How Online Media Shapes Polarization Towards Policing

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Problem statement and significance

While scholarship often links perceptions towards police to demographic variables like race, class, and age (see Soss and Weaver 2017 for a review), sentiments towards police are in fact temporally dynamic. Our project seeks to explain such variation in citizen sentiment towards the police. For example, we plot NYC survey data of citizen trust in police and perceptions of safety between November 2016 and December 2019 (see Appendix). Police departments like the NYPD have contracted a private survey firm, Elucd, to collect this data, which we received via a Freedom of Information Law (FOIL) request. Survey results present temporal variation that closely track the political cycle: sentiments diverged during the 2016 elections, and even more so as the midterm elections of 2018 approached. Parts of NYC witnessed a sharp uptick in both perceptions of police trust and community safety, while other parts were either stable or sharply decreased. In other words, community sentiments towards police vary across time and space—fluctuations that time invariant factors like race cannot sufficiently explain alone.

We propose to examine one external source of influence that can interact with established demographic variables to polarize attitudes towards police: online media. Online media, which encompasses both online articles from traditional mass media and information on social media platforms, represents a core source of information and learning in the contemporary era (Bail 2021). In the policing sphere, online platforms similarly represent an increasingly critical space for influencing public sentiments and community demands. Activists and organizers have leveraged social media as a new tool for publicizing police misconduct and coordinating collection action (Jackson and Foucault Welles 2015), while police departments have similarly leveraged social media to socialize online audiences and legitimize police violence (Cheng 2021).

Our study builds on this emerging research on the social politics of policing and media. Our principal research question is: *What dimensions of online content shape polarization towards police?* We argue that online media can drive moments of polarization during electoral cycles by amplifying and politicizing criminal justice issues at a time when media consumption levels are high. We identify the effect of media on attitudes using Elucd data in New York, Chicago, and Los Angeles as our outcome measures, which features monthly fluctuations of citizen sentiments towards police trust and community safety across districts. We propose to explain variation in our outcomes using a variety of online media analytics gathered through four different platforms: (1) Proquest TDM Studio; (2) NewsWhip; (3) Twitter API; (4) Facebook's CrowdTangle API. Using these data, we will identify how key public figures or organizations, online news media, and social media platforms collectively shape citizens' perceptions of the police and policing. We plan to provide causal evidence through a priming survey administered to New York City residents online.

Identifying the dimensions of online media that sustain polarization toward police presents key

policy implications for transforming police. Broadly, this study will help cities contextualize dynamic sentiments and public priorities towards police—better disentangling temporary shifts from substantive community demands. More specifically, this study's findings will directly inform both initiatives and regulations towards the information ecosystem in which news about police and safety are consumed.[1] Cities and institutions cannot be more responsive to community demands without first understanding the dimensions that shape them. This study aids this effort by identifying the social and political dynamics underlying polarization towards police and safety.

Relevant research

Discussions of policing revere the concept of "community." For decades, scholars and policymakers alike have leveraged its rhetorical weight when proposing that policing needs to incorporate community demands, public input, and citizen participation (Herbert 2009; Gascón and Roussell 2019; Skogan 2006). Most recently, proposals in the aftermath of George Floyd continue to envision a range of expanded roles for the community: democratic control over policing decisions (Rahman and Simonson 2020), civilian oversight over cases of police misconduct (Calhoun 2021), and investment in community alternatives to police (Kaba 2021). These proposals are motivated by the conviction that policing will improve the more responsive it becomes to community demands.

But national surveys reveal a consistent challenge: heterogeneity persists in what people actually want from police. For instance, Pew survey found in 2021 that, compared to 2020, the percentage of Americans who wanted police spending in their area to be "increased a lot" almost doubled from 11% to 21% (Parker and Hurst 2021). Understanding how sizable shifts can occur within such a short time frame requires more comprehensive explanations for what precisely influences perceptions towards issues of police trust and community safety. To that end, scholars have focused on the conduct of individual officers to explain varying perceptions: over the past two decades, scholars in law and psychology have accumulated a strong evidentiary base for the claim that how police treat citizens shapes their perceptions of the police and ultimately, their willingness to comply (Tyler 2006). Police departments across America have begun implementing procedural justice trainings and policy reforms that internalize its core tenets of fairness, transparency, impartiality, and citizen voice (Council on Criminal Justice 2021).

However, recent events problematize the normative goals of procedural justice—simultaneously emphasizing the costs of compliance and interrogating compliance at what cost. Besides empirical critiques to procedural justice studies (Nagin and Telep 2017, 2020), socio-legal scholars have also offered new frameworks for understanding how goals of police compliance can leave communities estranged (Bell 2017). Emerging research has begun examining the politics of claims-making often attributed to the community (Cheng 2020; Roussell and Gascón 2014; Levine 2017). These studies suggest that the community is not some elusive and infallible entity whose pre-determined demands need to be discovered; rather its demands are based on evolving public sentiments subject to shaping and influence. Such scholarship has complimented community-based efforts which have aimed to increase community safety, including from police themselves.

Our study aligns with these recent shifts in highlighting the need to interpret public sentiments. We look to the role of online media in shaping these sentiments: from electoral politics to vaccine hesitancy, online media can generate, reflect, and deepen divergences by shaping users' exposure to and consumption of content (Bail et al. 2018; Gentzkow, Wong, and Zhang 2020; Iyengar and

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[1]For example, the Associated Press amended its stylebook amidst escalating criticism over news coverage using passive phrasing like "officer-involved shooting."

Hahn 2009). We build on Lawrence (2000) to examine how online media can drive moments of polarization over the police and policing—exacerbating policymaking processes by distorting whether, how, and when community demands actually diverge.

Analytic plan and data

The theoretical basis for our study is developed upon two assumptions. First, public actors—whom we term news *publicizers*—are self-interested: media outlets maximize consumption (Mullainathan and Shleifer 2005; Bernhardt, Krasa, and Polborn 2008), organizations maximize their organizational legitimacy (Suchman 1995), and politicians maximize citizen support (Downs and others 1957). They therefore target different news outlets and different social media platforms to speak out, highlight, and reframe issues to their constituents. Second, citizens are news *consumers* whose acceptance of news and frames may be relatively inelastic to ideologically-discordant news (Kahan 2012; Iyengar and Hahn 2009), but whose opinions are still affected by how (and what type of) information is delivered to them (Allcott and Gentzkow 2017).

Using this framework, our study aims to understand how publicizers' and consumers' preferences interact to produce polarization in citizen attitudes over one salient issue—criminal justice—on the ground at different points in time. We propose to combine time-varying public opinion data with social media analytics on major news articles from different outlets and the public social media activity of various influential users and accounts. By analyzing which articles different users seek to share to their constituents and the types of articles that are more likely to go viral online and influence public opinion, our goal is to identify which characteristics of online news—particularly, media type, sources, and information content—are most salient for citizen opinion formation.

Quantitative analyses for this project requires three sources of data. The first two stages of research require (1) survey data on citizen sentiments towards police, and (2) data on the proliferation of online media articles across social media platforms. During the third stage of the project, we (3) conduct an original priming survey experiment, administered to New York City residents online.

1. Citizen sentiment

Our dependent variable comprises survey data on citizen attitudes towards the police. This is collected by the survey firm Elucd, which has partnered with major police departments across the United States to track public sentiment. Elucd sends short surveys through smartphone application advertisements and robocalls to landlines, reaching hundreds of thousands of respondents per month. Surveys are delivered in languages relevant to the location;[2] surveyed populations are representative of neighborhood populations as defined by the U.S. Census American Community Service data.

Police departments received data on *trust* towards police and perceptions of *safety*, and this data varies monthly at the sub-city level. These anonymous surveys probe for citizen *trust* and *safety* as measured by the following questions questions:

1. `safety`: "When it comes to the threat of crime, how safe do you feel in your neighborhood?"
2. `trust`: "The police in my neighborhood treat local residents with respect."
3. `trust`: "The police in my neighborhood listen to and take into account the concerns of local residents."

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[2]These include English, Spanish, Chinese, Russian, Korean, and Tagalog.

We specifically seek to conduct analyses on data collected in **New York City** (NYPD), **Los Angeles** (LAPD), and **Chicago** (CPD). Across the three cities, the surveys cover:

- **New York:** between October 2016 and 2020
- **Los Angeles:** October 2018 and 2021
- **Chicago:** between November 2017 and 2021

Thus far, we have successfully procured data from New York between October 2016 and December 2019 at the *precinct* level. This data—an aggregation of over 200,000 surveys conducted across New York City during the time period—allows us to plot preliminary trends and highlight divergences in public sentiment across various precincts. Preliminary visual evidence (see Appendix) already highlights the intervening role of media and politics: public opinion trends in NYC are not well-explained by episodes of police brutality[3]; rather, the sharpest changes occur with the election cycle. This underscores our argument that public attention occurs only when news publicizers—media, organizations, and politicians—bring awareness to these acts, granting them significant power to shape discourse and frame issues.

As a next step, we have submitted Freedom of Information Law (FOIL) requests to the NYPD for data at the precinct-sector level up until September 2020. This additional data will allow us (a) greater precision over the causes of divergence; and (b) the data on public sentiment during protests over police brutality throughout 2020. We have additionally submitted FOIL requests to the LAPD and the CPD for data at the district level so that we may compare our results across various police departments.

2. Online media article dissemination across social media

We plan to use funds from the RSF Pipeline Grant to procure information about the dissemination of news articles across social media. We take the following steps.

First, to identify the universe of news articles that are relevant for our study, we plan to scrape articles from Proquest using the TDM Studio virtual environment. TDM Studio, which is a part of Proquest' suite of tools for academic researchers, allow us to scrape news articles using key search terms. We treat this scraped data as our universe of articles. We use text analysis and sentiment analysis methods to identify the articles' (1) primary topic(s) and subjects; (2) partisan leaning and overall tone; and (3) mentions of any key public figures, organizations, or government agencies.

Second, we plan to purchase three months access to NewsWhip, a company that tracks the spread, engagement, and impact of links across various social media platforms. Scholars have begun to use NewsWhip as one way to better understand the role of social media in spreading certain types of information (Kilgo 2021; University of Michigan 2021). For our purposes, we seek to to measure the reach and impact of the news articles—as identified through our initial search in Proquest—within our cities of study (New York, Los Angeles, and Chicago). This data will identify (1) variation in the types of news outlets and articles that have been more or less popular across time; (2) variation in information-spread across different social media platforms; and (3) the topics and partisan slant of news that go viral on various social media platforms. Additionally, NewsWhip identifies key figures in social media who help to disseminate the news article in Twitter and Facebook. This data allows us to identify the constituencies that are interested in different types of news and topics.

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[3]A 2018 New York Times article identified seven major cases of police brutality in 2017 (Almukhtar 2018), which garnered little change in sentiment in NYC.

Third, we plan to scrape the Twitter and Facebook accounts[4] of relevant public figures and government agencies across the time period of our study. We use text analysis techniques to code these tweets for content, divisive or inclusive language, and partisan leaning, ties to government organizations, and other relevant content as identified through the above exercise using NewsWhip. Building on prior work (Cheng 2021), we argue that both politicians and government agencies seek to—and are successful in—influencing public opinion by gaining mainstream media coverage through social media posts. Our goal is therefore to identify which types (and contents) of posts get picked up by mainstream news media, and how this subsequently affects citizen attitudes based on variation in media consumption across demographic and geographic divisions.

Taken together, these sources of media data help us to map three dyadic relationships: (1) public figures' social media and online news media; (2) online news media and citizen sentiment; (3) public figures' social media and citizen sentiment.

3. Survey and priming experiment in New York City

We use insights generated from the Elucd data and online media data to design a novel priming experiment embedded in a broader survey about citizen attitudes towards the police. This survey experiment serves to establish a causal relationship and provide greater evidence of the causal mechanisms we promise. It will be administered to 1,500 New York City residents online through Qualtrics. We expect to recruit through Facebook Ads, stratified at the precinct-gender-age level to ensure a reasonably representative study.[5] The key experimental variation we build into the study will involve vignettes that varies across three relevant factors:

1. `Information:` Police malfeasance, positive acts of policing (Baseline = economy).
2. `Source of information:` Democratic politician, Republican politician, NYPD (Baseline = no source).
3. `Type of media:` social media post, New York Post, New York Times.

We use the third factor, `type of media`, to identify heterogeneous effects on the first two factors. For our outcome variables, we repeat the three questions that Elucd asks. This research design allows us to identify how different vignettes, which prime participants to think about the police in various ways, affect perceptions of trust and safety.

Project work plan

Stage 1: We have already submitted FOIL requests for fine-grained Elucd data from the NYPD, LAPD, and CPD. We expect a response within half a year. We anticipate collecting online media data between June 2022 and September 2022. During this period, we will hire and train two undergraduate research assistants to:

1. Use the Studio TDM tool to scrape article titles, texts, and URLs;
2. Clean scraped articles for analyses;
3. Use the NewsWhip API to query for analytics information across the full universe of news articles as identified in the first step;
4. Identify the Twitter handles of relevant political actors and organizations,
5. Scrape the Twitter and Facebook activity of these actors using Twitter and CrowdTangle APIs.

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[4]Facebook activity can be accessed using CrowdTangle, which researchers may use free of charge.

[5]While Facebook Ads admittedly fail to capture individuals who do not use social media, our study results are most relevant to the population that consumes such news and media online.

Stage 2: Having collected Elucd data and online news media table from **Stage 1**, we plan to analyze this data between October 2022 and February 2023.

Stage 3: Using insights generated from **Stage 2**, we expect to plan and implement the online survey between February 2023 and April 2023. We then plan to present preliminary results for all three stages at the Midwest Political Science Association annual conference in April 2023. We expect to present a full set of results at the American Sociological Association annual conference in August, the American Political Science Association annual conference in September, and the Russell Sage Foundation conference during summer or fall 2023.

Qualifications and responsibilities of researchers

This multidisciplinary research team (Liu a political scientist and Cheng a sociologist) is uniquely qualified to execute the proposed study. This research team has collaborated in the past, leading to a published, peer-reviewed study on the NYPD, 311 requests, and civic disengagement in *Politics & Society* (Cheng and Liu 2018). This established working relationship will directly inform the division of labor for the proposed study:

Shelley Liu (Assistant Professor of Public Policy, UC Berkeley) is a Co-PI on this project. Her research examines how education and access to information affects political development, polarization, and trust in the state. She has published in journals such as the *American Journal of Political Science* and *World Politics*. Relevant ongoing work combine novel datasets, surveys, and randomized control trials to examine issues of partisanship, polarization, and attitudes towards media and politics. Liu will contribute her methodological expertise to lead data collection, dataset construction, and each stage of the analysis. Substantively, Liu will also provide theoretical expertise on the subject of political polarization and divergences in trust in the state.

Tony Cheng (Assistant Professor of Criminology, Law & Society, UC Irvine) is a Co-PI on this project who will contribute his subject matter expertise on policing to supervise research design, theory building, and paper writing. He is current engaged in research using Proquest TDM Studio, and will also continue to oversee FOIL processes. His research on police and community interactions, including on social media, has appeared in or will appear in the *American Journal of Sociology*, *Criminology*, and *Social Problems*. He is currently working on a book manuscript focusing on the NYPD entitled *Machine Policing and the Illusion of Public Input*. He also holds a J.D. from New York University.

Dissemination of findings

Central to our academic and policy contributions is collecting and disseminating police sentiment data from the three largest police departments in the United States. While the NYPD, LAPD, and CPD have invested heavily in collecting survey information about police-community relations, this data is not made available to the public in a transparent way.[6] Even as community organizations and watchdog groups have tried to sue for this information in New York, for example, police have not been forthcoming (Wiggers 2020).

Yet, such information is necessary for public understanding of how various communities interpret national, state, and local-level discourse involving police-community relations. More research is needed to explain why sentiments change from month to month—indeed, police departments

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[6]Chicago's data, which is available in aggregate summary statistics through an online dashboard, is made more transparent than the NYPD and LAPD data.

themselves struggle to understand how to meaningfully interpret fluctuations.[7] We expect our data collection efforts to (1) spur fruitful research and policy dialogue about the causes and consequences of citizen mistrust and perceptions of safety; (2) provide valuable data for civil society who seek to hold police departments accountable; and (3) contribute to efforts towards data transparency from a publicly-funded state institution.

Within the academic community

We expect to publish this research in at least two peer-reviewed outlets—one in political science and one in sociology. In accordance with RSF guidelines and data transparency initiatives across the social sciences, we plan to publicly release the data and documentation associated with this project upon publication of the first paper detailing our findings. We hope this replication data can be used by future researchers who seek to study polarization through media dissemination, and inspire the development of new survey methods to gauge community perceptions towards police.

To the public and relevant stakeholders

We anticipate publicizing this study's findings in multiple ways. First, we plan on submitting tailored op-eds to the *New York Times*, as well as to the *Chicago Tribune* and *Los Angeles Times* depending on the particular findings for those cities. We will prepare these op-eds for submission as the midterm elections in 2022 approach. Previously, Cheng's research has been covered by *The Atlantic CityLab*, *Chicago Tribune*, and the *Los Angeles Times*.

Second, we aim to highlight our findings by collaborating with policy centers, like the *Brennan Center for Justice*. Because Liu's appointment is in a leading public policy school, she has access to specialists who can help disseminate findings to an extensive network of nonprofits, think tanks, and other policy entities. Liu's research has been previously publicized in policy briefs and research roundups like the *Evidence for Governance and Politics*, the *Communication Initiatives Network*, *J-PAL*, the *Stanford Social Innovations Review*, and *Internews*.

Third, we plan on sharing findings directly with agencies like the Mayor's Office of Criminal Justice in New York City, with whom Cheng has worked in the past. Through the RSF Pipeline Grant program's mentor assignments and research conference, we are excited to continue learning about additional opportunities to publicize research findings to public audiences.

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[7] Relevant news articles report on the lack of usage in the NYPD (Edelman 2019) and also confusion over interpretation in the NYPD and LAPD (Weichselbaum 2018).

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Appendix

Patterns of divergence across time

The plots below show citizen perceptions of trust and safety across time in different parts of New York City. A vertical line marks November 2018, when midterm elections were held at the federal and state level. Visual evidence suggests that divergences in public sentiment began during 2018 and peaked in November 2018, reaching levels higher than in November 2016 when President Trump was elected into office. Polarization in public sentiment remained stable for half a year.

A. Plotting standard deviation size across all precincts in New York City across time

Divergences in citizen sentiment across precincts

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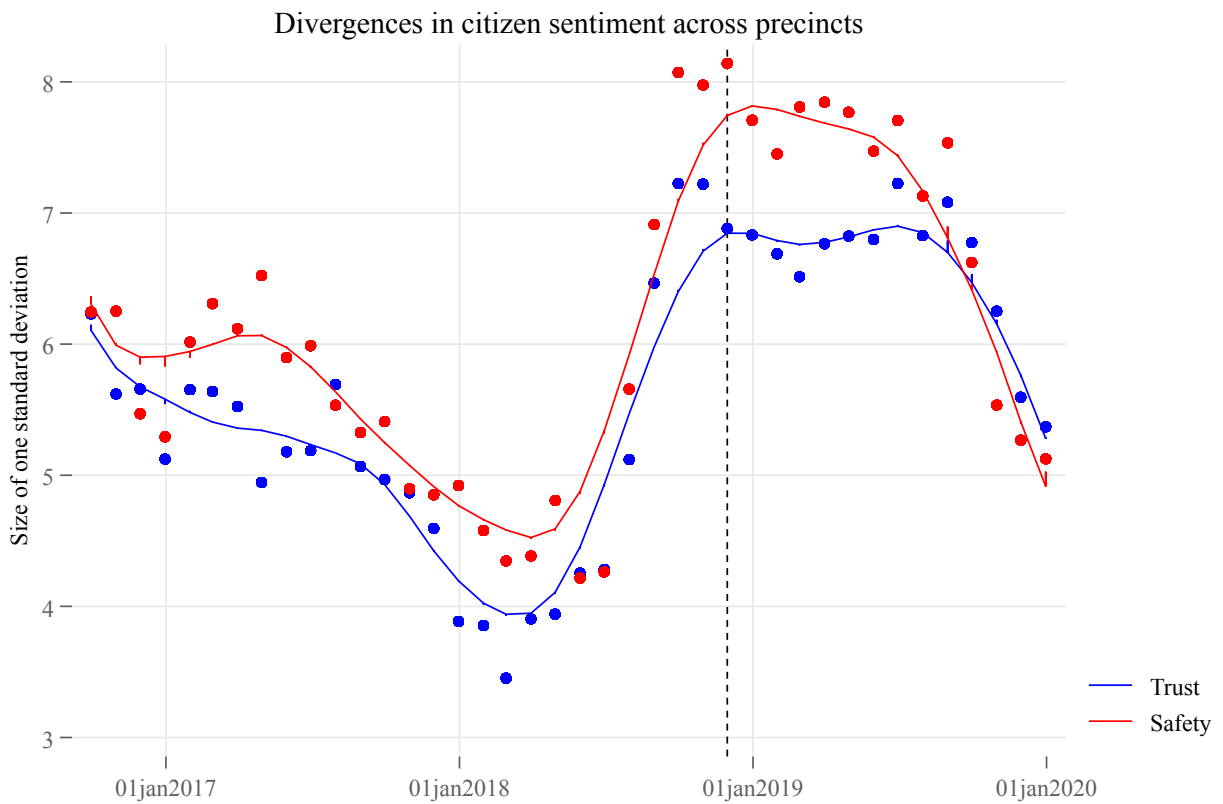
B. Plotting trust and safety scores in different parts of New York City across time

Citizen trust across time

Citizen perceptions of safety across time
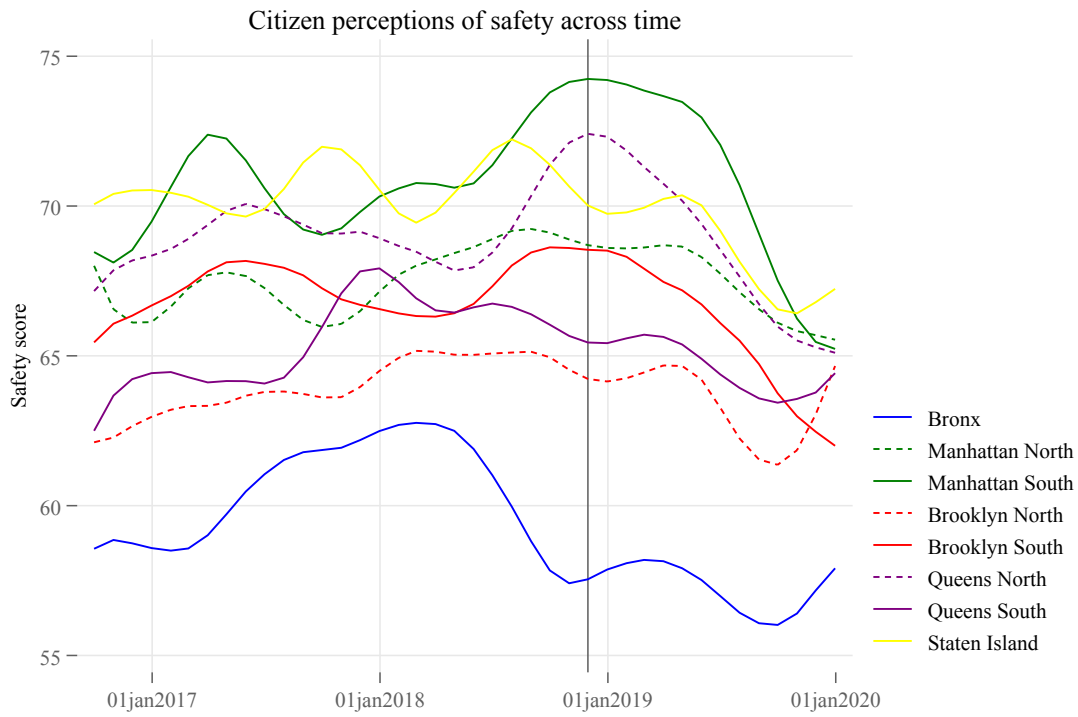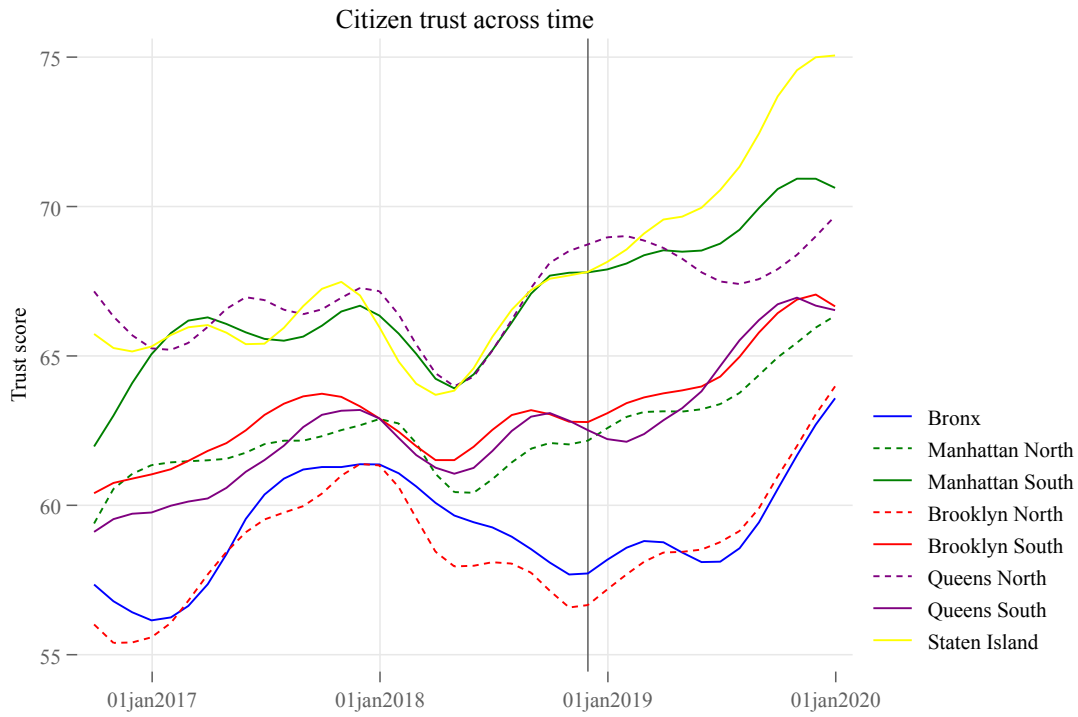
Recessions during Young-Adulthood and Racial Income Inequality

Andria Smythe

November 24, 2019

1   Introduction

The US experienced 1 recession every 5.75 years, on average, during the 8 decades between 1930 and 2010 (National Bureau of Economic Research (NBER)). When recessions occur, minority workers, young workers and workers with less education experience the largest impacts in terms of immediate income decline and job losses (Hoynes et al., 2012). In this study, I will estimate the long-run impact of recessions on young minority workers compared to their counterparts and any resulting impacts on racial income inequality in the United States.

Young adulthood is a critical time to build human capital, and missed opportunities are not usually made up in subsequent years (Dellas & Sakellaris, 2003). If recessions negatively impact the ability to build human capital, the disproportionate impact on minority youths can have life-long consequences for these individuals and can lead to even greater economic inequality in the future. This study will empirically assess the effects of recessions during youth and young adulthood on income in adulthood and on income inequality between Blacks, Hispanics and Non-Black, Non-Hispanics. I will also investigate the labor market and educational mechanisms that drive these impacts.

Economic theory does not provide a clear prediction about the magnitude or the sign of long-run effects of recessions during youth, but it does highlight two potential channels through which these impacts occur: a labor-market scarring hypothesis and a rational educational catch-up response. These two theories form the theoretical lens through which this study will be interpreted. The labor market scarring theory predicts that a recession can negatively affect income in the long-run by reducing the amount and quality of job-specific human capital a worker attains during youth/young adulthood. There is evidence in the literature of this scarring effect e.g. Oreopoulos et al. (2012), Kahn (2010).

On the other hand, the rational educational catch-up theory predicts that during recessions, young adults will enroll in higher levels of education to delay entrance into a poor labor market and in an attempt to offset the decline in job-specific human capital. This theory says that because jobs are scarce, the opportunity costs, in terms of foregone earnings, are low during recessions and schooling outcomes should improve as long as students have sufficient access to credit Mroz & Savage (2006). Many studies also find evidence for this educational response during recessions (e.g Clark (2011), Betts & McFarland (1995) Dellas & Sakellaris (2003), Sievertsen (2016), Long (2014)). In a recent study, I find evidence that this response is different for different racial/ethnic groups (Smythe, 2019).

The long-term scarring and rational catch-up theories make different predictions about the net effect of a recession during youth on long-run outcomes. Thus, this is inherently an empirical question. Because the labor market experiences of minority youths are usually different from that of their counterparts, the incentives and opportunities to invest in human capital may be different for minority youths, leading to differential outcomes.

I will estimate a recession's long-run effects with a triple difference specication that compares income in adulthood of teens (14-17) and young adults (18-22) (first difference), living in counties with a more versus less severe recession (second difference) who are minorities versus non-minorities (third difference). I use the differences in the severity of the recession across local areas as an identifying variation. I will use individual-level data from the Bureau of Labor Statistic's (BLS) National longitudinal Study of Youths (NLSY79), along with county-level location data with special access from the BLS. I will focus on the early 1980's recession because it is the longest, and before the 2008 crisis, the deepest recession since the great depression. It is also far enough in the past that I can study the outcomes of the sample when individuals are in their mid-30s to mid-40s.

There are generally little to no policies geared specifically towards youths during economic downturns. Rather, during economic downturns, both public and private funding for higher education declines with usually more substantial declines at institutions with a high concentration of minority students (Ortega & Swinton, 2018). It is not only funding policies that disadvantage minority youths who experience recessions: despite labor market data showing that minority youths experience larger immediate impacts of recessions, much of the literature on the long-term impacts of recessions do not focus on minority youths. This paper will add to the literature by documenting the long-run impact of recessions on minority youths and the long-term effects of recessions on racial economic inequality and economic well-being.

2 Related Literature

There is much interest in the literature on educational and labor market effects of recessions. The literature documents strong evidence for labor market scarring for young workers who experience poor economic conditions e.g Moulton (2016), Davis & Von Wachter (2012) Kahn (2010) Oreopoulos et al. (2012). These studies mainly focus on college-educated and or non-minority workers.

The studies focus on the long-run impact of economic shocks on educational attainment are still inconclusive. Charles et al. (2015) and Johnson (2012) find opposite effects of housing shocks on educational outcomes, providing evidence for both the ability-to-pay argument as well as the opportunity cost argument. Rao (2016) find a negative relationship between unemployment rate between ages 1-15 and human capital in adulthood. Stuart (2017), the work most closely related to the current study, also finds a negative impact of recessions during ages 0-10 on educational and labor market outcomes.

Many of these studies either do not consider the differential impact of recessions on long-run outcomes of different racial/ethnic groups, or consider these impacts in passing. There are a few papers that do consider effects by race. In considering labor market impacts, Spalter-Roth & Deitch (1999) report that blacks who lose jobs are more likely than their white counterparts to fall from professional or managerial to lower level and less well-remunerated occupations . This suggests that Blacks likely suffer greater long-term job-market scarring from unemployment incidences. In considering education, Kalil & Wightman (2011) find that parental job loss is associated with a lesser likelihood of children obtaining any post-secondary education and that the association for black middle-class youth is almost three times as strong as for their white counterparts. These studies do not look specifically at the effects of recessions.

Most studies on the effects of recessions do not focus specifically on race and most studies that focus on race do not look specifically at recessions. This paper fills this gap by providing empirical evidence of the effect of recessions on long-run labor market outcomes of minority youths. Despite experiencing the largest declines in jobs and earnings during recessions, this demographic has received sparse attention in the literature.

3 Data

I will use data from the National Longitudinal Survey of Youth (NLSY) 1979. I will apply for access to the geocode data which provides a variety of statistics for the counties where respondents lived at each interview date. The NLSY79 is a nationally representative sample of 12,686 young men and women who were 14-22 years old when they were first surveyed in 1979. The NLSY79 has several attractive features that makes it ideal for this project. Firstly, it captures precise county location for respondents during each round of the survey. This allows me to measure local labor market conditions at the individuals area of residence. Secondly, the survey includes a rich set of background information on individuals such as race, gender, scores on the Armed Force Qualifying Test (AFQT), parental socioeconomic status, schooling attainment and labor market outcomes, including income and work history. Thirdly, it over samples Blacks and Hispanics which allow for adequate sample size when looking at outcomes by race. And lastly, it captures these youths and young adults from 1979 and onward, which allows me to observe their locations during the recession of the early 1980s as well as outcomes when the respondents are in their 50s.

The biggest concern with survey data is that attrition can lead to significant missing data, especially for longer-term outcomes. In table 1, I present sample size by race/ethnicity for the entire sample surveyed in 79 and for the size of the sample for which income data is available at age 35. This shows that data are available for a relatively large sample of individuals in each racial/ethnic category.

An initial exploration of the data using unemployment rate for the four US regions reveals patterns in the data that suggest room for deeper study. Figure 1 plots estimated income at age 35 for Blacks and Whites living in high versus low unemployment regions. The figure shows that, while estimated income is the same for Whites in low and high unemployment regions, Blacks see positive but insignificant income effects of living in high unemployment regions in 1980. The effects are constant for different age groups.

Figure 2 shows effects of high versus low unemployment rate on the probability of college enrollment by age 35 based on age in 79 right-before the recession hits- and on race. This figure shows a few patterns that I will explore further in this study. One, the effects of high unemployment are stronger for Black enrollment than for Whites. This results in a decline in racial differences in college participation in higher unemployment regions. Two, while it is expected that later birth cohorts (younger in 1979) will eventually attain higher levels of education than older cohorts, this

Race/Ethnicity	Full1979Sample	Sample with Income Data
Black	3174	2449
Hispanic	2002	1565
Non-Black-Non-Hispanic	7510	4196
Total	12686	8210

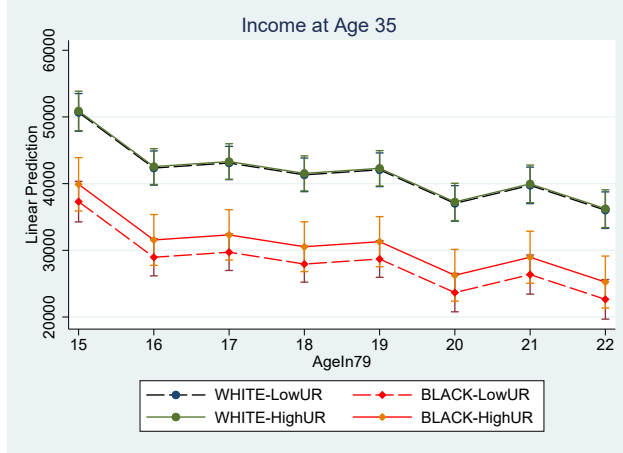Table 1: Sample Size by Race/Ethnicity

Figure 1: Racial Differences Income at Age 35

graph shows there is a clear discontinuity in the effect of high unemployment at age 18. I exploit this pattern in the age variable in the empirical strategy for this study. The estimates here are not statistically significant, but this may be explained by little variation in economic conditions since region is the smallest level of location data publicly available. Using the county-level data set will allow me to explore variations within and across smaller geographical units.

4   Empirical Strategy

I will estimate the eects of exposure to the recession during young adulthood using a strategy that is similar to Stuart (2017). I estimate the recession's long-run effects with a specication that compares income in adulthood of teens and young adults of different race/ethnicity living in counties with a more versus less severe recession in the early 1980s. In particular, I will consider the individual-level regression

$$Y_{35-45,i,c} = \pi_a * R_c^{79-82} + \beta * Race_i + \rho_a * R_c^{79-82} * Race_i + \alpha * X_i + \gamma_c + \theta_{a,s(c)} + \epsilon_{i,a,c} \qquad (1)$$
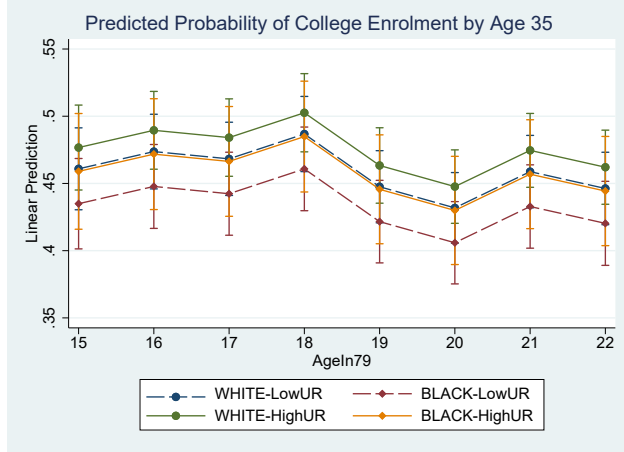
Figure 2: Racial Differences in College Enrollment by Age 35

where $Y_{35-45,i,c}$ is income in adulthood (Age 35-45) for individual i living in county c in 1979. The explanatory variable of interest is R_c^{79-82}, which measures the recession's severity as the change in unemployment rate over the course of the recession (between 1979 and 1982) for the individual's 1979 county of residence. The effect of the recession, captured by π_{1a}, is allowed to vary with age as the impact of the recession might depend on the individual's age when the recession hits. Similar to the strategy by Stuart (2017), I normalize $\pi_{22} = 0$ to allow county fixed effects by age. This set-up means that the identied parameters are the effects of the recession on individuals age a minus the effect on 22 year olds,$\pi_a - \pi_{22}$. Because individuals between 18 and 22 have largely completed high school, I can test the impact of recessions on high school versus college-aged youths by constructing a test of whether π_a is different for $a = 18, 19, 20, 21$ from π_a for $a = 14, 15, 16, 17$. I hypothesize that an educational response will be more pronounced among the younger age group (14-17), while a scarring effect will be more pronounced among the older age group (18-22).

I estimate the differential effects of the recession by race/ethnicity by interacting the term measuring the severity of the recession with a race variable. I study differences in the outcomes for Black,Hispanic and Non-Black-Non-Hispanic youths. The coefficient of interest here is ρ_a. Holding non-Blacks as the reference group, if $\rho_a < 0$ it means Blacks who experienced a recession at age a have lower income in adulthood than non-Blacks who experienced a recession at age a. Finally, I further control for individual and family background variables such as, scores on the AFQT and family socioeconomic status (SES) (X_i) as well as fixed effects for county of residence (γ_c) and state $(\theta_{a,s(c)})$. The state fixed effects control for differences in education and other policies at the state level.

I will test the effect of two possible mechanisms- educational attainment and work history- behind the results found for the income equation. Specifically I estimate equations similar to equation 1 above, but with educational attainment and work history by age 35 as the dependent variables.

5 Summary

Bernanke (1985), once wrote: "Seismologists learn more from one large earthquake than from a dozen small tremors." A related but contrary principle is that one can learn from a large earthquake about the cumulative effects of small persistent tremors. Minorities in the United States suffer persistently depressed labor market conditions. It is usually hard to tease out the effects of these structural differences between minorities and non-minorities. While recessionary periods present an opportunity for the study of exogenously determined changes in the differences between these two groups, very few studies have taken advantage of this.

I will exploit recessions as a unique opportunity to assess within-individual changes in socioeconomic conditions that are relatively exogenous to individual characteristics. This offers a stronger basis for inference than the usual practice of examining the variation of outcomes with socioeconomic status. The results from this study can not only document the lasting impacts of recessions on different racial/ethnic groups, it can also inform on the likely effects of the persistent racial differences in economic opportunities of youths in the United States.

6 Project Timeline

Month (Summer 2020-2021)	Activity
April-June	Apply for BLS geocode data. Download and code Public-use data
July-August	Finalize data. Expand literature review. Begin data analyses
September-November	Update methods. Complete data analyses
December-January	Write-up results. Present results at conference
February-March	Incorporate feedback into paper. Send draft to reader for feedback
April-May	Incorporate reader feedback into paper. Submit to journal

Table 2: Project Timeline

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