OCCUPATIONAL SEGREGATION AS A DETERMINANT OF WORKER HEALTH

The Role of Work in Health Disparities
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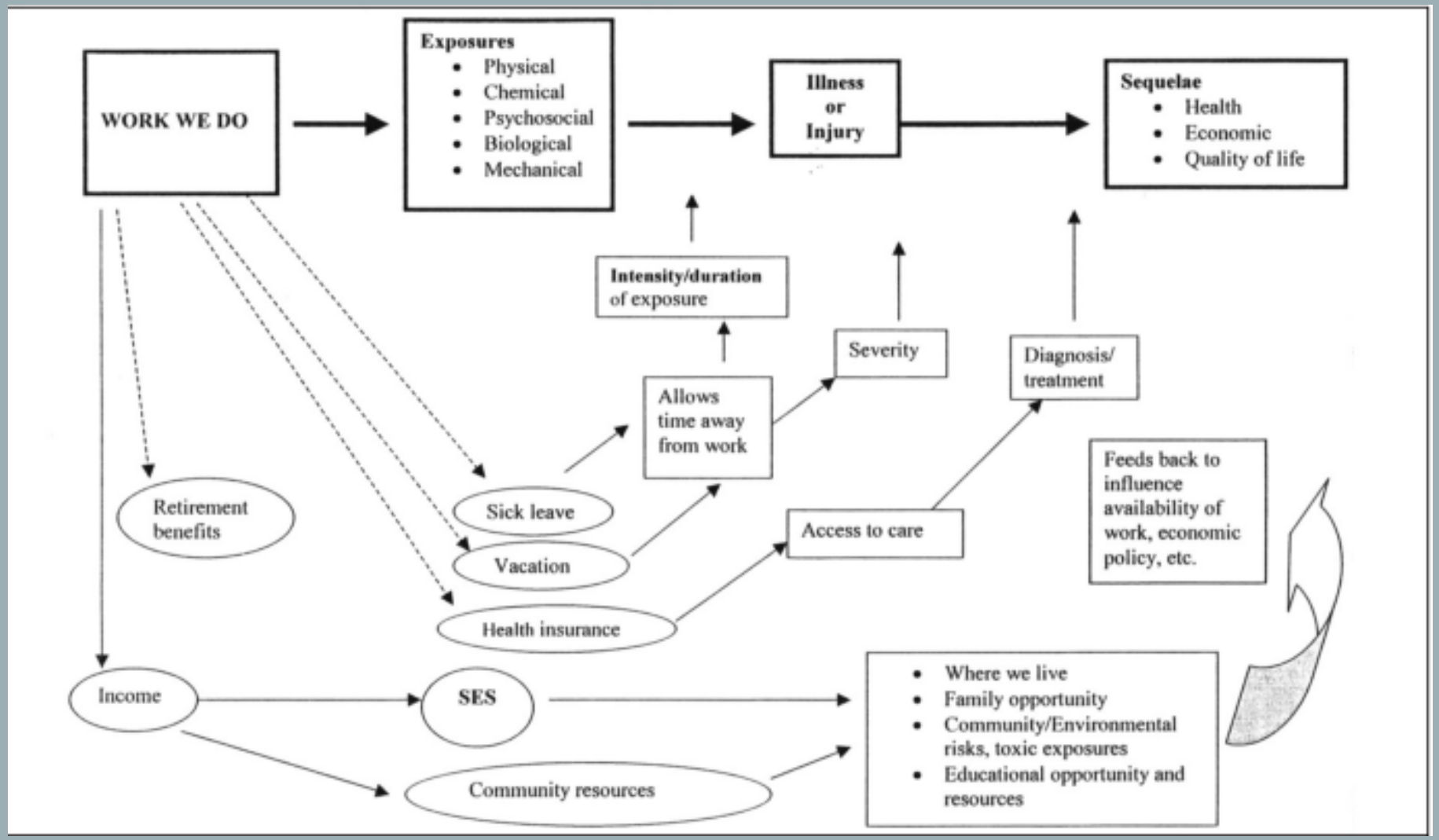
CONCEPTUAL MODEL OF WORK AND HEALTH DISPARITIES



Lipscomb HJ, Loomis D, McDonald MA, Argue RA, Wing S. A conceptual model of work and health disparities in the United States. Int J Health Serv. 2006;36(1):25-50. PubMed PMID: 16524164.

EFFECTS OF OCCUPATIONAL SEGREGATION ON LABOR MARKET OUTCOMES

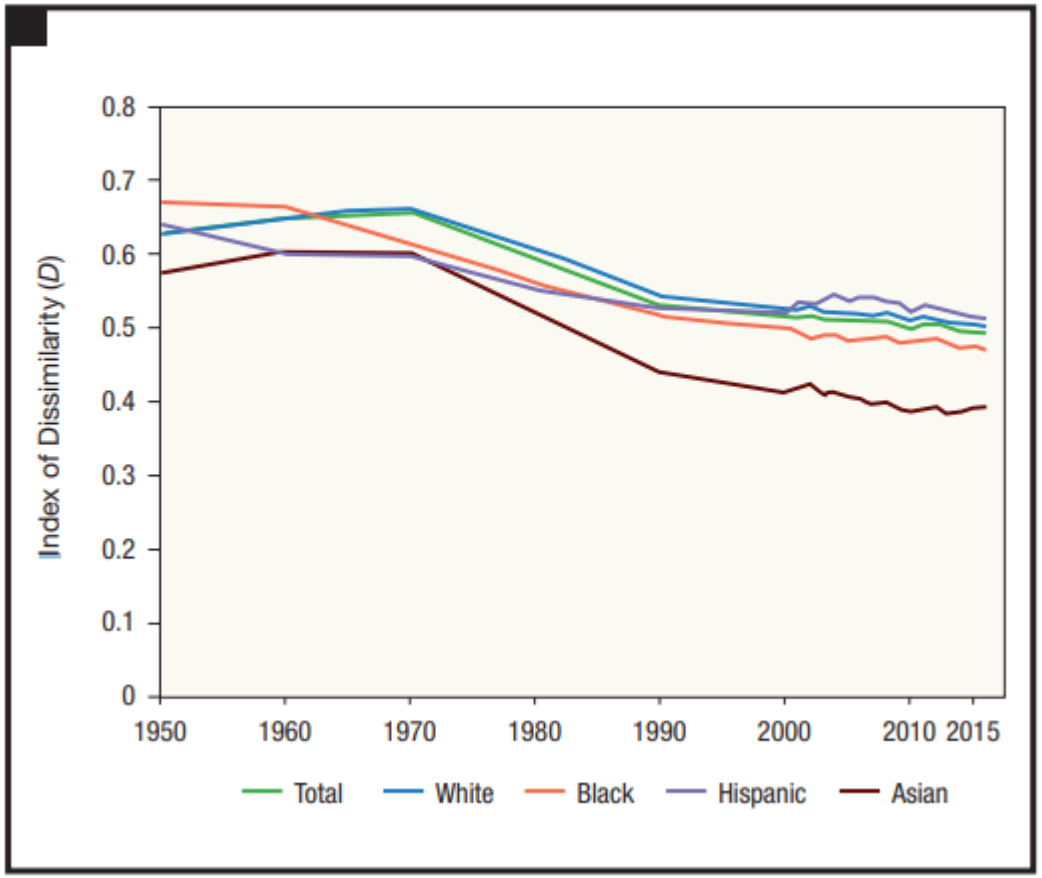
- Occupational crowding
- Devaluation of work
- Uneven occupational integration
- Occupational segregation and recessions
- Occupational segregation, and income and wealth inequality

Accessed from: https://equitablegrowth.org/wp-content/uploads/2020/07/063020-occup-seg-fs.pdf

US TRENDS IN OCCUPATIONAL SEGREGATION (GENDER), 1950-2016

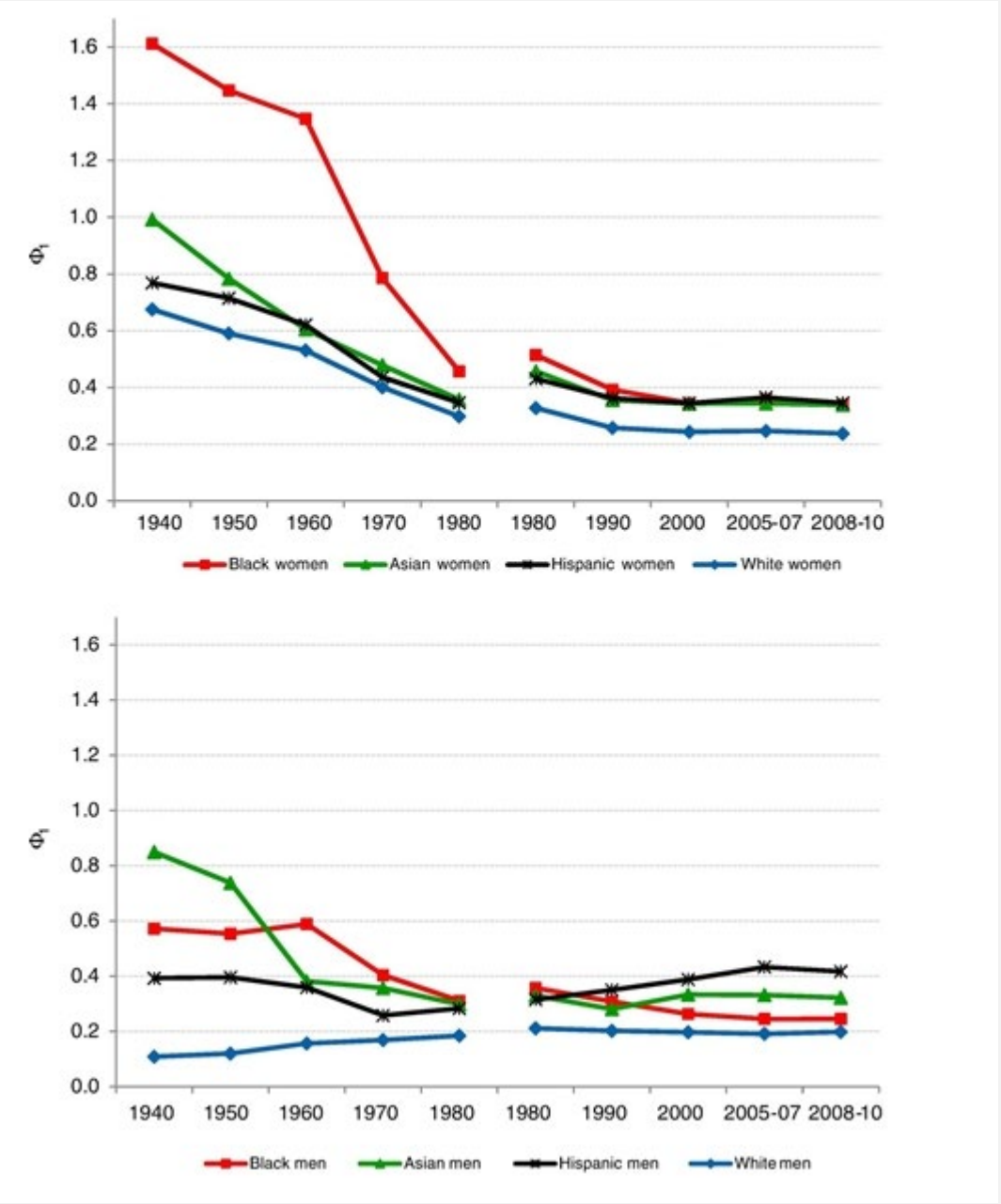
https://inequality.stanford.edu/sites/default/files/Pathways_SOTU_2018_occupational-segregation.pdf

FIGURE 1. Trends in Occupational Segregation by Race, 1950–2016



TRENDS IN OCCUPATIONAL SEGREGATION OF RACIAL/ETHNIC GROUPS – WOMEN AND MEN; 1940-2010

del Río C, Alonso-Villar O. The Evolution of Occupational Segregation in the United States, 1940-2010: Gains and Losses of Gender-Race/Ethnicity Groups. *Demography*. 2015;52(3):967-988.



OCCUPATIONAL SEGREGATION AS MONETARY LOSSES AND GAINS DUE TO OVER OR UNDER-REPRESENTATION IN OCCUPATIONS; 1960-2010

del Río C, Alonso-Villar O. The Evolution of Occupational Segregation in the United States, 1940-2010: Gains and Losses of Gender-Race/Ethnicity Groups. *Demography*. 2015;52(3):967-988.

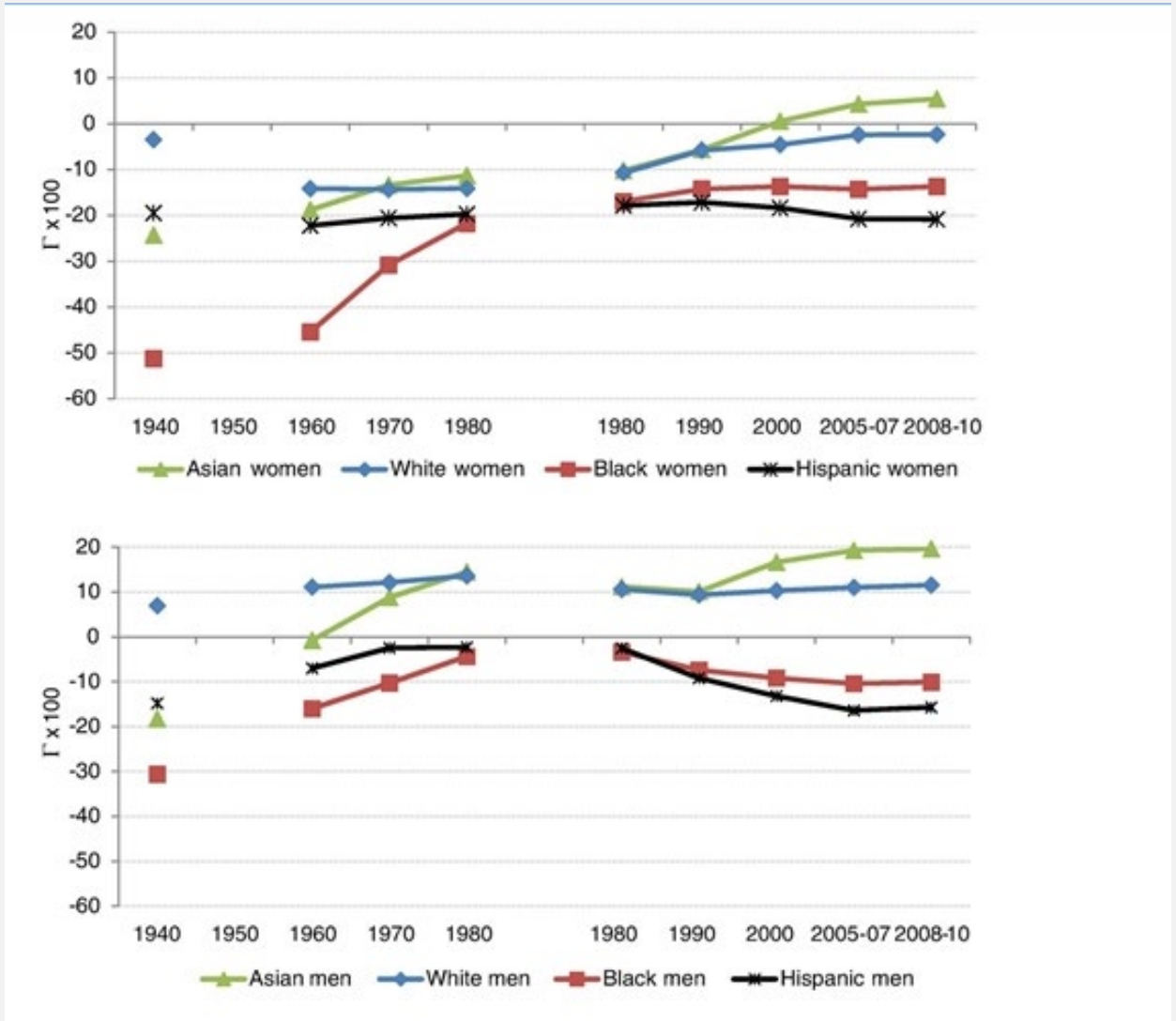
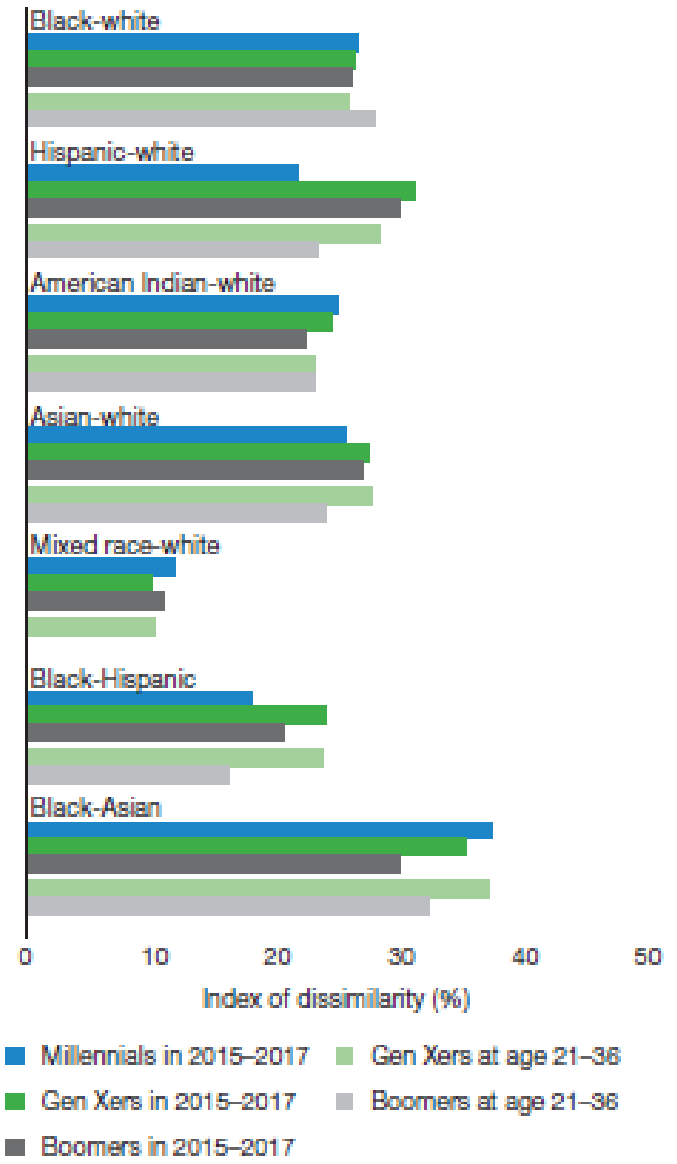
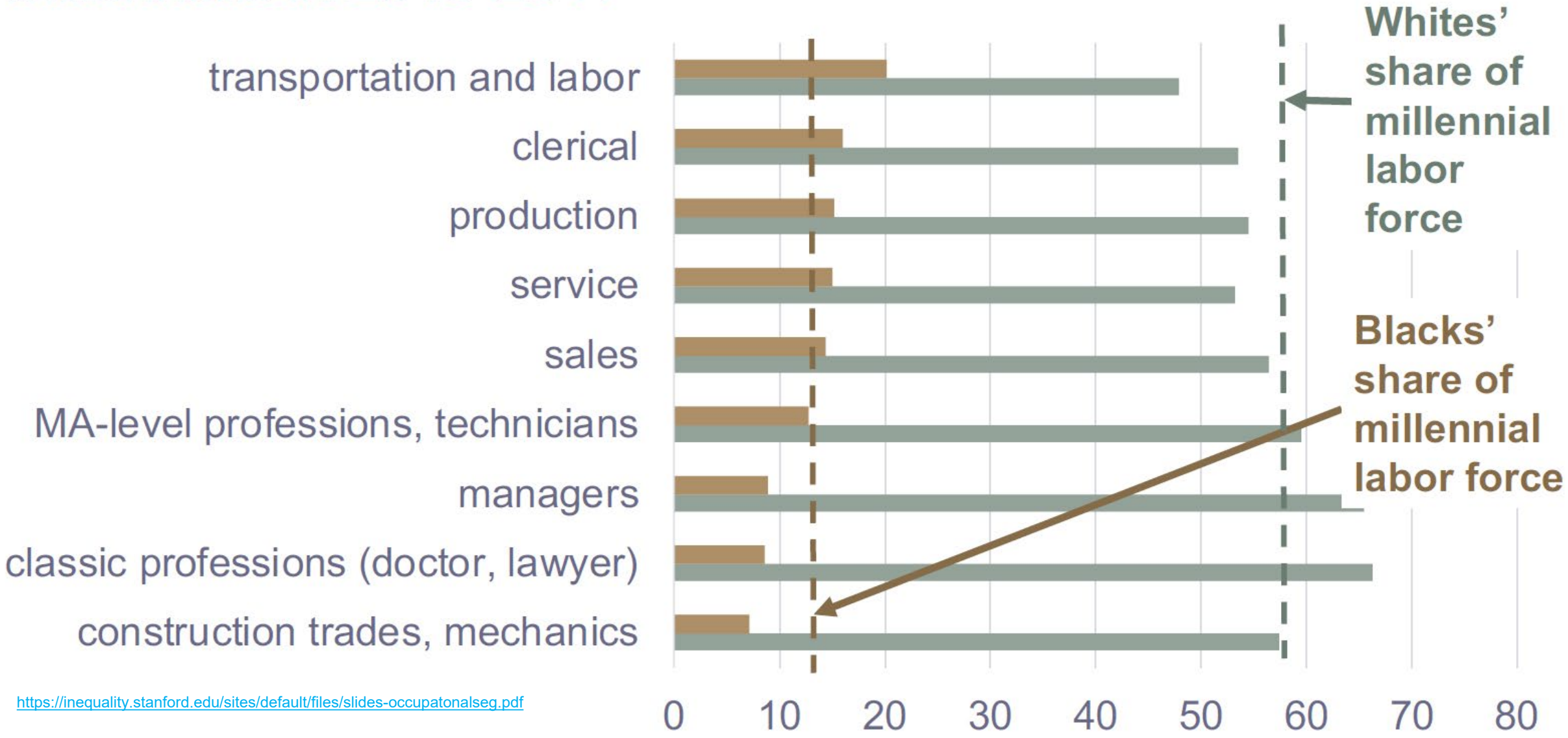


Figure 2. Occupations are not more racially integrated in the millennial generation than in earlier generations.



Wheedon KA. Occupational Segregation. In Pathways; State of the Union: Millennial Dilemma. 2019

Percentage of White or Black workers by occupation group: millennials in 2015-2017



https://inequality.stanford.edu/sites/default/files/slides-occupatonalseg.pdf

Table 1

Percent employment by essential industries, occupations with frequent exposure to infection and proximity to others, according to race/ethnicity, 2019

Variable	White (%)	Black or African American (%)	Asian (%)	Hispanic (%)
Likely employed in essential industry	26.89	37.75	26.16	27.20
Healthcare and social assistance	12.76	19.82	14.62	11.11
Hospital	4.36	6.13	6.45	2.89
Animal slaughtering and processing	0.32	0.66	0.32	0.75
Likely and possibly employed in essential industry	35.41	44.64	35.16	33.00
Employed in occupations with frequent exposure to infections	11.28	14.73	13.02	11.37
Respiratory therapist	0.08	0.17	0.13	0.04
Registered nurse	2.60	2.60	3.98	1.06
Licensed practical and vocational nurse	0.49	1.20	0.30	0.43
Employed in occupations with frequent close proximity to others	25.10	29.03	24.26	25.81
Physical therapists	0.25	0.12	0.57	0.06
Personal care aids	0.93	2.37	1.63	1.44
Medical assistants	0.47	0.59	0.38	0.79
Employed in occupations with frequent exposure to infections and close proximity to others	8.12	10.75	9.95	6.23
Bus drivers	0.39	0.96	0.23	0.37
Flight attendants	0.09	0.12	0.08	0.08

Hawkins D. Differential occupational risk for COVID-19 and other infection exposure according to race and ethnicity. *Am J Ind Med*. 2020;63(9):817-820. doi:10.1002/ajim.23145

Black workers are more likely than other workers to be in front-line jobs

Black workers as a share of all workers in a given industry

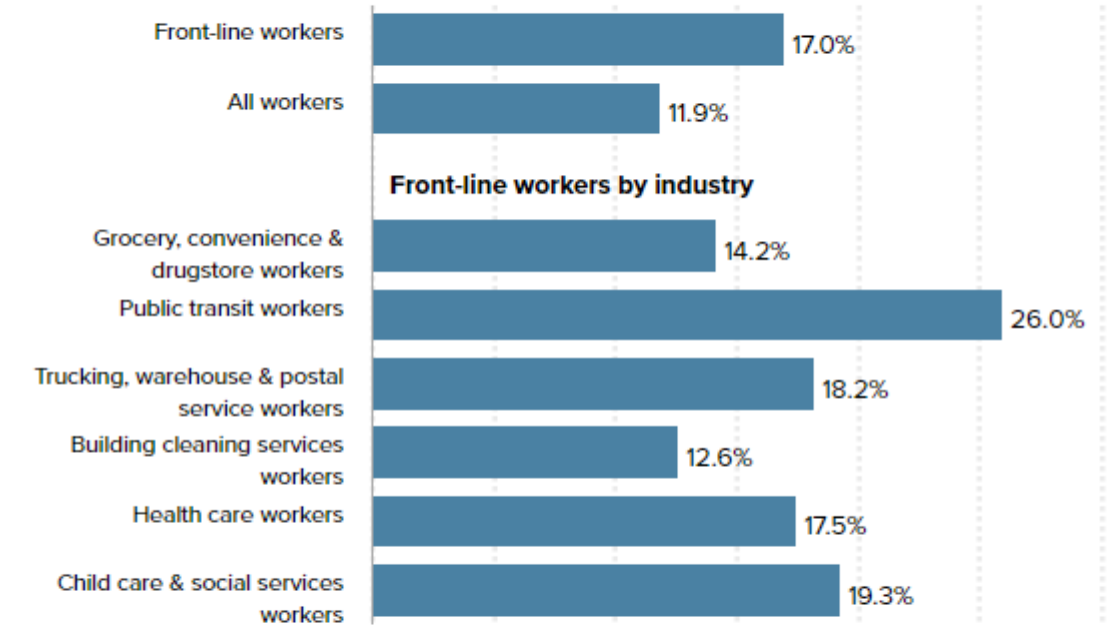


Chart | Data

Notes: The front-line industry categories used here are the categories used in the CEPR report (see Source below for more information). Sample is a 2014–2018 five-year estimate.

Source: EPI analysis of data from the Center for Economic Policy Research (CEPR) report *A Basic Demographic Profile of Workers in Frontline Industries* (April 2020).

Economic Policy Institute

Accessed from: https://www.epi.org/publication/black-workers-covid/

Black workers are less likely to have paid sick days and less likely to be able to work from home than white workers

Shares of workers with paid sick days and the ability to work from home, by race

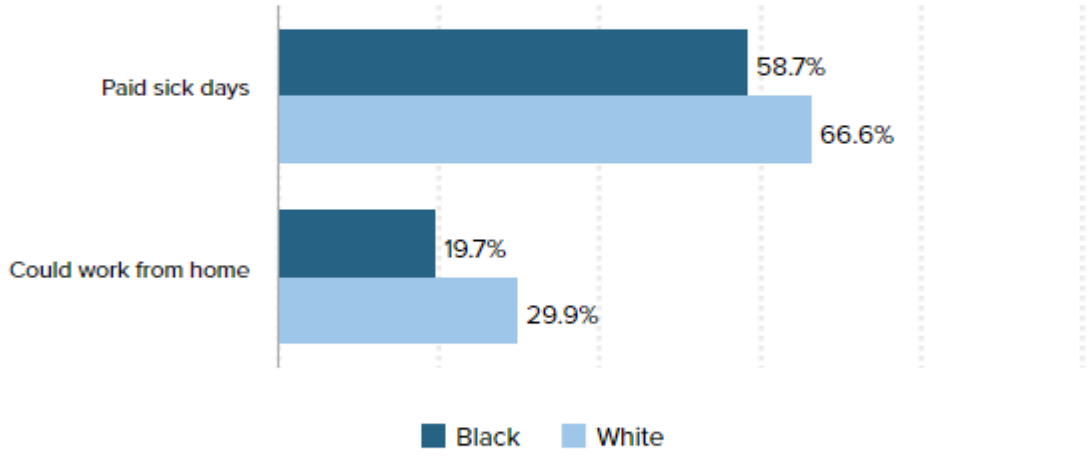


Chart | Data

Sources: U.S. Bureau of Labor Statistics, Job Flexibilities and Work Schedules, 2017 and 2018; U.S. Bureau of Labor Statistics, American Time Use Survey microdata.

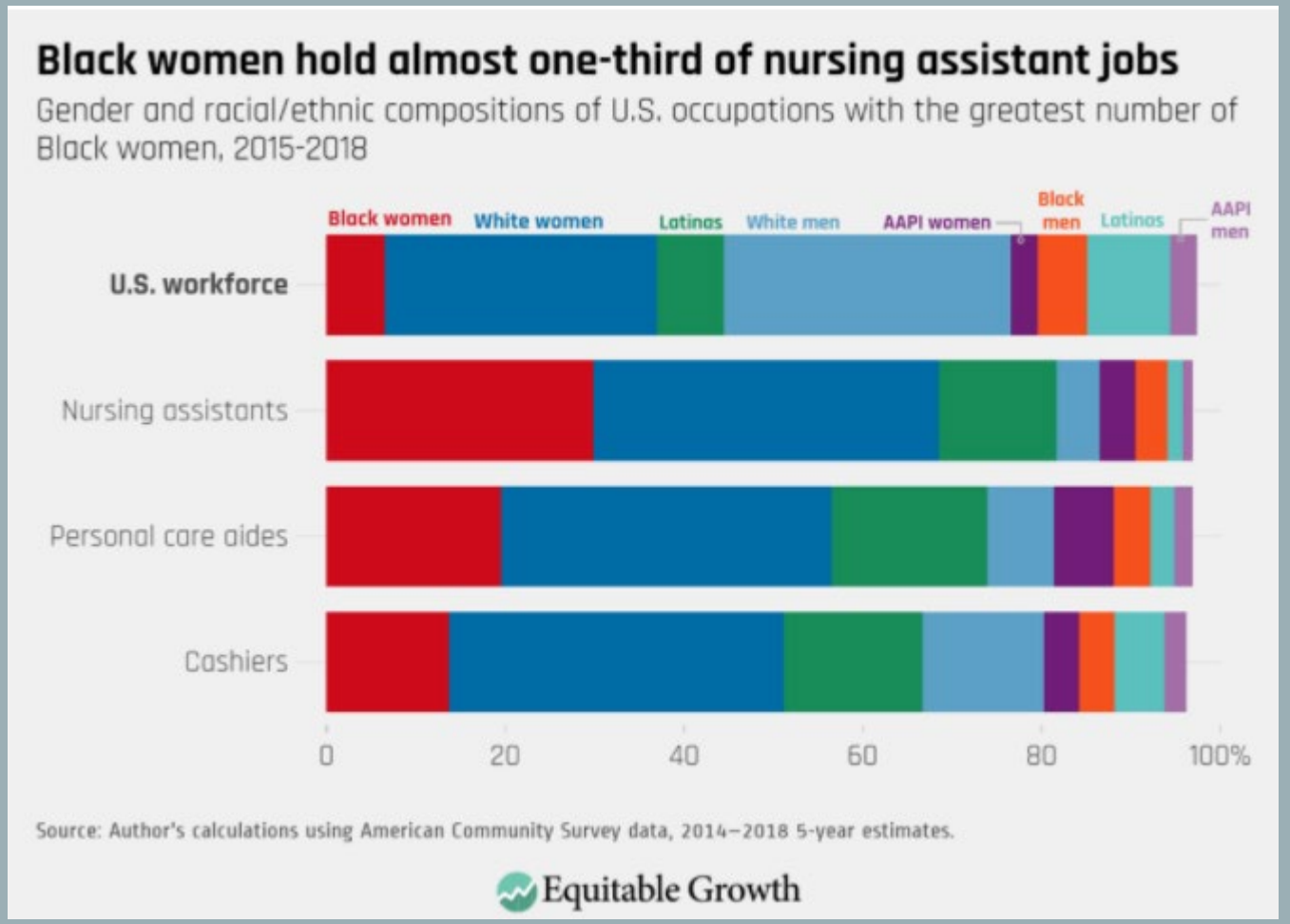
Economic Policy Institute

Accessed from: https://www.epi.org/publication/black-workers-covid/

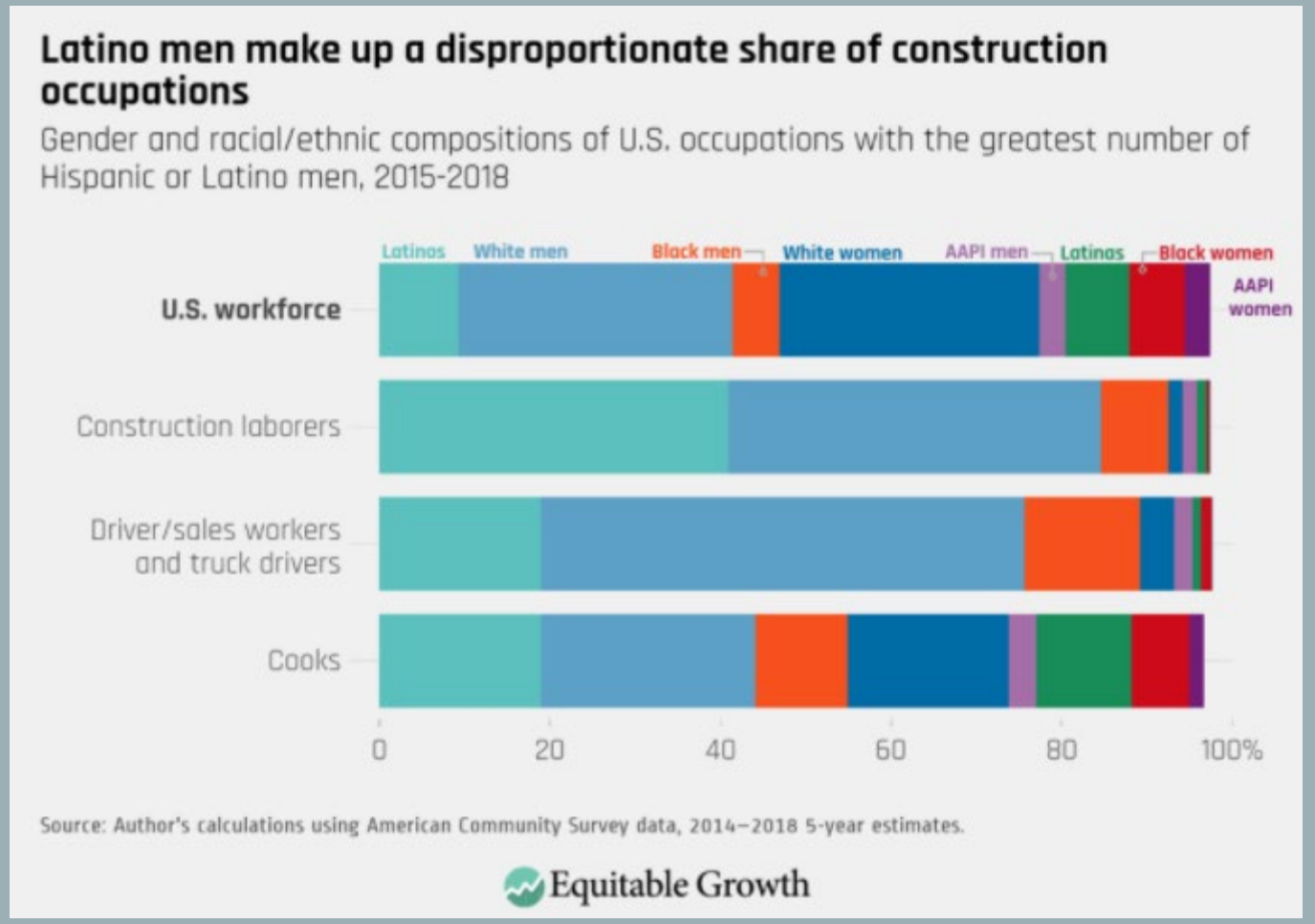
Occupations where Black Workers Represent at Least 20% of Workforce (at least 5,000 black workers, 2014-2018 averages)

Occupation	Average Wage Black Workers	Number of Black Worker	Black Workers as Percentage of Total Workforce
Nursing Assistants	$27,767	73,848	45.10%
Home Health Aides	$25,869	34,725	42.90%
Security Guards And Gaming Surveillance Officers	$31,448	36,790	40.60%
Licensed Practical And Licensed Vocational Nurses	$44,489	21,574	35.00%
Bus Drivers, Transit And Intercity	$49,636	11,285	33.70%
Personal Care Aides	$24,183	30,609	33.40%
Social And Human Service Assistants	$34,794	6,435	33.20%
Social Workers, All Other	$49,683	16,882	30.20%
Counselors, All Other	$35,073	6,060	30.00%
Couriers And Messengers	$24,232	5,678	27.90%
Bus Drivers, School	$40,512	10,036	27.50%
Correctional Officers and Jailers	$72,605	8,346	24.80%
Childcare Workers	$20,121	23,854	24.20%
Educational, Guidance, And Career Counselors And Advisors	$40,737	5,979	22.90%
Taxi Drivers	$33,721	9,462	22.70%
Maids And Housekeeping Cleaners	$26,249	19,901	22.20%
Stockers And Order Fillers	$17,450	20,063	21.70%
Janitors And Building Cleaners	$27,881	47,407	21.70%
Customer Service Representatives	$27,295	32523	20.10%

Accessed from: https://www.ilr.cornell.edu/work-and-coronavirus/public-policy/racial-and-economic-inequality-nys-within-context-pandemic-and-protests-against-racism



Accessed from: https://equitablegrowth.org/four-graphs-on-u-s-occupational-segregation-by-race-ethnicity-and-gender/



Accessed from: https://equitablegrowth.org/four-graphs-on-u-s-occupational-segregation-by-race-ethnicity-and-gender/

STUDY OBJECTIVES

- Operationalize African American occupational segregation
- Test for an association between the proportion of African Americans in an occupation and the health of African American and White workers

DATASET AND VARIABLES OF INTEREST

Demographics	Self-reported Health	Race	Region
Age	Excellent	White	Northeast
Race	Good	Black	Midwest
Gender	Fair		South
Income	Poor		West
Education			
Geographical region			

AFRICAN AMERICAN INDEX = I_{AA}

- Each worker assigned an I_{AA}
  - Proportion of African Americans in their particular occupation
- An I_{AA} of 40 means that 40% of workers in their occupation were African Americans

DATA ANALYSIS

- Multivariable logistic regression
- Outcome = fair/poor vs. good/excellent health
- Models adjusted for variable combinations of age, race, gender, income, education, and geographic region

RESULTS - DEMOGRAPHICS

AA Females	AA Males	White Females	White Males
6.5%	5.4%	35%	42%

- 451,897 workers
- 114,093,524 US workers weighted.
- Median age 37 years

RESULTS

- The 10 occupations with the highest rates of fair/poor health also had high I_{AA}.
- The 10 occupations with the lowest rates of fair/poor health had low I_{AA}.
- There was a statistically significant correlation between I_{AA} and the health score
  - Point biserial correlation = 0.66, $p<0.0001$

TABLE II. US Occupations With the Lowest and Highest Proportions of Workers Reporting Fair/Poor Health Status

Rank	Occupational Groups	% Reporting fair/poor health status	Average age	Estimated worker population	Estimated number of US workers with fair/poor health	I_{AA}
Ten Occupational Groups with Worst Health Ratings (COC)						
1	Private household cleaners and servants (407)	18.1	47	515,168	92,705	40
2	Maids and housemen (449)	12.4	40	551,376	68,054	35
3	Taxicab drivers and chauffeurs (809)	12.3	42	198,640	24,417	27
4	Nursing aides, orderlies, and attendants (447)	12.3	39	1,477,561	181,114	37
5	Dressmakers (666)	12.2	45	123,787	15,077	12
6	Laundering and dry cleaning machine operators (748)	12.1	40	174,095	21,013	27
7	Pressing machine operators (747)	12.0	39	131,707	15,848	33
8	Janitors and cleaners (453)	11.8	41	2,067,101	243,657	27
9	Textile sewing machine operators (744)	11.6	40	656,092	75,609	22
10	Child care workers, private household (406)	11.5	35	184,736	21,287	18
Ten Occupational Groups with Best Health Ratings (COC)						
197	Industrial Engineers (056)	2.4	40	234,775	5,676	6
198	Economists (166)	2.4	37	166,170	3,950	6
199	Physicians (084)	2.4	43	564,555	13,395	4
200	Dental assistants (445)	2.4	33	176,208	4,150	5
201	Librarians (164)	2.3	44	185,788	4,361	7
202	Financial managers (007)	2.3	39	516,489	11,816	6
203	Engineers (059)	2.3	40	285,379	6,518	4
204	Firefighting occs (417)	1.6	36	198,277	3,143	11
205	Dentists (085)	1.4	44	139,120	1,918	3
206	Airplane pilots and navigators (226)	1.3	42	107,936	1,421	1

Occupational Groups: 206 categories with at least 100,000 US workers/category based directly on the US Census Occupational Codes (COC); I_{AA}: African-American segregation index.

RESULTS OF MULTIVARIABLE LOGISTIC REGRESSION

	Odds Ratio (95% CI)
Saturated model	1.034 (1.032,1.035)
Whites	1.037 (1.035, 1.039)
African Americans	1.025 (1.021, 1.028)
Women	1.034 (1.032, 1.038)
Men	1.034 (1.032, 1.035)

- Without adjustment for income or education, there was a significantly positive association between I_{AA} and poor worker health in all subgroups, regardless of adjustment for age, race, or gender.
- Geographic region did not impact on results.

TABLE III. Association of Worker Self-Reported Fair or Poor Health Status With Age and With Degree of Occupational Segregation

Subgroup	NHIS sample size	Age (years) OR [95% CI]	I_{AA} (age adjusted) OR [95% CI]	I_{AA} (age and income adjusted) OR [95% CI]	I_{AA} (age and education adjusted) OR [95% CI]
All workers	386,258	1.039 [1.037, 1.040][a]	1.034 [1.032, 1.035][a]	1.020 [1.019, 1.022][a]	1.018 [1.016, 1.020][a]
African-American female	24,159	1.035 [1.032, 1.039]	1.028 [1.023, 1.033]	1.016 [1.011, 1.021]	1.014 [1.009, 1.020]
African-American male	19,774	1.050 [1.046, 1.053]	1.022 [1.015, 1.028]	1.010 [1.002, 1.018]	1.012 [1.005, 1.018]
White female workers	149,624	1.030 [1.029, 1.032]	1.037 [1.035, 1.040]	1.025 [1.022, 1.028]	1.021 [1.018, 1.023]
White male workers	179,382	1.045 [1.043, 1.047]	1.038 [1.035, 1.040]	1.022 [1.019, 1.025]	1.020 [1.016, 1.023]

I_{AA}: African-American segregation index.
[a]Further adjusted for race and gender.

LIMITATIONS

- Smaller sample size for African Americans
- White and Black only
- Only occupational segregation by race, and only AA segregation
- Possible residual confounding vs. over-adjustment
- Occupational segregation at the national level
- NHIS some proxy responses
- Job 2 weeks prior

NEXT STEPS – NEEDED RESEARCH

- More secondary data analyses – national and local datasets
- Prospective cohort studies
- Other occupational segregation measures for race, ethnicity, and gender
- Qualitative studies
- Health policy interventions