Why Do Blacks Suffer More in Recessions and Benefit More in Expansions?

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Motivation

- A well-established fact is that Blacks (and other historically disadvantaged groups) are disproportionately affected by recessions.
- The reasons for this are not well understood.
- Running a “high pressure” economy may repair the damage (positive hysteresis).

Starting point

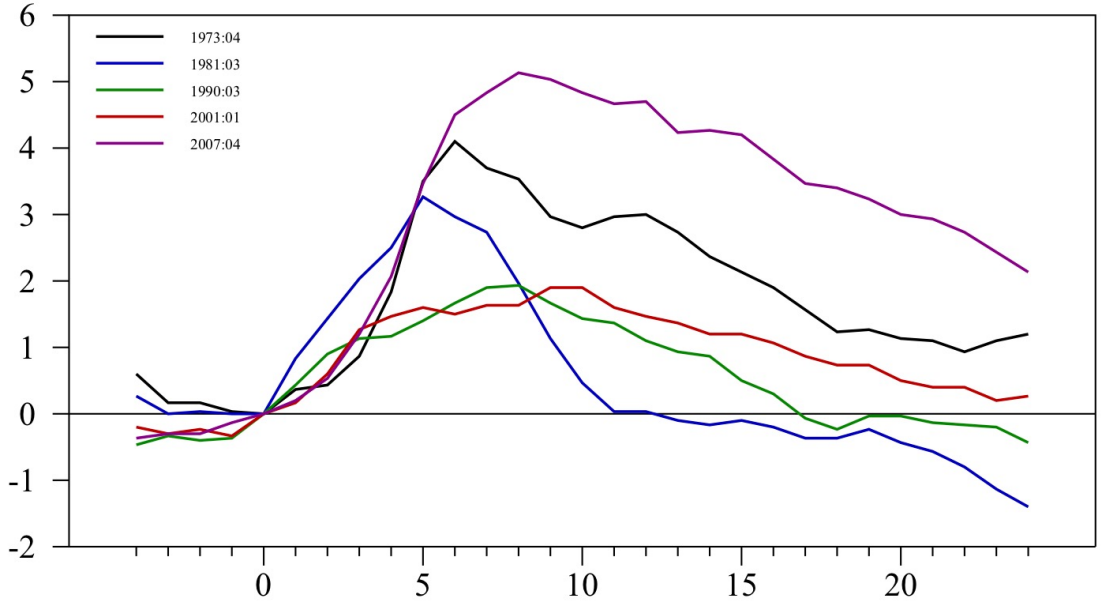
Aaronson et al. (2019) is our jumping-off point. They:

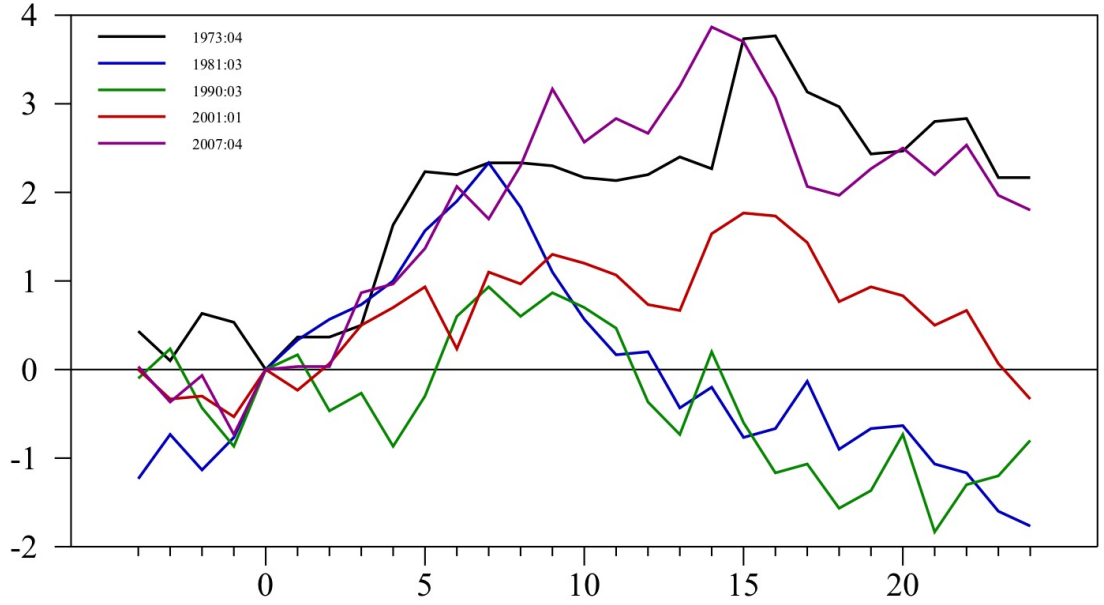
- Document the high sensitivity of Black unemployment to macro conditions.
- Look for asymmetries (interacting “hot” dummy with the deviation of unemployment from the natural rate).
- Use univariate unit root tests to determine whether there is hysteresis.

What we do

- Take a second look at the issue of “beta” and speed of adjustment using a unified time series (error correction) framework, de-emphasizing specifications involving the “gap” and unit root tests for hysteresis.
- Explore the possible role of occupational mix in contributing to Blacks’ high employment “beta”.
- Our focus (for now) is on (un)employment.

Unemployment dynamics are asymmetric





- Overall unemployment (LH panel) rises quickly, falls slowly.
- The pattern is mirrored in the Black-White unemployment gap (RH panel).
- Not all recessions are alike: fast recovery after 1981-82, slowest following 2007-09.

The key Aaronson et al. finding

- The difference between Black and White unemployment rates is a function of the gap between aggregate unemployment and the natural rate, allowing for the slope to be different in a "hot" labor market (unemployment below the natural rate:
- $(u^B - u^W)_t = \beta_0 + \beta_1(u - \tilde{u})_t + \beta_2 h_t(u - \tilde{u})_t$.
- u = overall UR, u^B and u^W are Black and White rates, $\tilde{u}$ = "natural" rate, h_t is a "hot" dummy equal to 1 when $u < \tilde{u}$.
- Interpretation of $\hat{\beta}_2 > 0$:
  - Blacks **benefit** relatively *more* from **drop** in UR when $u < \tilde{u}$…
  - …and are **hurt** relatively *less* from **rise** in UR when $u > \tilde{u}$? (Seems odd!)

Why this could be uninformative

- The overall unemployment rate is the weighted average of Black and White, $u = \omega^B u^B + \omega^W u^W$.
- Suppose the Black unemployment rate is a *multiple* of the White rate, $u^B = \gamma u^W$ with $\gamma > 1$ (which it is).
- If so, then the Black-White unemployment rate gap $u^B - u^W$ will "inherit" the time series properties of the White rate, including any asymmetries.
- Therefore, the econometric specification may not reveal much about relative labor market outcomes.
- What we *should* be interested in is the γ and why it exceeds 1.

Unemployment rates have unit roots

	ADF test statistics	
	No trend	Trend
Black	-1.78	-2.53
White	-2.46	-2.64
10% critical value	-2.57	-3.12

Note: Augmented Dickey-Fuller statistics for Black unemployment and White unemployment rates are estimated using BLS data. The sample period is 1976:Q1 to 2018:Q4 and the number of observations 172. Lag length is determined by the Akaike Information Criterion.

- We can't reject the I(1) null at the 10% level.

Estimating the γ

$$u_t^B = \alpha_0 + \alpha_1 t + \gamma u_t^W$$

- Interpretable as a cointegrating relationship if the unemployment rates are I(1).

	(1) OLS	(2) OLS	(3) DOLS	(4) DOLS	(5) DOLS
$\hat{\gamma}$	1.919	1.756	2.024	1.818	1.878
s.e.			(0.309)	(0.109)	(0.131)
Trend	No	Yes	No	Yes	Yes
No. leads and lags	0	0	2	2	4

Note: The estimated cointegrating coefficient, $\hat{\gamma}$, between Black and White unemployment rates is computed using OLS and dynamic OLS (DOLS) using data from the BLS. HAC standard errors (s.e.) are presented for the DOLS estimator. The sample period is 1976:Q1 to 2018:Q4 and the number of observations 172. The number of leads and lags included in DOLS estimator is determined by the procedure as described in Ng and Perron (1995).

A more informative time series model

Let $z_t = u_t^B - \alpha_0 - \alpha_1 t - \gamma u_t^W$

$$\Delta u_t^B = \delta_0 + \delta_1 c_{t-1} z_{t-1} + \delta_2 h_{t-1} z_{t-1} + \text{lagged } \Delta u^W \text{ and } \Delta u^B$$

- In equilibrium, the Black unemployment rate is γ times the White rate, with a slight downward trend.
- *By itself*, this implies a higher degree of cyclicality.
- Negative δ_1 and/or δ_2 says the Black unemployment rate falls when it is above equilibrium.
- If $|\delta_2| > |\delta_1|$, the reversion happens faster in “hot” labor market.

Yes: more "catchup" during "hot" labor market

- We tried 3 different definitions of "hot": NBER expansions, falling UR and UR less than natural rate.

	Coefficient on EC term			
Definition of "hot" (% of quarters)	Overall	"Cold"	"Hot"	Difference
Full sample	**-0.192**			
	(0.051)			
NBER expansions (89%)		0.048	**-0.203**	-0.251
		(0.178)	(0.051)	(0.179)
Falling UR (76%)		-0.157	**-0.197**	-0.040
		(0.124)	(0.053)	0.127
UR less than natural rate (36%)		**-0.168**	**-0.367**	-0.199
		(0.054)	(0.127)	(0.132)

- Overall, disequilibrium narrows by 0.19 pp. per quarter.
- Reversion is faster for all definitions of "hot".
- The difference is especially pronounced for "high pressure" periods in which UR is less than the natural rate: 0.37 versus 0.16 pp./quarter.

Can occupational stratification explain why $\gamma > 1$?

Employment growth "betas"

	Employment growth	
	White	Black
Quarterly	0.83	1.40
	(0.03)	(0.16)
Year-over-year	0.88	1.52
	(0.02)	(0.11)

- Black employment growth "beta" is 1.7 times the White.

Employment shares and "betas" for occupations

	Shares as of 2020, %				
	of L_j		of E_i		
Occupation	White	Black	White	Black	Beta
Management & professional	43.4	34.7	81.3	9.6	0.72
Service	14.5	21.7	72.2	16.6	0.41
Sales and office	20.3	20.9	75.6	12.2	1.22
Natural resources & construction	10.0	5.6	84.1	7.1	1.28
Production & transportation	11.8	17.1	78.7	16.6	1.54

- Maybe: Blacks are over-represented in highly cyclical Production & Transportation, under-represented in stable Management and Professional.
- Maybe not: Blacks are over-represented in stable Services.

An example of “employment growth accounting”

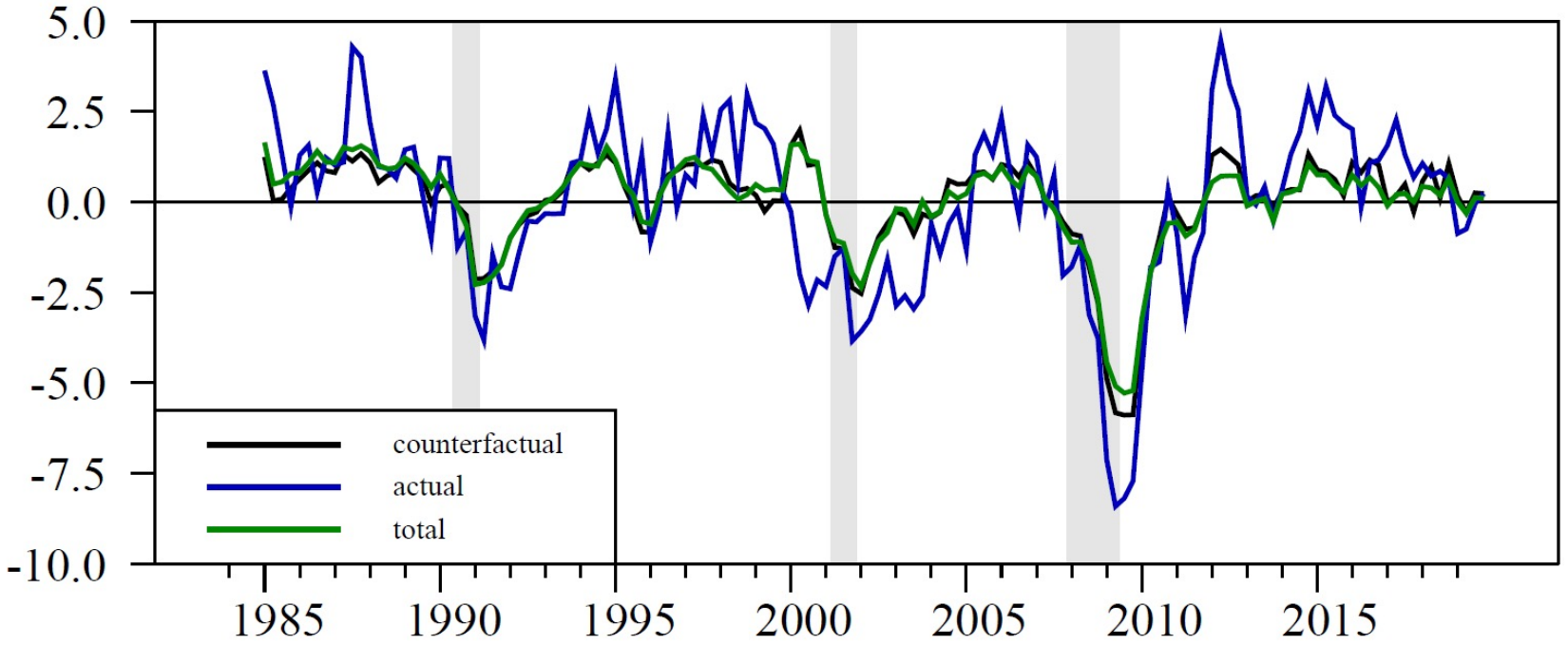
- Two occupations, both with 100 workers.
- Blacks account for 10% (10) of workers in occupation #1 and 20% (20) of workers in occupation #2.
- White shares are the inverse (90% and 80%).
- Employment falls 15%: 10 for occupation #1, 20 for occupation #2.
- Decline in employment for…
  - Blacks: $0.10 \cdot 10 + 0.20 \cdot 20 =$ **5** (16.67% of 30)
  - Whites: $0.90 \cdot 10 + 0.80 \cdot 20 =$ **25** (14.71 % of 170)
- Compare these implied “constant share” employment changes for each race with *actual* employment changes.

More generally

- "Acyclical" (trend) shares of race j in occupation i: $\bar{b}_{i,j,t}$
- Change in employment in occupation i: $\Delta E_{i,t}$
- "Constant share" employment for race j:

$$\Delta \hat{Y}_{j,t} = \sum_{i=1}^{5} \bar{b}_{i,j,t} \, \Delta E_{i,t}$$

Occupational mix can't explain excess cyclicality



- The plot shows YOY employment growth: constant share counterfactual black, actual overall, and actual Black.

- The counterfactual is very close to the overall – and very *far* from observed Black employment growth.
- Black job losses must be **disproportionate** relative to employment shares.

Conclusions

- Black (un)employment is much more cyclical than White, which explains why the “gap” widens during recessions and narrows during expansions.
- “Catchup” is especially rapid during high-pressure labor markets.
- Occupational stratification cannot account for the excess cyclicality of Black unemployment.