

The Impact of Social Movement on Racial Diversification Initiatives: Evidence From the Movie Industry

Yu-Wei Lin
Department of Information Systems
& Analytics
Leavey School of Business
Santa Clara University
ylin12@scu.edu

Shiyu Yang
A. R. Sanchez, Jr. School of
Business
Texas A&M International University
shiyu.yang@tamiu.edu

Wencui Han
Department of Business
Administration
Gies College of Business
University of Illinois Urbana-
Champaign
wenhan@illinois.edu

Abstract

The movie industry is facing rising advocacy for racially inclusive casting. However, it remains an open question whether the promised benefits of racial diversification will materialize. Using data from 434 movies nested in 178 series released from 1998 to 2021, we find that, on average, increasing the number of racial minority actors in the main cast depresses movie evaluations. More importantly, the negative effect of racial diversification attenuates after Black Lives Matter (#BLM), a new media enabled social movement. Further, incorporating insights from tokenism and discrimination theories, we probe the heterogeneity in the bias mitigation effects of #BLM and find movie type and the core production team's credentials as important boundary conditions. The present research shows that a social movement that seeks to address racial inequality can, indeed, lead to meaningful changes in public opinions toward racial inclusive initiatives. It also provides perspectives for thinking about the mechanisms underlying such changes.

Keywords: diversity in organizations, social movements, new media, discrimination, racial inequality, creative industries

1. Introduction

At the 90th Academy Awards in 2018, actress Frances McDormand closed her acceptance speech for the best actress award by stating the following: "I have two words to leave with you tonight, ladies and gentlemen: inclusion rider." Shortly after the speech was broadcast to the whole world, there was a remarkable spike in Google searches for the phrase "inclusion rider"—a stipulation that actors can insert into their contracts to require a certain level of diversity among a film's cast and crew (Dwyer, 2018). Simple as they may be, the two words symbolize Hollywood's growing

awareness of and advocacy for racial diversity. Indeed, for decades, policymakers, social commentators, and academics have been calling for increasing the minority representation in the film industry, particularly when it comes to casting choices (Wilson II et al., 2012). While ethnic inclusivity is morally appealing given its direct implications for social equity, perhaps what is an arguably stronger motive for diversity is the economic benefits—because consumers would want to see themselves portrayed onscreen (Kuppuswamy & Younkin, 2020), a wider representation of ethnicity should correspond to a wider appeal to the general audience, translating into more favorable evaluations.

However, despite the adamant advocacy for racially inclusive casting in social discourse, it largely remains an open question whether the many proposed benefits of racial diversity will materialize. Statistics thus far have yielded equivocal findings. For example, according to a Deloitte report, among Hollywood films released between 2014-2018, movies with at least 30% nonwhite casts outperformed their less-diverse counterparts in the domestic opening weekend box office. A study on 925 films released between 2011 and 2016 found that having at least two black actors in the principal cast was associated with better domestic box office (Kuppuswamy & Younkin, 2020). However, in another empirical study on 847 Hollywood movies released between 2013-2017, no relationship was found between the number of minority actors and movie quality evaluations or global box office (Braam, 2018). The inconsistent findings could be due to several reasons, including the deployment of different diversity measures, samples, outcomes, and analytic strategies. Therefore, research has yet to answer the question of how racially inclusive casting may affect movies.

What may further complicate the impact of cast racial diversification is the changing cultural landscape of contemporary society. Social scientists have begun to consider how high salience events, episodes of violence,

or civic unrest may affect organizations as well as the public (Gorbatai et al., 2021; Leigh & Melwani, 2019; Luo & Zhang, 2022; Luo et al., 2016).

In a digital era, it has been contended that new media technologies (i.e., the internet, Web 2.0) have equipped social movements with powerful virtual tools to expand the organizations, local activist networks, and street-level protest (Loader, 2008). Contemporary social movements in a new media environment, therefore, enjoy a greater trans-national capacity to collaborate, share information, and communicate with a wider audience (Caren et al., 2020). In the context of racially inclusive casting, one particular social media enabled movement—the Black Lives Matter (#BLM) movement spurred by the 2013 reporting of the death of Trayvon Martin—has the potential to alter the values and incentives of film industry stakeholders and the general public. According to a report of Twitter data from 2014 to 2015, 4,435,217 unique users contributed over 40 million tweets that referenced #BLM and “killings of Black people under questionable circumstances” (mostly hashtagged names) (Freelon et al., 2016). These statistics showcase the extensive engagement from the new media in the #BLM movement. Given the inherent connection between cast racial diversity and societal racial equity (Wilson II et al., 2012), it is not groundless to posit that the #BLM might play a significant role in shaping the public’s sentiment towards racial diversification in movies.

The current research investigates whether and how racial diversification in casting may affect movie performance in the form of quality evaluations. More importantly, we situate our inquiries in the broader context of new media facilitated social movement. To achieve these goals, we specifically focus on racial diversification in the main cast of movie series. We construct a dataset with 434 movies nested in 173 series released from 2008 to 2021.

Using difference-in-difference (DID) estimation, we investigate whether and how #BLM alters the effect of cast racial diversification on movie evaluations. Further, we also probe the heterogeneity in the pre- vs. post-movement racial diversification effects. Taken together, we address not only the how, but also the why of the racial diversification effect by answering the following questions: is there an evaluative bias against racially diversified movies, and if so, is it driven by simple prejudice or rational concerns? Does #BLM change the evaluative bias, and if so, in what direction and how?

Our paper makes several contributions. First, it relates to work on racial diversity, especially in the film industry (e.g., Kuppaswamy & Younkin, 2020) and in organizations more broadly. Prior work has documented the many antecedents and outcomes of racial diversity

(for a review, see Shore et al., 2009). However, as Hebl & Avery (2013) pointed out, what remains a largely unresolved issue is how to mitigate discrimination and increase endorsement of diversity initiatives. Our paper takes a macro perspective and examines the role of social movement. In doing so, we contribute to the social movement literature through its integration with diversity research. Particularly, by focusing on #BLM, we heed the call from social movement scholars to examine how new media engagement may propel digital activism and cultural change (Caren et al., 2020). Lastly, the context of series provides us with a unique opportunity to connect diversity research to broader theoretical perspectives. Specifically, the evaluation of series has been analyzed from the perspective of brand extensions (Sood & Drèze, 2006). Given that diversity initiatives are often regarded as change-oriented practices (Luo & Zhang, 2022), the examination of movie series’ cast racial diversification not only dovetails well with the immediately pertinent social cognition theories of discrimination and tokenism, but also provides perspectives for thinking about whether, and to what extent, brand renewal and organizational change may be appreciated or devalued in broader settings.

2. Conceptual Background

2.1. Racial Discrimination and Audience Evaluations

Proponents of racial diversity in the film industry often base their enthusiasm on two reasons: moral imperative and economic benefit. In social discourse, racial inclusivity is regarded as a moral obligation and often described as "the right thing to do" (White, 2017). Increasing minority representation in movies is an important step towards achieving systematic fair treatment and promoting equitable opportunities and outcomes for people of color (Wilson II et al., 2012). Aside from the moral appeal of racial diversity, perhaps a more motivating factor is the prospective market rewards. According to the 2021 Hollywood diversity report, Facebook engagement in 2019-20 peaked for shows with casts that were from 31 percent to 40 percent minority. This is consistent with the idea that because people desire to watch films that reflect the world around them and that they can relate to (Beckman & Phillips, 2005), racially diverse casts representative of the growing population of minorities can potentially generate larger-scale resonations from the audiences.

In contrast to this rosy view, there are many indications that including racial minorities in the cast may have negative consequences. Among them, the most prominent argument stems from the racial

discrimination theory. Social scientists continue to find discrimination a constant feature of human cognition and behavior across a wide range of contexts (Kuppuswamy & Younkin, 2020; Solal & Snellman, 2019). Discrimination theorists have proposed to further dissect the evaluative bias by looking at two distinct motives: simple prejudice and rational decisions based on perceived group-level differences (Pager & Shepherd, 2008).

Specifically, simple prejudice manifests as an aversion to simply seeing people of a different race (Smith et al., 2016). It is a strong form of bias that has been used to explain a wide variety of discriminatory behaviors such as hiring in Hollywood and Wall Street (Faux et al., 2016), the sale of music albums (Roy, 2004) and newspapers (George & Waldfogel, 2003), attendance at sporting events (Hamilton, 1997), and television ratings (Aldrich et al., 2005). Different from simple prejudice, the mechanism of rational decisions is concerned with how perceived group-level differences may warrant differential treatments. This mechanism posits that, for example, the reason why borrowers of different races are offered different interest rates is because of the historical differences in each group's repayment rate (Pope & Sydnor, 2011). Simple prejudice and rational decision-based discrimination can be difficult to disentangle, given that motives are often unobserved (Pager & Shepherd, 2008). Several studies have examined the majority groups' discrimination against the minority in the film industry (Aumer et al., 2017; Weaver, 2011). Findings from these studies indicate that substituting racial minority actors for the majority might not be readily accepted by the audience.

Furthermore, aside from the discrimination-based rejections, concerns with tokenism are another important factor that may cast an unfavorable light on the inclusion of racial minorities. A token is defined as a member of a small numeric minority in an environment with a homogenous dominant group (Kanter, 1977). Discussions of tokenism in the context of racial representation have pervaded the popular press (e.g., Tongco, 2016) as well as academic discussions (e.g., Kuppuswamy & Younkin, 2020), criticizing Hollywood's diversity initiatives as merely a façade that has no substantive bearings on advancing the status of minorities. Even when a minority actor is featured as the main character, he or she might still be marginalized as a token to support the white co-actors or to act representative of an entire race.

2.2. Racial Discrimination and Social Media Enabled Social Movement

Social evaluations and the individual biases undergirding them are context-dependent and can be affected by high-salience events (Gorbatai et al., 2021). The consequences of such events can be further reaching than is immediately observable, changing a host of relationships within and between individuals and social groups (Leigh & Melwani, 2019).

In the context of combatting racial inequality, the Black Lives Matter (#BLM) movement has been a particularly salient event. We expect #BLM to potentially have a meaningful impact on shaping the audience's attitudes towards cast racial diversification for two reasons. First, #BLM was aided by digital tools and social media, leading to not only timely dissemination of information, but also active and widespread individual participation (Freelon et al., 2016). Diversity theorists have referred to the #BLM as a mega-event for its large-scale, long-lasting media attention received (Leigh & Melwani, 2019). Following the shooting death of an unarmed Black teen Trayvon Martin in mid-2013, a number of Twitter hashtags were created, including #WeAreTrayvonMartin, #BlackLivesMatter, and #HandsUpDontShoot. These online rallies quickly spread among Black Americans, rallying social outcries for justice for minorities across different communities (Ashburn-Nardo et al., 2017). The engagement from new media technologies likely propels #BLM with cost-effective networking, interpretive framing, and repertoires of protest action (Loader, 2008).

Second, #BLM raised awareness of the grave predicament facing Black Americans that their lives and value are not recognized by society (Leigh & Melwani, 2019), thereby directly confronting the discriminatory attitudes and behaviors against the minorities in many social issues. By mobilizing broad alliances of people who are connected through their shared experiences, goals, and sentiments, social movements in a hybrid media environment such as #BLM have the potential to counteract biases, activate collective sensemaking, and eventually bring about change (e.g., Amenta et al., 2010; McDonnell et al., 2015).

Indeed, alongside the #BLM marches, there are visible changes amongst social members that indicate growing empathy for minorities, an awareness of inequality, and a desire to contribute to a solution. For example, there was an increasing rise in signs indicating which businesses are Black-owned, suggesting consumers' support for minorities in the wake of the event (Gorbatai et al., 2021). To the extent that acts of discrimination and the individual biases that undergird them are sensitive to high-salience events, we predict

that #BLM will likely alter the audience's reactions to the inclusion of minority actors, such that the racial diversification in casting choices will lead to more favorable evaluations after #BLM, relative to before #BLM.

2.3. Heterogeneous Effects and Potential Explanations for the Evaluative Bias

To understand the mechanisms underlying the impact of #BLM, we examine the heterogeneity stemming from two sources: the series type and the movie production team.

First, we categorize series as white-dominant narratives and inclusive narratives based on the racial composition of the first movie in the series. Series usually retain significant connections and similarities to the first movie (Sood & Drèze, 2006). Therefore, the first movie in a series likely dictates the whole series's narrative and target audience. There appears to be a perception that movies with minority casts will be seen as minority movies that White audiences will largely avoid (Horn, 2002; Samuels & Leland, 1999). Hence, a historically white-dominant series is more likely to have a white-dominant audience group, relative to an inclusive series. To the extent that social movement propels equality primarily by reducing the majority groups' discriminatory tendencies towards racial minorities, we should observe that the bias mitigation effect of #BLM on racial diversification is more pronounced among historically white-dominant series.

The second source of heterogeneous effects we considered is the credentials of a movie's core production team. Specifically, we examine the minority actors and the directors. We categorize each actor and director as high or low credentials using the mean split of their respective group. We investigate whether the interactive effect of #BLM and cast racial diversification will be contingent upon the minority actors' credentials, as well as the credentials of the directors. By doing so, we aim to better understand whether the audience evaluations of racially diversified movies are based on the performance and capability of the production team (as inferred by credential) or simply correlated with race.

3. Data and Empirical Specification

3.1. Data and Context

We investigate the racial diversification in the main cast and its effect on audience ratings in *movie series*. We choose this distinct context for the following reasons.

First, we examine racial diversification in the main cast of a movie, which consists of the top three characters in a story (Weiland, 2013), instead of the whole cast. We conceptualize racial diversification as the substitution of racial minority actors (i.e., nonwhite) for the majority (i.e., white) in these starring roles. The main cast constitutes the most critical characters in a story, and the leading stars are among the strongest determinants of movie quality and box office success (De Vany & Walls, 1999; Kim, 2013). Therefore, the racial makeup of the main cast is an instrumental and powerful form of representation.

Second, the current research focuses on movie series instead of the general movie population because series are an increasingly important new product introduction strategy in the film industry (Sood & Drèze, 2006). More importantly, with series, we are able to construct a panel dataset with individual movies nested within series. Such a structure enables us to causally examine the effect of racial diversification on movie performance, while controlling series specific characteristics such as story line, audience type, production budget, etc. with series fixed effect.

Unlike prior research, what we aim to capture is not the snapshot of cast racial diversity (e.g., Kuppaswamy & Younkin, 2020), but the action of racially diversifying the cast, i.e., the change in the racial composition in the main cast of a movie in comparison to the preceding movie in the same series.

Our primary data sources are Internet Movie Database (IMDb; <http://www.imdb.com>) and Rotten Tomatoes (RT; <https://www.rottentomatoes.com/>). Our sample period starts in 1998 and ends in 2021. Our final dataset contains 434 movies nested in 173 series released between 1998 and 2021.

3.2. Variables

Our dependent variables are audience evaluations, including RT (Rotten tomatoes) expert ratings, RT audience ratings, and IMDb user ratings. Our main independent variables are racial diversification in the main cast and the #BLM movement.

We create control variables to help rule out potential confounders. First, for each main cast member, we calculate (1) the average RT expert ratings of these movies and (2) the number of award nominations they have received prior to the focal movie. For each one of these three scores, we take an average across the main cast and include the average value as a control. We also repeat these steps for the director(s) of a focal movie to control for director level experience.

We also control for genre fixed effect for the 17 genres in our dataset (i.e., action, drama, adventure, comedy, crime, family, horror, sci-fi, thriller, mystery,

fantasy, romance, music, documentary, news, western, war). In addition, for each focal movie, we also construct a competition variable, which is calculated as the number of movies in the whole world belonging to the same genre(s) in a given year.

Lastly, we control for distributor fixed effect for the distributors with more than 3% of the market share from 1995 to 2022. We also control for distributor change, a 0-1 dummy variable. Distributor change takes the value of 1 after series i change its distributors; it takes the value of 0 prior to that time.

3.3. Empirical Specification

We use a difference in difference (DID) estimation to investigate the effect of main cast racial diversification (i.e., substituting non-white actors for white actors). This identification strategy (DID) has been widely implemented in prior research (Cui et al., 2022; Greenwood & Wattal, 2017). Equation (1) presents the estimation specification:

$$y_{ij} = \beta_0 + \beta_1 \times \text{Minority_increase}_{ij} + \beta_2 \times X_{ij} + \gamma_t + \delta_i + \varepsilon_{ij} \quad (1)$$

where y_{ij} is the dependent variable (i.e., RT expert ratings, RT audience ratings, IMDb ratings, and Metacritic ratings). i denotes the series, j denotes the j -th movie in series i . The key independent variable of interest is *Minority_increase*, a 0/1 dummy variable. *Minority_increase* takes the value of 1 after series i racially diversifies its main cast by increasing the number of non-white actors relative to a preceding movie in the same series; it takes the value of 0 prior to that time. We limit movies before a reverse of diversification in a series to make the identification clear (if a focal movie has fewer minorities in the main cast relative to the preceding movie in the same series, we exclude this movie and movies after). This process results in a final dataset of 434 movies nested in 173 series. Our key focus is the estimated coefficient β_1 , which indicates the effect of main cast racial diversification on movie ratings. X_{ij} is a vector representing several movie-level control variables. γ_t is a yearly time-fixed effect, δ_i is the series-fixed effect that captures the time-invariant characteristics of series i . ε_{ij} is the error term.

Next, we add the dummy variable #BLM to equation (1) to test the impact of #BLM on the effect of main cast racial diversification. The #BLM variable takes the value of 1 if movie j in series i was released after the #BLM in 2013, and 0 otherwise.

$$y_{ij} = \beta_0 + \beta_1 \times \text{Minority_increase}_{ij} \times \text{BLM}_t + \beta_2 \times X_{ij} + \gamma_t + \delta_i + \varepsilon_{it} \quad (2)$$

4. Results

4.1. Average Effect of Main Cast Racial Diversification on Movie Ratings

Table 1 presents the regression results as specified in Equation (1). The results show that the regression coefficients of *Minority_increase* are negative and significant, revealing a decrease in ratings after a movie racially diversifies its main cast. The results are consistent across all dependent variables.

4.2. Average Impact of #BLM on the Effect of Racial Diversification

Table 2 presents the results as specified in Equation (2). Columns (1) to (3) include the DID variable (i.e., *Minority_increase*), #BLM, and their interaction term (i.e., a Difference in Difference in Difference variable). Regressions reveal a significant positive interaction effect of #BLM and racial diversification. The results are consistent across all four dependent variables. We apply simple slope analysis to further dissect the interaction effect¹. Results show that before #BLM, increasing non-white actors in the main cast significantly decreases movie ratings ($b = -14.862$, $p < 0.01$), while such a negative effect is attenuated after #BLM ($b = 2.231$, n.s.). These results confirmed that #BLM significantly mitigates the evaluative bias against racial minorities.

4.3. Heterogeneous Effects of #BLM and Potential Mechanisms

4.3.1. Heterogeneity effect based on the series type. We first explore whether the de-biasing effect of #BLM is contingent upon series types. We categorize series into two types based on the extent to which their narrative represents or excludes racial minorities. Specifically, we categorize a series as mainstream-narrative if its first movie has an all-White main cast. By contrast, a series is considered inclusive narrative if its first movie has at least one minority main cast member. The audiences of inclusive series may be more diverse than white-dominant series. The shock of adding racial minority actors may differentially affect the two types of series and their corresponding audience groups.

¹ For the simple slope analysis, we use RT expert ratings as the outcome variable. As results are qualitatively similar across the four ratings, we only report one to be succinct.

Table 1. Impact of main cast racial diversification on movie ratings

DV	(1) RT expert	(2) RT audience	(3) IMDb
Minority increase	-7.142** (2.825)	-4.289* (2.174)	-0.262*** (0.094)
Avg director award count	0.083 (0.060)	-0.025 (0.060)	0.001 (0.002)
Avg director RT ratings	-0.062 (0.074)	-0.066 (0.058)	-0.001 (0.003)
Avg main cast award count	-0.069 (0.065)	-0.077* (0.044)	-0.000 (0.002)
Avg main cast RT ratings	0.017 (0.155)	0.083 (0.117)	0.003 (0.005)
Competition	-0.003 (0.002)	-0.004** (0.002)	-0.000 (0.000)
Distributor change	-12.615*** (3.887)	-7.646*** (2.791)	-0.367*** (0.124)
log(budget)	-5.164*** (1.859)	-2.900*** (1.071)	-0.153*** (0.053)
Constant	150.943*** (33.738)	122.940*** (21.422)	9.639*** (0.954)
Year FE	Yes	Yes	Yes
Genre FE	Yes	Yes	Yes
Distributor FE	Yes	Yes	Yes
Series FE	Yes	Yes	Yes
Observations	434	434	434
R-squared	0.377	0.448	0.457
Number of Series	173	173	173

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 2. The interactive effect of racial diversification and #BLM on audience evaluations

DV	(1) RT expert	(2) RT audience	(3) IMDb
Minority increase	-14.862*** (4.142)	-9.785*** (2.993)	-0.489*** (0.132)
Minority increase × #BLM	17.093*** (5.570)	12.169*** (4.428)	0.503*** (0.184)
Constant	160.402*** (32.620)	129.675*** (21.386)	9.918*** (0.952)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Genre FE	Yes	Yes	Yes
Distributor FE	Yes	Yes	Yes
Series FE	Yes	Yes	Yes
Observations	434	434	434
R-squared	0.401	0.470	0.475
Number of Series	173	173	173

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Specifically, we aim to explore whether the positive impact of #BLM on reducing bias against minorities is due to (a) more tolerant and appreciative (mainly white) audiences of historically mainstream narrative series, or (b) higher ratings of inclusive series (likely from minority audiences) after #BLM.

We run equation (2) on the subsample of the mainstream and the inclusive series separately, and find that the interaction effect (i.e., *Minority_increase*×#BLM) is only observed among mainstream narrative series (table 3). These results imply that #BLM promotes racial equity by increasing appreciation of and reducing bias towards minorities

Table 3. Subset analysis: based on series type

DV	(1)	(2)	(3)	(5)	(6)	(7)
	RT expert	RT audience	IMDb	RT expert	RT audience	IMDb
	Mainstream series			Inclusive series		
Minority increase	-12.520*** (4.415)	-11.421*** (3.764)	-0.445*** (0.167)	-2.945 (11.040)	3.935 (5.168)	-0.027 (0.287)
Minority increase × BLM	11.302* (6.511)	13.611** (5.425)	0.367* (0.220)	11.124 (13.585)	11.746 (8.518)	0.242 (0.347)
Constant	202.133*** (31.737)	132.470*** (27.692)	10.457*** (1.044)	52.049 (71.072)	75.430 (45.818)	10.077*** (2.409)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Genre FE	Yes	Yes	Yes	Yes	Yes	Yes
Distributor FE	Yes	Yes	Yes	Yes	Yes	Yes
Series FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	290	290	290	144	144	144
R-squared	0.508	0.533	0.579	0.735	0.793	0.752
Number of Series	112	112	112	61	61	61

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 4. Subset analysis: based on actor credential

DV	(1)	(2)	(3)	(5)	(6)	(7)
	RT expert	RT audience	IMDb	RT expert	RT audience	IMDb
	High credential minority actors			Low credential minority actors		
High	-17.347*** (5.517)	-11.986** (4.634)	-0.678*** (0.148)			
BLM × High	20.015*** (7.349)	17.705*** (6.311)	0.920*** (0.217)			
Low				-9.938** (4.641)	-5.148 (3.416)	-0.389** (0.172)
BLM × Low				9.462 (6.378)	1.651 (5.390)	0.243 (0.241)
Constant	171.224*** (33.835)	135.362*** (20.626)	10.334*** (0.988)	179.711*** (30.922)	90.132*** (11.705)	10.200*** (1.043)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Genre FE	Yes	Yes	Yes	Yes	Yes	Yes
Distributor FE	Yes	Yes	Yes	Yes	Yes	Yes
Series FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	397	397	397	403	403	403
R-squared	0.436	0.480	0.520	0.402	0.372	0.489
Number of Series	173	173	173	173	173	173

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

among audiences of historically mainstream series. Put differently, these results are consistent with the possibility that the bias mitigation effect of #BLM is mainly due to increased receptivity towards racial minorities from the mainstream audiences.

4.3.2. Heterogeneity effect based on actor credential.

Next, we investigate whether the evaluative bias against minority actors is contingent on their credentials, and

whether such bias might have changed after #BLM. To do so, we identify the credentials of the added minority actors in each movie by looking at the average RT expert ratings of each actor's previous films. We create a categorical variable according to the added minority actors' credentials, based on the mean score of all actors in our dataset. This categorical variable takes the value of 1 if the added minority actors' credentials is above the sample mean (i.e., high credential), and 0 otherwise

Table 5. Subset analysis: based on director credentials

DV	(1)	(2)	(3)	(5)	(6)	(7)
	RT expert	RT audience	IMDb	RT expert	RT audience	IMDb
	High credential directors			Low credential directors		
High	-6.877 (5.641)	-2.737 (4.575)	-0.167 (0.197)			
BLM × High	17.597*** (6.628)	12.913** (5.489)	0.400* (0.232)			
Low				-11.723*** (4.292)	-11.000*** (3.307)	-0.505*** (0.132)
BLM × Low				9.283 (6.003)	7.537 (4.867)	0.308 (0.206)
Constant	167.032*** (35.890)	129.696*** (21.652)	10.083*** (0.979)	161.830*** (28.868)	124.580*** (19.501)	9.733*** (0.928)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Genre FE	Yes	Yes	Yes	Yes	Yes	Yes
Distributor FE	Yes	Yes	Yes	Yes	Yes	Yes
Series FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	388	388	388	389	389	389
R-squared	0.413	0.473	0.482	0.472	0.530	0.531
Number of Series	172	172	172	172	172	172

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

(i.e., low credential).

Despite the fact that minority actors, on average, have lower credentials than white actors, we do not find a significant decline in the minority actors' credentials after #BLM. This suggests that #BLM does not lead movie production teams to include more rookie minority actors as tokens.

We test the different effects of adding high and low credential minorities on movie ratings, before and after #BLM. Columns (1)-(4) in Table 4 show that, when the added minority actors have high credentials, the negative effect of racial diversification is significantly reduced by #BLM, as indicated by significant and positive regression coefficients for the interaction term #BLM × High. However, when the added minority actors are from the low credential group, the regression coefficients of the interaction term #BLM × Low are not significant. This suggests that the effects of adding low credential minority actors on audience ratings are not significantly different after #BLM, relative to before #BLM.

In sum, results show that #BLM affects high and low credential minority actors differentially, such that the high (vs. low) credential group is more likely to benefit from #BLM. These results also indicate that audience evaluation of racially diversified movies might have become more objective after #BLM, as the degree of #BLM induced bias mitigation is tightly coupled with the added minority actors' capability.

4.3.3. Heterogeneity effect based on director credential. We now turn our attention to how the effects of #BLM may vary by director credential. For each focal film, we categorize its director(s)' credential level based on the average RT expert ratings of the films they have directed prior to the focal film. A director is considered from the high (vs. low) credential group if their average ratings are above (vs. below) the sample mean. We ran equation (2) on the two subsets separately. As shown in table 5, among the high credential directors, the regression coefficients of the interaction term *Minority_increase* × #BLM is significant and positive. However, among the low credential directors, the regression coefficients of the interaction term are not significant. This suggests that #BLM significantly reduces the evaluative bias against racially diversified movies if they are directed by high credential directors, but not when they are directed by low credential movies. That is, the extent to which #BLM benefits racially diversified movies might be contingent upon directors, such that high (vs. low) credential directors are more likely to successfully lead racial diversification and to take advantage of the favorable opportunities that arise from a changing societal environment.

These patterns can be taken to imply that directors' capabilities play a significant role in predicting movie performance in the context of racial diversification. To the extent that high competence directors are better able to integrate minority actors

into the movie production process and let them shine (instead of casting them merely as tokens), it stands to reason that the final products produced by these directors will be better accepted by the audience—the audience might be less likely to show racial bias or tokenism concerns. These advantages for the high competence directors are magnified by #BLM.

4.4. Robustness Checks

4.4.1. Relative film model. We test the parallel trends assumption by performing an analysis following Cui et al. (2022) and Greenwood & Wattal (2017), where we expand specification (1) to estimate the treatment effect movie by movie before and after the shock. The results show that the estimated coefficients for the interaction term before racial diversification are largely insignificant, verifying the parallel assumption, and those after racial diversification are generally negative and significant, supporting our main findings. The result table is omitted due to the space limit.

5. General Discussion

Using a difference-in-difference (DID) approach, the present research investigates how main cast racial diversification in series movies affects audience evaluations. Furthermore, we also consider whether and how such an effect can be altered by the new media enabled, high salience social movement of #BLM. Results show that on average, adding minority actors to the main cast suppresses quality ratings. This suggests that the evaluative bias against under-represented groups is a pervading fact facing the creative industry. More importantly, we also find that the negative effect of racial diversification on movie ratings is attenuated after #BLM, relative to before #BLM. These results show that a social movement that seeks to address inequality can, indeed, be powerful and lead to meaningful changes in public opinions.

We also probe the mechanisms underlying such changes by investigating the heterogeneity in how #BLM and racial diversification interact to predict movie quality evaluations. Our results suggest that the average de-biasing effect of #BLM is mainly driven by racially diversified movies that belong to historically white-dominant series, that cast minority actors with high-performance records, and that are directed by highly capable directors.

6. References

- Aldrich, E. M., Arcidiacono, P. S., & Vigdor, J. L. (2005). Do people value racial diversity? Evidence from Nielsen ratings. *The BE Journal of Economic Analysis & Policy*, 5(1).
- Amenta, E., Caren, N., Chiarello, E., & Su, Y. (2010). The political consequences of social movements. *Annual Review of Sociology*, 36, 287-307.
- Ashburn-Nardo, L., Thomas, K., & Robinson, A. J. (2017). Broadening the conversation: why black lives matter. *Equality, Diversity and Inclusion: An International Journal*.
- Aumer, K., Blas, D., Huston, K., Mabuti, C., & Hsu, N. (2017). Assessing racial preferences in movies: The impact of mere-exposure and social identity theory. *Psychology*, 8(09), 1314.
- Beckman, C. M., & Phillips, D. J. (2005). Interorganizational determinants of promotion: Client leadership and the attainment of women attorneys. *American Sociological Review*, 70(4), 678-701.
- Caren, N., Andrews, K. T., & Lu, T. (2020). Contemporary social movements in a hybrid media environment. *Annual Review of Sociology*, 46(1), 443-465.
- Cui, R., Ding, H., & Zhu, F. (2022). Gender inequality in research productivity during the COVID-19 pandemic. *Manufacturing & Service Operations Management*, 24(2), 707-726.
- De Vany, A., & Walls, W. D. (1999). Uncertainty in the movie industry: Does star power reduce the terror of the box office? *Journal of cultural economics*, 23(4), 285-318.
- Dwyer, C. (2018). What's an inclusion rider? Here's the story behind Frances McDormand's closing words. In: NPR.
- Faux, Z., Buhayar, N., Mehrotra, K. (2016, December 30). *Wells Fargo settles with brokers over claims of racial bias*. Bloomberg. <https://www.bloomberg.com/news/articles/2016-12-30/wells-fargo-settles-with-brokers-over-allegations-of-racial-bias>.
- Freelon, D., McIlwain, C. D., & Clark, M. (2016). Beyond the hashtags: # Ferguson, # Blacklivesmatter, and the online struggle for offline justice. *Center for Media & Social Impact, American University, Forthcoming*.
- George, L., & Waldfogel, J. (2003). Who affects whom in daily newspaper markets? *Journal of Political Economy*, 111(4), 765-784.
- Gorbatai, A., Younkin, P., & Burtch, G. (2021). Collateral Damage: The Relationship Between High-Salience Events and Variation in Racial Discrimination. *Organization Science*.
- Greenwood, B. N., & Wattal, S. (2017). Show Me the Way to Go Home: An Empirical Investigation of Ride-Sharing and Alcohol Related Motor Vehicle Fatalities. *MIS Q.*, 41(1), 163-187.
- Hamilton, B. H. (1997). Racial discrimination and professional basketball salaries in the 1990s. *Applied Economics*, 29(3), 287-296.
- Hebl, M. R., & Avery, D. R. (2013). *Diversity in organizations*. John Wiley & Sons, Inc.

- Horn, J. (2002). A majority audience for 'minority' films. *Los Angeles Times*, 16.
- Kanter, R. M. (1977). Some effects of proportions on group life. In *The gender gap in psychotherapy* (pp. 53-78). Springer.
- Kim, M. H. (2013). Determinants of revenues in the motion picture industry. *Applied Economics Letters*, 20(11), 1071-1075.
- Kuppuswamy, V., & Younkin, P. (2020). Testing the theory of consumer discrimination as an explanation for the lack of minority hiring in Hollywood films. *Management Science*, 66(3), 1227-1247.
- Leigh, A., & Melwani, S. (2019). #BlackEmployeesMatter: mega-threats, identity fusion, and enacting positive deviance in organizations. *Academy of Management Review*, 44(3), 564-591.
- Loader, B. D. (2008). Social movements and new media. *Sociology Compass*, 2(6), 1920-1933.
- Luo, H., & Zhang, L. (2022). Scandal, social movement, and change: Evidence from # MeToo in Hollywood. *Management Science*, 68(2), 1278-1296.
- Luo, X. R., Zhang, J., & Marquis, C. (2016). Mobilization in the internet age: Internet activism and corporate response. *Academy of Management Journal*, 59(6), 2045-2068.
- McDonnell, M.-H., King, B. G., & Soule, S. A. (2015). A dynamic process model of private politics: Activist targeting and corporate receptivity to social challenges. *American sociological review*, 80(3), 654-678.
- Pager, D., & Shepherd, H. (2008). The sociology of discrimination: Racial discrimination in employment, housing, credit, and consumer markets. *Annual review of sociology*, 34, 181.
- Pope, D. G., & Sydnor, J. R. (2011). What's in a Picture? Evidence of Discrimination from Prosper. com. *Journal of Human resources*, 46(1), 53-92.
- Roy, W. G. (2004). "Race records" and "hillbilly music": institutional origins of racial categories in the American commercial recording industry. *Poetics*, 32(3-4), 265-279.
- Samuels, A., & Leland, J. (1999). They've got next: Today's young Black pack learns to stand up against the same old Hollywood hang-ups—and the new box-office jitters caused by "Beloved." *Newsweek*, 58-60.
- Shore, L. M., Chung-Herrera, B. G., Dean, M. A., Ehrhart, K. H., Jung, D. I., Randel, A. E., & Singh, G. (2009). Diversity in organizations: Where are we now and where are we going? *Human resource management review*, 19(2), 117-133.
- Smith, S. L., Choueiti, M., & Pieper, K. (2016). Inclusion or invisibility? Comprehensive Annenberg report on diversity in entertainment. *Institute for Diversity and Empowerment at Annenberg*, 22.
- Solal, I., & Snellman, K. (2019). Women don't mean business? Gender penalty in board composition. *Organization Science*, 30(6), 1270-1288.
- Sood, S., & Drèze, X. (2006). Brand extensions of experiential goods: Movie sequel evaluations. *Journal of Consumer Research*, 33(3), 352-360.
- Tongco, T. (2016, July 2). *5 Ways Movies Fake Racial Diversity*. <https://archive.attn.com/stories/8505/ways-movies-fake-racial-diversity>.
- Weaver, A. J. (2011). The role of actors' race in white audiences' selective exposure to movies. *Journal of Communication*, 61(2), 369-385.
- Weiland, K. M. (2013, December 29). *How Many Characters Should You Include in Your Story?*. Helping Writers Become Authors. <https://www.helpingwritersbecomeauthors.com/how-many-characters-include-story/>.
- White, A. (2017, August 28). *How can TV and movies get representation right? We asked 6 Hollywood diversity consultants*. Vox. <https://www.vox.com/culture/2017/8/28/16181026/hollywood-representation-diversity-tv-movies>.
- Wilson II, C. C., Gutiérrez, F., & Chao, L. (2012). *Racism, sexism, and the media: Multicultural issues into the new communications age*. Sage Publications.