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Race, Inequality, and Social Capital in the U.S. Counties

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Abstract

This study examines how the interplay between racial diversity and economic inequality affects variations of social capital in the U.S. counties. In general, racial and economic heterogeneity is assumed to provide a negative environment for the growth of social capital. Building on this, we argue the effect of economic inequality is weaker than that of racial diversity because increased economic heterogeneity is felt less visibly and acutely than racial heterogeneity. Moreover, economic inequality can positively condition the adverse impact of racial diversity on social capital when the two interact. Based on the crosscutting cleavages theory, income inequality in a racially fragmented community works as an additional cleavage that crosscuts the different racial groups, mitigating the negative impact of racial diversity on social capital. The data analysis of 3,140 U.S. counties in 2009-2014 provides strong evidence for our arguments. Our findings offer important implications in understanding inequality, race and American democracy.

Key words: social capital, racial diversity, income inequality, U.S. counties, American democracy

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Understanding the dynamics of social capital is critical to a wide spectrum of theories on the quality of democracy and economic development. Within extant research, social capital, whose core value resides in extensive trustworthiness and interpersonal trust, is shown to increase government responsiveness, productivity, efficiency, and even the psychological well-being of individuals (Coleman, 1988; Fukuyama, 2001; Kawachi, Kennedy, & Glass, 1999; Knack, 2002; Knack & Keefer, 1997; Putnam, 1995, 2001). Although myriad studies examine the "social capital hypothesis"—the positive externalities of social capital, relatively fewer scholarly inquiries have been made on what promotes or depresses social capital. Based on the insights from the existing studies that examine social capital as a dependent variable, one can note that racial diversity and income inequality have received the most attention from researchers. In the context of the U.S., for instance, both factors have been proven to negatively affect social capital (Hero, 2003; Hero & Tolbert, 1996; Putnam, 2007; Stolle, Soroka, & Johnston, 2008; Uslaner, 2004; Uslaner & Brown, 2005).

Although these prior studies provide insightful findings on the relationships between racial/economic heterogeneity and social capital, they have largely ignored three important aspects. First, they are not quite clear about specific mechanisms of how racial diversity and income inequality affect social capital. For instance, we do not know much about whether the two factors depress social capital with the same magnitude and if not, which of the two has a more prevailing effect. Moreover, how these factors interact and affect social capital when combined together remains largely unknown in the literature. Second, the existing studies do not offer much in regards to how racial and economic heterogeneity affects different types of social capital—bonding and bridging. Researchers have raised the importance of differentiating these

two types of social capital, but there have not been many empirical attempts successfully made to address this issue (see Putnam, 2001).

Third, the level of analysis often remains at aggregate levels such as the national, the state or provincial level or at the individual level. Mid-level analyses such as communities, cities, and counties are relatively rare and the existing studies are limited to select samples of cities or neighborhoods (Coffé & Geys, 2006; Letki, 2008; Marschall & Stolle, 2004; Oliver & Wong, 2003). Given that social capital concerns a face-to-face interaction and engagement in a "community," the lack of mid-level analyses in the research of social capital is surprising. In this article, we attempt to fill these intellectual gaps by investigating how the interplay between racial diversity and income inequality affects variations of social capital, focusing on the U.S. counties.

The purpose of this article is twofold. First, it aims to clarify the theoretical mechanisms of how racial diversity and income inequality affect social capital, first exogenously and second interactively. Based on the recent studies that show many people do not correctly perceive the cue of economic inequality (Chambers, Swan, & Heesacker, 2014; Gimpelson & Treisman, 2018), we argue that the negative effect of income inequality on social capital should be weaker than that of racial diversity. Moreover, drawing from the "crosscutting cleavages theory" (Dahl, 1956; Lipset, 1960; Lipset & Rokkan, 1967; Powell, 1976), we assert that income inequality can positively condition the impact of racial diversity on social capital when the two interact. Also, by tapping into different types of social capital, namely bonding and bridging social capital, we examine how racial diversity and income inequality affect social capital differentially or similarly.

Second, this article attempts to subject our theoretical expectations to rigorous empirical tests that are conducted at the U.S. county level. Although racial diversity and income inequality

have received ample scholarly attention, only a few studies have empirically tested both together in their analyses and even fewer have explored their interaction effects (e.g., Alesina & La Ferrara, 2000; Leigh, 2006; Paarlberg, Hoyman, & McCall, 2018; Rupasingha, Goetz, & Freshwater, 2006). In addition, unlike many other studies conducted at state- or country-levels, or individual levels, this article sheds light on the effect of racial diversity and income inequality on social capital at a mid-level, focusing on U.S. counties. By examining 3,140 U.S. counties in 2009-2014, this study contributes to the literature by clarifying the multifaceted relationships between racial/economic heterogeneity and social capital and providing rigorous empirical analysis in the comprehensive cross-sectional time-series setting.

Social Capital and the "Homophily" Principle

To define social capital is a challenging task due to the diverse perspectives and lack of consensual theoretical framework in the literature (Sobel, 2002). According to Coleman (1988) and Bourdieu (1986), social capital is an inherently unobservable asset that accrues on the network of relationships among individuals. This asset is labeled "social capital" as individuals through engaging with others can utilize it and enjoy tangible benefits out of it. For example, individuals with extensive associations have wider access to information and are likely to have more support networks than those who do not bond with others. Putnam (1995) clarifies the concept by defining it as "networks, norms, and trust that enable participants to act together more effectively to pursue shared objectives" (pp. 664-665).

Many scholars view social capital as an invaluable social asset as they believe it creates a number of positive externalities. For instance, some scholars contend that social capital promotes economic development by reducing transaction costs and promoting trust and civic cooperation

(Fukuyama, 2001; Knack & Keefer, 1997). In the political realm, most notably Putnam (1993, 1995) argues that social capital improves government performance, cultivates public-spirited citizenry, and thus makes democracy work. Numerous studies test and reaffirm the positive relationship between social capital and democracy cross-nationally (Boix & Posner, 1998; Keele, 2007; Krishna, 2002; Newton, 2001; Paxton, 2002; Seligson, 1999).

However, there is a caveat to this "social capital hypothesis." Some studies uncover the dark side of social capital and question the belief that social capital is the elixir to cure all social ills. For example, Putzel (1997) argues that social capital might be a contributing factor for economic development, but its utility for democracy is questionable. Uribe (2014) further asserts that networks of trust facilitate corruption. In the context of the U.S., Hero (2003, 2007) and Hawes and Rocha (2011) find inverse relations between social capital and policy equity between white and African American populations. Relatedly, Hawes (2017) finds that social capital encourages punitive attitudes toward racial minorities, resulting in increased incarcerations for African Americans. In their study of the rise of Nazi Party in Germany, Satyanath, Voigtlander, and Voth (2017) confirm that higher associational density in towns was positively associated with faster Nazi Party entry.

Despite these critiques, social capital is still viewed more as a desirable asset than as an evil one. Due to its wide utility and implications, researchers of various fields have extensively explored the effects of social capital. Relatively speaking, however, less scholarly attention has been paid to what accounts for the formation of social capital with a few exceptions (e.g., Brehm & Rahn, 1997; Freitag, 2006; Kumlin & Rothstein, 2005; Valdivieso & Villena-Roldan, 2014). The prevailing assumption in the literature can be summarized in the "homophily principle." It stipulates that "people prefer to interact with others who share the same ethnic heritage, have the

same social status and hence share experiences and tastes" (Tolsma, Van der Meer, & Gesthuizen, 2009: 287). According to the homophily principle, social homogeneity encourages a notion of a shared fate among individuals and thus provides a favorable environment for the growth of social capital.

In understanding the impact of social homogeneity on social capital, the extant literature guides us to focus on two important factors: racial diversity and income inequality. First, racial diversity is known to be adverse to social capital. Putnam (2001, 2007) argues that high racial diversity, specifically immigration, leads people to distrust others and this occurs not only toward those of other racial/ethnic backgrounds, but also of the same race. According to him, racial diversity reduces solidarity, causes people to "hunker down," and reduces their interactions with each other. The negative relationship between racial heterogeneity and social capital enjoys solid empirical support in the literature (e.g., Fieldhouse & Cutts, 2010; Gesthuizen, Van der Meer, & Scheepers, 2009; Hero, 2003; Knack & Keefer, 1997; Letki, 2008; Stolle et al., 2008; Sturgis, Brunton-Smith, Kuha, & Jackson, 2014, to name a few). Following this dominant view, we believe that racial diversity lowers social capital in U.S. counties. The effect of racial diversity is direct and visible in the local setting. An increase in racial diversity can easily be detected by inhabitants, and it can give rise to a heightened level of heterogeneity and multicultural diversity. The feeling of distinctness and foreignness can, in turn, erode solidarity, and ultimately, social capital.

Similar to the effect of racial diversity, the existing research suggests that income inequality weakens social bonds in general. A considerable gap among different income strata makes it hard for the sense of shared fate to grow, which hinders the growth of social capital. Many studies find evidence that supports the negative relationship between income inequality

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and social capital, and its unfavorable consequences (Kawachi et al., 1997; Siahpush et al., 2006; Uslaner, 2004; Uslaner & Brown, 2005, Wright, 2015). However, it does not enjoy unanimous empirical support the way that racial diversity's impact upon social capital does. A few studies find weak or no relationships between income heterogeneity and social capital at all. For instance, Rupasingha et al. (2006) find that income inequality lowered social capital in U.S. counties between 1990 and 1997, but not during the 1980-1990 period. Fairbrother and Martin (2013) confirm that income inequality explains the variation of social capital across the U.S. states, but fail to find evidence for its longitudinal variation. Further, they do not find any significant relationship between income inequality and social capital at the county level.

Connecting Racial Diversity and Income Inequality

Then, how does the interplay between racial diversity and economic inequality affect variations of social capital in the U.S. counties? Considering both, which one has a larger effect on a stock of social capital? How does the interaction of the two affect social capital? In this section, we develop theoretical expectations to address these questions.

First, unlike prior studies that treat income inequality and racial diversity the same as if they had an equally negative impact on social capital (Alesina & La Ferrara, 2000; Leigh, 2006; Rupasingha et al., 2006), we argue that the impact of income inequality is weaker than that of racial diversity. Increased income inequality and the sense of heterogeneity generated by it are less visible and perceivable than increased racial diversity in general. Supporting this point, recent studies show that many people do not correctly perceive the cue of economic inequality (Chambers et al., 2014; Gimpelson & Treisman, 2018). For instance, Norton and Ariely (2011) claim that Americans tend to feel the U.S. is more egalitarian than it actually is. Also, opinion

polls and statistics suggest most Americans believe they are middle class and this pattern is consistent over time despite rapidly increasing inequality in the country during the past decades (Pew Research, 2015). In other words, these studies suggest that there are discrepancies between actual and perceived income inequality. We believe this explains the weaker empirical support regarding the relationship between income inequality and social capital in the literature to some extent.

In contrast, the visual cue of increased racial diversity is less ambiguous. For instance, according to the racial threat literature, the size of minority groups that are physically present in a community is known to be the primary factor that activates racial consciousness and forms certain racial attitudes. For this reason, we believe that the magnitude of heterogeneity generated by income inequality can be less prominent than that by racial diversity and thus, the former erodes social capital less strongly than does the latter.

H1: The negative effect of income inequality on social capital is weaker than that of racial diversity in U.S. counties.

Second, we believe that the types of social capital—bonding and bridging—that are affected by racial diversity and income inequality are different as well. Previous research suggest that it is important to consider bonding and bridging social capital separately in order to understand the nature of social capital accurately (Coffé & Greys, 2007; Knack, 2003; Patulny & Svendsen, 2007; Putnam, 2001; Woolcock & Narayan, 2000). Despite our conviction that racial diversity significantly undermines the stock of social capital, we acknowledge that there could be another possibility as suggested by the racial threat hypothesis. The racial threat hypothesis

suggests a dominant racial group becomes more hostile as the size of minority groups increases (Oliver & Wong, 2003). As racial diversity increases in a neighborhood, more individuals of the majority group feel their existing privilege is threatened and this leads them to become race-conscious and develop punitive policy attitudes towards out-groups (Blalock, 1967; Giles & Buckner, 1993; Key, 1949; Tolbert & Grummel, 2003). In other words, rising racial diversity encourages them to develop in-group identity along with out-group hostility and incentivizes them to think and act collectively with others of the same race. Therefore, racial diversity might increase in-group or bonding social capital while out-group or bridging social capital remains low (Putnam, 2001, 2007). Therefore, we arrive at a second hypothesis.

H2: Racial diversity increases bonding social capital but decreases bridging social capital in U.S. counties.

Third, we advance further predictions on how racial and economic heterogeneity affects social capital by considering their interaction effects. We share the view that the impact of racial and economic heterogeneity on social capital is complex (Finseraas & Jakobsson, 2012; Paarlberg et al., 2018). Therefore, it is important to recognize the multidimensionality of their influence on the stock of social capital. Considering this point, we argue that when income inequality and racial diversity interact in society, they work as crosscutting cleavages that intersect each other, moderating the intensity of one dominant cleavage. This argument is in line with the crosscutting cleavages theory (Dahl, 1956; Lipset, 1960; Lipset & Rokkan, 1967; Powell, 1976). According to this theory, individuals of the same group on one dimension of identity such as race or ethnicity, by sharing memberships of different groups on other

dimensions such as social class, can dilute their allegiance to the primary identity. Thus, the crosscutting cleavages and interests arising thereof can prevent polarization along one primary line of cleavage and induce social cohesion. For instance, Dunning and Harrison (2010) confirm the theory showing that although ethnic identity is the predominant cleavage in Mali, because of the other crosscutting ties, called "cousinage," the political intensity of ethnic cleavages is mild compared to other Sub-Saharan neighbors with similar levels of ethnic fractionalization. Similarly, Bossuroy and Selway (2011) find evidence that the salience of caste in India is diminished when individuals share religious identities with those from different castes.

Blau and his colleagues offer in-depth explanations about the mechanism of the crosscutting cleavages theory. They argue that crosscutting social circles, defined notably by race, nationality, socioeconomic status, and age, for instance, promote intergroup associations because multiple intersection of social differences imposes constraints for individuals to stick to their predominant in-group tendencies and ignore others (Blau, 1977; Blau et al., 1982, 1984; Sampson, 1984). Therefore, in a society with high levels of heterogeneity where multiple salient cleavages coexist by definition, individuals are likely to be exposed to out-groups on one dimension, but at the same time they are found to be in-groups on other dimensions. These intersecting social circles work as a counterforce, mitigating prevailing social cleavages and further intergroup relations.

The insight from the crosscutting cleavages theory provides a new perspective regarding the combined effect of income inequality and racial diversity on social capital. The dominant view in the literature is that income inequality and racial diversity erode trust and social capital and this negative effect gets worse when these two factors coexist. However, we believe that is not the case. When combined, they counteract. Given the centrality of race as the dominant

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cleavage in American politics (Branton & Jones, 2005; Hero & Levy, 2016), income inequality is hypothesized to work as a cleavage that crosscuts racial divisions and thereby undercuts the salience of race. This, in turn, moderates the negative impact of racial diversity on social capital.

We further assert that income inequality in its interaction with racial diversity could provide a unique opportunity for its residents to develop bridging social capital across racial and ethnic groups and increase bonding between those within the similar income groups at the same time. In a racially fragmented county, when income inequality rises so severely that it triggers common anger and frustration among the members, then they may be incentivized to help each other and able to develop a newly defined sense of "we" or bounded solidarity along the income dimension. In short, high degrees of income inequality combined with racial diversity can be conducive to interracial ties as well as economic bonding. Therefore, this leads us to propose the following hypotheses.

> *H3: The negative effect of racial diversity on social capital formation is diminished as income inequality increases.*

> *H4: The combination of high income inequality and racial diversity increases both bonding and bridging social capital.*

Data and Analysis

To test the hypotheses discussed above, we collected data about 3,140 U.S. counties in 2009 and 2014. The dependent variable measures the level of social capital in each county following Rupasingha et al. (2006) who measured county-level social capital for both 1990 and 1997. The social capital index has been updated three more times for 2005, 2009, and 2014.

Unfortunately, however, the 1990s' measures became incomparable with the later index as they adopted a different associational typology for the 2000s' measures. Furthermore, the lack of data availability regarding other variables at the county-level limits the temporal scope of our study further. This leads us to incorporate only the two most recent waves of social capital data in our analysis.[4]

The social capital index has four different components. First, the index includes associational density measured at the county-level. Ten different types of associations were included: civic organizations, bowling centers, golf clubs, fitness centers, sports organizations, religious organizations, political organizations, labor organizations, business organizations, and professional organizations. All count variables were operationalized as the total number of these associations per 1,000 people in each county and added up to make an associational density variable. Second, three additional variables were included: (1) the turnout rates for the previous presidential election, (2) the response rate to the Census Bureau's decennial census, and (3) the number of non-profit organizations. Finally, the principal component of these four variables was extracted and used as an index of social capital. By removing a severe social-capital outlier,[5] the index varies from - 3.9 to 9.1 across the U.S. counties. To our knowledge, this is one of the most comprehensive measures of social capital in the existing literature while most previous research focuses on select components of social capital, such as generalized trust, social cohesion, or a sense of belonging (e.g., Dinesen & Sønderskov, 2015; Knack & Keefer, 1997; Leigh, 2006;

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[4] Other country-level variables used in our analysis are provided by the American Community Survey, which is available only since 2009. See for a source of county-level social capital data utilized in this study, https://aese.psu.edu/nercrd/community/social-capital-resources. Rupasingha, A., Goetz, S. J., and Freshwater, D. (2006, with updates), "The Production of Social Capital in U.S. Counties", *Journal of Socio-Economics*, 35, 83–101.

[5] Edgefield County in South Carolina scores 17.44 in 2009 and 21.8 in 2014 for social capital index.

Letki, 2008; Newton, 2001; Phan, 2008; Stolle & Rochon, 1998; Stolle, et al., 2008; Uslaner, 2004; Uslaner & Brown, 2005).

In measuring bonding and bridging social capital, we use proxies, named "Putnam-type" and "Olson-type" associations borrowing from Knack (2003) and Rupasingha et al. (2006). Putnam-type associations create social interactions designed to promote generalized trust, solidarity, cooperation, and public-spiritedness, having positive and generalized spillover effects in society. Among the 10 association variables mentioned above, the first six variables are coded as "Putnam-type" associational density. We use this variable as a proxy for bridging social capital. Olson-type associations have the "propensity of associations to act as special interest groups that lobby for preferential policies, imposing disproportionate costs on the rest of society" (Knack, 2003: 341). Rupasingha et al. (2006) refer to these associations as rent-seeking organizations. As the nature of Olson-type associations is proximate to the concept of in-group bonding or particularized trust, we use this as a proxy for bonding social capital in our analysis. The last four variables of the 10 association variables in our data are coded as "Olson-type" associational density (see, Rupasingha et al., 2006).

Following Alesina et al. (1999), we measure racial diversity with the index of ethnic fractionalization. This index measures the probability that two randomly chosen people in a county are from different ethnic groups. We can calculate this index as one minus the sum of the squares of the proportion of each race relative to the population of the county. Using seven categories of racial groups,[6] our racial/ethnic diversity index varies from 0 to .77. A higher value indicates a higher level of racial/ethnic diversity. To measure the level of inequality, we adopt

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[6] The seven categories include non-Hispanic White, Hispanic, Black, American Indians, Asian, Pacific Islander, and others.

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the Gini index, which is the most popular measure of income inequality. 0 means the perfectly equal distribution of wealth while 1 signifies maximum inequality where one person owns everything in a county. The county-level Gini coefficients, provided by the U.S. Census Bureau, ranges from .21 to .65.

Some important control variables are also included in our analysis. First, we include variables to control for the degree of urbanization. It is conventional wisdom that metropolitan areas are unfavorable for the growth of social capital (Fairbrother & Martin, 2013; Rupasingha et al., 2006). Following the Rural-Urban Continuum Codes defined by the U.S. Department of Agriculture, we create two dummy variables for metro (originally coded as 1, 2, and 3) counties and rural (originally coded as 7 and 9) counties each with an urban population less than 20,000 and not adjacent to a metro area. By using suburban counties (originally coded as 4, 5, 6, and 8) as a reference category,[7] we expect the metro area variable to have a negative effect on social capital while the rural area variable has a positive effect. Relatedly, one might consider controlling for the size of county population. However, as it highly correlates with the urbanization variable, we decide not to include it in our model. The replacement of urbanization with county population in our analysis does not change results.

Second, we also control for income and education of counties. For measuring the county-level income, we employ the natural logarithm of average household income. Educational attainment is measured by the proportion of individuals who have at least some college education per county. In our sample, the education variable varies from 0.18 to .89. Although both education and income are expected to have a positive influence on social capital, we cannot

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[7] These are counties that either have urban population more than 20,000 or are located adjacent to a metro area.

estimate their effects simultaneously as their correlation is about .71 in our data. Therefore, we run separate models using education and income.

Third, it is necessary to consider the movement of people. Undoubtedly, interpersonal relationships, associational life, and civic or communal engagement should be negatively affected by heavy flows of people coming and leaving. Utilizing the American Community Survey data set provided by the U.S. Census Bureau, we measure the percentage non-migratory population in each county over the two periods. The non-mover rates range between 0.48 and 0.99. As the variable is a proxy for the residential attachment to the community, it is expected to have a positive impact on our dependent variable. Fourth, we include female labor market participation rates. Its theoretical expectation is ambiguous. On the one hand, we believe its effect might be negative as the traditional role of women in social capital formation at the neighborhood level decreases simply because women no longer stay home. On the other hand, women's active participation in the labor market might vitalize their associational life and form social capital in their workplace. Thus, instead of making a particular prediction regarding its effect, we leave it open until we discuss our findings from the empirical analysis. Lastly, following Rupasingha et al. (2006), we also include the proportion of family households out of entire households in each county. Based on Rupasingha et al. (2006), this variable is expected to have a positive effect on social capital.

In order to test the hypotheses proposed in this article rigorously, we employ a multivariate regression estimation for the cross-sectional analysis of social capital given that the dependent variable is continuous, and the number of observations is large enough. However, since a simple structure of an error term in the multivariate regression analysis might not be able to capture the multifaceted structure of social capital, we adopt a multilevel modeling (MLM)

approach to address this concern. Above all, MLM can account for the variation of social capital across the states in our estimation as 3,140 counties are exclusively clustered into 50 states. Ignoring this multilevel structure of the data set would be a serious violation of regression assumptions and would lead to incorrect standard errors (Gelman & Hill, 2007; Snijders & Bosker, 2011; Steenbergen & Jones, 2002). We directly deal with this issue by estimating this multilevel structure of error terms with MLM.[8] Since our analysis includes two time points, we include a year fixed effect for 2014.

$$Social\ Capital_{ij} = \gamma_{00} + \gamma_{10}\,Diversity_{ij} + \gamma_{20}\,Inequality_{ij} + \gamma_{30}\,Urban_{ij} + \gamma_{40}\,Rural_{ij}$$

$$+\ \gamma_{50}\,Income_{ij} + \gamma_{60}\,Non\text{-}migration_{ijk} + \gamma_{70}\,Female\text{-}workforce + \gamma_{80}\,Family\text{-}household_{ij}$$

$$+\ \gamma_{90}\,Diversity \times Inequality_{ij} + \gamma_{100}\,Year2014_{ij} + r_{0j}$$

, where the individual county is denoted i in each state j and two separate error terms contained for both county (γ_{00}) and state (r_{0j}).

Results

The results are presented in Table 1. According to Model 1, conforming to the conventional wisdom, racial diversity reduces social capital as its coefficient is negative and statistically significant at .01 level. To one's surprise, however, income inequality turns out to have a positive effect on the amount of social capital in the U.S. counties. This finding is in stark contrast to the prevailing argument in the literature. Admittedly, it is difficult to understand this

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[8] As all variables are measured at the county level, one might see that a regression analysis with state fixed effects is a more straightforward option. Theoretically, this method is identical to the MLM with a random intercept model adopted in this paper. However, we believe the MLM with a random intercept is a more rigorous empirical technique that controls for the variations of the dependent variable across the states. As we can see in Table A.2 in the appendix, the regression coefficients are slightly different from Table 1. However, it does not change the conclusions we are making here.

surprising positive relationship between income inequality and social capital. Perhaps, we can find a clue from Solt (2011) that asserts economic inequality drives a society to adopt various ideological tools such as the "American dream" and diversionary nationalism to maintain the legitimacy of the existing socioeconomic and political structure. Based on his view, solidarity can be boosted in society albeit artificially as income inequality gets intensified.

Table 1. The Effect of Racial and Economic Heterogeneity on Social Capital: MLM results

	Model 1	Model 2
Racial diversity	-1.618***	-6.160***
	(0.098)	(0.782)
Economic inequality	2.163***	-1.048
	(0.419)	(0.689)
Urban	-0.438***	-0.439***
	(0.029)	(0.029)
Rural	0.524***	0.534***
	(0.029)	(0.029)
Income	0.657***	0.655***
	(0.091)	(0.091)
Non-migration	3.249***	3.039***
	(0.272)	(0.274)
Female workforce	3.987***	3.863***
	(0.242)	(0.243)
Family household	-1.700***	-1.493***
	(0.275)	(0.276)
Year 2014	-0.076***	-0.066***
	(0.024)	(0.024)
Diversity × Inequality		10.383***
		(1.773)
Constant	-12.365***	-10.805***
	(0.871)	(0.909)
Number of counties	6,233	6,233
Number of states	50	50

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Model 2 specifies the interaction between racial diversity and economic inequality. The results provide some interesting findings. First, its baseline term (negative at .01 level) suggests when a county is perfectly egalitarian (Gini index = 0), racial diversity works negatively for the formation of social capital. Second, however, the base term of economic inequality does not reach the statistical significance at the conventional level. In other words, when a county is perfectly racially homogeneous (Diversity index= 0), we cannot confidently say that inequality reduces the amount of social capital. At the same time, its standardized coefficient presented in Table A.2 is much weaker than the base term of diversity. In sum, the findings from Model 1 and Model 2 provide partial evidence for Hypothesis 1. In racially homogenous counties, the effect of income inequality is found to be almost nonexistent.

More interestingly, the interaction term suggests that racially diverse counties create more social capital as they become more economically unequal. Put differently, the negative effect of racial diversity on social capital is offset by economic inequality, confirming Hypothesis 3. The results are robust either by substituting the diversity index with the minority group size (Table A.3) or controlling for the minority group size (Table A.4). All results are shown in the Appendix. This finding provides a new perspective contrary to the existing literature, which assumes both racial and economic heterogeneity negatively affects social capital and these two factors combined should further reduce social capital. Our finding suggests that the working of racial diversity and income inequality is more complex than commonly assumed. As the interpretation of the multiplicative interaction term should be handled carefully, we scrutinize the conditional relationship between these variables more closely (Brambor et al., 2006; Braumoeller, 2004; Solt et al., 2014).

Figure 1. The Interaction between Inequality & Diversity: the Marginal Effects
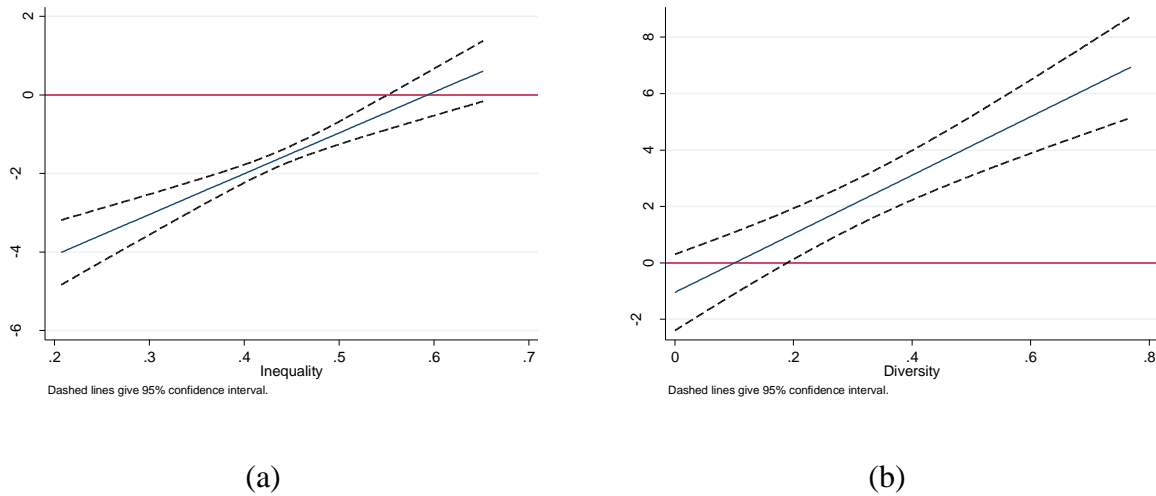

(a)

(b)

Figure 1 displays the marginal effects of both racial diversity and inequality on the

formation of social capital. We also visualized the interactions with the predicted values of social

capital and presented in the Appendix. By taking the partial derivative of the equation with

respect to the independent variable of interest, Figure 1 presents how the marginal effects change

as the moderating variable changes its value from the minimum to the maximum. In support of

the discussion above, Figure 1(a) shows that in a county with a homogenous distribution of

income, the effect of racial diversity on social capital is negative and statistically significant. As

the distribution of income gets more and more unequal, the negative effect of racial diversity

becomes effectively mitigated, but its effect becomes statistically insigificant beyond ineqaulity

value of .55. Hypothesis 3 receives strong support. The other side of the story is also interesting

as is shown in Figure 1(b). The social-capital-creating effect of income inequality is magnified if

counties get more and more heterogeneous racially. When a community is racially homogenous,

income inequality does not have any meaningful effect on social capital. As the diversity index

increases beyond .2, however, the effect of income inequality becomes positive and statistically significant.

The results concerning control variables generally reaffirm conventional wisdom. First, urbanization reduces social capital. As the coefficients suggest, compared to the suburban counties, urban counties tend to have less social capital while rural counties have more. Second, following the conventional wisdom, we can see that a higher level of income is associated with a higher level of social capital. We also estimate the effect of education, the percentage of individuals with some college education and more, and the results remain the same as income. At the same time, as expected, a higher level of the non-migratory population also has a positive and statistically significant influence on the production of social capital. Third, our analysis shows that female participation in the labor market works positively instead of negatively for the growth of social capital. It suggests the opportunities to form networks and increased interpersonal engagement provided in the workplace outweigh those available to housewives. Lastly, however, we can see that the proportion of family households has a negative and statistically significant coefficient suggesting that family-oriented counties are associated with lower levels of social capital with all else equal. This result can be explained by Alesina and La Ferrara (2000) that child-rearing activities take away opportunities for parents to enjoy associational life and engage with others because they are exhausting and time-consuming.

Table 2. Putnam-type vs. Olson-type Associations

	Putnam-type (Bridging)		Olson-type (Bonding)	
	Model 3	Model 4	Model 5	Model 6
Racial diversity	-0.530***	-1.528***	-0.072***	0.113
	(0.057)	(0.457)	(0.015)	(0.126)
Economic inequality	1.769***	1.064***	-0.066	0.065
	(0.244)	(0.403)	(0.067)	(0.111)
Urban	-0.241***	-0.241***	-0.030***	-0.030***
	(0.017)	(0.017)	(0.005)	(0.005)
Rural	0.203***	0.205***	0.039***	0.039***
	(0.017)	(0.017)	(0.005)	(0.005)
Income	-0.267***	-0.267***	0.148***	0.148***
	(0.053)	(0.053)	(0.014)	(0.014)
Non-migration	0.766***	0.720***	-0.009	-0.000
	(0.159)	(0.160)	(0.044)	(0.044)
Female workforce	2.174***	2.147***	0.107***	0.113***
	(0.141)	(0.142)	(0.038)	(0.038)
Family household	0.506***	0.552***	-0.553***	-0.561***
	(0.160)	(0.161)	(0.044)	(0.044)
Year 2014	0.013	0.015	-0.026***	-0.027***
	(0.014)	(0.014)	(0.004)	(0.004)
Diversity × Inequality		2.281**		-0.424
		(1.035)		(0.286)
Constant	1.043**	1.385***	-1.201***	-1.264***
	(0.506)	(0.529)	(0.137)	(0.143)
Number of counties	6,233	6,233	6,233	6,233
Number of states	50	50	50	50

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

We further investigate how these same factors are associated with different types of social capital, namely bonding versus bridging social capital, measured by proxies as Olson-type and Putnam-type associational density, respectively. Table 2 provides the results. Several interesting conclusions can be drawn from the table. First, it shows that racial diversity has consistently negative effects on two different types of social capital: as racial diversity increases,

the density of Putnam-type organizations as well as Olson-type organizations decreases. However, its negative effect is stronger on Putnam type associations than on Olson type associations. Of course, the comparison of coefficients across models requires a cautious interpretation as the scale of measurement affects the magnitude of coefficients in each model. We address this issue by standardizing the dependent variables. The re-estimation leads us to the same conclusion (see the Appendix Table A.6). Thus, unlike Hypothesis 2, we find that racial diversity does reduce both bonding and bridging social capital although it impacts bridging social capital more adversely than bonding social capital.

Second, according to Models 3 and 5, the positive effect of economic inequality on social capital is largely driven by its effect on bridging social capital. The coefficient of income inequality is positive and statistically significant at a 0.01 level for bridging social capital (Putnam-type) while it fails to reach any statistical significance for bonding social capital (Olson-type). We can argue that economic inequality in the county context encourages residents to engage with others who are from diverse backgrounds while it does not necessarily induce bonding among individuals who are alike. In Model 4 and Model 6, we can also see that the positive conditional effect of inequality is largely driven by its positive effect on bridging social capital.

The results for the control variables also provide interesting insights. First, regardless of the types of social capital, the three control variables have the same and consistent effects as seen across Models 3 through 6. Urbanization unfailingly reduces bonding and bridging social capital whereas both rural residence and female participation in the workforce add more to both. Second, the effect of income is negative on Putnam-type associational density while positive on the Olson-type. In other words, higher income suppresses bridging associations, but increases

bonding associations. Lastly, non-migratory population increases Putnam-type or bridging social capital while having no discernable effects on Olson-type or bonding social capital.

Conclusion

In this article, we examine how the interplay between racial diversity and economic inequality affects the wealth of social capital across the U.S. counties. The multilevel regression analysis of 3,140 U.S. counties provides some interesting findings. First, racial diversity and economic inequality have a differential impact on social capital. In compliance with the findings from previous research, our analysis suggests that racial diversity is the most crucial factor that diminishes social capital in American society. Surprisingly, however, economic inequality is found to contribute to producing social capital. Its positive impact is found consistently across the models with various specifications. Furthermore, racial diversity proves to be a social-capital-inhibitor not only of bridging, but also of bonding type while income inequality increases bridging social capital without any comparable impact on bonding social capital. This finding confirms Putnam's (2007) view that both types of social capital are not necessarily inversely associated. Instead, it is more accurate to consider them to have synergetic relationships.

Second, as predicted, when economic inequality interacts with racial diversity, it counteracts the social-capital-reducing effect of racial diversity. As the crosscutting cleavages theory suggests, in racially fragmented counties, economic inequality works as a competing cleavage that crosscuts the racial cleavage and thereby mitigates the salience of racial division. As a result, increased economic inequality ironically contributes to producing bridging (interracial) as well as bonding (income-based) social capital. To our knowledge, Paarlberg et al. (2018) is the only study that explores the interaction effect between racial diversity and income inequality besides ours, whose finding is similar to ours. However, the authors do not provide a

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theoretical explanation concerning this unconventional and mysterious positive conditioning effect of income inequality on racial diversity in their impact upon social capital. By paying attention to the multidimensionality of racial and economic heterogeneity, our study provides more nuanced arguments about their effects on social capital than the existing literature.

The findings of this article offer important implications in understanding inequality and American democracy. First, they pose a question how to reconcile with the widely accepted view that income inequality depresses political engagement in the U.S. (Ritter & Solt, 2017; Solt, 2010; Soss & Jacobs, 2009). Given that social capital and political engagement—usually measured as electoral participation—are closely related to each other, it is necessary to explain why our findings do not quite square with what previous research demonstrates. There are a few possibilities that might explain this discrepancy. Firstly, it could mean that the effect of income inequality in counties might be different from that in macro contexts such as states and the entire nation. Previous studies found the negative inequality-engagement relationship at the state level. Secondly, it also could be explained by the potential difference between self-reported and actual participation and engagement. Most scholars measured electoral participation using individual-level surveys whereas we employ the social capital index constructed based on actual county-level voter turnout and associational density.

Second, this article suggests a possibility that there might be some disparities between perceived and actual income inequality. If the disparities are not negligible, then it becomes crucial that a researcher take that into consideration and investigate separately how perceived and actual inequality affects citizens' engagement.

Third, as suggested by the crosscutting cleavages theory and pluralism, our results propose that the plurality of competing cleavages is better than one dominant rift for democratic

governance in America. We do not suggest income inequality is desirable. Rather, we agree that the ever increasing income polarization in the U.S. is one of the most serious problems. Ironically, however, given the dominance of racial divisions in American politics, the rise of income inequality seems to open a new horizon through which more people are motivated to bond together and invest in collective activities, which would not be the case otherwise. Put differently, faced with multiple strains, Americans likely break their quiescence and act out.

This study reveals a potential research agenda that is worth further scholarly attention. First, it is necessary to reconsider the concepts of bonding and bridging social capital and to develop a better measure for these. Some scholars have raised concerns over how social capital is currently conceptualized and operationalized in the literature as being racially insensitive, largely based on white experience. For instance, Putnam-type social capital is conceptualized as formal groups, voluntary civic associations, and community engagement, which is proven to be valid for whites and less so for non-white populations in the U.S. (Liu et al., 2009). Many scholars point out that for African Americans, for instance, churches serve as the most influential agent to build up social capital, contributing to political and civic activism as suggested by the "social capital hypothesis" (Alex-Assensoh & Assensoh, 2001; Brown & Brown, 2003; Calhoun-Brown, 1996; Farris & Holman, 2014; Harris-Lacewell, 2004; Liu et al., 2009; Mangum, 2011). Harris-Lacewell (2004) adds barbershops as an important public space where social networks and interpersonal relations form among African Americans. Without capturing racial sensitivity in operationalizing social capital, we might fall into measuring white social capital, not necessarily the overall social capital.

Second, in order to understand the interaction between racial diversity and income inequality in the U.S. context more accurately, it is important to consider the role of residential

segregation. Increased racial diversity in a county does not necessarily increase interracial associations if racial residential segregation is prevalent in that county. To make things more complicated, residential segregation in the U.S. tells us that race and socioeconomic factors interact closely in determining the composition of neighborhoods (Brunch, 2014; Reardon et al., 2015). For this reason, if income inequality correlates with race such that income gaps increase between races (whites versus minorities) instead of within races, then the coexistence of racial diversity and income inequality does not necessarily increase bridging social capital, as suggested by our analysis. On the contrary, their coexistence would mean exacerbated racial inequality, reinforcing within-race bonding. Our data shows a relatively low correlation between our measures of county-level racial diversity and income inequality ($r=.32$), which suggests that our findings are not significantly driven by segregation. Unfortunately however, our data does not allow us to factor segregation into the analysis. For this purpose, we need more nuanced data measured at a community- or neighborhood-level. We leave this for our future project.

Third, further study should be done to fully understand the relationship between economic inequality and social capital in U.S. counties and its meaning for American democracy. One of the robust findings in our analysis, the social-capital-generating effect of economic inequality, has large implications for democracy. There is much evidence that for some Americans, economic concerns are secondary compared to concerns related to preserving their identities (e.g., white nationalism) or finding others to blame for opportunities they have lost. Extant research demonstrates that President Trump was able to benefit from these identity-related concerns which ultimately united some white voters from different economic backgrounds and propelled him to the White House (Abramowitz, 2017).

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Appendix

Table A.1. Summary Statistics

Variable	N	mean	SD	Min	Max
Social capital index	6245	-0.007	1.250	-3.925	9.149
Racial diversity	6245	0.286	0.183	0	0.769
Inequality	6245	0.436	0.036	0.207	0.652
Urban	6244	0.372	0.483	0	1
Rural	6244	0.271	0.444	0	1
Income	6245	10.942	0.224	10.259	11.934
Education	6245	0.483	0.109	0.181	0.886
Non-migration	6234	0.859	0.046	0.478	0.997
Female workforce	6245	0.701	0.076	0.361	1
Family household	6245	0.523	0.068	0.233	0.902
Putnam	6245	1.254	0.653	0	6.887
Olson	6245	0.142	0.151	0	2.253

Table A.2 The Effect of Diversity and Inequality on Social Capital: OLS

	Model 7 OLS	Model 8 OLS	Model 9 Standardized	Model 10 Standardized
Racial diversity	-1.610***	-6.134***	-0.236	-0.899
	(0.120)	(0.984)		
Economic inequality	2.118***	-1.077	0.061	-0.031
	(0.638)	(1.059)		
Urban	-0.435***	-0.437***	-0.169	-0.169
	(0.027)	(0.027)		
Rural	0.521***	0.530***	0.185	0.189
	(0.034)	(0.034)		
Income	0.681***	0.678***	0.122	0.121
	(0.115)	(0.116)		
Non-migration	3.278***	3.068***	0.122	0.114
	(0.306)	(0.315)		
Female workforce	3.865***	3.743***	0.234	0.227
	(0.376)	(0.375)		
Family household	-1.751***	-1.540***	-0.095	-0.084
	(0.413)	(0.415)		
Year 2014	-0.079***	-0.069***	-0.032	-0.028
	(0.025)	(0.026)		
Diversity × Inequality		10.342***		0.702
		(2.265)		
Constant	-13.360***	-11.703***	-	-
	(1.055)	(1.198)		
State dummy	Yes	Yes	Yes	Yes
Observations	6,233	6,233	6,233	6,233
R-squared	0.540	0.543	0.540	0.543

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table A.3 The Effect of Diversity and Inequality on Social Capital: Minority Group Size

	Model 11	Model 12
Minority group size, %	-0.296***	-0.299***
	(0.018)	(0.018)
Economic inequality	0.077***	0.069***
	(0.015)	(0.015)
Urban	-0.438***	-0.439***
	(0.029)	(0.029)
Rural	0.524***	0.534***
	(0.029)	(0.029)
Income	0.657***	0.655***
	(0.091)	(0.091)
Non-migration	3.249***	3.039***
	(0.272)	(0.274)
Female workforce	3.987***	3.863***
	(0.242)	(0.243)
Family household	-1.700***	-1.493***
	(0.275)	(0.276)
Year 2014	-0.076***	-0.066***
	(0.024)	(0.024)
Minority group size $\times$ Inequality		0.068***
		(0.012)
Constant	-11.885***	-11.730***
	(0.898)	(0.896)
Number of counties	6,233	6,233
Number of states	50	50

Note: Minority group size is the percentage of minorities in each county (Black, Indian, Asian, Hawaiian, and two or more races).; Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table A.4. The Effect of Diversity and Inequality on Social Capital: Minority Group Size Control

	Model 13	Model 14
Racial diversity	-1.388***	-6.463***
	(0.105)	(0.781)
Economic inequality	2.234***	-1.365**
	(0.418)	(0.689)
Urban	-0.432***	-0.433***
	(0.029)	(0.029)
Rural	0.522***	0.532***
	(0.029)	(0.029)
Income	0.620***	0.614***
	(0.091)	(0.090)
Non-migration	3.407***	3.190***
	(0.273)	(0.274)
Female workforce	4.007***	3.870***
	(0.242)	(0.242)
Family household	-1.837***	-1.620***
	(0.275)	(0.276)
Minority group size, %	-0.006***	-0.006***
	(0.001)	(0.001)
Year 2014	0.049	0.075**
	(0.032)	(0.032)
Minority group size $\times$ Inequality		11.661***
		(1.777)
Constant	-12.129***	-10.349***
	(0.870)	(0.908)
Observations	6,233	6,233
Number of groups	50	50

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.5 The Effect of Diversity and Inequality on Social Capital: Standardization

	Model 12	Model 13
Racial diversity (z-score)	-0.296***	-0.299***
	(0.018)	(0.018)
Economic inequality (z-score)	0.077***	0.069***
	(0.015)	(0.015)
Urban	-0.438***	-0.439***
	(0.029)	(0.029)
Rural	0.524***	0.534***
	(0.029)	(0.029)
Income	0.657***	0.655***
	(0.091)	(0.091)
Non-migration	3.249***	3.039***
	(0.272)	(0.274)
Female workforce	3.987***	3.863***
	(0.242)	(0.243)
Family household	-1.700***	-1.493***
	(0.275)	(0.276)
Year 2014	-0.076***	-0.066***
	(0.024)	(0.024)
Diversity (z-score) × Inequality (z-score)		0.068***
		(0.012)
Constant	-11.885***	-11.730***
	(0.898)	(0.896)
Number of counties	6,233	6,233
Number of states	50	50

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A.6 Putnam-type vs. Olson-type Associations: Standardization

	Putnam-type z-score (Bridging)		Olson-type z-score (Bonding)	
	Model 3	Model 4	Model 5	Model 6
Racial diversity	-0.530***	-1.528***	-0.072***	0.113
	(0.057)	(0.457)	(0.015)	(0.126)
Economic Inequality	1.769***	1.064***	-0.066	0.065
	(0.244)	(0.403)	(0.067)	(0.111)
Urban	-0.241***	-0.241***	-0.030***	-0.030***
	(0.017)	(0.017)	(0.005)	(0.005)
Rural	0.203***	0.205***	0.039***	0.039***
	(0.017)	(0.017)	(0.005)	(0.005)
Income	-0.267***	-0.267***	0.148***	0.148***
	(0.053)	(0.053)	(0.014)	(0.014)
Non-migration	0.766***	0.720***	-0.009	-0.000
	(0.159)	(0.160)	(0.044)	(0.044)
Female workforce	2.174***	2.147***	0.107***	0.113***
	(0.141)	(0.142)	(0.038)	(0.038)
Family household	0.506***	0.552***	-0.553***	-0.561***
	(0.160)	(0.161)	(0.044)	(0.044)
Year 2014	0.013	0.015	-0.026***	-0.027***
	(0.014)	(0.014)	(0.004)	(0.004)
Diversity × Inequality		2.281**		-0.424
		(1.035)		(0.286)
Constant	1.043**	1.385***	-1.201***	-1.264***
	(0.506)	(0.529)	(0.137)	(0.143)
Number of counties	6,233	6,233	6,233	6,233
Number of states	50	50	50	50

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure A.1 The Interaction between Economic Inequality & Racial Diversity: Predicted Values

(a)

(b)