in the representation of black workers across industries is one possible explanation different degrees of employment cyclicality, as hypothesized by Duzhak (2021) and others. Specifically, if blacks are over-represented in highly cyclical industries, then black employment overall will exhibit larger cyclical fluctuations than white employment.

This hypothesis can be framed in terms of a factor model in which employment growth in

industry i, E_{it}, is decomposed into a factor loading β_i multiplying a common business cycle factor c_t plus an industry-specific factor ε_{it}: $\Delta \ln E_{it} = \beta_i c_t + \varepsilon_{it}$. If industry i employs a constant share of workers of race j, then overall employment growth for race j will be a weighted average of employment in each industry, with weights equal to the share of workers of race j employed in industry i, E_{ij}/E_j (e.g. the share of the black labor force working in manufacturing), denoted ω_{ij}.

Under these assumptions, the β for race j, β_j, can be expressed as the weighted average of the industry βs,

$$\beta_j = \sum_i \omega_{ij}\beta_i \ , \tag{1}$$

and the difference between the βs for blacks and whites is a weighted average of the differences in the industry βs,

$$\beta_B - \beta_W = \sum_i (\omega_{iB} - \omega_{iW})\beta_i \ . \tag{2}$$

In other words: if the difference between the cyclical sensitivities of black and white employment is attributable to the mix of industries in which the workers are employed, then the difference in the race-specific employment βs will be explained by the difference in the two groups' employment shares.

To see whether the factor model with disparate employment shares can explain black employment cyclicality, we estimated the β_i factor loadings from a regression of the log difference in industry i employment on the log difference in total employment, and used the average employment shares as the ωs to calculate the implied race-specific βs.

Figure 1 uses these estimates to depict the contributions of the industry βs to black employment cyclicality. The industry βs are on the vertical axis and the skew variable on the horizontal axis is black employment in industry i as a share of the total number of black workers minus the corresponding figure for whites, $(\omega_{iB} - \omega_{iW})$. The bubble size is proportional to the product of the two, $(\omega_{iB} - \omega_{iW})\beta_i$, and represents the magnitude of the industry's contribution (positive or negative) to black employment cyclicality. The contribution of the industry mix will be small if the β is the vicinity of 1.0 (close to the horizontal axis), *or* if there is very little difference between

the shares of black and white workers employed in the industry (close to the vertical axis).

If industry mix were the explanation for the observed cyclicality of black employment, we would expect to see large bubbles in the northeast and southwest quadrants of the diagram. This would indicate that relatively more blacks are employed in industries with βs greater than one, and relatively fewer in low-β industries. This is generally *not* the case, however. A disproportionate share of blacks works in Health Care, which has a very *low* β; a relatively small share works in *high*-β Construction. Only in Administrative/Support/Waste (ASW for short) do we see a skewed black employment share associated with a high-β industry.[1] In fact, equation 2 implies that black employment should be slightly *less* cyclically sensitive than white (0.96 versus 1.00).

Since the QWI gives us time series of E_{ijt}, we can also directly compare the cyclicality of black and white employment within industries. For each industry, we regressed the quarterly log difference in black employment on the quarterly log difference of white employment growth. If black and white employment were equally sensitive to macroeconomic and industry-specific conditions, the estimated slope coefficients would be close to one. Estimates in excess of one can be interpreted as evidence excess cyclicality.

Figure 2 shows the estimated slope coefficients as red dots along with the ± 1 standard error bounds. Most of the estimates are well in excess of one. For example, in ASW (NAICS 56), the estimate of 1.5 says that a 1 percent decline in white employment is associated with a 1.5 percent drop in black employment. (The relationship for employment increases is symmetric.) Only Education (NAICS 61), Utilities (NAICS 22), Hospitality (NAICS 72) and Health Care (NAICS 62) have estimates close to one in economic and statistical senses. The estimate for Agriculture (NAICS 11) is the one industry for which the estimated slope coefficient is less than one, but it employs only one-half of one percent of black workers.

The main conclusion from our analysis of the QWI data is that blacks experience more cyclical employment in all but a handful of industries. Therefore, the excess sensitivity to macro conditions

[1] Interestingly, many of the enterprises in ASW (NAICS 56) provide services on a contract or fee basis; i.e. they are firms to which other companies outsource, which may have something to do with the industry's high degree of cyclicality.

cannot be attributed to their disproportionate representation in more cyclical industries.

4 Gross flows and unemployment

The examination of employment cyclicality in section 3 was based on net employment flows from the QWI. This section uses gross flow data from the J2J dataset in order to understand differences in average unemployment rates and the sources of unemployment volatility.

The analysis draws on the standard labor search framework, in which equilibrium employment is determined by the balance between flows into and out of the pools of unemployment (or non-employment) and employment. In that framework, the equilibrium unemployment rate u is a function of the job finding rate f and the separation rate s, $u = s/(s+f)$.

For the separation rate s, we use the transitions from employment to persistent non-employment from the J2J dataset. To calculate the job finding rate f (i.e. new hires relative to the pool of unemployed), we use the number of previously non-employed new hires from the J2J dataset and divide by the number of unemployed workers from the CPS.[2]

The top panel of Figure 3 shows that the job finding rate for blacks is consistently lower than the rate for whites. The opposite is the case for the separation rates, shown in the middle panel.

The bottom panel shows the ratio of black to white unemployment rates implied by the race-specific separation and finding rates, along with the observed ratio. The former tracks the latter quite closely, and both are around 2. The discrepancies between finding and separation rates therefore largely account for the persistent two-to-one ratio between black and white unemployment.

The job flow picture is more nuanced at the industry level. Separation and hiring rates for blacks are consistently higher in almost all of 19 industries in the two-digit NAICs breakdown.[3]

There is a great deal of heterogeneity across industries, however. Figure 4 shows the gaps between black and white hiring and separation rates for the four industries that make the largest

[2]The appropriate measure of non-employment is not clear, however, as the J2J data does not distinguish between the unemployed and those who are not in the labor force. Using a definition of non-employed that includes those that are not in the labor force but *want* a job (NEPersistS in the J2J dataset divided by the sum of UNEMPLOY and NILFWJNN from FRED) yields a finding rate very close what is reported in Figure 1 of Shimer (2012). Unfortunately, time series data on those who are not in the labor force but want a job, broken down by race, are not available.

[3]Note that the hiring rate is relative to the number of workers employed in the industry, and so it is not the same thing as the job *finding* rate, which is relative to the pool of unemployed.

contributions to the overall employment β, according to our analysis in section 3. To facilitate comparisons, all four panels share the same vertical scale.

The gaps are positive for all four of the industries plotted (as well as in the other 15 that are not plotted), indicating consistently higher gross flows for blacks. The average gaps between the rates vary drastically across industries, however. In ASW, for example, the hiring and separation rates are on the order of 14% for blacks versus 10% for whites, implying a four percentage point gap. The gaps are much narrower in other industries, such as Manufacturing and Health, where they average around one percentage point.

The gaps also exhibit very different behavior over the business cycle. The top two panels of the figure show that in the highly cyclical Construction and ASW industries, black hiring rates, relative to whites', fall markedly during recessions, as well as in the period leading up to the peak. The gap between separation rates rises as the economy goes into recession, but not before. The sharp decline in black employment, relative to white, in these two industries is therefore due to a combination of job losses and hiring cutbacks, the latter commencing before the former. On the positive side, the figure also shows that black hiring bounces back quickly during the recovery phase of the business cycle.

The pattern is different for Manufacturing, shown in the lower left-hand panel, despite also being a highly cyclical industry. Separation rates rise and hiring rates fall for both blacks and white, not surprisingly; but the *gap* between hiring rates remains unchanged during recessions, and the increase in the separations gap is relatively modest, compared to the Construction and ASW industries.

With a beta of only 0.39, Health care is one of the least cyclical of the 19 industries, both overall and in terms of the difference between black and white employment growth. This is reflected in the narrowness of the gap between black and white hiring and separation rates.

5 Conclusion

This paper's goal was to illuminate the proximate causes of blacks' adverse labor market outcomes, focusing on overall job growth and the flows into and out of unemployment. Our primary innovation was to disaggregate the analysis by industry, using the Census Bureau's QWI and J2J data.

It is not possible to estimate from the aggregate data the worker-level hazard rates necessary to determine whether blacks are literally "last hired and first hired," a hypothesis explored using microdata in Couch & Fairlie (2010). But using time series data, we are able to show that in general, even within industries, blacks are less likely than whites to find employment and more likely to lose their jobs.

Our specific findings are as follows. First, the excess cyclicality of black employment cannot be explained by industry composition. Second, the overall job finding rate is lower for blacks than for whites, on average, and the separation rate is higher. This explains the persistent gap between black and white unemployment. Third, in most industries, the separation rate for blacks significantly exceeds that of whites. And fourth, at the industry level, fluctuations in black employment, relative to white, are attributable to movements in both hiring and separation rates.

The pervasiveness of these patterns across industries is consistent with structurally discriminatory employment practices. Other explanations cannot be definitively ruled out, however. Within manufacturing, for example, assembly line workers may have less job security than managers, and this would translate into worse outcomes for blacks if they were disproportionately represented on the factory floor and relatively scarce in the office suites. But even if this were the case, discrimination could come into play via the favor of whites for managerial roles.

The inter-industry differences in employment flows we documented suggest several avenues of future research. One is to investigate the role of market power in enabling workplace discrimination; that is, whether labor market monopsonists can better "afford" to discriminate, relative to those operating in competitive labor markets. Symmetrically, labor power (e.g. unionization) could be a countervailing force mitigating discriminatory practices. And exploiting spatial varia-

tion in observable proxies for discrimination, such as the EEOC filings used in Boulware & Kuttner (2019), combined with geographically disaggregated data from the LEHD, should make it possible to assess the extent to which discrimination was an underlying cause of high unemployment among black workers.

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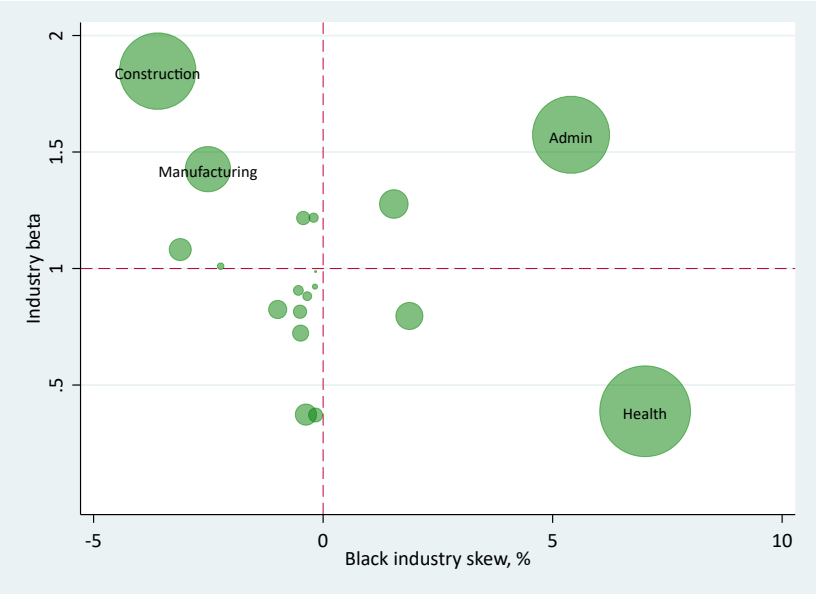
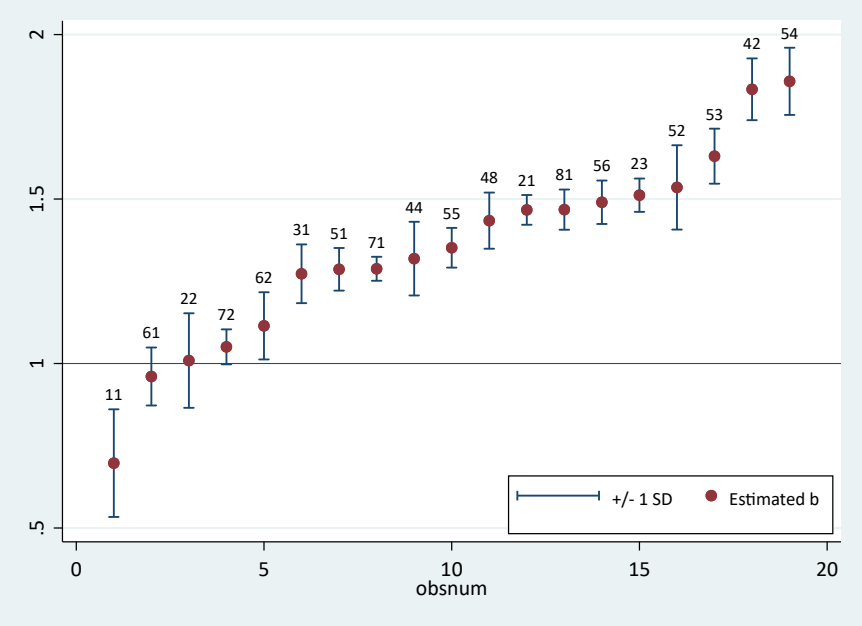
Figure 1: Industry betas and employment shares



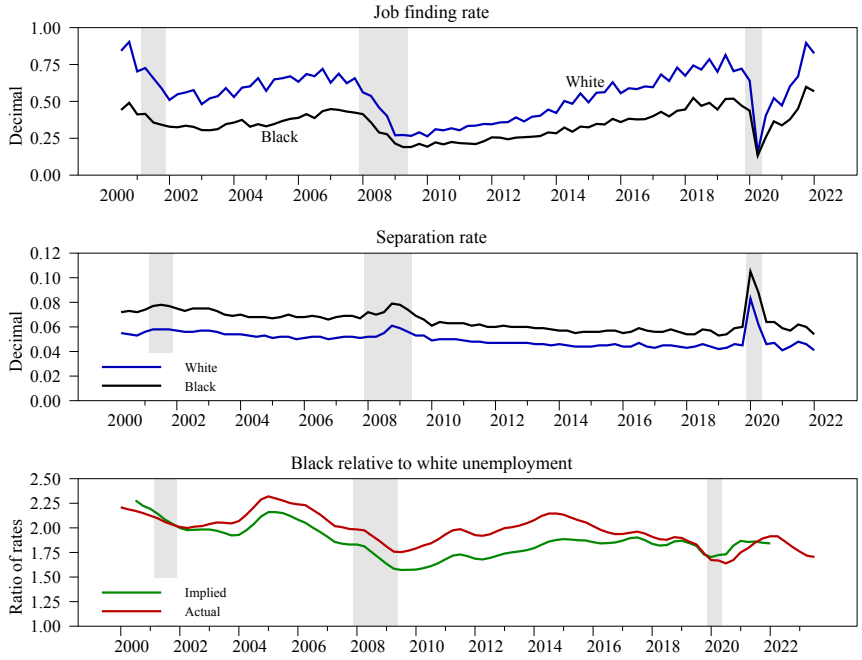
Notes: The plot is based on the authors' calculations using QWI data, as described in the text. The beta estimates use data from 1993 through 2019, and the average employment shares use data from 2001 through 2019.

Figure 2: Excess cyclicality by industry



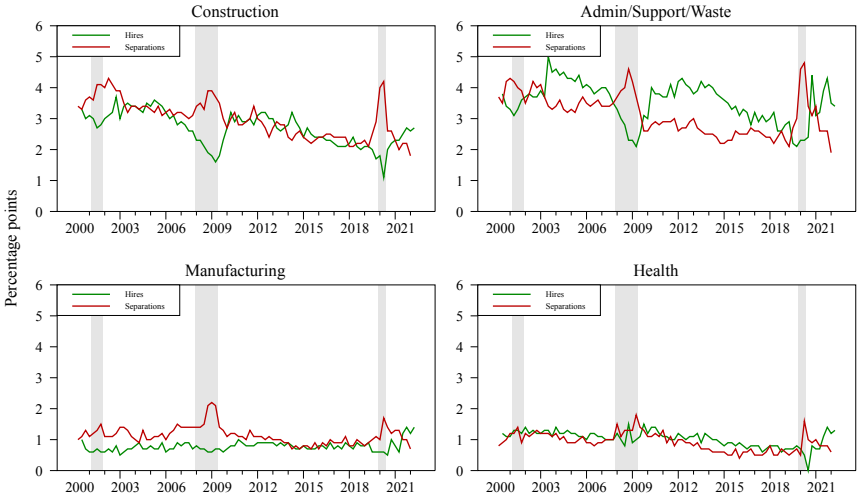
Notes: The plot is based on the authors' calculations using QWI data, as described in the text. The estimates use data from 2001Q1 through 2023Q2. The numbers above the bars are the industry NAICS codes.

Figure 3: Job finding and separation rates



Notes: The plots are based on the authors' calculations as described in the text. The job finding rate uses J2J data on transitions from non-employment to persistent employment (NEPerisistS) and CPS unemployment data (FRED codes LNU03000003 and LNU03000006). The separation rate is from the J2J dataset (ENPersistR). The unemployment rate ratios in the bottom panel are smoothed using a four-quarter moving average filter.

Figure 4: Hiring and separation rates by industry



Notes: The plot is based on J2J data. The hiring rate is transitions from non-employment to persistent employment (NEPersistR) and the separation rate is from employment to persistent non-employment (ENPersistR).