SOCIAL CONNECTION IN TIMES OF ECONOMIC CRISIS: COVID-19 AND UNEMPLOYMENT

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Background/Literature

Unemployment and COVID-19:
- Public health emergency led to social isolation and major economic shut down in the U.S.
- Unemployment hit an unprecedented **14.8%** (FRED).
- How do these economic outcomes relate to changes social behavior?

Source: U.S. Bureau of Labor Statistics via FRED®
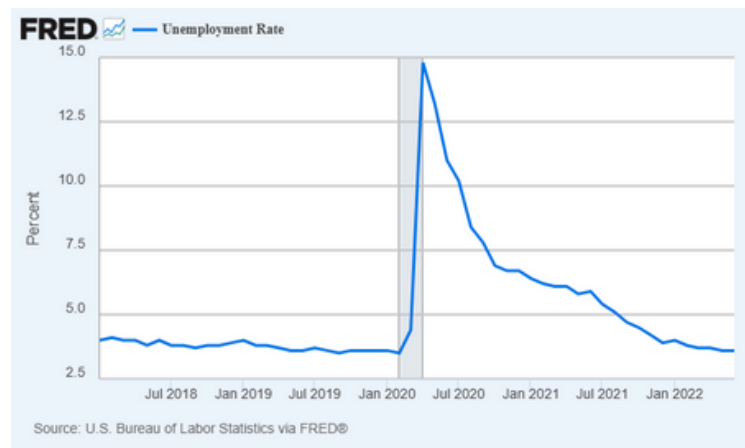
Social Capital:
Social capital can be measured through **economic connectedness (EC)**. EC is related to upward income mobility (Chetty et. al, 2022).

$$EC = \frac{\# \ of \ High \ SES \ Friends}{Total \ \# \ of \ Friends} \times 2$$

- However, people stick to friendships within similar levels of socioeconomic status (SES) due to **homophily**, the tendency for people to bond with others of the same social group (Avin et. al, 2020).
- Class segregation persists, where "the rich" are most isolated. *Rubbing Shoulders* (Massenkoff & Wilmers, 2023) shows that restaurants, parks, libraries, are most redistributive, which can inform policy on integration.

Labor Market and EC:
- Job search outcomes highly dependent on local market. Workers without strong networks face limited opportunities (Schmutte, 2015).
- Especially in short-term crisis, clear economic value in protecting existing job matches/economic connections (Bennedsen et. al, 2023).

Methods & Results

Data Sources:
1. US Census Bureau American Community Survey
   - ZIP code level data from 2018-2022
2. Raj Chetty's Opportunity Atlas
   - EC by ZIP code in 2018
3. COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University
   - County level aggregates from 2020-2022

Both models have time/region fixed effects and common covariates (income, age, gender, education, and race) in the final columns.
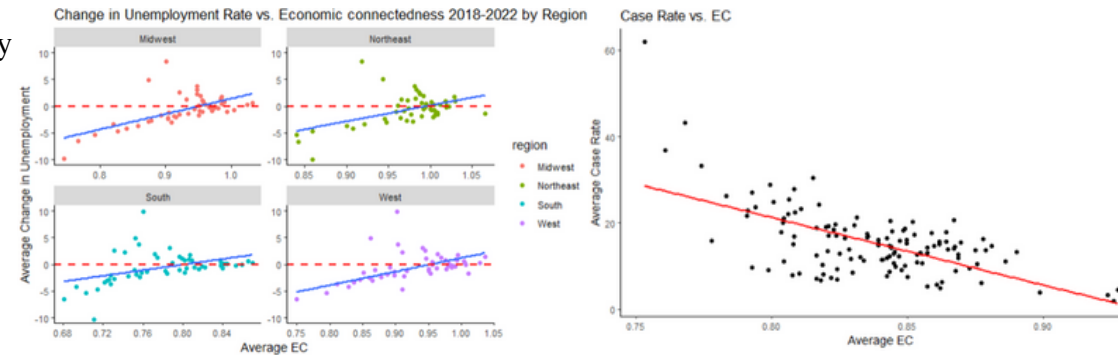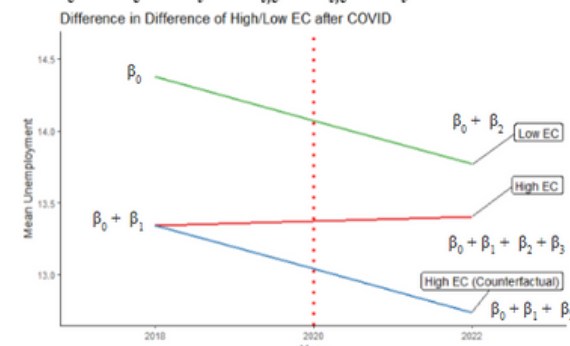
Difference-in-Differences (DiD) Model:

$$Unemployment_{i,t} = \beta_0 + \beta_1 * HighEC_i + \beta_2 * Post_t + \beta_3 * HighEC_i * Post_t + \gamma_t + \alpha_i + \beta_{i,t} * X_{i,t} + \varepsilon_i$$

Treatment: high EC (above median).
Control: low EC (below median).

- High EC areas have **lower unemployment rates (-1.033)** overall.
- Low EC/counterfactual see **unemployment decrease (-0.607).**
- High EC areas see slightly **increased unemployment (+0.061).**

Difference-in-Differences Model: Regression of High EC on Unemployment Rate

	Dependent variable: Unemployment Rate		
	(1)	(2)	(3)
High EC	-2.238***	-2.558***	-1.033***
	(0.02)	(0.032)	(0.032)
Post	-0.289***	-0.555***	-0.607***
	(0.021)	(0.029)	(0.026)
High EC:Post		0.532***	0.668***
		(0.041)	(0.036)
Constant	6.627***	6.787***	14.375***
State Fixed effects	None	None	Yes
Observations	94,869	94,869	94,685
Adjusted R^2	0.116	0.117	0.308
Residual Std. Error	3.117 (df = 94866)	3.115 (df = 94865)	2.695 (df = 94626)

(NOTE: Significance levels are interpreted as *p<0.1; **p<0.05; ***p<0.01.)

COVID Regression Model:

$$Unemployment_{i,t} = \beta_0 + \beta_1 * Case\_Rate_i + \beta_2 * HighEC_i + \beta_3 * Case\_Rate_i * HighEC_i + \gamma_t + \alpha_i + \beta_{i,t} * X_{i,t} + \varepsilon_i$$

- Case rate increases are correlated with **+0.037% increase in unemployment** on average.
- Interaction term of **Case Rate:High EC** has coef. of **-0.038%.**
- Improvement in Adj. R^2 from previous model.
- High EC counties able to mitigate the negative effects of COVID exposure on unemployment on average.

COVID Model: Regression of Case Rate on Unemployment

	Dependent variable: Unemployment Rate			
	(1)	(2)	(3)	(4)
Case Rate	0.031***	0.051***	0.032***	0.037***
	(0.004)	(0.004)	(0.004)	(0.004)
High EC		-0.814***	-0.084	-0.563***
		(0.113)	(0.113)	(0.116)
Case Rate:High EC		-0.081***	-0.038***	-0.038***
		(0.007)	(0.006)	(0.006)
Constant	4.538***	5.221***	12.939***	12.261***
Fixed effects	None	None	Year and State	Year and County
Observations	8,362	8,362	8,264	8,264
Adjusted R^2	0.009	0.184	0.368	0.577
Residual Std. Error	2.551 (df = 8360)	2.315 (df = 8358)	2.039 (df = 8206)	1.668 (df = 6635)

(NOTE: Significance levels are interpreted as *p<0.1; **p<0.05; ***p<0.01.)

Conclusion

- Project investigates the effect of social capital, specifically EC, on the labor market's response to pandemic shock.
  - Since EC is positively correlated with economic mobility, likely due to local job opportunities/networks.
- DiD model did not provide evidence of high EC lessening impact on unemployment over COVID-19.
  - High EC ZIP codes fared worse on average.
- COVID regression model shows high EC absorbs negative effects of COVID infection exposure in a county.
  - Opposite coefficients almost equal in magnitude.

Recommendations

- Creating more opportunities for EC growth can protect the labor market from future unemployment shocks.
- Policymakers should prioritize sustainable economic development over economic growth within/across communities. Reducing isolation.
  - Foster SES mixing with redistributive urban planning (e.g. parks, culture centers, zoning).
- Further research on social capital and economic outcomes should become more common.

References:
1. Avin, C., et al. (2020). Mixed preferential attachment model: Homophily and minorities in social networks. https://doi.org/10.1016/j.physa.2020.124723.
2. Bennedsen, M., et al. (2023). The Effect of Preserving Job Matches During a Crisis. https://doi.org/10.1016/j.labeco.2023.102406.
3. Chetty, R., et al. (2022A). Social capital I: measurement and associations with economic mobility. https://doi.org/10.1038/s41586-022-04996-4.
4. Chetty, R., et al. (2022B). Social capital II: determinants of economic connectedness. https://doi.org/10.1038/s41586-022-04997-3.
5. Hlavac, Marek (2022). stargazer: Well-Formatted Regression and Summary Statistics Tables. R Package. https://CRAN.R-project.org/package=stargazer
6. Massenkoff, M., & Wilmers, N. (2023). Rubbing Shoulders: Class Segregation in Daily Activities. https://doi.org/10.2139/ssrn.4516850.
7. Schmutte, I. (2015). Job Referral Networks and the Determination of Earnings in Local Labor Markets. https://doi.org/10.2139/ssrn.1727374.
8. U.S. Bureau of Labor Statistics, Unemployment Rate [UNRATE], from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/UNRATE