ABSTRACT

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Previous studies usually posit that heterogeneity in charitable giving within countries is less than the variation between them, yet the philanthropic landscapes in the states of the United States have more differences than expected. Substantial variations in both the level and rate of charitable giving exist across the states in the U.S., yet empirical evidence on why there are such substantial differences across the states is very limited and inconclusive. To address the gap in the literature, this study collected individual and/or state level data from multiple sources to answer whether and how state-level political, social, and cultural factors can explain the geographical variations in the level and rate of charitable giving across the states in the U.S.

Based on statistical analyses using multiple regressions and multilevel modelling, the results indicate that state-level factors, including political ideology, public welfare expenditure, social capital, income inequality, and cultural capital contributed to the variations in both the level and rate of charitable giving at the state level. Specifically, state-level political ideology is found to have significant relationships with both the level and rate of charitable giving, while the marginal effects of political ideology on both the level and rate of charitable giving are moderated by the public welfare expenditure per capita at the state level. In addition, the density of associational organizations is found to consistently have a significant negative correlation with both the level and rate of charitable giving, while the impacts of the density of charitable organizations on both the level and rate of charitable giving are moderated by income inequality.

This study contributes to the literature by revealing a more complex and nuanced picture on why there are substantial regional differences in both the level and rate of charitable giving across the states in the U.S. Specifically, the findings can help challenge the notions that "red (Republican-leaning) states are more donative", that "higher density of nonprofits attracts more donations", and that "government spending crowds out private contributions". This study also shows the necessity to differentiate the impacts of the density of charitable organizations and the density of associational organizations on the level and rate of charitable giving at the regional level. What's more, this study is the first empirical research that not only explored both the level and rate of charitable giving at the contextual level at the same time, but also compared the two stages of charitable giving, and revealed that different factors might behave differently on the level and the rate of charitable giving at the state level.

STATE-LEVEL DIFFERENCES IN CHARITABLE GIVING IN THE UNITED STATES

By

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Dissertation submitted to the faculty of the Graduate School of
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Dedication

To my parents and to those who helped me complete this journey.

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Writing this part in a dissertation usually marks the end of journey in a Ph.D. program. Looking back over the 7-year-long journey in my Ph.D. study, so much has changed in the world, and in my life. It's been a long journey during which I have experienced the most important and/or toughest life events and seen the most growth in myself over the past 32 years of my life. It may have taken longer than expected time to complete this journey, but I felt so lucky that I survived eventually. I cannot survive without the help and support of the following people who were part of this journey.

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Chapter 1 Introduction

Modern philanthropy, defined as a form of voluntary action, has emerged as an alternative way beyond the market and state to provide public goods and services in the United States (Payton, 1988). The philanthropic landscape in the U.S. has evolved substantially over the past several decades (Giving USA Foundation, 2018). Private donations to both religious and secular causes from individuals have become a significant component of the nonprofit sector in the United States. Individual giving represents the largest proportion of total giving in the United States. According to *Giving USA* (Giving USA Foundation, 2015, 2018), individual donations accounted for more than 70 percent of total giving for more than sixty years, from 1956 to 2017.

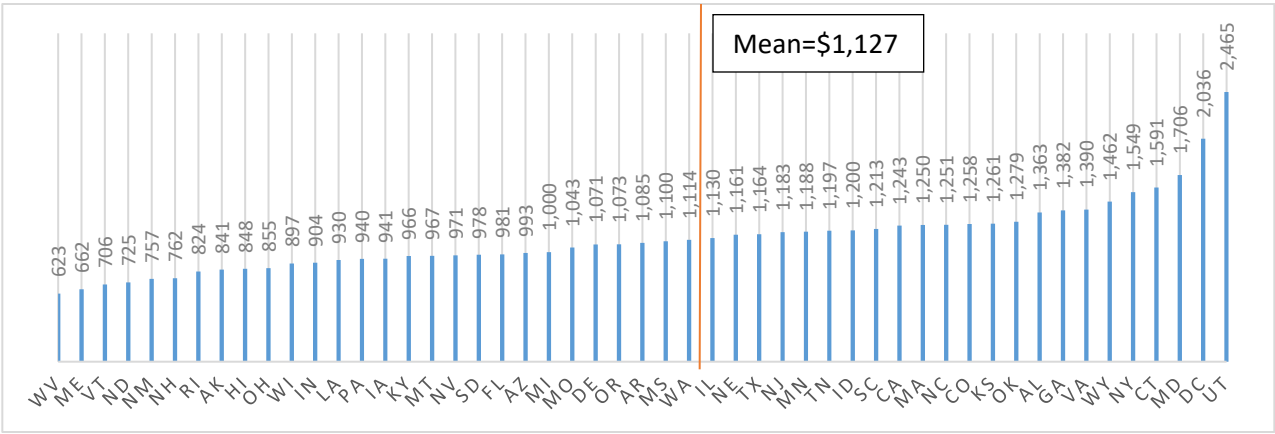
The research on philanthropy has also made significant progress over the past several decades, with the focus of attention evolving from individual differences in philanthropy to regional differences in philanthropy. We now know much more about why different people behave differently regarding their charitable giving behaviors (Bekkers & Wiepking, 2011a). For instance, individual demographics, such as gender, age and race (e.g. Mesch, Rooney, Steinberg, & Denton, 2006), social-economic status (e.g. Duncan, 1999; Wiepking & Maas, 2009), social capital (e.g. Brooks, 2005; Brown & Ferris, 2007; Wang & Graddy, 2008), religious belief (e.g. Forbes & Zampelli, 2013; Vaidyanathan, Hill, & Smith, 2011), and political ideology (e.g. Forbes & Zampelli, 2013; Yen & Zampelli, 2014), among others, play important roles in influencing individual charitable giving.

Yet, little is known on why people in different places may behave differently in philanthropy. It is important to study regional and/or cross-national differences in

philanthropy to compare regions and nations. Institutional context matters in explaining differences in philanthropy across nations (Wiepking et al., 2021). It is revealed that voluntary actions, such as charitable giving, might not only be affected by individual-level factors, but also influenced by contextual factors, such as the social and cultural environment where people live (e.g., Anheier & Salamon, 1999; Einolf, 2017; Glanville, Paxton, & Wang, 2016), while empirical evidence on whether and how contextual-level[1] factors influence charitable giving at the contextual level remains limited.

Although some previous studies (e.g., Einolf, 2017) assume heterogeneity in giving within countries is less than the variation between them, previous (Gittell & Tebaldi, 2006) and recent evidence (see Figures 1.1 to 1.6) all show that there are substantial variations in both the level and rate of charitable giving across the states in the United States. According to Gittell and Tebaldi (2006), there are several ways to use the Internal Revenue Service Statistic of Income Tax Stats to measure the level of charitable giving in a state. It could be average charitable giving per tax filer, average charitable giving per itemizer, or average charitable giving per giver. The size of average giving per tax itemizer is usually larger than that of average giving per tax filer, but smaller than that of average giving per giver since not every tax filer itemized their contributions and not every tax itemizer made donations. Figures 1.1 to 1.3 indicate that much variation in the level of charitable giving exists across the states, regardless of whether giving level is measured by the three-year average giving per tax filer, tax itemizer, or giver. In addition, as seen in Figure 1.4, when using giving as % of adjusted gross income to measure giving level as suggested by a recent study (Paarlberg, Nesbit, Clerkin, & Christensen, 2018), the variation in the level of charitable giving across the states is still evidently substantial.

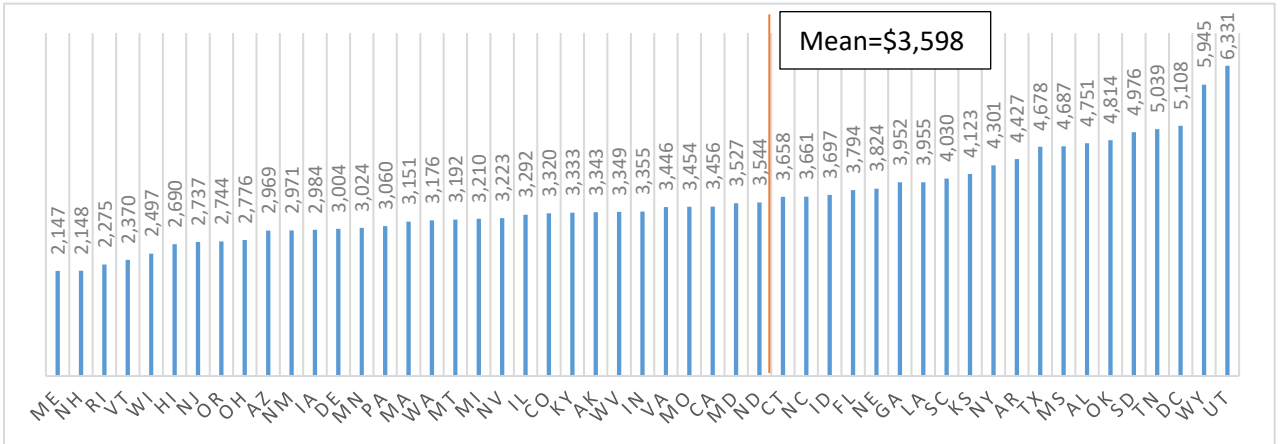
Figure 1.1 Average Giving Per Filer by State (2009-2011) (USD)



Source: Internal Revenue Service Statistics of Income Tax Stats (2009-2011)

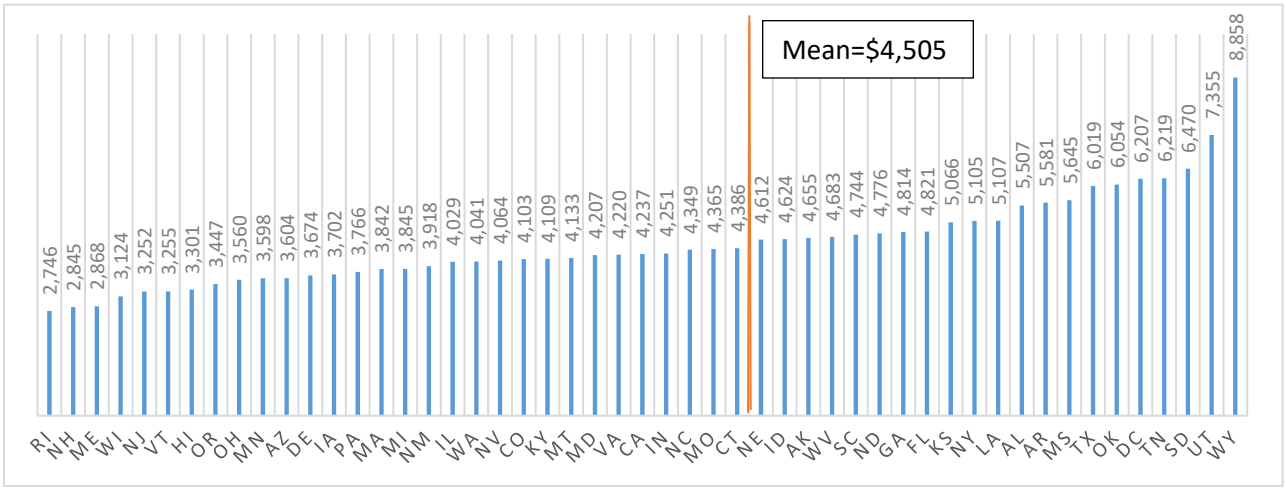
Specifically, as seen in Figure 1.1 for the ranking of three-year average giving per tax filer by state from 2009 to 2011, West Virginia ranks as the least donative state (US$ 623), Utah ranks as the most donative state (US$ 2,465), and the mean three-year average giving per tax filer is US$ 1,127. If ranking the states by three-year average giving per tax itemizer (Figure 1.2), Maine ranks as the least donative (US$ 2,147), while Utah remains the most donative (US$ 6,331), and the mean three-year average giving per tax itemizer is US$ 3,598. Yet, in the ranking by average giving per giver (Figure 1.3), Wyoming ranks the most donative, Utah ranks as the second most donative, and Rhode Island ranks as the least donative.

Figure 1.2 Average Giving Per Itemizer by State (2009-2011) (USD)



Source: Internal Revenue Service Statistics of Income Tax Stats (2009-2011)

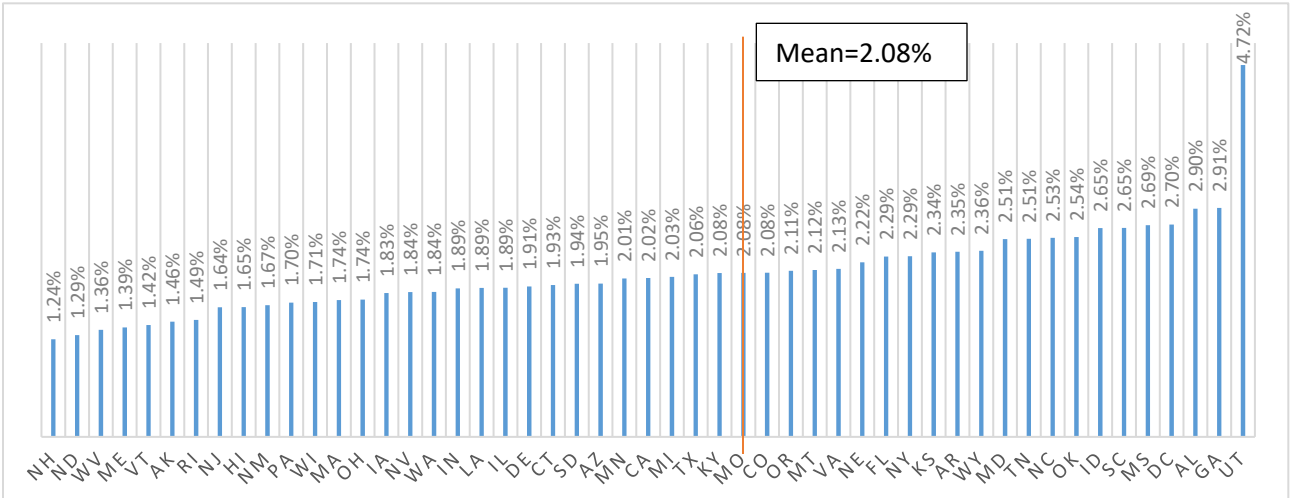
Figure 1.3 Average Giving Per Giver by State (2009-2011) (USD)



Source: Internal Revenue Service Statistics of Income Tax Stats (2009-2011)

In addition, if ranking by giving as percentage of adjusted gross income (Figure 1.4), New Hampshire ranks as the lowest (1.24%) and Utah ranks as the highest (4.72%). The mean three-year average giving as percentage of adjusted gross income across the states is about 2.08%. We can conclude that under each type of measurements for the level of giving, the heterogeneity in the level of generosity of people across the states is substantial. People in some states, such as Utah and Wyoming, on average, tend to be more generous than people in other states, such as New Hampshire and Maine.

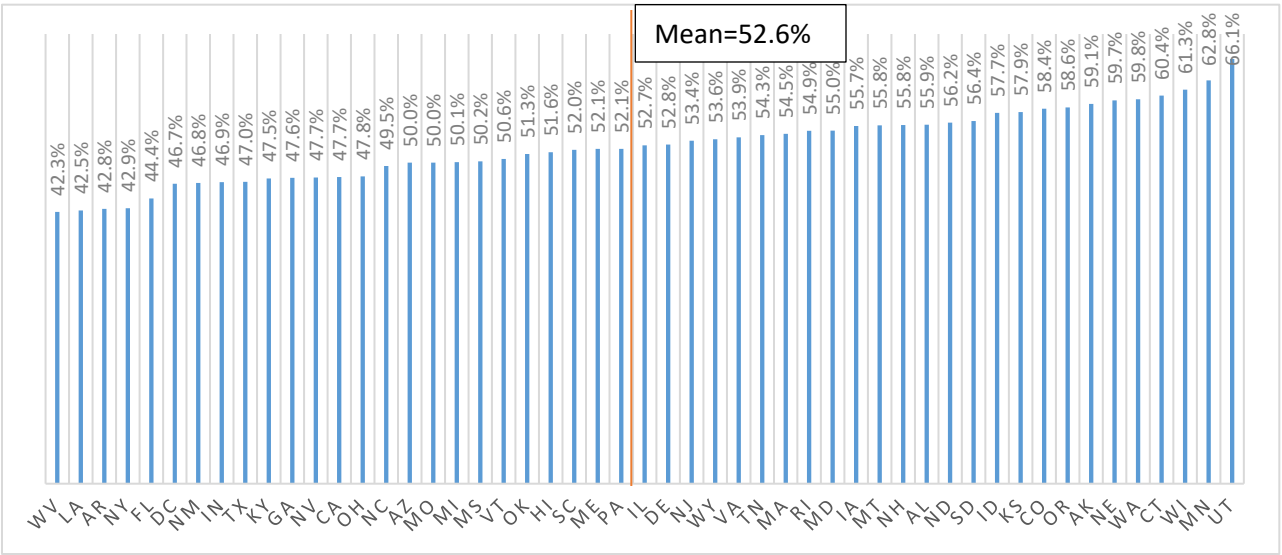
Figure 1.4 Average Giving as Percent of Adjusted Gross Income by State (2009-2011)



Source: Internal Revenue Service Statistics of Income Tax Stats (2009-2011)

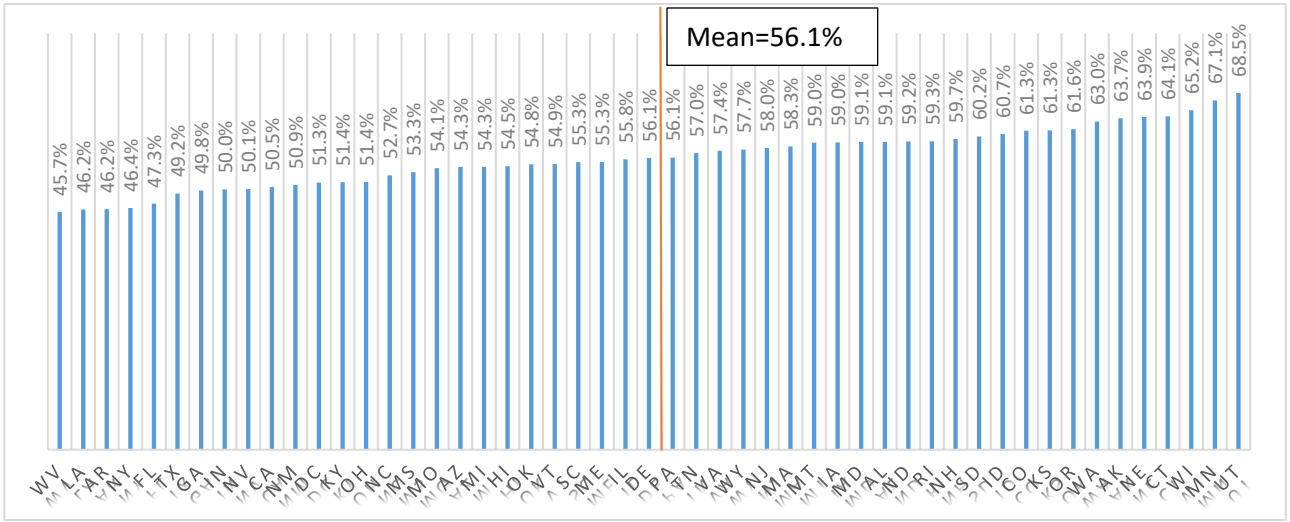
Moreover, in terms of the rate of charitable giving in the United States, substantial heterogeneity is also evident across the states. As seen in Figures 1.5 and 1.6, giving rate ranges from 42.3% to 66.1% based on three-year pooled average estimation of Current Population Survey Volunteer Supplement 2009-2011, or from 45.7% to 68.5% based on three-year predicted probability estimation of CPS Volunteer Supplement 2009-2011. Either way, West Virginia ranks as the lowest and Utah ranks as the highest.

Figure 1.5 Pooled Average Giving Rate by State (2009-2011)



Source: Current Population Survey Volunteer Supplement (2009-2011)

Figure 1.6 Predicted Average Giving Rate by State (2009-2011)



Source: Current Population Survey Volunteer Supplement (2009-2011)

So, such substantial variations in both the level and rate of charitable giving are observed across the states in the U.S. with empirical evidence, but why are there such regional differences in the philanthropic landscape in the U.S.? This question remains under-explored. Some pioneering studies (Brooks, 2006; Gittell & Tebaldi, 2006) found that some regional factors, such as state-level average age, income level, educational attainment, religious affiliation, and volunteer rate, might contribute to explaining the heterogeneity in the level of charitable giving across the states in the United States. However, a group of other factors, such as state-level political ideology, social capital, and cultural capital, among others, might also play important roles in influencing both the level and rate of charitable giving at the state level. Most previous individual-level studies on charitable giving drew insights from the micro-level aspects of the perspectives of political ideology, social capital, and cultural capital. Yet, the macro-level aspects of these perspectives may also contribute to a more comprehensive understanding of the full picture of regional differences in charitable giving and volunteering.

First, political ideology is thought to be an important predictor for charitable giving at the contextual/regional level. The ongoing debate on whether red (Republican-leaning) states or counties are more donative compared to blue (Democrat-leaning) states or counties attracted a lot of academic attention from scholars in different disciplines, yet the answers to the question are still inconclusive and not consistent across studies. A group of scholars (Brooks, 2006; Paarlberg et. al, 2018) applied the median voter theorem and argued that red states or counties tend to be more donative since the median residents in these states tend to prefer a private solution (through private donations to nonprofits), rather than a public solution (government spending on public welfare) to provide public

services. However, are red states indeed more donative than blue states? Are there any conditions that may influence the relation? Does state-level political ideology (red versus blue states) interactively work with the level of government spending on public welfare on deciding charitable giving at the state level?

In addition, the stock of social capital might also play in important role in explaining the variations in the level and rate of charitable giving at the regional level. The stock of social capital in communities, usually measured by the density of nonprofit organizations, is thought to be critical in boosting civic engagement, overcoming the "dilemmas of collective action", and providing public goods (Putnam, 1995, pp. 65). Individuals residing in communities with higher density of nonprofit organizations, may more likely be exposed to fundraising requests from nonprofit organizations. Nonprofit organizations are often thought to provide networks for residents to engage with each other and share information about demands for giving (Glanville, Paxton, & Wang, 2016). Thus, it is reasonable to expect that the participation rate and the level of charitable giving in a community or region may be affected by the stock of social capital in a community, particularly the density of nonprofits. However, existing empirical evidence is very limited, and the following questions are not addressed: whether the density of nonprofit organizations can really contribute to charitable giving at contextual level? Do the density of charitable organizations and the density of associational organizations have similar effects on the level and rate of charitable giving? Does the density of charitable organizations have the same kind of relation with the level and rate of charitable giving in different states where the demand for public goods and services are different?

Also, previous contextual/regional level studies revealed that religiosity and religious congregations are positively related to the rate of religious volunteering at the state level in the United States (Rotolo & Wilson, 2012), and that religious adherence rate at the county level is positively correlated with the level of charitable giving at the county level (Paarlberg et. al, 2018). However, it is still unknown whether different measurements for cultural-related capital, such as religiosity, ratio of religious adherents, and density of religious congregations, all have significant relations with both the level and rate of charitable giving at the state level.

More importantly, the rate of charitable giving at the state level is rarely studied in the literature compared to the level of giving. Previous individual-level studies (e.g., Forbes & Zampelli, 2011, 2014) indicate that the mechanisms determining whether one chooses to give in the first place might be different from the mechanisms involved in choosing the amount of donations since different predictors might work differently in the two-stage (incidence and amount) of charitable giving. Yet, it is still unknown whether the same set of predictors at the state-level have similar or different relations with both the level and rate of charitable giving across the states in the U.S. given the different effects that different predictors at individual level studies may have on individual-level charitable giving, it is also reasonable to anticipate that some state-level predictors might also work differently on the level and rate of charitable giving across the states.

This study intends to answer these questions and address the research gap by applying the macro perspectives of political ideology, social capital, and cultural capital. This study will contribute to the literature by revealing a more complex and nuanced picture on why there are substantial differences in both the level and rate of charitable

giving across the states in the U.S. Specifically, the findings of this study help challenge the notions that "red states are more donative" and that "higher density of nonprofits attracts more donations". In addition, the findings of this study will show the necessity to disentangle the density of nonprofits into two types and differentiate the potential different impacts of the density of charitable organizations and of the density of associational organizations on the level and rate of charitable giving at the regional level since the density of charitable organizations and the density of associational organizations may play different or even opposite roles in affecting the level and rate of charitable giving at the regional level. More importantly, this study is the first empirical research that not only explored both the level and the rate of charitable giving at the contextual/regional level at the same time, but also compared the two stages (incidence and amount) of charitable giving at the state level and revealed that different factors might have different effects on the level and the rate of charitable giving at the state level.

The remaining content of this study will proceed with the following order. The next chapter first presents a comprehensive overview of existing research on individual and contextual predictors of charitable giving, raise the research questions, and then proposes the hypotheses. The third chapter first introduces the sources from which the data are derived, presents the operationalization, measurements, and descriptive statistics of the dependent, independent and control variables, and then explains the estimation methods used for statistical analyses. The fourth chapter presents results from simple correlations, multiple regressions, and Multilevel modelling. The final chapter summarizes the conclusions, theoretical contributions, practical implications, and limitations of the study, as well as the directions for further research.

Chapter 2 Literature Review

Over the past several decades, an extensive body of empirical studies has focused on the predictors of charitable giving. Apart from basic demographic theories, theories of political ideology, social capital, and cultural capital were drawn from multiple social science disciplines to explain the incidence and level of charitable giving. Most existing studies are based on analyses at the individual level and found that individual-level political ideology, as well as stock of social and cultural capital, are three main significant predictors of charitable giving (Brown & Ferris, 2007; Forbes & Zampelli, 2013; Wang & Graddy, 2008). However, very limited evidence is revealed at the contextual level and from the macro level of these theories (Gittell & Tebaldi, 2006; Rotolo & Wilson, 2012). This section focuses on a review of the literature on political ideology, social capital, and cultural capital, and critiques the existing evidence on the impacts of these factors on charitable giving at the contextual level.

2.1 Political Ideology and Charitable Giving: Theory and Evidence

2.1.1 Theory of Political Ideology: From Micro to Macro

Political ideology at the individual level refers to individuals' political affiliation or identity. At the contextual level, communities, regions, or states also have a political ideology, that is, a collective political identity that can capture the average political standing of the residents in a region or state on the political ideology spectrum. Political ideology is posited to be correlated with charitable giving since individuals with different political ideology have different preferences for how public services or goods should be provided.

In a democratic political system, demands for public services or goods are highly

heterogeneous, whereby the provisions of services or goods through government spending on public welfare are mostly driven by the preferences of the median voter (Weisbrod, 1977, 1988). As such, there are usually high demands for public services and goods that are unmet by the government. Unlike their liberal counterparts, who are more likely to support public provision of services or goods through more government spending (particularly on social welfare programs), conservative residents prefer more of a private solution, that is, through private contributions to nonprofits. The rationale behind their preference is straightforward: conservatives usually have less trust in the government system, especially the federal government in the U.S. context, believe in small and limited government, and tend to think that a private solution through nonprofits and donations can do a better job compared to increasing government spending on public welfare programs (Rudolph & Evans, 2005). Therefore, based on this logic, conservatives should be more likely to get involved in private donations.

The similar logic may apply to donations at the regional level. In a county or state where conservatives are the majority, they often oppose policies raising taxes to increase government spending on public welfare programs (Rudolph & Evans, 2005), but on the other hand, they on average may be more likely to donate and/or donate more to nonprofits since they, as the majority, may think this private solution could be a better choice. When other conditions are the same, conservative-dominated counties or states may show a higher percentage of donors or a higher level of average donations compared to liberal-dominated counties or states.

2.1.2 Empirical Evidence: From Individual to Contextual Level

Evidence on the relation between political ideology and charitable giving is limited

and generally mixed. Further, some mixed evidence has been revealed in individual-level analyses. Some studies find that conservatives are more charitable than liberals are (Brooks, 2006; Forbes & Zampelli, 2013), while others find conservatives in general are not necessarily more charitable than liberals (Vaidyanathan, Hill, & Smith, 2011; Yen & Zampelli, 2014). Study by Forbes and Zampelli (2013) indicates that respondents who self-identified as Republicans tend to donate more to religious causes compared to those who identified as Democrats and Independents, while both Republicans and Independents tend to donate more to secular causes than Democrats and others. In addition, both Yen and Zampelli (2014) and Vaidyanathan et al. (2011) found that the impact of political conservatism on charitable behavior is mediated and exacerbated by religious factors such as religiosity and religious service attendance.

However, evidence from contextual studies is not only inconclusive but also very limited. For instance, in a regional analysis on the charitable differences across 65 metropolitan areas in the United States, Wolpert (1989) revealed that metropolitan areas that were liberal contributed higher levels of donations to federated campaigns (e.g., United Way). In a multi-level analysis of individual and state level data, Bielefeld et al. (2005) found that in states where the senate is dominated by the Republicans, individuals may be less likely to donate, but this negative effect of the percentage of Republicans in the state senate on the likelihood of making charitable donations will diminish after adding all other state level control variables into the model. However, in his insightful analyses on America's charity divide, Brooks (2006) controversially concluded with the notion that conservative states are more donative than their liberal counterparts and attracted a lot of discussions in the community of nonprofit research scholars. In addition,

in a county level analysis in the U.S., Paarlberg et al. (2018) found that counties with higher proportion of people voting for the Republican candidates in the 2008 and 2012 presidential elections reported higher level of charitable donations and that this relationship is partially mediated by the level of state and local tax burden.

2.1.3 Critiques and Hypotheses

A common drawback of these existing contextual-level empirical studies is that these studies neglected a key condition in the median voter theorem that might influence the relation between political ideology and charitable giving at the contextual level, that is, the level of government spending on public welfare programs in a state. In the context of the United States, government spending on public welfare[2] includes "cash assistance through Temporary Assistance for Needy Families (TANF), Supplemental Security Income, and other payments made directly to individuals as well as payments to physicians and other service providers under programs like Medicaid" (Urban Institute, 2022). The level of government spending on public welfare in a state is usually found to negatively crowd out the level of charitable donations in a state since a higher level of government spending on public welfare is usually related to a higher level of demands for public services that are met by government spending (Ruiter & De Graaf, 2006; Steinberg, 1991), yet in some services areas, government spending may also crowd in private contributions (Schiff, 1985; De Wit et al., 2018).

Yet, existing studies (Brooks, 2006; Paarlberg et al., 2018) on the relation between political ideology and charitable donation at the state or county level usually assume that red (Republican-leaning) states or counties usually have lower level of government spending on public welfare, and blue (Democrat-leaning) states usually have higher level

of government spending on public welfare. And thus, under this assumption, states with lower level of government spending on public welfare will have higher level of charitable giving since a large proportion of demands for public services may not be met by government spending, and on the contrary, states with a higher level of government spending on public welfare will have a lower level of charitable giving since a large proportion of demands may already be met by government spending.

However, the reality might not be as simple as the hypothetical scenario. In fact, these existing studies totally ignored the level of government spending on public welfare and never tested the potential moderating effect that the level of government spending on public welfare at the state level may have on the relation between political ideology and charitable giving at the state or county level. For instance, in their study on the relation between political ideology and charitable giving at the county level in the United States, Paarlberg et al. (2018) used tax burden to represent the level of government service provision and revealed a novel finding that that tax burden mediates the relation between political ideology and donations at the county level. Tax burden might be related to the level of government spending on public welfare but may not represent the level of government spending on public welfare (welfare expenditure at the state or county level) because not all collected taxes were spent on public welfare related expenditures. Public welfare expenditures at the state level are the key underling elements in the median voter theorem that may moderate the relationship between political ideology and charitable giving at the state level.

The impact of political ideology on charitable giving at the state or county level might be dependent upon the level of government spending on public welfare because in

the U.S. context, traditionally red states that are dominated by conservatives may not necessarily have a lower level of government spending on public welfare compared to traditionally blue states that are dominated by liberals (see the three-year average public welfare expenditure per capita across the states between 2009 and 2011 in Figure 5.1 under the Appendix section). The level of government spending on public welfare programs at the state level may go in the same or opposite direction with state-level political ideology on their relations with charitable giving at the state level. Therefore, to examine the relationship between political ideology and charitable giving at the state level, state-level public welfare spending should be considered and included as a potential moderator in the model. The impact of political ideology on charitable giving at the state level might be dependent upon the level of government spending on public welfare programs at the state level.

To sum up, the existing evidence on the relation between political ideology and charitable giving at the state level is very limited and inconclusive. Therefore, following and extending existing studies, it is hypothesized that:

H1a (level of giving)*: states with higher percentage of voters who voted for the Republican candidate in presidential elections tend to have higher level of charitable giving than states with lower percentage of residents who voted for the Republican candidate in presidential elections, all else being equal.*

H1b (rate of giving)*: states with higher percentage of voters who voted for the Republican candidate in presidential elections tend to have higher rate of charitable giving than states with lower percentage of residents who voted for the Republican candidate in presidential elections, all else being equal.*

H2a (level of giving)*: states with higher level of public welfare expenditure per capita tend to receive lower level of charitable giving than states with lower level of public welfare expenditure per capita, all else being equal.*

H2b (rate of giving)*: states with higher level of public welfare expenditure per capita tend to have lower rate of charitable giving than states with lower level of public welfare expenditure per capita, all else being equal.*

H3a (level of giving)*: the marginal effect of state-level political ideology on the level of charitable giving at the state level is dependent upon the level of public welfare expenditure per capita moderates at the state level.*

H3b (rate of giving)*: the marginal effect of state-level political ideology on the rate of charitable giving at the state level is dependent upon the level of public welfare expenditure per capita moderates at the state level.*

2.2 Social Capital and Charitable Giving: Theory and Evidence

2.2.1 Social Capital Theory: From Micro to Macro

Social capital refers to a type of capital that exists in the form of norms and networks in the social structure, possessed by individuals, groups and communities, and is instrumental in the generation of individual or collective goods (Bourdieu, 1986; Coleman, 1988). At the contextual level, social capital is thought to be critical in facilitating civic involvement, promoting cooperation, and providing collective goods through reducing the risk of the free-rider problem (Putnam, 1995, pp. 65).

Both dimensions of social capital, i.e., norms and networks, are posited to affect charitable behaviors since their presence in the social structure may influence the flow of information on opportunities to engage in charitable actions among individuals, groups,

and communities (Glanville, Paxton, & Wang, 2016). Individuals with more social networks tend to be more likely to be exposed to giving opportunities or donation requests from nonprofits or charities (Schervish & Havens, 1997). And because of their high trust in others, they are more likely to trust in those requests and thus are more likely to donate their time and resources.

Similarly, at the contextual level, communities with a high level of social capital, namely with high density of nonprofit organizations and/or religious congregations, are likely to have a large volume of requests for contributions from these organizations, on the one hand, and to expose information on donation opportunities through the civic or religious networks to their residents within the communities, on the other. From the demand-side perspective of public service provision, the existence of nonprofit organizations and/or religious congregations in a community might directly represent the demands for private contributions from its residents to provide services to those in need. From the supply-side perspective, these nonprofit organizations and/or religious congregations might also serve as the mechanism to spread information about giving requests and bridge the demands of people in need and contributions from residents in a community.

As a type of nonprofit organization that serves the public interests, charitable organizations (registered as 501c (3) organizations, including public charities and private foundations, not including religious congregations) in the United States often-times function directly as initiators of donation requests for private contributions from community residents to meet the demands for public goods and services within and beyond the communities, while membership-based associational organizations (registered

as 501c(other), including c4, c5,c6,c7,c8,c10, and c23 organizations), as the other type of nonprofit organization that are exclusively for the mutual-benefits of a select group of people, may function as distributer and transmitter of information on donation requests in the network and thus may facilitate private donations. Though generally recognized as 501 c (3) organizations by the IRS, religious congregations could have both functions since they may not only directly raise contributions for religious or non-religious causes from their congregation members, but also could serve as information distributer and transmitter since they have a network composed of members. No matter which role they play within communities, the existence of nonprofit organizations and religious congregations in communities is posited to be critical institutional infrastructure in promoting private contributions in communities (Rotolo & Wilson, 2012).

2.2.2 Empirical Evidence: From Individual to Contextual Level

Over the past several decades, a large and growing body of empirical studies have explored the relationship between social capital and charitable giving. Most of them are individual-level analyses using individual-level social capital measurements, such as level of generalized trust, personal social networks and membership in associational networks (Alhidari, et al., 2018; Bekkers, 2003, 2004; Brooks, 2005; Brown & Ferris, 2007; Choi & DiNitto, 2012; Cox et al., 2019; Forbes & Zampelli, 2011, 2013; Herzog & Yang, 2018; Hossain & Lamb, 2017; Jackson et al., 1995; Taniguchi, 2013; Taniguchi & Marshall, 2014; van den Broek et al., 2015; Wang & Graddy, 2008; Wiepking & Maas, 2009; Wu et al., 2018; Yen & Zampelli, 2014). Most of these studies found that the level of trust, personal social network, and involvement in associations are significantly and positively correlated with charitable giving at the individual level. Only a few studies

tried to test the relationship between social capital and charitable giving at the country or regional level (e.g., Bekkers, 2015; Helliwell, Wang, & Xu, 2016; Koster, 2007; Glanville, Paxton, & Wang, 2016), but the evidence from these studies is inconclusive and not consistent.

Since reliable state-level measurement on generalized trust is not available in existing data sources, the following will focus on reviewing and critiquing the empirical evidence on the relationship between the network dimension of social capital and charitable giving, at both individual and contextual level. In fact, a large body of research has explored this relationship in the past several decades, since networks are thought to be instrumental in spreading information on opportunities of and requests for donation (Schervish & Havens, 1997). Most existing research focused on individual-level personal or associational networks and revealed consistent findings on a positive impact of these networks on charitable giving (Brooks, 2005; Brown, 2005; Brown & Ferris, 2007; Forbes & Zampelli, 2011, 2013; Herzog, & Yang, 2018; Jackson et al., 1995; Wang & Graddy, 2008; Saxton & Wang, 2014; Wu et al., 2018; Yen & Zampelli, 2014), while evidence on the impact of network-based social capital on charitable giving at contextual-level is limited and less conclusive (e.g. Bekkers & Veldhuizen, 2008; Borgonovi, 2008; Glanville, Paxton, & Wang, 2016).

Specifically, numerous individual-level studies consistently found that individual involvement in associational networks (either religious or non-religious) and related activities is positively associated with individual charitable giving in the U. S (Brooks, 2005; Brown, 2005; Brown & Ferris, 2007; Choi & DiNitto, 2012; Forbes & Zampelli, 2011, 2013; Herzog & Yang, 2018; Jackson et al., 1995; Li, 2017; Wang & Graddy, 2008;

Yen & Zampelli, 2014) , except that attendance at religious services might have a negative effect on secular giving (Brooks, 2005). However, evidence from contextual level and multilevel studies that explored the impact of contextual networks on charitable giving is limited and mixed. Existing contextual or multi-level studies on the impact of contextual networks on charitable giving usually aggregate individual-level involvement in associational networks into the contextual level. For instance, one region-level analysis with sample of 457 municipalities in the Netherlands found that both the proportion of the population that holds at least one membership in voluntary associations at municipality level and the average number of memberships at the municipality level have no significant correlation with monetary donation and blood donation in the Netherlands (Bekkers & Veldhuizen, 2008). In addition, another multilevel analysis based on individual and regional level data from 160 regions in 19 countries in Europe included both individual respondents' days of interaction with friends, relatives, or work colleagues, and respondents' average days of interaction with friends, relatives, or work colleagues at each region at the two-level modelling, but only found that individual level frequency of interaction with friends, relatives, or colleagues is significantly and positively associated with both charitable giving and volunteering at the individual level (Glanville, Paxton, & Wang, 2016).

In addition, two studies on contextual predictors of volunteering across countries in the world and across states in the United States revealed some mixed evidence of the impact of contextual networks on volunteering and could provide some insights for exploring the relationship between contextual network-based social capital and charitable giving. Specifically, in their multilevel analysis with both individual and state level data

in 50 states in the United States, Rotolo and Wilson (2012) found that the density of nonprofit organizations, measured by the number of nonprofit organizations per 1000 persons living in a state in 2006 (from the National Center for Charitable Statistics listing of "Other 501(c) Nonprofit Organizations", i.e., various types of associational organizations), as one type of network-based social capital at the state level, is significantly and positively associated with secular volunteer rate rather than religious volunteer rate. Another type of network-based social capital at the state level, i.e., the density of religious congregations, measured by the number of religious congregations per 1000 persons living in a state in 2004, is also found to be significantly and positively associated with religious volunteer rate, rather than secular volunteer rate. In addition, based on a multilevel analysis with 193,799 individuals in 1,065 counties in the United States, Lim and MacGregor (2012) found that the density of civic associations at the county level is significantly and positively correlated with volunteering, while the density of religious organizations at the county level is negatively related to volunteering.

2.2.3 Critiques and Hypotheses

Previous contextual and multilevel studies on charitable giving have often neglected a more direct measurement of contextual-level networks: density of nonprofit organizations and density of religious congregations. As shown by Rotolo and Wilson (2012) and Lim and MacGregor (2012), the density of nonprofit organizations and density of religious congregations have a significant relationship with the volunteering rate at the state or county level in the U.S. It is reasonable to posit that the density of nonprofit organizations (including associational organizations) and the density of religious congregations might also be positively associated with charitable giving at the

state level due to the similarities between volunteering and charitable giving. Therefore, it is hypothesized that:

H4a (level of giving)*: states with higher density of associational organizations tend to have higher level of charitable giving than states with lower density of associational organizations, all else being equal.*

H4b (rate of giving)*: states with higher density of associational organizations tend to have higher rate of charitable giving than states with lower density of associational organizations, all else being equal.*

H5a (level of giving)*: states with higher density of religious congregations tend to have higher level of charitable giving than states with lower density of religious congregations, all else being equal.*

H5b (rate of giving)*: states with higher density of religious congregations tend to have higher rate of charitable giving than states with lower density of religious congregations, all else being equal.*

A potential drawback of these two studies is that the authors only included the density of associational organizations (501c(other)) and did not include the density of charitable organizations (501c (3)) in the measurement for the density of nonprofit organizations. In fact, charitable organizations, including public charities and private foundations (excluding religious congregations), as a major and critical component of nonprofit organizations, could be one of the major institutions that recruit and use a lot of volunteers and request for donations. Residents in a state with a higher density of charitable organizations are more likely to be exposed to request for donations sent by these organizations and thus are more likely to donate and donate more compared to

those who reside in a state with a lower density of charitable organizations. Therefore, there could be a positive relation between the density of charitable organizations and charitable giving at the state level. It is hypothesized that:

H6a (level of giving)*: states with higher density of charitable organizations tend to have higher level of charitable giving than states with lower density of charitable organizations, all else being equal.*

H6b (rate of giving)*: states with higher density of charitable organizations tend to have higher rate of charitable giving than states with lower density of charitable organizations, all else being equal.*

More importantly, from the demand-side perspective on public service provision, the level of income inequality may also signal demands for public services by residents in a state as represented by the density of charitable organizations. A high level of income inequality in a state may represent diverse or high demands for public services. Therefore, the level of income inequality might also have a positive relationship with charitable giving at the state level. It is hypothesized that:

H7a (level of giving)*: states with higher level of income inequality tend to have higher level of charitable giving than states with lower level of income inequality, all else being equal.*

H7b (rate of giving)*: states with higher level of income inequality tend to have higher rate of charitable giving than states with lower level of income inequality, all else being equal.*

Yet, since the density of charitable organizations and level of income inequality could go in the opposite direction in a state, it is possible that the level of income

inequality may moderate the relation between the density of charitable organizations and charitable giving in a state. On the one hand, a low level of income inequality in a state may partially cancel out the potential positive impact of a high density of charitable organizations on charitable giving in a state. On the other hand, a high level of income inequality in a state may partially make up the potential negative impact of a low density of charitable organizations in a state. Therefore, when considering whether a high density of charitable organizations in a state can attract more people to donate or more donations, another factor, the level of income inequality in a state also needs to be considered. In other words, the impact of the density of charitable organizations on charitable giving at the state level might be dependent upon the level of income inequality at the state level. Therefore, it is hypothesized that:

H8a (level of giving)*: the marginal effect of the density of charitable organizations on the level of charitable giving at the state level is dependent upon income inequality.*

H8b (rate of giving)*: the marginal effect of the density of charitable organizations on the rate of charitable giving at the state level is dependent upon income inequality.*

2.3 Cultural Capital and Charitable Giving: Theory and Evidence

2.3.1 Cultural Capital Theory: From Micro to Macro

In sociological studies, cultural capital is broadly defined and may exist in various forms, such as “long-lasting dispositions of body and mind”, “cultural goods(pictures, goods, etc.)”, or “a form of objectification” (Bourdieu, 2007). In studies on regional philanthropy, scholars usually use a much narrower conception of cultural capital and treat it as religious capital or religiosity (Rotolo & Wilson, 2012). This study follows this tradition in philanthropic studies and use the narrow definition of cultural capital but

acknowledges the limitations of this approach. Religiosity is found to be another important predictor of charitable giving, especially for charitable giving for religious causes (Bekkers & Wiepking, 2011b). At the individual level, cultural capital is often referred to religiosity and is usually measured by religious belief (or importance of religion in life), religious affiliation, or church attendance, while at the contextual level, cultural capital is usually measured by the ratio of religious adherents or average score of religious importance (regional religiosity).

In the review article on the predictors of charitable giving, Bekkers and Wiepking (2011b, p. 342) outlined three mechanisms that explain the relation between religion and charitable giving at the individual level: solicitation, reputation, and values. The solicitation mechanism posits that people with religious belief or affiliation are more likely to receive requests for donations from their religious communities and thus are more likely to donate. The reputation mechanism states that people in a religious community often donate to religious and non-religious causes because they face social pressure to do so, and they can receive social rewards from doing so as their church members would praise their philanthropic behaviors. Values, especially some religious values or prosocial values that religious people have, can directly influence the propensity to donate and decisions in donations.

Similarly, the above three mechanisms might also work at the contextual level. In a community, region (state or county), country, or society, where a large proportion of people have religious beliefs, strongly believe in the importance of religion in life, or often attend religious services, people (no matter religious or not) are in general more likely to interact with those religious people, who may share their religious values or

prosocial values, spread information on donation requests to those who may not be religious, and assign social rewards and reputation to those who join their philanthropic behaviors, and thus may put social pressure to those who may not participate in prosocial actions in the first place. In such a highly religious community, non-religious people might be very likely influenced by the philanthropic behaviors of their religious neighbors. Therefore, at the community level, religiosity or ratio of religious adherents may also play an important role in deciding collective charitable giving at the community level.

2.2.2 Empirical Evidence: From Individual to Contextual Level

Empirical evidence from individual-level studies on the positive impact of religiosity on giving (especially giving to religious causes) is relatively consistent across studies (e.g., Bekkers & Schuyt, 2008; Brown & Ferris, 2007; Forbes & Zampelli, 2013; Jackson et. al, 1995; Peifer, 2010; Wang & Graddy, 2008), though evidence on the impact of religiosity on giving to secular causes is mixed (e.g., Bekkers & Schuyt, 2008; Brown & Ferris, 2007; Forbes & Zampelli, 2013; Hodgkinson & Weitzman, 1996; Wang & Graddy, 2008). For instance, Hodgkinson & Weitzman (1996) found that religiosity seems to increase both religious and secular giving, while Wang and Graddy (2008) found no significant correlation between religiosity and secular giving. In addition, Bekkers and Schuyt (2008) found that the significant positive relation between salience of religion (belief in importance of religion in life) and donations to non-religious causes diminished when frequency of church attendance and exposure to requests were added into the model. Brown and Ferris (2007) even concluded that the positive effect of religiosity on secular giving was reversed to negative when the social capital predictors

were added into the model. Forbes and Zampelli (2013) also concluded individuals with higher level of religiosity tend to donate less money to secular causes.

However, evidence on the relationship between religiosity and charitable giving from contextual level and multilevel studies is very limited and inconclusive. For instance, in their comparative analysis of charitable giving across counties in the United States, Paarlberg et al. (2018) revealed that the rate of religious adherents in a county is positively correlated with itemized contributions as percentage of Adjusted Gross Income in a county. In his cross-national comparison analysis, Einolf (2017) used the percentage of respondents in a country who think religion is important in their lives as country-level measurement of religiosity but didn't find any significant relationship between country-level religiosity and the rate of charitable giving at the country-level. In addition, two other studies that explored the relation between religiosity and volunteering in multi-level settings may shed some light for this study, though they are not directly focused on religion and charitable giving. In a multilevel analysis on individual and state-level predictors of volunteering in the United States, Rotolo and Wilson (2012) included state-level religiosity (importance of religion in life) in the second-level model and found that state-level religiosity is significantly and positively associated with religious volunteering but has no significant relation with secular volunteering. In another multilevel study based on individual and country level data, Ruiter and De Graaf (2006) found that both church attendance at individual level and average church attendance at the country level are significantly and positively correlated with general volunteering.

2.3.3 Critiques and Hypotheses

In general, evidence on the relation between religiosity and charitable giving in

contextual level and multilevel analyses is very limited and not conclusive. There is no direct empirical testing of the relation between ratio of religious adherents and charitable giving at the state level. In addition, it is still unknown whether different measurements for cultural-related capital, such as religiosity, ratio of religious adherents, and density of religious congregations, all have significant relations with both the level and rate of charitable giving at the state level. Previous contextual or multi-level studies either considered importance of religion in life or the ratio of religious adherents as the measurement for religiosity at the contextual level. This study will include both measurements in the statistical models and data analyses.

Although the empirical evidence on the relationship between religiosity and charitable giving at the regional level is inconclusive, the general direction in the hypotheses between religiosity and general charitable giving in previous studies is positive. Therefore, it is reasonable to make this general positive hypothesis because this study is not going to differentiate religious giving from secular giving at the state level since it is not feasible to do so with the current available data sources. Following and extending previous contextual level and multi-level studies (e.g., Gittell & Tebaldi, 2006; Rotolo & Wilson, 2012), this study proposes the following hypotheses at the state level:

H9a (level of giving)*: states with higher level of religiosity (importance of religion in life) tend to have a higher level of charitable giving than states with a lower level of religiosity, all else being equal.*

H9b (rate of giving)*: states with higher level of religiosity (importance of religion in life) tend to have higher rate of charitable giving than states with lower level of religiosity, all else being equal.*

H10a (level of giving)*: states with higher ratio of religious adherents tend to have higher level of charitable giving than states with lower ratio of religious adherents, all else being equal.*

H10b (rate of giving)*: states with higher ratio of religious adherents tend to have higher rate of charitable giving than states with lower ratio of religious adherents, all else being equal.*

2.4 Other (control) variables

Since the control variables are not the focus of this study, they will only be briefly mentioned in this sub-section based on existing literature. The control variables at individual level that could potentially influence charitable giving include gender, age, race, marital status, household type, employment status, household income, education, and volunteering (Glanville, Paxton, & Wang, 2016; Wang & Graddy, 2008; Borgonovi, 2008). According to previous research, potential control variables at the state level include: income per capita (Glanville, Paxton, & Wang, 2016; Lim & MacGregor, 2012; Ruiter & De Graaf, 2006; Wolpert,1989); government welfare spending per capita (De Wit et al., 2018; Ruiter & De Graaf, 2006; Wolpert, 1988, 1989), state and local tax burden (Paarlberg et al., 2018); race heterogeneity, household composition, labor force composition, education level (Rotolo & Wilson, 2012); volunteer rate, percentage of itemizing (Gittell & Tebaldi, 2006); and income inequality, i.e., Gini index (Bielefeld, Rooney, & Steinberg, 2005; Borgonovi, 2008).

Among these state-level control variables, income per capita or other relevant measurements are usually used as controls to tease out the possibility that the potential relationship between independent variables (such as social capital) and charitable giving

is driven by the economic level of a region or state (Glanville, Paxton, & Wang, 2016). Tax burden, usually the state and local tax rate, is revealed to be an important mediating factor in the relationship between contextual political ideology and donations (Paarlberg et al., 2018). In this study, tax burden is treated as a control variable, rather than a proxy to represent the levels of government service provision as used in the Paarlberg et al. 2018 study. Also, given that volunteering is usually correlated with charitable giving at the individual level, that is, volunteers are often donors as well (e.g., Wang & Graddy, 2008), another state-level variable, volunteering rate, could also influence charitable behavior at the state-level since the more volunteers a state have, the more likely the state have more donors (Gittell & Tebaldi, 2006).

In addition, measured by the percentage of tax filers who itemized their charitable contributions in tax returns, percentage of itemizing was used by Gittell and Tebaldi (2006) as a proxy for the price of giving as it is believed that tax filers respond to giving price incentives through itemizing their contributions as tax deductions. Tax filers who gave but did not itemize their contributions were thought to treat giving as no price. These givers might be more purely donors since they did not care much to use the tax incentives through itemizing their contributions.

What's more, race heterogeneity and income inequality are thought to be important factors that may increase the demand for more donations in a region since the more racially diverse and more unequal a region is, more demand for public services might exist in the region (Rotolo & Wilson, 2012). On the contrary, government spending on public welfare is thought to be negatively associated with donations since the higher government spending on public welfare, the more demand of services would be met and

less demand for solutions from private donations is needed (Ruiter & De Graaf, 2006). What is noteworthy is that government spending on public welfare might interact with income inequality since these two factors at the state level are expected to move towards opposite directions in their relationship with charitable giving. This expectation is different from the classic crowd-out/in model in which the level of government spending on public welfare is hypothesized to either crowd out or crowd in private contributions (Schiff, 1985; Steinberg, 1991). Therefore, in this study, it is hypothesized that there will be a significant interactive effect between government spending on public welfare and income inequality on the level and rate of charitable giving at the state level.

2.5 Summary

Although some efforts have been devoted by previous scholars to explore the impacts of political ideology, social capital, and cultural capital on charitable giving in contextual level and multilevel analyses, most existing empirical studies are based on analyses at the individual level charitable giving. More empirical research on charitable giving at the contextual/regional level is necessary and will help us better understand whether and how macro-level political, social, and cultural factors can explain the differences in charitable giving at the contextual/regional level. The goal of this study is to fill this research gap by conducting a state-level analysis on the heterogeneity in both the level and the rate of charitable giving across the states in the United States from the macro perspectives of political ideology, social capital, and cultural capital. The following chapter will introduce the data sources and describe the methodology for the study.

Chapter 3 Data and Methodology

3.1. Data

3.1.1 Data Sources

Multiple publicly available secondary data sources at the U.S. state and individual level were combined and used in this study (see Table 3.1). The data include: the level of charitable giving at the state-level from the U.S. Internal Revenue Service (IRS) Business Master Files Tax Return Data (2009-2011); the rate of charitable giving at the state-level taken from three-year average estimates of the Current Population Survey Volunteer Supplement (CPSVS) (2009-2011); the state-level measure of nonprofit density (density of charitable organizations and associational organizations) from 2009 to 2011 from National Center for Charitable Statistics (NCCS) IRS Business Master Files; state-level religious congregations and ratio of adherents from the 2010 United States Religion Census (USRC); state-level measures of religiosity from the Trends in Political Values and Core Attitudes (TPVCA) (1987-2009), collected by the Pew Research Center; 2008 and 2012 two-year average political ideology at the state-level from the Federal Elections 2008 and 2012; state-level educational attainment, household composition, labor force composition, race heterogeneity, and Gini Index taken from three-year average estimates of the American Community Survey (ACS) (2009-2011); state-level volunteering rate taken from three-year average estimates of the Current Population Survey Volunteer Supplement (CPSVS) (2009-2011); three-year average state and local tax burdens, as well as three-year average state-level income per capita taken from the State-local Tax Burden Rankings (STBR) (2009-2011), collected by the Tax Foundation; three-year average public welfare spending per-capita at the state and local level (2009-2011) taken

from the State & Local Government Finance Data Query System (SLGFDQS), collected by the Urban Institute-Brookings Institution Tax Policy Center.

Table 3.1 Sources of Key Variables

Variable Name	Source
Dependent Variables	
Rate of charitable giving	CPSVS (2009-2011)
Level of charitable giving	IRS Business Master Files Tax Return data (2009-2011)
Independent Variables-Individual Level	
Gender	CPSVS (2009-2011)
Age	CPSVS (2009-2011)
Race/ethnicity	CPSVS (2009-2011)
Educational attainment	CPSVS (2009-2011)
Employment status	CPSVS (2009-2011)
Household type	CPSVS (2009-2011)
Marital status	CPSVS (2009-2011)
Household income level	CPSVS (2009-2011)
Volunteer	CPSVS (2009-2011)
Independent Variables-State Level	
Density of charitable organizations	NCCS (2009-2011)
Density of associational organizations	NCCS (2009-2011)
Density of religious congregations	USRC (2010)
State-level religiosity	TPVCA (1987-2009)
State-level ratio of religious adherents	USRC (2010)
State-level political ideology	Federal Elections (2008 & 2012)
Control Variables-State Level	
Income per capita	STBR (2009-2011)
Tax burden rate	STBR (2009-2011)
Public welfare spending per capita	SLGFDQS (2009-2011)
Household composition	ACS (2009-2011)
Labor force composition	ACS (2009-2011)
Race heterogeneity	ACS (2009-2011)
Educational attainment	ACS (2009-2011)
Income inequality	ACS (2009-2011)
Volunteering rate	CPSVS (2009-2011)

3.1.2 Rationale and Limitation of Data Selection3

The rationale for selecting the abovementioned data sources for the dependent, independent, and control variables in this study follows two principles: data availability and data appropriateness. The goal is to choose the most appropriate data that is publicly available to access. For instance, for the dependent variable on the rate of charitable giving at the state level, the most appropriate dataset to use is the Current Population

Survey Volunteer Supplement because this survey includes a specific question on individual charitable giving behavior and has the largest sample among existing US national surveys to estimate state-level giving rate. In addition, for the dependent variables on the level of charitable giving at the state level, the IRS tax return data is the one that makes estimating people's generosity at the state-level the most feasible even though the estimation based on the IRS data can only serve as a proxy of the true value of charitable giving at the state level. Moreover, for the density of religious congregations and ratio of adherents at the state level, the United States Religion Census 2010 is the most recent and best data source that can provide the most accurate estimation of these two independent variables. Lastly, to avoid the potential influence of one year's fluctuation in the value of a variable at the state level, most variables at the state level are based on three-year average estimation of data from 2009 to 2011. The target year is 2010 since some key variables are measured in 2010, such as the density of religious congregations and ratio of religious adherents, and because the 2008 and 2012 presidential elections are the two most recent and normal national elections before the 2016 unprecedented national elections. It is noticeable that selecting 2010 as the target year might make the results in this study to some extent less normal since 2010 is close to the 2008 great recession.

The CPS Volunteer Supplement and IRS tax return data have their own data limitations. First, in the research design of CPS Volunteer Supplement survey, it only includes one simple question on giving, that is, whether a respondent donated more than 25 dollars to religious and/or secular causes in the past 12 months. This measure does not cover those donors who may have donated less than 25 dollars. It also does not

differentiate whether the donation was explicitly made to a religious cause or a secular cause. Second, the IRS tax return data cannot represent the entire US population because not everyone filed tax returns, and further, among tax filers, not everyone itemized their charitable contributions. Based on estimation from previous research (Deb, Wilhelm, Rooney, and Brown, 2003), the itemized charitable contributions based on the IRS tax return data account for about 60% of total charitable contributions in the United States. Again, estimation of the level of charitable giving based on the IRS data is the general overall level of giving and does not differentiate the level of religious giving and the level of secular giving.

3.2 Operationalization, Measurement and Descriptive Statistics

3.2.1 Dependent Variables

The dependent variables include both the *level* and *rate of charitable giving* at the state level. The *level of charitable giving* refers to three-year average level of contributions to secular and/or religious causes based on the Internal Revenue Service tax return data (2009-2011). Following Gittell et al. (2006), Havens & Schervish (2014), and Paarlberg et al. (2018), it is measured by several different indicators: average giving per tax filer in a state from 2009 to 2011, average giving per itemizer in a state from 2009 to 2011, average giving per giver in a state from 2009 to 2011, and average giving as percentage of adjusted gross income in a state from 2009 to 2011 (see Table 3.2).

Average giving per tax filer refers to ratio of total contributions in a state to total number of tax filers in the state. It includes all households that reported income, filed a tax return, and could have chosen to itemize the tax returns and contribute to charity. As shown in Table 3.3, the mean value of three-year average giving per tax filer across the

Table 3.2 Operationalization of Key Variables

Variable Name	Definition/Measurement
Dependent Variables	
Donating	Whether respondents donated more than $25 to secular and/or religious causes in the past 12 months (2009-2011)
Rate of Charitable Giving	3-year pooled average proportion of residents who donated more than $25 to secular and/or religious causes in the past 12 months in a state (2009-2011)
Level of Charitable Giving	3-year average giving per tax filer in a state (2009-2011) 3-year average giving per tax itemizer in a state (2009-2011) 3-year average giving per giver in a state (2009-2011) 3-year average giving as percentage of adjusted gross income in a state (2009-2011)
Independent Variables-Individual Level	
Gender	gender of respondents (female=1, male =0)
Age	age of respondents
Race/ethnicity	race group of respondents (Black=2, White=1, Other race/ethnicity=0)
Educational Attainment	whether respondents have a college degree or more or less than college degree
Employment Status	whether respondents are employed (1), not employed (2), or not in labor force (0)
Household Type	whether there are children under age 18 present in the household (yes=1, no=0)
Marital Status	whether respondents are married (yes=1) or not (no=0)
Household Income Level	annual family income level of respondents (less than US$35,000, US$35,000-$49,999, US$50,000-US$74,999, and US$75,000 or more)
Volunteer	whether respondents volunteered through or for an organization (yes=1, no=0)
Independent Variables-State Level	
Density of Charitable Organizations	3-year average number of charitable organizations (501c3, not including religious congregations) per 10,000 persons living in a state (2009-2011)
Density of Associational Organizations	3-year average number of associational organizations (501c other) per 10,000 persons living in a state (2009-2011)
Density of Religious Congregations	number of religious congregations per 10,000 persons living in a state in 2010
State-level Religiosity	aggregated composite measure of individuals' opinions on religious values
State-level Ratio of Adherents	3-year percentage of people who are religious adherents in a state in 2010
State-level Political Ideology	average percentage of voters who voted for the Republican candidate in the 2008 and 2012 presidential elections
Control Variables-State Level	
Income Per Capita	3-year average standard of living in a state between 2009 and 2011
Tax Burden Rate	3-year average proportion of total state income that goes to state and local taxes in a state
Public Welfare Expenditure Per capita	3-year average amount of money per resident that a state spends on public welfare programs in the state between 2009 and 2011
Household Composition	3-year average percentage of households in a state identified as married with their own children under the age of 18
Labor Force Composition	3-year average proportion of people not in the labor force with respect to people who are 20 years or older in a state
Race Heterogeneity	3-year average likelihood that any two random individuals from the same state population do not have the same ethnic background
Educational Attainment	3-year average percentage of the population in each state with a bachelor's or higher degree
Income Inequality	3-year average economic disparity in a state measured by Gini Index
Volunteering Rate	3-year weighted average proportion of population in a state who did volunteer work in the past 12 months

states is 1,127 US dollars, with a minimum value of 622 US dollars and a maximum value of 2,465 US dollars. Average giving per tax itemizer refers to the ratio of total contributions in a state to the total number of itemizers in the state. The itemizers refer to those households that have itemized their tax returns. As seen in Table 3.3, the mean value of three-year average giving per tax itemizer across the states is 3,598 US dollars, with a minimum value of 2,147 US dollars and a maximum value of 6,311 US dollars. A more direct measure is the average giving per giver, that refers to the ratio of total contributions in a state to the total number of givers in the state. The givers refer to those households that not only itemize their tax returns but also contributed to charity as shown in the tax returns for tax deductions. The mean value of three-year average giving per giver across the states is 4,505 US dollars, with a minimum value of 2,746 US dollars and a maximum value of 8,858 US dollars (see Table 3.3). More recently, researchers (Paarlberg et al., 2018) tend to use another indicator, percentage of adjusted gross income (AGI), to measure the generosity of a state, that is, taking the total giving in a state as a percentage of the total adjusted gross income in the state. As seen in Table 3.3, the mean value of three-year average percentage of AGI is about 2.1%, with a minimum value of 1.2% and a maximum value of 4.7%. This study used all these four indicators to measure giving level to see if there is any difference in the estimations. To avoid the potential influence of one year's fluctuation in giving level on final estimation, all the four indicators are based on three-year average estimation of giving from 2009 to 2011.

The *rate of charitable giving* refers to three-year average proportion of residents who donated at least 25 US dollars to secular and/or religious causes in the past 12 months in a state based on the Current Population Survey Volunteer Supplement (2009-2011). To

measure this variable, this study used both pooled three-year-average giving rate and predicted three-year-average giving rate (see Table 3.2). The first measure was estimated by pooling the three-year CPS Volunteer Supplement data and calculate the three-year average giving rates for each state, considering the final composite weight. As seen in Table 3.3, the mean value of three-year average giving rate is 53.5%, with a minimum value of 42.3% and a maximum value of 66.1%. The second measure is estimated based on averaging the predicted probabilities of respondents to give for each state from 2009 to 2011. The predicted probabilities are estimated based on a two-level random intercept generalized linear model with a logit link, with both individual level independent predictors and state ID included in the model. The mean value of predicted three-year average giving rate is 56.1%, with a minimum value of 45.3% and a maximum value of 68.5% (see Table 3.3).

3.2.2 Independent Variables

For state-level models, state-level independent variables come from multiple data sources. State-level social capital refers to the stock networks at the state level, including *state-level density of charitable organizations, state-level density of associational organizations*, and *state-level density of religious congregations* (see Table 3.2). The *state-level density of charitable organizations*, taken from the National Center for Charitable Statistics IRS Business Master Files dataset (2009-2011), refers to the three-year average number of charitable organizations per 10,000 residents living in a state from 2009 to 2011. These charitable organizations are 501c (3) public charities and private foundations, including religious, educational, charitable, scientific, and literary organizations, but do not include religious congregations. As seen in Table 3.3, the mean

Table 3.3 Descriptive Statistics for State Level Model

State Level Model for Both Giving Level and Giving Rate					
Dependent Variables	**N**	**Mean**	**Std. Dev.**	**Min**	**Max**
Average Giving Per Tax Filer	51	1,127	333	622	2,465
Average Giving Per Tax Itemizer	51	3,598	911	2,147	6,331
Average Giving Per Giver	51	4,505	1,179	2,746	8,858
Percentage of AGI	51	.021	.006	.012	.047
Pooled Average Giving Rate	51	.535	057	.423	.661
Predicted Average Giving Rate	51	.561	.056	.453	.685
Independent Variables					
Density of Charitable Organizations	51	41.710	18.756	22.037	154.977
Density of Associational Organizations	51	14.621	10.548	5.732	75.116
Density of Religious Congregations	51	13.300	5.181	5.155	23.816
Ratio of Religious Adherents	51	.485	.103	.276	.791
Religiosity	51	2.465	.247	1.911	2.938
Political Ideology	51	.480	.113	.069	.677
Control Variables					
Volunteer Rate	51	28.791	5.280	20.48	43.033
Public Welfare Expenditure Per Capita	51	1,559.588	562.743	822.872	4,436.974
Tax Burden Rate	51	.098	.012	.070	.128
Income Per Capita	51	42,016.52	7,364.668	30,844.4	66,610.39
Gini Index	51	.455	.021	.411	.533
Household Composition	51	.298	.034	.181	.420
Labor Force Composition	51	32.869	3.607	26.371	43.805
Race Heterogeneity	51	.345	.139	.089	.576
Educational Attainment	51	25.518	5.307	16.719	46.395
Percentage of Itemizing	51	.318	.065	.186	.484

value of the *state-level density of charitable organizations* is 41.71, with a minimum value of 22.04 and a maximum value of 154.98. The *state-level density of associational organizations,* also taken from the NCCS IRS Business Master Files dataset (2009-2011), refers to the three-year average number of associational organizations per 10,000 residents living in a state from 2009 to 2011. It indicates the level of associational life in a state. These associational organizations include: 501c (4) civic leagues, social welfare organizations, and local 501c (5) labor, agricultural, and horticultural organizations; 501c (6) business leagues, chambers of commerce, real estate boards, etc.; 501c (7) social and recreational clubs; 501c (8) and 501c (10) fraternal beneficiary societies and associations;

and 501c (23) veterans' associations. As seen in Table 3.3, the mean value of the *state-level density of associations* is 14.62, with a minimum value of 5.73 and a maximum value of 75.12. The *state-level density of religious congregations*, taken from the *2010 U.S. Religion Census*, refers to the number of religious congregations per 10,000 residents living in a state in 2010. The mean value of *state-level density of religious congregations* is 13.3, with a minimum value of 5.16 and a maximum value of 23.82 (see Table 3.3).

The *state-level cultural capital* is measured by state-level religiosity and ratio of religious adherents. Following Rotolo and Wilson (2012), this study uses the same composite measure of people's opinions on religious values to measure *state-level religiosity*, which are a set of questions from the Trends in Political Values and Core Attitudes (1987-2009) collected by the Pew Research Center. The total number of respondents used for estimating this variable is 24,530, with about 481 respondents on average per state. The respondents were asked to respond with their level of agreement to the following four statements on religious values: "prayer is an important part of my daily life"; "we will all be called before God at the Judgment Day to answer for our sins"; "even today miracles are performed by the power of God"; and "I never doubt the existence of God". The original response is at a 4-point scale, ranging from "completely agree" to "completely disagree". These variables were first recoded into binary variables and then aggregated. Eventually, the mean of the aggregated variable for each state was estimated. As seen in Table 3.3, the mean value of *state-level religiosity* is 2.47, with a minimum value of 1.91 and a maximum value of 2.94.

In addition, informed by Einolf (2017), *state-level ratio of religious adherents* is

Table 3.4 Descriptive Statistics for Two-Level Model

Variables	N	Mean	Std. Dev.	Min	Max
Two Level Model for Giving Rate					
Dependent Variable					
Donating	276,909	.530	.499	0	1
Individual Level Independent Variables					
Sex	276,909	.525	.499	0	1
Age	276,909	45.990	18.452	15	85
Race	276,909	1.023	.413	0	2
Married	276,909	.534	.499	0	1
Children	241,092	.311	.463	0	1
College Degree	276,909	.271	.444	0	1
Employment Status	276,909	.698	.567	0	2
Household Income Level	276,909	2.381	1.262	1	4
Volunteering	276,909	.284	.451	0	1
State Level Independent Variables					
Density of Charitable Organizations	51	41.710	18.756	22.037	154.977
Density of Associational Organizations	51	14.621	10.548	5.732	75.116
Density of Religious Congregations	51	13.300	5.181	5.155	23.816
Ratio of Religious Adherents	51	.485	.103	.276	.791
Religiosity	51	2.465	.247	1.911	2.938
Political Ideology	51	.480	.113	.069	.677
State level Control Variables					
Volunteer Rate	51	28.791	5.280	20.48	43.033
Public Welfare Expenditure Per Capita	51	1,559.588	562.743	822.872	4,436.974
Tax Burden Rate	51	.098	.012	.070	.128
Income Per Capita	51	42,016.52	7,364.668	30,844.4	66,610.39
Gini Index	51	.455	.021	.411	.533
Household Composition	51	.298	.034	.181	.420
Labor Force Composition	51	32.869	3.607	26.371	43.805
Race Heterogeneity	51	.345	.139	.089	.576
Educational Attainment	51	25.518	5.307	16.719	46.395
Percentage of Itemizing	51	.318	.065	.186	.484

measured by percentage of people who are religious adherents in a state. This variable was also taken from the *2010 U.S. Religion Census*, which includes the ratio of adherents for each state. According to Table 3.3, the mean value of *state-level ratio of religious adherents* is 48.5%, with a minimum value of 27.6% and a maximum value of 79.1%.

Finally, *state-level political ideology*, taken from the *Federal Elections 2008 and 2012*, refers to the average percentage of state voters who voted for the Republican candidate in the 2008 and 2012 presidential elections. As seen in Table 3.3, the mean

value of *state-level political ideology* is 48%, with a minimum value of 6.9% and a maximum value of 67.7%. For the multi-level mixed effects generalized linear model, two levels (individual and state) of independent variables are included. All the individual-level independent variables are from the pooled three-year average estimations based on the Current Population Survey Volunteer Supplement (2009-2011). Following Rotolo and Wilson (2012), the following individual-level variables were included: *gender*, *age*, *race/ethnicity*, *educational attainment*, *employment status*, *household type*, *marital status*, *household income level,* and *volunteering* (see Table 3.4). State-level variables that are included in the state-level OLS models are also included in this two-level model.

3.2.3 Control Variables

State level control variables also come from multiple sources (see Table 3.1). The descriptive statistics of these control variables are shown in Tables 3.3 and 3.4. The state-level *income per capita* from 2009 to 2011, taken from State-local Tax Burden Rankings (STBR) (2009-2011) collected by the Tax Foundation, represents the average standard of living in a state in between 2009 and 2011. *State and local tax rate* from 2009 to 2011, also taken from the State-local Tax Burden Rankings (2009-2011), is the three-year average proportion of total state income that goes to state and local taxes in a state in from 2009 to 2011. It measures the three-year average tax burden of living in a state. The *state and local public welfare spending per capita*, taken from the State & Local Government Finance Data Query System collected by the Urban Institute-Brookings Institution Tax Policy Center, refers to the three-year average amount of money per resident that a state spends on public welfare programs in the state from 2009 to 2011.

Household composition, from the 3-year average estimates of the American

Community Survey (2009-2011), is measured by the percentage of households in a state identified as married with their own children under the age of 18. From the same source as household composition, *labor force composition* is measured by the proportion of people not in the labor force with respect to people who are 21 years or older in a state. *Race heterogeneity* refers to ethnic diversity in a state and is measured by the likelihood that any two random individuals from the same state population do not have the same ethnic background. Following Blau (1977, p. 9), race heterogeneity is computed as follows: $heterogeneity=1-\sum p_i^2$, in which p_i is the percentage of population in a state that is identified as a member of one of the i racial categories and i equals 7 in this study as the respondents is categorized as 7 racial groups. *Income inequality* at the state level, refers to economic disparity in a state and is measured by the three-year average Gini Index in a state from 2009 to 2011. The three-year average Gini Index, ranging from 0 to 1, also comes from the 3-year average estimates of the American Community Survey (2009-2011). *Volunteering rate*, from the Current Population Survey Volunteer Supplement (2009-2011), is measured by the three-year average proportion of population in a state who volunteered in the past 12 months. The percentage of itemizing, also taken from the IRS Business Master Files Tax Return Data (2009-2011), refers to the three-year average percentage of tax filers who itemized charitable contributions in their tax returns, used as a proxy for price of giving in a state, following Gittell and Tebaldi's (2006) approach.

3.3 Estimation Method

For the state-level dependent variables on the level of charitable giving, namely average giving per tax filer and contributions as percentage of AGI, ordinary least

squares (OLS) regressions were used to regress them on the state-level independent and control variables and estimate the impact of state-level social, cultural, and political factors since they are continuous variables obtained from the IRS tax return data. Since the three measurements (average giving per tax filer, average giving per itemizer, and average giving per giver) for dependent variable (the level of charitable giving) are not normally distributed, they were included in the models after natural log-transformations.

The model specification for each of these dependent variables is as following:

$$y_j = \alpha_{0j} + \alpha_{1j}X_{1j} + \alpha_{2j}X_{2j} + \alpha_{3j}X_{3j} + \alpha_{4j}X_{4j} + \alpha_{5j}X_{5j} + \alpha_{6j}X_{6j} + \sum_{16}^{7} \alpha_j X_j + e_j$$

where j = 1, 2, 3, …, 51 is the state index, while y_j represents the level of charitable giving (measured by pooled average giving rate, predicted average giving rate, average giving per tax filer, itemizer, giver, or percentage of AGI in separate models) in a state. Covariates $X_{1\mathrm{j}}$ to $X_{6\mathrm{j}}$ are state-level independent variables and $\sum_{16}^{7} \alpha_j X_j$ represents the state-level controls. e_j represents the error terms. To check the robustness of the results based on giving per filer and contributions as percentage of AGI, additional regressions were run to regress the other two dependent variables for the level of charitable giving (namely, average giving per tax itemizer and average giving per giver) on the state-level independent and control variables.

For the dependent variables on the rate of charitable giving, OLS regressions were adopted to regress the pooled three-year average giving rate and predicted three-year average giving rate respectively on the state-level independent and control variables. The regression models are the same as the models used for the level of charitable giving. A multi-level mixed effects generalized linear model with a logit link was used to confirm

the results from the OLS models for the rate of charitable giving. In this multi-level model, the individual respondents (level-1 units, N1=241,092) are nested within the states (level-2 units, N2=51). For the level-1 model, a logistic regression with individual level variables will be used to estimate the probability of charitable giving since charitable giving is a binary variable at individual level. This level-1 model assumes that the likelihood of charitable giving varies among individuals within a state. For the level-2 model, a random intercept model is suggested since the intercept term at the level-1 model is assumed to vary across the states and each state has its own intercept term. The focus of this study is this intercept term since it can be interpreted as the probability of charitable giving (giving rate) for a state after a logit transformation. To get the random intercept for each state, we center the level-1 variables around the state (group) mean so that the intercepts can represent the log odds of charitable giving for a state when level-1 variables are at their state (group) mean values. In the level-2 model, state-level independent and control variables (all centered around the state grand mean values) are then included to explain any observed variation in the intercept term (giving rate). The specification for the two-level model is as follows:

Level 1 model:

$$y_{ij} = log\left(\frac{P_{ij}}{1-P_{ij}}\right) = b_{0j} + b_{1j}x_{1ij} + b_{2j}x_{2ij} + b_{3j}x_{3ij} + b_{4j}x_{4ij} + b_{5j}x_{5ij} + b_{6j}x_{6ij} + b_{7j}x_{7ij} + b_{8j}x_{8ij} + b_{9j}x_{9ij} + e_{ij}$$

Level 2 model:

$$b_{0j} = \gamma_{00} + \beta_{1j}X_{1j} + \beta_{2j}X_{2j} + \beta_{3j}X_{3j} + \beta_{4j}X_{4j} + \beta_{5j}X_{5j} + \beta_{6j}X_{6j} + \sum_{16}^{7}\beta_j X_j + v_j$$

$$i = 1,2,\ldots,n_j;\ j = 1,2,\ldots,51.$$

where j = 1, 2, 3, …, 51 is the state index and i =1, 2, …, n_j is the individual respondent index, while P_{ij} is the probability that individual i in state j donated more than 25 US

dollars to secular and/or religious causes in the past 12 months. The covariates x_{1ij} to x_{9ij} (see Table 3.4) are the individual respondents' characters of interest, namely individual independent variables. The covariates X_{1j} to X_{6j} are state characteristics of interest, namely, state-level independent variables. $\sum_{16}^{7} \beta_j X_j$ represents the state-level control variables. The intercept b_{0j} at level-1 model, namely, the random intercept is estimated at the level-2 equation with the state-level independent and control variables. The interpretation of this random intercept is not only dependent on the population average intercept γ_{00}, but also determined by the state differences, such as state level independent and control variables, and unobserved error terms (v_j).

All data analyses were conducted in Stata 15.0. For all the OLS models on both the level and the rate of charitable giving, robust standard errors were used to deal with potential heteroskedasticity. Checks on multicollinearity and model specification were also done during the data analyses. Maximum likelihood estimation was used in the multi-level mixed effects generalized linear model with a logit link. Command "melogit" in Stata 15.0 was used to estimate the mixes effects multi-level model. Results from the two OLS regression models on the giving rate and the multi-level mixed effects generalized linear model are to be compared to confirm the robustness of the results of the OLS models for the rate of charitable giving across the states. In the final stage, a summary of the results from all the models are presented in a single table to compare if different predictors have different effects on the level and rate of charitable giving at the state level.

Chapter 4 Results

This chapter presents the results from statistical analyses based on simple correlations between the dependent and independent variables, multiple OLS regressions, as well as multi-level mixed effects generalized linear model with a logit link. Section 4.1 presents the results from simple correlations. Results from multiple OLS regressions and multi-level modeling are presented in section 4.2, that includes two sub-sections, with sub-section 4.2.1 explaining the differences in the level of charitable giving at the state level, and sub-section 4.2.2 explaining the differences in the rate of charitable giving at the state level. The last section, 4.3, compares the results for both the level and rate of charitable giving at the state level and explores how different factors might have potential different relations with the level and rate of charitable giving at the state level.

4.1 Analyses Based on Simple Correlations

Table 4.1 presents the results from simple correlations between the dependent and independent variables. It is worth noting that these are just simple correlations without taking other variables into account. Firstly, the state-level density of charitable organizations, density of associational organizations, and public welfare expenditure per capita have no statistically significant correlations with all the three dependent variables (giving per tax filer, contributions as % of AGI, and pooled giving rate) for both the level and rate of charitable giving at the state level. In addition, state-level political ideology, the state-level density of religious congregations, and state-level religiosity have statistically significant and positive correlations with contributions as % of AGI, statistically significant and negative correlations with pooled giving rate, and no significant relation with giving per tax filer. Gini Index has a statistically significant

Table 4.1 Simple Correlations Between Dependent and Independent Variables

	Y1	Y2	Y3	X1	X2	X3	X4	X5	X6	X7	X8
Y1: Giving Per Tax Filer	1.000 (.000)										
Y2: % AGI	0.828 (.000)	1.000 (.000)									
Y3: Pooled Giving Rate	0.559 (.000)	0.251 (.076)	1.000 (.000)								
X1: Political Ideology	-0.027 (.853)	0.339 (.015)	-0.516 (.000)	1.000 (.000)							
X2: Density of Charitable Organizations	0.189 (.185)	-0.073 (.609)	0.090 (.531)	-0.560 (.000)	1.000 (.000)						
X3: Public Welfare Expenditure	0.098 (.495)	-0.178 (.211)	0.154 (.281)	-0.630 (.000)	0.772 (.000)	1.000 (.000)					
X4: Gini Index	0.278 (.049)	0.103 (.473)	0.193 (.175)	-0.371 (.007)	0.244 (.084)	0.407 (.003)	1.000 (.000)				
X5: Density of Associational Organizations	0.120 (.402)	-0.084 (.558)	-0.038 (.794)	-0.396 (.004)	0.905 (.000)	0.640 (.000)	0.157 (.270)	1.000 (.000)			
X6: Density of Congregations	-0.026 (.859)	0.321 (.022)	-0.605 (.000)	0.670 (.000)	-0.025 (.863)	-0.175 (.220)	-0.212 (.135)	0.138 (.336)	1.000 (.000)		
X7: Ratio of Adherents	0.442 (.001)	0.513 (.000)	0.037 (.799)	0.284 (.044)	-0.065 (.652)	-0.017 (.909)	0.257 (.069)	0.044 (.761)	0.372 (.007)	1.000 (.000)	
X8: Religiosity	0.003 (.985)	0.339 (.015)	-0.317 (.024)	0.435 (.001)	-0.317 (.024)	-0.227 (.109)	0.084 (.560)	-0.240 (.090)	0.520 (.000)	0.383 (.006)	1.000 (.000)

Note: These are Pearson correlations. p-values in parentheses.

positive correlation with giving per tax filer, while it has no significant relation with contributions as % of AGI and pooled giving rate. Lastly, the ratio of religious adherents has statistically significant and positive correlations with giving per tax filer and contributions as % of AGI for the level of charitable giving at the state level, while it has no significant relation with the pooled giving rate for the rate of charitable giving at the state level. These simple correlations may provide some preliminary instincts on the relations between independent and dependent variables, but the actual relations may be more complex since other predictors are not included in these correlational analyses.

4.2 Analyses Based on Multiple Regressions

4.2.1 Explaining Differences in the Level of Charitable Giving Across the States

This sub-section focuses on explaining the differences in the level of charitable giving across the states in the US. The main analyses are based on results from OLS regressions on giving per tax filer and contributions as percentage of AGI (Table 4.2 and Table 4.3) since these two indicators can better represent the level of giving by the entire tax filer population across the states. To check the robustness of the results based on regressions on the above two indicators, results from OLS regressions on two other indicators for the level of charitable giving at the state level, namely, giving per tax itemizer and giving per giver, are presented in Tables 4.4 and 4.5 and will be compared with the results from Tables 4.2 and 4.3.

Three significant interaction effects are identified among state-level political ideology, public welfare expenditure per capita, the density of charitable organizations and Gini Index in the final predictive model for the level of charitable giving across the states (as seen in model panel 4.2D): political ideology interacts with public welfare expenditure per capita, public welfare expenditure interacts with Gini Index, and Gini Index interacts with the density of charitable organizations. When comparing model panels 4.2A, 4.2B, 4.2C, and 4.2D in Table 4.2, clear evidence of improvement in model fit can be found after adding each of the interaction terms into the model gradually (relevant R^2 increased from 0.836 to 0.888, to 0.903, to 0.935, respectively). Three margins plot figures (Figure 4.1 to 4.3) were drawn to help better illustrate the interaction effects between political ideology and public welfare expenditure, between the density of charitable organizations and Gini Index, and between public welfare expenditure and

Gini Index. Explanation of the differences in the level of charitable giving across the states will begin with the three interactive effects among state-level political ideology, public welfare expenditure per capita, the density of charitable organizations and Gini Index, and followed by the effect of density of associational organizations, density of religious aggregations, religiosity, ratio of religious adherents, and other variables.

Table 4.2 OLS Regression Estimation on Average Giving Per Tax Filer

Ln (Giving Per Tax Filer)	**4.2A**	**4.2B**	**4.2C**	**4.2D**
Political Ideology * Welfare Expenditure Per Capita	-	-	-	-0.002 (0.001)***
Density of Charitable Organizations * Gini Index	-	-	-0.118 (.056)*	-0.254 (0.056)***
Welfare Expenditure Per Capita * Gini Index	-	0.005 (0.001)***	0.009 (0.001)***	0.006 (0.001)***
Density of Charitable Organizations	0.013 (0.005)**	0.006 (.004)	0.059 (0.027)*	0.116 (0.025)***
Political Ideology	0.822 (0.544)	0.822 (0.426)$^{+}$	0.814 (0.573)$^{+}$	3.760 (0.919)***
Welfare Expenditure Per Capita	-0.0001 (0.000)$^{+}$	-0.0024 (0.001)***	-0.0041 (0.001)***	-0.0018 (0.001)*
Gini Index	4.847 (2.303)*	-4.743 (2.783)$^{+}$	-5.213 (2.698)$^{+}$	4.153 (2.635)
Density of Associational Organizations	-0.008 (0.006)	-0.013 (0.008)	-0.012 (0.006)$^{+}$	-0.009 (0.005)$^{+}$
Density of Religious Congregations	0.006 (0.008)	0.014 (0.008)$^{+}$	0.014 (0.008)	0.017 (0.007)*
Ratio of Religious Adherents	0.492 (0.380)	0.132 (0.271)	0.086 (0.236)	-0.144 (0.210)
Religiosity	-0.079 (0.140)	-0.061 (0.123)	-0.049 (0.117)	0.038 (0.087)
Volunteer Rate	0.016 (0.008)*	0.017 (0.007)*	0.019 (0.007)*	0.020 (0.006)**
Income Per Capita	0.000 (0.000)	0.000 (0.000)$^{+}$	0.000 (0.000)$^{+}$	0.000 (0.000)**
Tax Burden Rate	-3.707 (3.423)	-1.942 (2.734)	-3.433 (2.872)	-4.024 (2.526)
Household Composition	2.690 (1.478)$^{+}$	1.170 (1.074)	1.156 (1.128)	1.167 (0.837)
Labor Force Composition	0.025 (0.014)$^{+}$	0.005 (0.013)	0.005 (0.011)	0.008 (0.010)
Race Heterogeneity	0.713 (0.256)**	0.668 (0.230)**	0.739 (0.219)**	0.698 (0.190)**
Educational Attainment	-0.026 (0.019)	-0.018 (0.015)	-0.019 (0.015)	-0.029 (0.012)*
Percentage Itemizing	3.390 (0.858)***	2.768 (0.741)**	3.054 (0.816)**	3.421 (0.569)***
Constant	0.993 (1.059)	6.710 (1.502)***	6.952 (1.396)***	1.076 (1.724)
Number of observations	51	51	51	51
F	16.62	31.18	64.22	295.28
Prob > F	0.000	0.000	0.000	0.000
R^2	0.836	0.889	0.903	0.935

Note: Robust standard errors in parentheses. $^{+}$ p<0.1; * p<0.05; ** p<0.01; *** p<0.001

Table 4.3 OLS Regression Estimation on Contributions as Percentage of AGI

Percentage of AGI	**4.3A**	**4.3B**	**4.3C**	**4.3D**
Political Ideology * Welfare Expenditure Per Capita	-	-	-	-0.0001 (0.000)***
Density of Charitable Organizations * Gini Index	-	-	-0.002 (.001)	-0.006 (0.001)***
Welfare Expenditure Per Capita * Gini Index	-	0.0001 (0.000)***	0.0002 (0.000)**	0.0001 (0.000)*
Density of Charitable Organizations	0.0003 (0.000)*	0.0001 (0.000)	0.001 (0.001)	0.003 (0.001)***
Political Ideology	0.014 (0.015)	0.014 (0.013)	0.014 (0.014)	0.100 (0.026)***
Welfare Expenditure Per Capita	-0.0000 (0.000)	-0.0001 (0.000)***	-0.0001 (0.000)**	-0.0000 (0.000)
Gini Index	0.059 (0.060)	-0.208 (0.081)*	-0.214 (0.081)*	0.061 (0.070)
Density of Associational Organizations	-0.0002 (0.000)$^{+}$	-0.0004 (0.000)$^{+}$	-0.0003 (0.000)$^{+}$	-0.0003 (0.000)*
Density of Religious Congregations	0.0001 (0.000)	0.0004 (0.000)	0.0004 (0.000)	0.0005 (0.000)*
Ratio of Religious Adherents	0.017 (0.011)	0.007 (0.006)	0.006 (0.006)	-0.0003 (0.004)
Religiosity	-0.002 (0.003)	-0.001 (0.002)	-0.001 (0.002)	0.002 (0.001)
Volunteer Rate	0.0003 (0.000)$^{+}$	0.0004 (0.000)*	0.0004 (0.000)*	0.0004 (0.000)**
Income Per Capita	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)
Tax Burden Rate	-0.099 (0.089)	-0.050 (0.066)	-0.070 (0.078)	-0.087 (0.065)
Household Composition	0.062 (0.053)	0.019 (0.037)	0.019 (0.039)	0.019 (0.032)
Labor Force Composition	0.001 (0.000)	0.0001 (0.000)	0.0001 (0.000)	0.0002 (0.000)
Race Heterogeneity	0.014 (0.006)*	0.013 (0.005)*	0.014 (0.005)*	0.013 (0.000)**
Educational Attainment	-0.0004 (0.000)	-0.0002 (0.000)	-0.0002 (0.000)	-0.0005 (0.000)
Percentage Itemizing	0.065 (0.027)*	0.048 (0.020)$^{+}$	0.052 (0.027)*	0.063 (0.020)**
Constant	-0.076 (0.027)**	0.083 (0.034)*	0.086 (0.032)*	-0.086 (0.042)*
Number of observations	51	51	51	51
F	7.67	29.01	22.46	72.08
Prob > F	0.000	0.000	0.000	0.000
R^2	0.738	0.833	0.8389	0.902

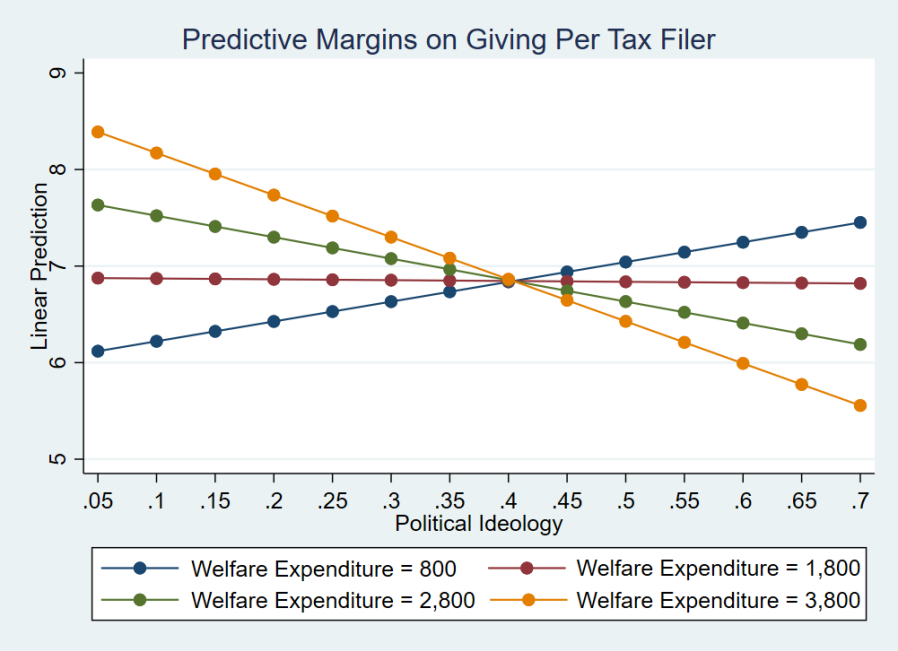
Note: Robust standard errors in parentheses. $^{+}$ p<0.1; * p<0.05; ** p<0.01; *** p<0.001

4.2.1.1 Political Ideology and Public Welfare Expenditure

Both state-level political ideology and public welfare expenditure matter for the level of charitable giving across the states. Yet, the effects of these two factors on the level of charitable giving at the state level interact with each other. As seen in model panel 4.2A in Table 4.2 and model panel 4.3A in Table 4.3, the coefficients of political ideology and public welfare expenditure per capita on both giving per tax filer and

contributions as percentage of AGI are not statistically significant at 0.05 level. Yet, after adding the interaction term of political ideology and public welfare expenditure per capita (model panel 4.2D in Table 4.2), the main effects of these two factors turn to be statistically significant at 0.05 or 0.001 level. Moreover, the interaction term of these two factors is also statistically significant at 0.001 level. Thus, H1a, H2a, and H3a are supported.

Figure 4.1 Interaction Effect between Political Ideology and Public Welfare Expenditure on Average Giving Per Tax Filer



To better illustrate the interactive effect of political ideology and public welfare expenditure on the level of charitable giving across the states, a margins plot of the interaction effect was drawn. As seen in Figure 4.1, the relation between state-level political ideology and the level of charitable giving at the state level depends on the level of public welfare expenditure per capita. In other words, state-level public welfare expenditure per capita moderates the relation between state-level political ideology and level of charitable giving. Specifically, on the one hand, when the public welfare

expenditure per capita in a state is lower than 1800 US dollars, state-level political ideology is positively correlated with the level of charitable giving at the state level, meaning that, when state public welfare spending is relatively low (less than 1,800 USD per capita), the more residents in a state who voted for Republican candidates in the 2008 and 2012 presidential elections, the higher level of three-year (2009-2011) average charitable giving by tax filers was recorded in the state. On the other hand, when state-level public welfare spending per capita is higher than 1,800 US dollars, the relation between state-level political ideology and the level of charitable giving at the state level turns into negative, meaning that, when state-level public welfare spending is relatively high (more than 1,800 USD per capita), the more residents in a state who voted for Republican candidates in the 2008 and 2012 presidential elections, the lower level of three-year (2009-2011) average charitable giving by tax filers was recorded in the state.

To put it another way, states with more Republican-leaning voters do not necessarily have higher level of charitable donations. Whether a red (Republican-leaning) state is more donative than a blue state depends on how much the state and local expenditure has been spent on public welfare programs. This novel finding is different from findings in previous studies, in which the authors either concluded that red states or counties in the United States were more donative than blue states or counties (Brooks, 2006; Paarlberg et al., 2018), or revealed that liberal metropolitan areas contributed higher levels of donations to federated campaigns compared to conservative metropolitan areas (Wolpert, 1989). This more nuanced finding indicates that although republican voters, on average, usually respond more actively to requests for private donations as individuals, as revealed in previous individual level studies (e.g., Forbes & Zampelli, 2013), their aggregated

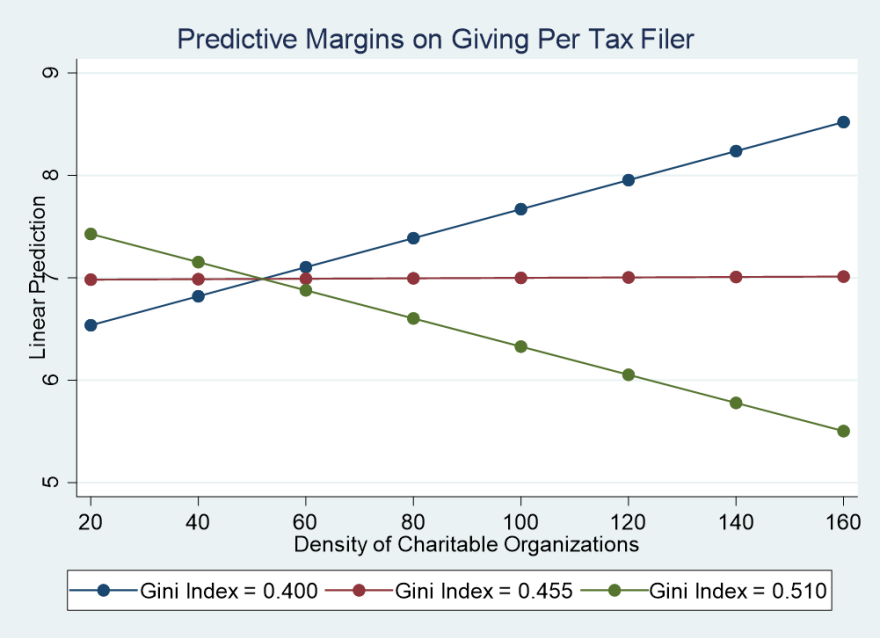
responses at the state level towards charitable giving are moderated by how much of public services have been covered by public welfare spending. When public services are covered by a high level of public welfare spending in a state, even a state has more republican-leaning residents, they collectively tend not to respond with more private contributions.

4.2.1.2 Density of Charitable Organizations and Income Inequality

As a key indicator for state-level social capital, the density of charitable organizations (including public charities and private foundations) also played an important role in deciding the level of charitable giving at the state level. As seen in model panel 4.2A and model panel 4.3A, the density of charitable organizations has a statistically significant positive relation with both giver per tax filer and contributions as percentage of AGI, holding everything else constant but without considering its interactive effect with Income Inequality (Gini Index). After adding the interaction term between the density of charitable organizations and Gini Index, the main effects of the density of charitable organizations on both giving per tax filer and contributions as percentage of AGI remain to be statistically significant and positive. It seems that the existence of charitable organizations represents the demands and requests for private contributions in a state and thus the density of charitable organizations in a state could serve as contributor to boost private donations in a state. However, this positive relation is not always true when its interactive effect with income inequality (Gini Index) is considered. As shown in model panels 4.2D and 4.3D, the interaction term between the density of charitable organizations and Gini Index is statistically significant and negative, indicating that the effect of the density of charitable organizations on the level of

charitable giving at the state level is not independent of but rather moderated by state-level income inequality. Therefore, hypotheses H6a and H8a are supported by evidence shown in Tables 4.2 and 4.3. To better illustrate the interactive effect between the density of charitable organizations and income inequality on the level of charitable giving across the states, another margins plot (in Figure 4.2) was drawn.

Figure 4.2 Interaction Effect between Density of Charitable Organizations and Gini Index on Average Giving Per Tax Filer



As shown in the above Figure 4.2, the relation between the density of charitable organizations and the level of charitable giving, as measured by giving per tax filer, is not always positive. Instead, whether this relation is positive or negative, depends on the level of state-level income inequality (Gini Index). Specifically, when the state-level Gini Index is lower than 0.455 (the mean value of Gini Index across the states; the minimum value of Gini Index among the states is 0.411 and the maximum value is 0.533), meaning that the income inequality in a state is lower than the average income inequality across the states, the density of charitable organizations is positively correlated with the level of

charitable giving at the state level. On the contrary, when the state-level Gini Index is higher than 0.455, meaning that the income inequality in a state is higher than the average income inequality across the states, the effect of the density of charitable organizations on the level of charitable giving turns to be negative. This negative impact of the density of charitable organizations on the level of charitable giving becomes larger as the level of income inequality at the state level increases.

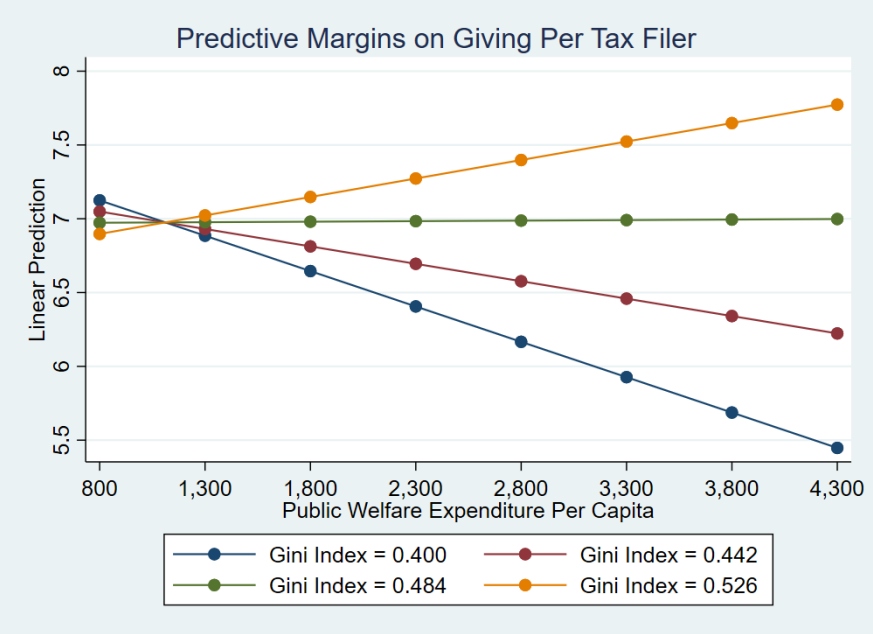
In other words, the positive role of the density of charitable organizations in attracting private contributions can only be revealed in states where income inequality is at a relatively low level (when Gini Index is less than mean value across the states), holding everything else constant. On the contrary, in states where income inequality is at a relatively high level, higher density of charitable organizations may represent the higher demands for public services but does not necessarily bring in more donative resources through private contributions. This negative relation may be caused by two reasons. First, the percentage of residents in these states (with higher density of charitable organizations) who are liberal is much higher and these liberal residents are generally less donative compared to their conservative counterparts in the same states (Brooks, 2006; Forbes & Zampelli, 2013). Second, a lot of charitable organizations (especially service-provision nonprofits) in these liberal states may rely less on private contributions because they may have higher financial dependence on government funding from public welfare programs.

4.2.1.3 Public Welfare Expenditure and Income Inequality

It is also revealed that public welfare expenditure and income inequality do not independently affect the level of charitable giving across the states. In fact, their effects on the level of charitable giving depend on each other. According to model panel 4.2D in

Table 4.2 and model panel 4.3D in Table 4.3, the interaction terms of state-level public welfare expenditure and Gini Index in both models are positive, and statistically significant at 0.001 and 0.01 level, respectively. The following margins plot in Figure 4.3 was drawn to better illustrate the interactive effect between public welfare expenditure and income inequality (Gini Index) on the level of charitable giving across the states.

Figure 4.3 Interaction Effect between Public Welfare Expenditure and Gini Index on Average Giving Per Tax Filer



As shown in Figure 4.3, the effect of public welfare expenditure per capita on the level of charitable giving across the states is moderated by the level of income inequality (Gini Index). Specifically, when the level of income inequality (Gini Index) is lower than 0.484, public welfare expenditure per capita is negatively correlated with the level of charitable giving, holding everything else constant. On the contrary, when the Gini Index creases from 0.484 to a higher level, the negative correlation between public welfare expenditure per capita and the level of charitable giving turns to positive. This positive effect of public welfare expenditure on the level of charitable giving will be enlarged as

the level of income inequality (Gini Index) increases.

In other words, in a state where the level of income inequality is relatively low (when Gini Index is lower than 0.484), increasing public welfare expenditure per capita is associated with decreasing level of charitable giving at the state level. On the contrary, in a state where there is a relatively high level of income inequality (when Gini Index is larger than 0.484), increasing public welfare expenditure per capita is associated with increasing level of charitable giving at the state level. To put it another way, in states where income is relatively more equally distributed among residents, increasing government spending on public welfare is more likely to crowd out private contributions since these states are more likely to be red states (the correlation between Gini Index and state-level political ideology is -0.371 and significant at 0.01 level, indicating that a state more leaning towards a republican presidential candidate has lower income inequality), where a majority of the residents are conservative and believe public welfare spending already meets the demand for public services and are thus disinclined to contribute privately. Whereas, in states where income inequality is a more serious issue, increasing government spending on public welfare is more likely to crowd in private contributions since higher level of income inequality and larger public welfare expenditure represent higher level of demands for public service, and these states are more likely to be blue states where a majority of the residents are liberal and believe that government spending and private contributions are not mutually exclusive and should complement each other to meet the high demands for public service. This novel finding is not only not in line with the simple crowd-out model that concluded that government spending crowds out private contributions (Ruiter & De Graaf, 2006; Steinberg, 1991), but also different from

previous conditional crowd-out/in model that depends upon service areas (Schiff, 1985; De Wit et al., 2018). This study revealed a new condition (i.e., income inequality) that could extend the existing conditional crowd-out/in model of government spending on private contributions. This also opens a new line of research on conditional crowd-out/in models that deserves further exploration.

Three separate two-way interaction terms among the density of charitable organizations, political ideology, public welfare expenditure, and income inequality (Gini Index) were discussed in the above three sub-sections. It is noteworthy to discuss further about the potential complex relations among these variables. It is reasonable to check whether there are more complex interactive relationships among these variables. After adding a four-way interaction terms among the density of charitable organizations, political ideology, public welfare expenditure, and Gini Index into the regression model and comparing the models with model panel 4.2D, no statistical evidence (see Table 5.1 in Appendix) was found to support a three-way or four-way interactive effect among these variables on the level of charitable giving across the states. In addition, no significant interaction effects were found between public welfare expenditure and the density of charitable organizations, and between state-level political ideology and Gini Index, on the level of charitable giving across the states.

4.2.1.4 Density of Associational Organizations and of Religious Congregations

As an indicator for state-level social capital, the density of associational organizations is a proxy representing the level of associational activities in the states, in which associational organizations are hypothesized to provide institutional networks that connect residents in communities and spread information about requests for private

contributions, and thus may promote charitable giving at the state level. However, hypothesis H4a is not supported by the evidence in this study. According to model panel 4.2D in Table 4.2 and model panel 4.3D in Table 4.3, the state-level density of associational organizations is not positively correlated with either giving per tax filer or contributions as percentage of AGI, holding everything else constant. In fact, the density of associational organizations may have a weak negative relation with the level of charitable giving at the state level since it is negatively associated with contributions as percentage of AGI at 0.05 significance level (and negatively correlated with giving per tax filer at 0.1 significance level). One possible reason for the potential negative impact of the density of associational organizations on the level of charitable giving is that associational organizations are membership-based nonprofit organizations that are exclusively for the mutual-benefits of a select group of people, and thus may not necessarily play a positive role in spreading donation request information and promoting charitable giving in the communities. Compared to charitable organizations in local communities that actively solicitate information on donation requests to residents in the communities, the associational organizations focus more on the internal mutual benefits of their members. An alternative explanation could be that: unlike charitable organizations that are registered as 501 c (3) organizations and can accept tax deductible donations, these associational organizations (registered as 501 c (other)) may enjoy tax-exempt status but donations to them are not tax deductible. Also, among these 501 c (other) organizations, a large proportion are 501 c (4) organizations that focus on advocacy, lobbying, and issues education, and usually cannot receive donations.

In contrast, hypothesis H5a is supported by the evidence. As another indicator for

state-level social capital, the density of religious congregations is found to have a statistically significant and positive correlation with the level of charitable giving at the state level, as measured by giving per tax filer and contributions as percent of AGI. According to model panel 4.2D in Table 4.2 and model panel 4.3D in Table 4.3, in states where there are more religious congregations per 10,000 residents in 2010, the level of charitable giving (measured by either giving per tax filer, or contributions as percent of AGI) is statistically and significantly higher, compared to the level of charitable giving in states with lower density of religious congregations, holding everything else constant. This finding is partially in line with the study by Rotolo and Wilson (2012), in which they found that the density of religious congregations at the state level has a significant and positive correlation with the rate of religious volunteering at the state level. Even though we are unable to differentiate religious giving and secular giving in this study, a significant relation between density of religious congregations and the level of overall charitable giving can still be revealed. Religious congregations can provide an organizational setting and network to facilitate and promote charitable giving.

4.2.1.5 Religiosity and Ratio of Religious Adherents

As two indicators for cultural capital, religiosity and ratio of religious adherents are to measure what percentage of residents are religious and how religious the residents are in a state in 2010. Both indicators are hypothesized to be positively correlated with the level of charitable giving. However, these hypotheses (H9a and H10a) are not supported by the evidence in this study. According to model panel 4.2D in Table 4.2 and model panel 4.3D in Table 4.3, there is no statistically significant evidence supporting a positive relationship between religiosity and the level of charitable giving at the state level, or

between ratio of religious adherents and the level of charitable giving at the state level.

The finding that no significant relation between religiosity and the level of charitable giving is not in line with a previous study (Rotolo & Wilson, 2012) that found state-level religiosity has a significant and positive correlation with religious volunteering, but no significant relation with overall volunteering and secular volunteering. This difference in these two studies might be due to the fact that Rotolo and Wilson (2012) focused on the rate of volunteering across the states and differentiated religious volunteering and secular volunteering. Religiosity might have different relations with charitable giving and volunteering. It is still not clear under what conditions this speculation may hold, but this line of research apparently deserves further exploration.

The finding that there is no significant relation between ratio of religious adherents and the level of charitable giving is to some extent in line with the comparative analysis by Einolf (2017) on the rate of charitable giving across nations, in which he did not find a significant correlation between religiosity and rate of giving at country level. Yet, this finding is not consistent with the study by Paarlberg et al. (2018) in which they found a significant positive correlation between the rate of adherents and itemized contributions as percentage of AGI at the county level. Since the Einolf (2017) study only examined the rate of charitable giving and the data is at the country level, and the Paarlberg et al. (2018) study used contributions as percentage of AGI at the county level, the finding of this study may not be exactly comparable with the findings in those two studies. The differences among these studies might be due to using different levels (county versus state versus country) of data or targeting on different dimensions (giving rate versus giving level) of charitable giving.

4.2.1.6 Other (Control) Variables

Model panel 4.2D in Table 4.2 and model panel 4.3D in Table 4.3 indicate that volunteer rate and percentage of itemizing have statistically significant and positive correlations with the level of charitable giving, as measured by giving per filer and contributions as percentage of AGI, consistent with a previous study (Gittell & Tebaldi, 2006). On average, states with higher average rate of volunteering and higher average percentage of residents who itemized their contributions in tax return between 2009 and 2011 tend to have higher level of charitable giving compared to states with lower average rate of volunteering and lower average percentage of residents who itemized their contributions in tax return between 2009 and 2011, holding everything else constant.

Based on results from model panel 4.2D in Table 4.2 and model panel 4.3D in Table 4.3, it is also revealed that race heterogeneity has statistically significant and positive correlation with the level of charitable giving at the state level. This finding is in line with the study by Rotolo and Wilson (2012), in which they found that racial diversity is a significant predictor for both secular and religious volunteering at the state level. Income per capita is also proved to be significantly and positively correlated with the level of charitable giving across the states, consistent with previous studies (e.g., Gittell & Tebaldi, 2006; Glanville, Paxton, & Wang, 2016).

In addition, as shown in Paarlberg et al. (2018), tax burden rate at state and local level is found to be negatively correlated with contributions as percentage of AGI at the state level, significant at 0.10 level. Educational attainment is also found to be a statistically significant yet negative predictor for the level of charitable giving at the state level. This finding is not in line with previous studies, in which one study found a

positive correlation between the proportion of population with higher education degrees and charitable giving at region level (Glanville, Paxton, & Wang, 2016), while the other did not find a significant relation between the percentage of population with a BA degree or higher and the rate of volunteering at the state level (Rotolo & Wilson, 2012).

Finally, household composition is found to have no significant relations with giving per tax filer and contributions as percentage of AGI at the state level. This finding is inconsistent with the study by Rotolo and Wilson (2012), in which they found that household composition has statistically significant and positive correlation with both secular and religious volunteering. Yet, consistent with what is revealed by Rotolo and Wilson (2012), labor force composition has no significant relationship with the level of charitable giving at the state level.

4.2.1.7 Robustness Check Based on Giving Per Itemizer and Giving Per Giver

To check the robustness of the results based on giving per filer and contributions as percentage of AGI, two other indicators (i.e., giving per itemizer and giving per giver) for the dependent variable, the level of charitable giving at the state level, are used to be regressed with the same set of independent and control variables. Results from these two regressions (as shown in Table 4.4 and Table 4.5) are used to compare with results based on giving per filer and contributions as percentage of AGI.

As seen in model panel 4.4D in Table 4.4 and model panel 4.5D in Table 4.5, the results are very consistent with the results from model panel 4.2D and model panel 4.3D. Specifically, the three two-way interaction effects between political ideology and public welfare spending, between density of charitable organizations and Gini Index, and between public welfare spending and Gini Index, are still statistically significant. The

size and sign of the coefficients for the interaction effects and other independent and the control variables are identical to those in related models in Table 4.2 and 4.3. The R^2 statistic, the variation explained by the model, are 0.928 and 0.932, for average giving per tax itemizer and average giving per giver, respectively. These two R^2 statistics are very high, as they are in the models for average giving per filer and contributions as % of AGI,

Table 4.4 OLS Regression Estimation on Average Giving Per Tax Itemizer

Ln (Giving Per Itemizer)	**4.4A**	**4.4B**	**4.4C**	**4.4D**
Political Ideology * Welfare Expenditure Per Capita	-	-	-	-0.002 (0.001)**
Density of Charitable Organizations * Gini Index	-	-	-0.104 (.050)*	-0.229 (0.051)***
Welfare Expenditure Per Capita * Gini Index	-	0.005 (0.001)***	0.008 (0.002)***	0.006 (0.001)***
Density of Charitable Organizations	0.013 (0.004)**	0.005 (.004)	0.053 (0.024)*	0.105 (0.022)***
Political Ideology	0.693 (0.507)	0.693 (0.391)$^+$	0.685 (0.388) $^+$	3.405 (0.872)***
Welfare Expenditure Per Capita	-0.0001 (0.000)$^+$	-0.0024 (0.001)***	-0.0039 (0.001) ***	-0.0017 (0.001)*
Gini Index	4.958 (2.162)*	-4.530 (2.694)	-4.944 (2.640) $^+$	3.703 (2.788)
Density of Associational Organizations	-0.009 (0.005)$^+$	-0.014 (0.008)$^+$	-0.013 (0.006) *	-0.010 (0.004)*
Density of Religious Congregations	0.012 (0.008)	0.020 (0.007)**	0.019 (0.008) *	0.023 (0.007)**
Ratio of Religious Adherents	0.491 (0.364)	0.135 (0.239)	0.095 (0.212)	-0.118 (0.188)
Religiosity	-0.097 (0.127)	-0.079 (0.111)	-0.069 (0.105)	0.011 (0.078)
Volunteer Rate	0.017 (0.008)*	0.018 (0.007)*	0.019 (0.007)**	0.020 (0.006)**
Income Per Capita	0.000 (0.000)*	0.000 (0.000)*	0.000 (0.000)**	0.000 (0.000)**
Tax Burden Rate	-4.072 (3.258)	-2.326 (2.601)	-3.640 (2.746)	-4.185 (2.431) $^+$
Household Composition	2.746 (1.468)$^+$	1.242 (1.063)	1.229 (1.121)	1.240 (0.807)
Labor Force Composition	0.028 (0.014)$^+$	0.009 (0.011)	0.008 (0.011)	0.011 (0.010)
Race Heterogeneity	0.700 (0.254)**	0.655 (0.229)**	0.718 (0.220)**	0.680 (0.187)**
Educational Attainment	-0.026 (0.018)	-0.019 (0.014)	-0.019 (0.014)	-0.029 (0.011)*
Percentage Itemizing	0.195 (0.837)	-0.420 (0.711)	-0.168 (0.786)	0.170 (0.573)
Constant	2.947 (0.990)**	8.604 (1.439) ***	8.817 (1.357)***	3.392 (1.786)$^+$
Number of observations	51	51	51	51
F	15.41	18.71	35.90	132.71
Prob > F	0.000	0.000	0.000	0.000
R^2	0.818	0.881	0.895	0.928

Note: Robust standard errors in parentheses. $^+$ p<0.1; * p<0.05; ** p<0.01; *** p<0.001

Table 4.5 OLS Regression Estimation on Average Giving Per Giver

Ln (Giving Per Giver)	4.5A	4.5B	4.5C	4.5D
Political Ideology * Welfare Expenditure Per Capita	-	-	-	-0.002 (0.001)**
Density of Charitable Organizations * Gini Index	-	-	-0.103 (.053) $^{+}$	-0.239 (0.055)***
Welfare Expenditure Per Capita * Gini Index	-	0.005 (0.001)**	0.008 (0.002) ***	0.005 (0.002)**
Density of Charitable Organizations	0.013 (0.005)**	0.006 (.004)	0.053 (0.026) *	0.109 (0.024)***
Political Ideology	0.754 (0.490)	0.754 (0.415)$^{+}$	0.747 (0.573) $^{+}$	3.698 (0.900)***
Welfare Expenditure Per Capita	-0.0001 (0.000)$^{+}$	-0.0022 (0.001)***	-0.0036 (0.001) ***	-0.0014 (0.001)
Gini Index	4.523 (2.103)*	-4.370 (2.930)	-4.780 (2.902)	4.603 (2.920)
Density of Associational Organizations	-0.009 (0.005)$^{+}$	-0.014 (0.007)*	-0.013 (0.005) *	-0.010 (0.004)*
Density of Religious Congregations	0.012 (0.008)	0.020 (0.007)**	0.019 (0.007) *	0.023 (0.007)**
Ratio of Religious Adherents	0.287 (0.365)	-0.047 (0.231)	-0.087 (0.208)	-0.317 (0.171)$^{+}$
Religiosity	-0.125 (0.121)	-0.108 (0.103)	-0.098 (0.097)	-0.011 (0.062)
Volunteer Rate	0.016 (0.007)*	0.017 (0.007)*	0.018 (0.007) *	0.019 (0.005)**
Income Per Capita	0.000 (0.000)*	0.000 (0.000)*	0.000 (0.000) **	0.000 (0.000)***
Tax Burden Rate	-4.229 (3.035)	-2.594 (2.487)	-3.893 (2.676)	-4.485 (2.342)$^{+}$
Household Composition	3.060 (1.434)*	1.650 (1.090)	1.638 (1.155)	1.649 (0.763)*
Labor Force Composition	0.029 (0.014)*	0.011 (0.011)	0.011 (0.011)	0.014 (0.010)
Race Heterogeneity	0.634 (0.249)*	0.592 (0.224)*	0.654 (0.214)**	0.613 (0.171)**
Educational Attainment	-0.026 (0.017)	-0.020 (0.014)	-0.020 (0.014)	-0.030 (0.011)*
Percentage Itemizing	-0.375 (0.806)	-0.952 (0.696)	-0.703 (0.770)	-0.336 (0.565)
Constant	3.465 (0.957)***	8.766 (1.508)***	8.978 (1.453)***	3.091 (1.858)
Number of observations	51	51	51	51
F	13.93	17.76	32.54	132.02
Prob > F	0.000	0.000	0.000	0.000
R^2	0.824	0.880	0.893	0.932

Note: Robust standard errors in parentheses. $^{+}$ p<0.1; * p<0.05; ** p<0.01; *** p<0.001

although the correlation coefficients between average giving per itemizer and average giving per tax filer, as well as between average giving per giver and average giving per tax filer are 0.677 and 0.556, respectively. To sum up, the model specification for the level of charitable giving seems stable and efficient.

4.2.2 Explaining Differences in the Rate of Charitable Giving Across the States

This sub-section focuses on explaining the differences in the rate of charitable giving across the states in the US. The main analyses are based on results from OLS regressions on pooled average giving rate and predicted average giving rate (Table 4.6 and Table 4.7). To check the robustness of the results based on the OLS regressions on the above two indicators, results from multi-level mixed effects generalized linear model on whether respondents donated more than 25 USD to secular and/or religious causes in the past 12 months, are presented in Table 4.8 to estimate the impact of state-level predictors on giving rate and will be compared with the results from Table 4.6 and 4.7.

Two significant interaction effects are identified among state-level political ideology, public welfare expenditure per capita, the density of charitable organizations and Gini Index in the final predictive model for the rate of charitable giving across the states (as seen in model panel 4.6D): political ideology interacts with public welfare expenditure per capita, and Gini Index interacts with the density of charitable organizations. When comparing model panels 4.6A, 4.6B, and 4.6C in Table 4.6, clear evidence of improvement in model fit can be found after adding the interaction terms into the model gradually (relevant R^2 increased from 0.847 to 0.857, to 0.890, respectively).

After comparing model 4.6C with 4.6D, we can conclude that there is no evidence supporting a significant interaction effect between public welfare expenditure per capita and Gini Index since this interaction term is not significant and adding this third interaction term in model panel 4.6C did not improve the model fit (R^2) compared to the model with the two interaction terms between political ideology and public welfare expenditure, and between the density of charitable organizations and Gini Index in model

panel 4.6D. In addition, the models in Table 4.7 produced very consistent results compared to the models in Table 4.6. This is unsurprising since the pooled average giving rate and predicted average giving rate are highly correlated (correlation coefficient is 0.994). Therefore, the model panel 4.6D in Table 4.6 is the final predictive model, with a R^2 of 0.890.

Two margins plot figures (Figure 4.4 and 4.5) were drawn based on model panel 4.6D to help better illustrate the two interaction effects. Explanation of the differences in the rate of charitable giving across the states will begin with the two interactive effects, and followed by the effect of density of associational organizations, density of religious aggregations, religiosity, ratio of religious adherents, and other (control) predictors on the rate of charitable giving across the states in the U.S.

4.2.2.1 Political Ideology and Public Welfare Expenditure

State-level political ideology and public welfare expenditure are also important predictors for the rate of charitable giving across the states in the US, as they are for the level of charitable giving at the state level. Yet, the effects of these two factors on the rate of charitable giving at the state level are not independent. Instead, they interact with each other. As seen in model panel 4.6A in Table 4.6 and model panel 4.7A in Table 4.7, the coefficients of political ideology and public welfare expenditure per capita on both the pooled average giving rate and the predicted average giving rate are not statistically significant at 0.05 level. However, after adding the interaction term of political ideology and public welfare expenditure per capita into the model, as shown in model panel 4.6D in Table 4.6 and model panel 4.7D in Table 4.7, the coefficients (main effects) of these two factors turn to be statistically significant at 0.01 level. Moreover, the interaction term

of these two factors is also statistically significant at 0.01 level. The coefficient of the interaction term between political ideology and public welfare expenditure per capita is positive, while the coefficients for the main effects of these two factors are negative and all three coefficients are statistically significant (at 0.05 significance level). Therefore, hypotheses H1b, H2b, and H3b are supported by the evidence in model panels 4.6C and 4.7C in Tables 4.6 and 4.7.

Table 4.6 OLS Regression Estimation on Pooled Average Giving Rate

Pooled Giving Rate	**4.6A**	**4.6B**	**4.6C**	**4.6D**
Political Ideology * Welfare Expenditure Per Capita	-	-	0.0004 (0.000)*	0.0005 (0.000)**
Density of Charitable Organizations * Gini Index	-	0.008 (.010)	0.036 (0.013)*	0.036 (0.016)*
Welfare Expenditure Per Capita * Gini Index	-	-0.0007 (0.000)$^{+}$	-0.0001 (0.000)	-
Density of Charitable Organizations	0.001 (0.001)	-0.003 (0.005)	-0.014 (0.006)*	-0.013 (0.007)*
Political Ideology	-0.126 (0.103)	-0.125 (0.111)	-0.741 (0.247)**	-0.747 (0.198)**
Welfare Expenditure Per Capita	-0.000 (0.000)	0.0003 (0.083)	-0.0002 (0.000)	-0.0002 (0.000)**
Gini Index	-0.550 (0.351)	0.249 (0.688)	-1.709 (1.075)	-1.754 (0.688)*
Density of Associational Organizations	-0.003 (0.001)**	-0.003 (0.001)**	-0.004 (0.001)***	-0.003 (0.001)***
Density of Religious Congregations	0.002 (0.002)	0.002 (0.002)	0.001 (0.002)	0.001 (0.002)
Ratio of Religious Adherents	0.141 (0.067)*	0.173 (0.061)**	0.221 (0.050)***	0.221 (0.047)***
Religiosity	0.009 (0.026)	0.008 (0.026)	-0.011 (0.018)	-0.011 (0.018)
Volunteer Rate	0.008 (0.001)***	0.008 (0.001)***	0.007 (0.001)***	0.008 (0.001)***
Income Per Capita	0.000 (0.000)**	0.000 (0.000)**	0.000 (0.000)$^{+}$	0.000 (0.000)$^{+}$
Tax Burden Rate	-1.292 (0.566)*	-1.331 (0.600)*	-1.208 (0.587)*	-1.212 (0.592)*
Household Composition	-0.262 (0.276)	-0.140 (0.278)	-0.142 (0.224)	-0.146 (0.224)
Labor Force Composition	0.001 (0.003)	0.002 (0.003)	0.002 (0.003)	0.001 (0.002)
Race Heterogeneity	-0.058 (0.051)	-0.060 (0.050)	-0.051 (0.044)	-0.051 (0.043)
Educational Attainment	-0.004 (0.003)	-0.004 (0.003)	-0.002 (0.003)	-0.002 (0.002)
Percentage Itemizing	0.453 (0.172)*	0.483 (0.178)*	0.406 (0.161)*	0.406 (0.157)*
Constant	0.509 (0.179)**	-0.036 (0.333)	1.264 (0.636)$^{+}$	1.291 (0.391)**
Number of observations	51	51	51	51
F	16.82	31.70	64.94	69.82
Prob > F	0.000	0.000	0.000	0.000
R^2	0.847	0.857	0.890	0.890

Note: Robust standard errors in parentheses. $^{+}$ p<0.1; * p<0.05; ** p<0.01; *** p<0.001

Table 4.7 OLS Regression Estimation on Predicted Average Giving Rate

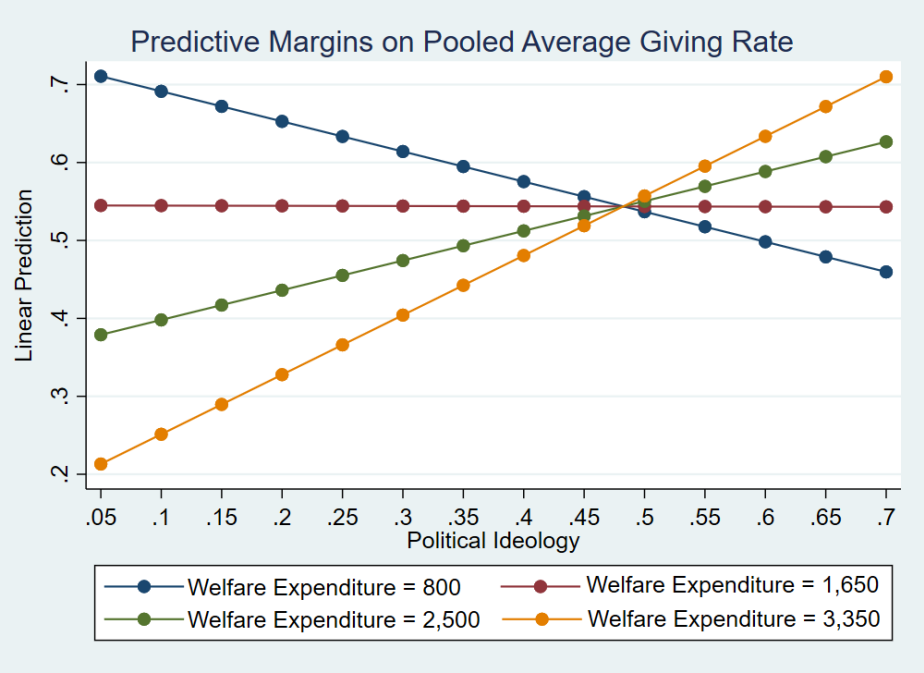
Predicted Giving Rate	**4.7A**	**4.7B**	**4.7C**	**4.7D**
Political Ideology * Welfare Expenditure Per Capita	-	-	0.0005 (0.000)*	0.0005 (0.000)**
Density of Charitable Organizations * Gini Index	-	0.008 (.010)	0.038 (0.013)**	0.037 (0.015)*
Welfare Expenditure Per Capita * Gini Index	-	-0.0007 (0.000)$^{+}$	-0.0001 (0.000)	-
Density of Charitable Organizations	0.001 (0.001)	-0.002 (0.005)	-0.015 (0.005)**	-0.014 (0.006)*
Political Ideology	-0.084 (0.107)	-0.084 (0.115)	-0.731 (0.239)**	-0.744 (0.194)**
Welfare Expenditure Per Capita	-0.000 (0.000)	0.0003 (0.000)$^{+}$	-0.0002 (0.000)	-0.0002 (0.000)**
Gini Index	-0.720 (0.374)$^{+}$	0.232 (0.704)	-1.827 (1.028)$^{+}$	-1.918 (0.661)**
Density of Associational Organizations	-0.003 (0.001)**	-0.003 (0.001)*	-0.003 (0.001)***	-0.003 (0.001)***
Density of Religious Congregations	0.002 (0.002)	0.001 (0.002)	0.0003 (0.002)	0.0003 (0.002)
Ratio of Religious Adherents	0.145 (0.072)$^{+}$	0.183 (0.065)**	0.233 (0.051)***	0.232 (0.048)***
Religiosity	0.013 (0.025)	0.010 (0.025)	-0.009 (0.018)	-0.009 (0.017)
Volunteer Rate	0.008 (0.001)***	0.008 (0.001)***	0.007 (0.001)***	0.007 (0.001)***
Income Per Capita	0.000 (0.000)**	0.000 (0.000)**	0.000 (0.000)$^{+}$	0.000 (0.000)*
Tax Burden Rate	-1.178 (0.586)$^{+}$	-1.249 (0.613)*	-1.118 (0.593)$^{+}$	-1.126 (0.600)$^{+}$
Household Composition	-0.405 (0.297)	-0.258 (0.296)	-0.260 (0.227)	-0.267 (0.224)
Labor Force Composition	0.0004 (0.003)	0.002 (0.003)	0.002 (0.003)	0.002 (0.003)
Race Heterogeneity	-0.060 (0.051)	-0.061 (0.051)	-0.052 (0.045)	-0.051 (0.044)
Educational Attainment	-0.003 (0.003)	-0.004 (0.003)	-0.001 (0.003)	-0.001 (0.003)
Percentage Itemizing	0.451 (0.170)*	0.491 (0.177)**	0.411 (0.159)*	0.410 (0.155)*
Constant	0.600 (0.176)**	0.035 (0.337)	1.327 (0.612)*	1.381 (0.367)**
Number of observations	51	51	51	51
F	14.81	25.25	60.84	65.20
Prob > F	0.000	0.000	0.000	0.000
R^2	0.847	0.860	0.895	0.895

Note: Robust standard errors in parentheses. $^{+}$ p<0.1; * p<0.05; ** p<0.01; *** p<0.001

A margins plot for the interaction term was drawn to better illustrate the interactive effect of political ideology and public welfare expenditure on the rate of charitable giving across the states in the US. As seen in Figure 4.4, the relation between political ideology and the rate of charitable giving at the state level depends on the level of public welfare expenditure per capita at the state level. In other words, state-level public welfare expenditure per capita moderates the relation between political ideology and the rate of

charitable giving at the state level. Specifically, on the one hand, when the public welfare expenditure per capita in a state is lower than 1,650 US dollars, state-level political ideology is negatively associated with the rate of charitable giving, meaning that, when the state-level public welfare spending is relatively low (less than 1,650 USD per capita), the more residents in a state who voted for Republican candidates in the 2008 and 2012 presidential elections, the lower rate of pooled three-year (2009-2011) average charitable giving was recorded in the state, holding everything else constant. On the other hand, when state-level public welfare spending per capita is higher than 1,650 US dollars, the relation between state-level political ideology and the rate of charitable giving turns to a positive correlation, everything else being equal.

Figure 4.4 Interaction Effect between Political Ideology and Public Welfare Expenditure on Pooled Average Giving Rate



To put it another way, states with more Republican-leaning voters do not necessarily have higher rate of charitable donations, and states with more Democrat-leaning voters do not necessarily have lower rate of charitable. Whether a red (Republican-leaning) or

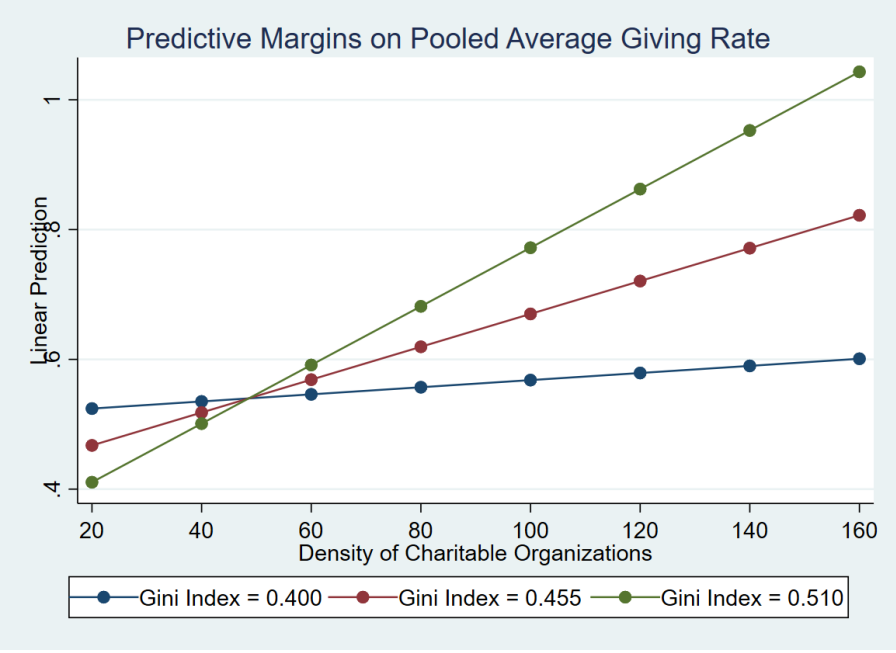
blue (Democrat-leaning) state has a higher percentage of residents who donated for charitable causes depends on how much the state and local expenditure has been spent on public welfare in that state. According to previous individual level studies (e.g., Forbes & Zampelli, 2013), republican-leaning residents, on average, usually tend to respond more actively to requests for private donations as individuals. And thus, the inference at state level is that a state with more republican-leaning voters will likely have a higher percentage of residents who will donate to charitable causes. However, a state's residents' overall participation rate in charitable giving is moderated by to what extent that public services have been covered by public welfare spending. When a relatively low level (below $1,650 per capita) of public welfare spending is spent on public services, red states will have lower rate of charitable giving compared to blue states, everything else being equal. On the contrary, when a relatively high level (above $1,650 per capita) of public welfare spending is spent on public services, blue states will have lower rate of charitable giving compared to red states, holding everything else constant. In other words, blue states do not necessarily have lower giving rate and red states do not necessarily have higher giving rate. It all depends on the level of public welfare spending per capita when everything else is constant. This novel and more nuanced finding is different from simplistic findings in previous studies, in which the author(s) either concluded that red states or counties are more donative (Brooks, 2006), or found that liberal metropolitan areas are more donative than conservative metropolitan areas (Wolpert, 1989).

4.2.2.2 Density of Charitable Organizations and Income Inequality

As with their relationship with the level of charitable giving, the density of charitable organizations and Gini Index are also significant predictors for the rate of

charitable giving at the state level. As seen in model panel 4.6D in Table 4.6 and model panel 4.7D in Table 4.7, the main effects of the density of charitable organizations and Gini Index on both pooled average giving rate and predicted average giving rate are statistically significant and negative, while their interaction terms are statistically significant and positive in both models, indicating that the effect of the density of charitable organizations on the rate of charitable giving at the state level is not independent of but rather moderated by state-level income inequality. Therefore, hypotheses H6b, H7b, and H8b are supported by the evidence shown in Table 4.6 and 4.7. To better illustrate the interactive effect between the density of charitable organizations and income inequality (Gini Index) on the rate of charitable giving across the states, another margins plot (in Figure 4.5) was drawn.

Figure 4.5 Interaction Effect between Density of Charitable Organizations and Gini Index on Pooled Average Giving Rate



As shown in Figure 4.5, the relation between the density of charitable organizations and the rate of charitable giving is positive, but this positive relation is moderated by the

level of income inequality (measured by Gini Index) at the state level. Specifically, when the state-level Gini Index is relatively low, for instance slightly above 0.400 (the minimum value of Gini Index among the states is 0.411 and the maximum value is 0.533), the positive marginal effect by density of charitable organizations on the rate of charitable giving increases slowly as the density of charitable organizations increases. However, when the state-level Gini Index increases to a higher level, for instance 0.445 (mean Gini Index), the positive marginal effect of the density of charitable organizations on the rate of charitable giving will increase with a much higher scale as the density of charitable organizations increases. The positive marginal effect of the density of charitable organizations on the rate of charitable giving becomes larger as the level of income inequality at the state level increases.

In other words, the positive role of the density of charitable organizations in attracting more people to donate will be enlarged when the level of income inequality increases in a state, holding everything else constant. When the density of charitable organizations in a state increases, it may not only represent a higher demand for public service through private contributions, but also mean more fundraising requests in the communities. And this positive marginal impact will be much higher when income inequality becomes a more serious issue since a higher level of income inequality may represent higher demand for public services.

4.2.2.3 Public Welfare Expenditure and Income Inequality

Unlike the case about their interactive effect on the level of charitable giving, public welfare expenditure per capita and income inequality have no significant interactive effect on the rate of charitable giving as shown in model panel 4.6C and

model panel 4.7C. After considering their interactive effects with political ideology and density of charitable organizations respectively, the main effects of public welfare expenditure per capita and Gini Index are statistically significant and negative at 0.05 or 0.01 level, as shown in model panel 4.6D and model panel 4.7D. Whereas, their main effects cannot be interpreted separately without considering the interaction terms.

4.2.2.4 Density of Associational Organizations and of Religious Congregations

As revealed in previous sub-section 4.2.1.4 on the relation between density of associational organizations and the level of charitable giving, results from model panel 4.6D in Table 4.6 and model panel 4.7D in Table 4.7 confirmed again that the state-level density of associational organizations has no positive relationship with either pooled average giving rate or predicted average giving rate, holding everything else constant. Thus, hypothesis H4b is not supported by the evidence in Tables 4.6 and 4.7. On the contrary, the results show that the density of associational organizations might have a significant negative relationship with the level of charitable giving at the state level because it is negatively correlated with both pooled average giving rate and predicted average giving rate, all at 0.001 significance level. Similar to its potential negative impact on the level of charitable giving at the state level, the density of associational organizations may not increase the chance to engage more residents to participate in charitable giving because unlike charitable organizations (public charities and private foundations) that actively solicitate information on donation requests to residents in the communities, associational organizations are membership-based organizations that exclusively focus on the internal mutual benefits of their members.

Yet, unlike its positive relation with the level of charitable giving revealed in

previous sub-section 4.2.1.4, results from model panel 4.6D in Table 4.6 and model panel 4.7D in Table 4.7 show that the density of religious congregations has no statistically significant relation with the rate of charitable giving at the state level. Thus, hypothesis H5b is not supported by the evidence in this study. This finding is partially in line with the study by Rotolo and Wilson (2012), in which they also found that the density of religious congregations at the state level has no significant correlation with the rate of overall volunteering at the state level, while they did find that it is positively correlated with the rate of religious volunteering. Due to data limitation, we are unable to differentiate religious and secular giving in this study. However, if new data are available to differentiate these two types of giving in the future, a similar positive correlation with the rate of religious giving and no significant relation with the rate of secular giving may be expected.

4.2.2.5 Religiosity and Ratio of Religious Adherents

Results from model panel 4.6D in Table 4.6 and model panel 4.7D in Table 4.7 revealed mixed findings for the relation between cultural capital and the rate of charitable giving. First, similar to what is found in the relation between religiosity and the level of charitable giving, there is no significant relation between religiosity and the rate of charitable giving, either. Yet, unlike the case in its relationship with the level of charitable giving, the ratio of religious adherents at the state level is found to have a statistically significant and positive relationship with the rate of charitable giving at the state level. Thus, hypothesis H9b is not supported but H10b is supported by the evidence.

The finding that no significant relation between religiosity and the rate of charitable giving may also be due to the data limitation that it is impossible to

differentiate secular giving with religious giving in the Current Population Survey. If new data permits differentiation between the two types of giving, we may expect a similar finding as revealed in a previous study (Rotolo & Wilson, 2012), in which the authors found that state-level religiosity has no significant relation with overall volunteering and secular volunteering but has a significant and positive correlation with religious volunteering. In addition, the finding that there is a significant and positive relation between the ratio of religious adherents and the rate of charitable giving is somewhat consistent with Paarlberg et al. (2018) and Wiepking et al. (2021), in which the authors found a significant positive correlation between the rate of adherents and itemized contributions as percentage of AGI at the county level, and between the proportion of people who are religiously affiliated and charitable giving at the country level.

4.2.2.6 Other (Control) Variables

According to model panel 4.6D in Table 4.6 and model panel 4.7D in Table 4.7, volunteer rate and percentage of itemizing also have statistically significant and positive correlations with the level of charitable giving, as their relations with the level of charitable giving and consistent with a previous study (Gittell & Tebaldi, 2006). On average, states with higher average rate of volunteering and higher average percentage of residents who itemized their contributions in tax return between 2009 and 2011 tend to have higher rate of charitable giving compared to states with lower average rate of volunteering and lower average percentage of residents who itemized their contributions in tax return between 2009 and 2011, holding everything else constant.

Results from model panel 4.6D in Table 4.6 and model panel 4.7D in Table 4.7 also indicate that race heterogeneity has no significant relation with the rate of charitable

giving at the state level. This finding is not consistent with the positive correlation between race heterogeneity and the level of charitable giving revealed in previous sub-section 4.1.2.6 and is also not in line with Rotolo and Wilson (2012)'s finding that racial diversity has a significant positive correlation with both secular and religious volunteering at the state level.

In addition, as its relationship with the level of charitable giving, income per capita is also found to have a significant, positive, yet weak correlation with the rate of charitable giving, consistent with previous studies (e.g., Gittell & Tebaldi, 2006; Glanville, Paxton, & Wang, 2016). Also, as its relationship with the level of charitable giving, and consistent with the finding by Paarlberg et al. (2018), tax burden rate at state and local level is found to be negatively correlated with the pooled average giving rate at the state level, significant at 0.05 level (and 0.1 level for predicted average giving rate).

Finally, educational attainment, household composition, and labor force composition are all found to have no significant relations with the rate of charitable giving at the state level. The finding on household composition is inconsistent with the finding by Rotolo and Wilson (2012) that there is a significant and positive relationship between household composition and secular and religious volunteering, while the findings on educational attainment and labor force composition are consistent with the non-significant relations conclusion by Rotolo and Wilson (2012).

4.2.2.7 Robustness Check Based on Multilevel Model on Whether Donated

To check the robustness of the results based on pooled average giving rate and predicted average giving rate, a multi-level mixed effects generalized linear model with a logit link was used to regress on whether donated more than 25 USD to religious and/or

Table 4.8 Multilevel Mixed Effects Generalized Linear Model on Donating

DV=Donating	4.8A	4.8B	4.8C
Individual Level			
Sex	0.225(0.010) ***	0.225(0.010) ***	0.225(0.010) ***
Age	0.033(0.000) ***	0.033(0.000) ***	0.033(0.000) ***
Race	0.024(0.012) $^{+}$	0.024(0.012) $^{+}$	0.024(0.012) $^{+}$
Married	0.540(0.011) ***	0.540(0.011) ***	0.540(0.011) ***
Children	0.165(0.012) ***	0.165(0.012) ***	0.165(0.012) ***
College Degree	0.693(0.012) ***	0.693(0.012) ***	0.693(0.012) ***
Employment Status	0.301(0.009) ***	0.301(0.009) ***	0.301(0.009) ***
Family Income	0.294(0.004) ***	0.294(0.004) ***	0.294(0.004) ***
Volunteering	1.608(0.012) ***	1.608(0.012) ***	1.608(0.012) ***
State Level			
Political Ideology * Welfare Expenditure Per Capita	-	0.003(0.000) ***	0.002(0.000) ***
Density of Charitable Organizations * Gini Index	-	0.209(0.059) ***	0.216(0.063) **
Welfare Expenditure Per Capita* Gini Index	-	-	-0.001(0.002)
Density of Charitable Organizations	0.005(0.004)	0.015(0.004) ***	0.015(0.004) ***
Political Ideology	-0.426(0.477)	0.044(0.412)	0.031(0.413)
Welfare Expenditure Per Capita	-0.000(0.000)	-0.000(0.000)	-0.000(0.000)
Gini Index	-3.321(2.034)	-2.019(1.764)	-2.033(1.762)
Density of Associational Organizations	-0.018(0.005) **	-0.019(0.005) ***	-0.019(0.005) ***
Density of Religious Congregations	0.008(0.008)	0.001(0.007)	0.001(0.007)
Ratio of Religious Adherents	0.789(0.260) **	1.219(0.238) ***	1.227(0.239) ***
Religiosity	0.092(0.118)	-0.021(0.102)	-0.019(0.102)
Volunteer Rate	0.044(0.007) ***	0.042(0.006) ***	0.041(0.006) ***
Income Per Capita	0.000(0.000) ***	0.000(0.000) *	0.000(0.000) *
Tax Burden Rate	-6.345(2.656) *	-5.663(2.338) *	-5.595(2.345) *
Household Composition	-1.830(1.250)	-1.216(1.074)	-1.159(1.087)
Labor Force Composition	0.003(0.013)	0.007(0.012)	0.007(0.012)
Race Heterogeneity	-0.320(0.271)	-0.280(0.228)	-0.287(.228)
Educational Attainment	-0.020(0.016)	-0.011(0.014)	-0.012(0.014)
Percentage Itemizing	2.537(0.718) ***	2.215(0.636) ***	2.224(0.636) ***
Variance component			
State Level Variance	0.012(0.003)	0.008(0.002)	0.008(0.002)
Constant	0.217(0.018) ***	0.289(0.021) ***	0.289(0.021) ***
Log likelihood	-131479.91	-131470.91	-131470.85
Wald chi^2(25/27/28)	45125.05	45179.60	45180.05
Prob > chi^2	0.0000	0.0000	0.0000
N1 of observations=241,092; N2 of Groups=51; min = 1,909, avg = 4,727.3, max = 19,894			

Note: The coefficients are not exponentiated coefficients (in log-odds units). Standard errors are in parentheses. $^{+}$ p<0.1; * p<0.05; ** p<0.01; *** p<0.001.

secular causes in the past 12 months with both individual and state-level variables. Results in the state-level model within this multi-level model (as shown in Table 4.8) are compared with the results from the multiple OLS regressions in Tables 4.6 and 4.7.

As seen in model panel 4.8B in Table 4.8, the coefficients at the state-level model in this two-level model are highly consistent with the coefficients from model panel 4.6D and model panel 4.7D in state-level OLS models as shown in Tables 4.6 and 4.7. Specifically, the two interaction effects between political ideology and public welfare spending and between density of charitable organizations and income inequality (Gini Index) are still statistically significant and positive, as they are in model panels 4.6D and 4.7D. The sizes and signs of the coefficients for the two interaction effects, as well as for other independent and the control variables at the state level are also highly identical to those in model panel 4.6D and model panel 4.7D. Most of the coefficients for other independent and control variables are also identical to the coefficients for these variables in model panel 4.6D and model panel 4.7D. Only a few coefficients have different signs, for instance, the main effects of density of charitable organizations, public welfare expenditure, political ideology, and Gini Index are not significant in the two-level model.

4.3 Comparing the Giving Level and Giving Rate

To compare whether the independent and control variables have different relations with the level of charitable giving and the rate of charitable giving, Table 4.9 was created based on the results of model panel 4.2D in Table 4.2, model panel 4.3D in Table 4.3, model panel 4.4D in Table 4.4, model panel 4.5D in Table 4.5, model panel 4.6D in Table 6, and model panel 4.7D in Table 4.7. Instead of using the coefficients in these model panels, the sign of the coefficients is included in Table 4.9, along with the

Table 4.9 The Sign and Significance of Predictors on Giving Level and Giving Rate

DV / IV	Level of Charitable Giving				Rate of Charitable Giving	
	Giving Per Tax Filer	Giving As % of AGI	Giving Per Tax Itemizer	Giving Per Giver	Pooled Giving Rate	Predicted Giving Rate
	4.2D	4.3D	4.4D	4.5D	4.6D	4.7D
Political Ideology * Welfare Expenditure Per Capita	(-) ***	(-) ***	(-) **	(-) **	(+) **	(+) **
Density of Charitable Organizations * Gini Index	(-) ***	(-) ***	(-) ***	(-) ***	(+) *	(+) *
Welfare Expenditure Per Capita * Gini Index	(+) ***	(+) *	(+) ***	(+) **	-	-
Density of Charitable Organizations	(+) ***	(+) ***	(+) ***	(+) ***	(-) *	(-) *
Political Ideology	(+) ***	(+) ***	(+) ***	(+) ***	(-) **	(-) **
Welfare Expenditure Per Capita	(-) *	NS	(-) *	NS	(-) **	(-) **
Gini Index	NS	NS	NS	NS	(-) *	(-) **
Density of Associational Organizations	(-) $^{+}$	(-) *	(-) *	(-) *	(-) ***	(-) ***
Density of Religious Congregations	(+) *	(+) *	(+) **	(+) **	NS	NS
Ratio of Religious Adherents	NS	NS	NS	(-) $^{+}$	(+) ***	(+) ***
Religiosity	NS	NS	NS	NS	NS	NS
Volunteer Rate	(+) **	(+) **	(+) **	(+) **	(+) ***	(+) ***
Income Per Capita	(+) **	NS	(+) **	(+) ***	(+) $^{+}$	(+) *
Tax Burden Rate	NS	NS	(-) $^{+}$	(-) $^{+}$	(-) *	(-) $^{+}$
Household Composition	NS	NS	NS	(+) *	NS	NS
Labor Force Composition	NS	NS	NS	NS	NS	NS
Race Heterogeneity	(+) **	(+) **	(+) **	(+) **	NS	NS
Educational Attainment	(-) *	NS	(-) *	(-) *	NS	NS
Percentage Itemizing	(+) ***	(+) **	NS	NS	(+) *	(+) *
Constant	NS	(-) *	(+) $^{+}$	NS	(+) **	(+) **
Number of observations	51	51	51	51	51	51
R^2	0.935	0.902	0.928	0.932	0.890	0.895

Note: Sign of coefficients: positive: (+); negative: (-); not significant: NS.
Level of significance: $^{+}$ $p<0.1$; * $p<0.05$; ** $p<0.01$; *** $p<0.001$

significant level. In Table 4.9, a (+) sign represents a positive coefficient, a (-) sign means a negative coefficient, while "NS" indicates that the coefficient is not statistically significant, even at 0.1 level.

Overall, these models indicate that some predictors have the same relations with

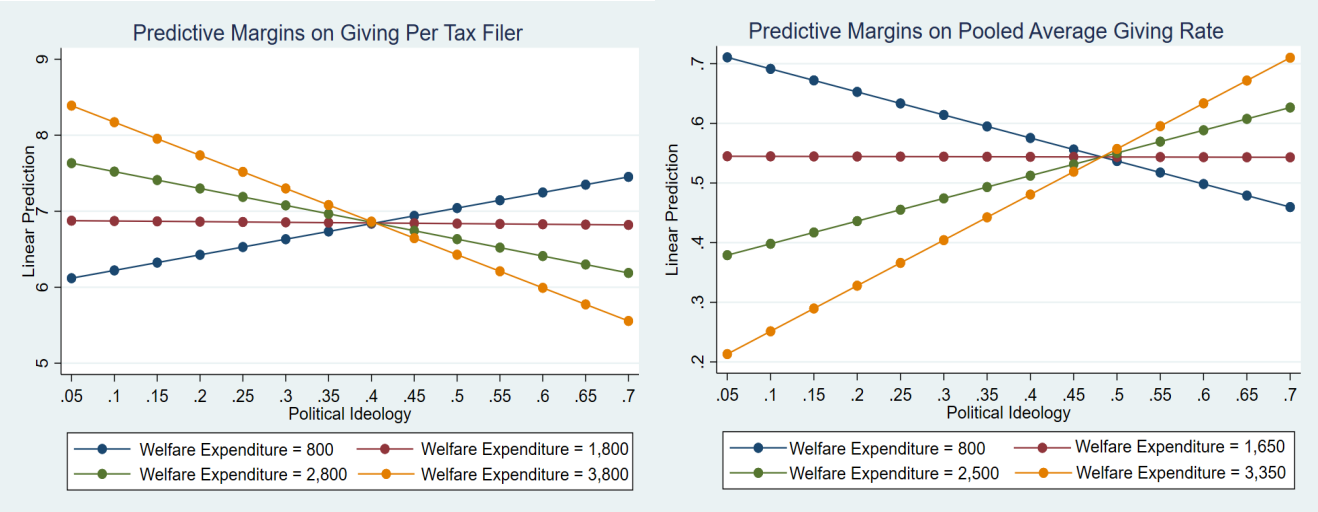
both the level and the rate of charitable giving, whereas other predictors tend to have different relationships with the level of charitable giving and the rate of charitable giving at the state level. Specifically, state-level political ideology and public welfare expenditure per capita have significant interactive effects on both the level of and the rate of charitable giving, but these two interactive effects work in different mechanisms. Similarly, the density of charitable organizations significantly interacts with Gini Index on deciding both the level and rate of charitable giving, yet the two interactive effects also work in different mechanisms. Public welfare expenditure per capita and Gini Index have significant interactive effect on the level of charitable giving, but no significant interactive effect on the rate of charitable giving. Most of other predictors either have no relations with both the level and rate of charitable giving, or consistently have positive or negative relations with both the level and rate of charitable giving.

4.3.1 Political Ideology and Public Welfare Expenditure

As seen in Table 4.9, a statistically significant interaction effect between state-level political ideology and public welfare expenditure per capita can be consistently found on both the level of charitable giving and the rate of charitable giving at the state level, no matter which indicator is used to represent the level of charitable giving and the rate of charitable giving. However, the signs of the coefficients of the interaction term between political ideology and public welfare expenditure for the four different indicators representing the level of charitable giving in model panels 4.2D to 4.5D are consistently negative, while the signs of the coefficients of the interaction term between political ideology and public welfare expenditure for the two different indicators representing the rate of charitable giving in model panels 4.6D and 4.7D are consistently positive. In other

words, public welfare expenditure per capita serves as a moderator for the relationship between political ideology and the level of charitable giving, as well as for the relationship between political ideology and the rate of charitable giving. Interestingly, public welfare expenditure per capita is revealed to negatively moderate the marginal effect of political ideology on the level of charitable giving, and in the meantime, it also positively moderates the marginal effect of political ideology on the rate of charitable giving. To better compare the two distinct interactive effects between political ideology and public welfare expenditure on the level of charitable and on the rate of charitable giving, the two margins plots in Figures 4.2 and 4.3 were merged into Figure 4.6.

Figure 4.6 Interaction Effects between Political Ideology and Public Welfare Expenditure Per Capita on Giving Per Tax Filer and Pooled Average Giving Rate



As shown in Figure 4.6, when the public welfare expenditure per capita at the state level is relatively low (between $800 and $1,650), state-level political ideology is positively correlated with the level of charitable giving, but negatively correlated with the rate of charitable giving, holding everything else constant. In other words, compared to states with relatively higher level of public welfare expenditure per capita, in a state

where a relatively low per capita level of government funding is spent on public welfare, the higher average percentage of residents who voted for the republican candidates in 2008 and 2012 presidential elections, the higher level of charitable giving (higher three-year average giving per tax filer between 2009 and 2011) was recorded in the state, but in the meantime, the state will have lower three-year average percentage of residents who donated at least $25 to religious and/or secular causes between 2009 and 2011, everything else being equal. To put it another way, red (Republican-leaning) states with relatively low level of public welfare expenditure per capita tend to have a higher average giving level per capita, but less average giving rate. The fact that the average red states seem to be more donative (based on average giving per tax filer) might be caused by a proportion of large donations from high-net-worth donors. It doesn't mean more residents in these seemingly-more-donative red states participated in donation and increased the average giving level. This difference might also be caused by the fact that average giving per tax filer measurement is based on the IRS tax return data, which only included donations from tax filers who chose to itemize their private contributions, while the pooled average giving rate measurement is based on the CPS volunteer supplement data, which is designed to present the whole population.

On the contrary, when the public welfare expenditure per capita at the state level increases to a relatively high level (between $1,800 and $3,800), the positive correlation between state-level political ideology and the level of charitable giving turned into negative, but the negative correlation between state-level political ideology and the rate of charitable giving turned into positive, holding everything else constant. In other words, compared to states with relatively lower level of public welfare expenditure per capita, in

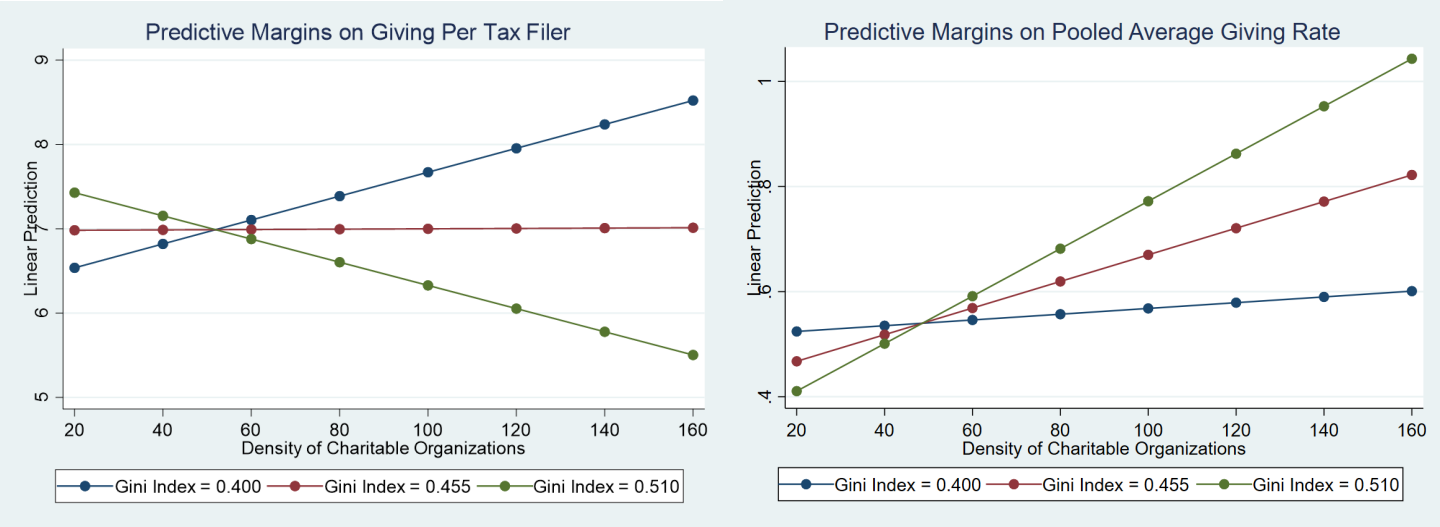
a state where a relatively high per capita level of government funding is spent on public welfare, the lower average percentage of residents who voted for the republican candidates in 2008 and 2012 presidential elections, the higher level of charitable giving (higher three-year average giving per tax filer between 2009 and 2011) was recorded in the state, but in the meantime, the state will have lower three-year average percentage of residents who donated at least $25 to religious and/or secular causes between 2009 and 2011, everything else being equal. To put it another way, democrat-leaning blue states with relatively high level of public welfare expenditure per capita tend to have a higher average giving level, but less average giving rate. This finding might be counterintuitive to the traditional impression that the average blue states seem less donative (based on average giving per tax filer). Yet, the fact is blue states with relatively high level of public welfare spending tend to be more donative in terms of average giving level. And this more donative average giving level might also be caused by a proportion of large donations from high-net-worth donors because there are less percentage of residents made contributions to charitable causes in these states.

4.3.2 Density of Charitable Organizations and Income Inequality

Table 4.9 also indicates a statistically significant interaction effect between the density of charitable organizations and income inequality (Gini Index) on both the level of charitable giving and the rate of charitable giving. However, the signs of the coefficients of the interaction term between the density of charitable organizations and Gini Index on the level of charitable giving in model panels 4.2D to 4.5D are consistently negative, while the signs of the coefficients of the interaction term between the density of charitable organizations and Gini Index for the rate of charitable giving in model panels

4.6D and 4.7D are consistently positive. In other words, Gini Index serves as a moderator for the relationship between the density of charitable organizations and the level of charitable giving, as well as for the relationship between the density of charitable organizations and the rate of charitable giving. However, Gini Index negatively moderates the marginal effect of the density of charitable organizations on the level of charitable giving, and in the meantime, it positively moderates the marginal effect of the density of charitable organizations on the rate of charitable giving. To better compare these two interactive effects on the level of charitable giving and on the rate of charitable giving, the margins plots in Figures 4.4 and 4.5 were merged into Figure 4.7.

Figure 4.7 Interaction Effects between Density of Charitable Organizations and Gini Index on Giving Per Tax Filer and Pooled Average Giving Rate



As shown in Figure 4.7, when the Gini Index at the state level is relatively high (more than 0.455), the density of charitable organizations is negatively correlated with the level of charitable giving, but it is positively correlated with the rate of charitable giving, holding everything else constant. In other words, compared to states with relatively low level of Gini Index, in a state with a relatively high level of income inequality, the higher density of charitable organizations the state has, the lower level of

charitable giving (higher three-year average giving per tax filer between 2009 and 2011) was recorded in the state, but in the meantime, the state will have higher three-year average percentage of residents who donated at least $25 to religious and/or secular causes between 2009 and 2011, everything else being equal. To put it another way, states with more income inequality and higher density of charitable organizations tend to have a higher average giving rate but lower average giving level. This means that higher income inequality and higher density of charitable organizations might help engage a higher percentage of residents to participate in private donations in a state but does not necessarily increase the average giving level per capita.

On the contrary, when the Gini Index at the state level is relatively low (less than 0.455), the density of charitable organizations has consistently positive correlations with both the level and rate of charitable giving. In other words, compared to states with high income inequality, in a state with relatively low level of income inequality, the higher density of charitable organizations the state has, the higher level of charitable giving and higher rate of charitable giving the state will have, everything else being equal. To put it another way, states with less income inequality but higher density of charitable organizations tend to have higher level of giving but lower rate of charitable giving.

4.3.3 Public Welfare Expenditure and Income Inequality (Gini Index)

As seen in Table 4.9, there is a significant interactive effect between public welfare expenditure per capita and income inequality (Gini Index) on the level of charitable giving, while no significant interactive effect between these two predictors on the rate of charitable giving can be observed. As model panels 4.6D and 4.7D have shown, the main effects of public welfare expenditure and Gini Index are statistically negative after their

respective interactive effects with political ideology and density of charitable organizations. Whereas, unlike their significant interactive effects on the level of charitable giving, no significant interaction effects can be revealed between public welfare expenditure and Gini Index on the rate of charitable giving. The reason for this difference might be that public welfare expenditure and Gini Index might work differently between attracting more donations and attracting more people to participate in charitable giving. Different donors (high-net-worth vs average donors) might respond differently to requests for donations as they may have different views towards the level of public welfare spending and the level of income inequality.

4.3.4 Density of Associational Organizations and of Religious Congregations

Unlike the density of charitable organizations that has a significant interactive effect with Gini Index on both the level and rate of charitable giving, Table 4.9 shows that the density of associational organizations consistently has a statistically significant and negative relationship with all indicators for both the level and rate of charitable giving at the state level, and this significant negative relation is not moderated by the level of Gini Index (as further statistical analysis rejected a significant interactive effect between density of associational organizations and Gini Index). This finding indicates that the density of associational organizations does not play the same type of roles that the density of charitable organizations has played in promoting donations in the communities. Instead, it might have potential negative impact on both the level and rate of charitable giving and this impact is not moderated by Gini Index. This again confirms the necessity to differentiate the density of charitable organizations from the density of associational organizations when we measure and use nonprofit density at the state level

to predict the level and rate of charitable giving at the state level.

However, the scenario is different for the density of religious congregations. When comparing its impact on the level and rate of charitable giving, the density of religious congregations works differently. According to Table 4.9, the density of religious congregations consistently has a statistically significant and positive relation with all four indicators for the level of charitable giving, whereas, it has no significant relation with the two indicators for the rate of charitable giving. This means that the density of religious congregations may positively increase the average giving level at the state level, but not necessarily increase the giving rate at the state level.

4.3.5 Religiosity and Ratio of Religious Adherents

The results in Table 4.9 show that religiosity consistently has no significant relationship with all the indicators for both the level and rate of charitable giving at the state level. However, the other indicator for cultural capital at the state level, the ratio of religious adherents, has a different result. According to Table 4.9, the ratio of religious adherents seems to have different relationship with the level of charitable giving and the rate of charitable giving. The ratio of religious adherents has no significant relation with the level of charitable giving but has significant positive relation with the rate of charitable giving. In other words, a higher ratio of religious adherents at the state level may help engage a higher percentage of residents to participate in charitable giving but may not necessarily increase the average giving level at the state level. This is a confirmation that different predictors may work differently in the two stages (rate and level) of charitable giving at the state level, just like different factors may have different relationship with whether giving and the amount of giving at individual level.

4.3.6 Other (Control) Variables

Some control variables have similar relationship with both the level and rate of charitable giving at the state level. As shown in Table 4.9, state-level volunteer rate, income per capita, and percentage of tax filers who itemized their charitable contributions in tax returns are found to consistently have a statistically significant and positive relationship with both the level and rate of charitable giving. This means that these three predictors work in the same way on influencing the level and rate of charitable giving at the state level. On the contrary, Table 4.9 also indicates that household composition and labor force composition consistently have no significant relation with all the indicators (except giving per giver) for both the level and rate of charitable giving at the state level.

Other control variables work differently in their relationships with the level of charitable giving and with the rate of charitable giving. First, according to Table 4.9, race heterogeneity is found to be significantly and positively related to all four indicators for the level of charitable giving, whereas it has no significant relation with the rate of charitable giving. This result indicates that the level of racial diversity in a state is positively correlated with the giving level but may not necessarily attract a higher proportion of residents to donate. Second, educational attainment is found to be negatively correlated with three indicators for giving level but has no significant relation with giving rate. Finally, tax burden is negatively correlated with giving rate, and with giving per itemizer and per giver for giving level but has no significant relation with giving per tax filer and contributions as % of GDP for giving level.

Chapter 5 Conclusions and Discussions

5.1 Conclusions

The philanthropic landscapes in the states of the United States have more differences than expected. Descriptive analyses based on Figure 1.1 to Figure 1.6 in the first chapter indicate that there are substantial variations in both the level and rate of charitable giving across the states in the U.S., whichever indicator was used to measure the level and the rate of charitable giving at the state level.

Based on two commonly used indicators (i.e., giving per tax filer and contributions as % of AGI) for the level of charitable giving at the state level, Utah is ranked as the most donative state that has the highest level of three-year average giving per tax filer (US$ 2,465) and the highest percentage (4.72%) of contributions as % of AGI between 2009 and 2011. West Virginia is ranked as the least donative state based on average giving per tax filer (US$ 623), while New Hampshire is ranked as the least donative one based on contributions as % of AGI (1.24%). In addition, based on two indicators (pooled average giving rate and predicted average giving rate) for the rate of charitable giving, Utah also ranks as the most donative state that has the highest percentage (66.1% or 68.5%) of residents who donated to charitable causes between 2009 and 2011, while West Virginia is again ranked as the least donative state that has the lowest average rate (42.3% or 45.7%) of charitable giving between 2009 and 2011.

In fact, the geographical differences in the level and rate of charitable giving across the states in the US are attributable to the differences in the social, economic, political, and cultural aspects among the states. In other words, the variations in the level and rate of charitable giving at the state level can be explained by some key state-level factors,

such as social capital, income inequality, political ideology, public welfare expenditure, and cultural capital, among others. Overall, it is observed that different factors may play different roles in affecting the level and rate of charitable giving. Some of these state-level factors may have consistent relations with both the level and the rate of charitable giving, while other factors may have different relations with the level and the rate of charitable giving.

5.1.1 Political Ideology and Public Welfare Expenditure

State-level political ideology is revealed to be a significant predictor for both the level and rate of charitable giving at the state level. The finding of this study shows that political ideology has significant relationships with both the level and rate of charitable giving, while the marginal effects of political ideology on both the level and rate of charitable giving are moderated by the public welfare expenditure per capita at the state level. In other words, the impacts of political ideology on both the level and rate of charitable giving are conditional on state-level public welfare expenditure per capita.

Interestingly, public welfare expenditure per capita play different moderating roles in the two marginal effects of political ideology on the level of charitable giving and on the rate of charitable giving. Public welfare expenditure per capita not only negatively moderates the relationship between political ideology and the level of charitable giving, but also positively moderates the relationship between political ideology and the rate of charitable giving. On the one hand, when the public welfare expenditure per capita is below a certain level, state-level political ideology is not only significantly and positively correlated with the level of charitable giving but is also significantly yet negatively correlated with the rate of charitable giving. On the other hand, when the public welfare

expenditure per capita is above a certain level, state-level political ideology has a significant yet negative relationship with the level of charitable giving, while it also has a significant and positive relationship with the rate of charitable giving. In other words, whether the marginal effect of political ideology on both the level and rate of charitable giving is positive or negative depends upon how much government funding are spent on public welfare programs at the state level. With different levels of public welfare expenditure per capita, political ideology has different relationships with the level and the rate of charitable giving at the state level.

This novel conclusion on the moderating effect of public welfare expenditure on the relation between political ideology and giving at the state level can help challenge the notion that "red states are more donative", which was revealed by previous studies (Brooks, 2006; Paarlberg et al., 2018). Previous studies, such as Brooks (2006) and Paarlberg et al. (2018), assumed that red states or counties have lower level of public welfare expenditures, and blue states or counties have a higher level of public welfare expenditures and thus the level of public welfare expenditures is usually not taken into account in the relation between political ideology and giving at the state or county level. In fact, it is not always the case that red states or counties have lower level of public welfare expenditures than blue states or counties. The level of public welfare expenditures at the state level may serve as a condition for the marginal effects of political ideology on both the level and the rate of charitable giving at the state level. Based on this novel finding, we should be aware that the relationship between political ideology and charitable giving at the state level is more complicated than expected. Red states are not always more donative than blue states.

5.1.2 Social Capital and Income Inequality

State-level social capital varies among the states and is found to be another significant factor in explaining the variations in both the level and rate of charitable giving across the states. Specifically, as a key indicator for state-level social capital, the impact of the density of nonprofits on charitable giving at the state level needs to be disentangled into two parts: the impact of the density of charitable organizations, and the impact of the density of associational organizations. The density of associational organizations is found to consistently have a significant negative correlation with both the level and rate of charitable giving at the state level, while the impacts of the density of charitable organizations on both the level and rate of charitable giving are moderated by income inequality (Gini Index).

Interestingly, income inequality also plays two different moderating roles in the two relationships. Income inequality negatively moderates the relation between the density of charitable organizations and the level of charitable giving, while it also positively moderates the relation between the density of charitable organizations and the rate of charitable giving. In other words, the relationship between the density of charitable organizations and the level of charitable giving is dependent upon the level of income inequality at the state level. When the level of income inequality is below a certain level, the density of charitable organizations has a significant positive relation with the level of charitable giving, while this positive relation will turn to negative when the level of income inequality is above a certain level. Also, the size of the positive marginal effect of the density of charitable organizations on the rate of charitable giving is dependent on the level of income inequality at the state level.

In addition, as another indicator for the measurement of state-level social capital, the density of religious congregations at the state level is found to have different relations with the level and rate of charitable giving. The density of religious congregations has a significant positive relationship with the level of charitable giving, while it has no significant relation with the rate of charitable giving at the state level.

Both the density of nonprofits and the density of religious congregations are found to matter for charitable giving, as they matter for volunteering (Lim & MacGregor, 2012; Rotolo & Wilson, 2012). However, the relation between the density of nonprofit organizations and charitable giving at the state level is much more complex than expected. The findings on the relations between the density of nonprofit organizations as well as the density of religious congregations and charitable giving at the state level are novel compared to previous studies. First, previous studies did not directly test the relations between the density of nonprofit organizations and/or religious congregations and charitable giving at the regional level. Second, in studies that examined the relationship between the density of nonprofit organizations and volunteering at the state or county level (Lim & MacGregor, 2012; Rotolo & Wilson, 2012), the authors did not examine the potential complex effects that the density of nonprofit organizations may have on volunteering and giving. The novel findings in this study can help challenge the notion that "more nonprofits bring in more donations" because not every type of nonprofit organizations may serve as a positive contributor on promoting donations in the communities. The potential different or even opposite impacts of the density of charitable organizations versus the density of associational organizations on charitable giving at the state level need to be considered since charitable organizations mainly focus on public

benefits and often actively involve in fundraising activities, while associational organizations mainly exist for exclusive mutual benefits of their members and often do not actively initiate or participate in fundraising or donation activities for philanthropic causes. In addition, more charitable organizations in the communities may be helpful in terms of attracting more private contributions, but whether this positive benefit of having higher density of charitable organizations can be realized may depend on the level of income inequality at the state level.

5.1.3 Public Welfare Expenditure and Income Inequality

Apart from their main effects and respective interactive effects with political ideology and the density of charitable organizations on both the level and the rate of charitable giving, public welfare expenditure per capita and income inequality (Gini Index) also have a significant interactive effect on the level of charitable giving, while their interactive effect on the rate of charitable giving is not statistically significant. In other words, the marginal effect of public welfare expenditure per capita on the level of charitable giving is conditional on the level of income inequality (Gini Index) at the state level. When the level of income inequality (Gini Index) is below a certain level, public welfare expenditure per capita is significantly and negatively correlated with the level of charitable giving, while this negative relationship will turn positive when the level of income inequality is above a certain level.

This novel finding on the moderating effect of income inequality on the relation between government spending on public welfare programs and charitable giving at the state level can help challenge the notion that "government spending crowds out private contributions", as revealed in previous studies (Ruiter & De Graaf, 2006; Steinberg,

1991). This novel finding proposes a new condition (that is, income inequality) that needs to be taken into account when examining the relationship between government spending and giving at state or national level. The level of government spending on public welfare programs at the state level does not necessarily crowd out private contributions. The crowd-out/in model on the relation between government spending and giving should be a conditional crowd-out/in model and the level of income inequality at the regional or national level may serve as a key condition.

5.1.4 Cultural Capital: Religiosity and Ratio of Religious Adherents

As an indicator for cultural capital at the state level, religiosity is found to have no significant relationship with both the level and the rate of charitable giving. Instead, the other indicator for cultural capital--the ratio of religious adherents--is revealed to be significantly and positively correlated with the rate of charitable giving, while it has no significant relation with the level of charitable giving.

Unlike previous studies (i.e., Paarlberg et al., 2018) that are based on a single indicator for cultural capital, this study suggests that not all indicators matter for charitable giving at the state level. It seems that belief in the importance in religion does not matter for charitable giving at the state level, the ratio of religious adherents matters for the rate of charitable giving, while the density of religious congregations matters for the level of charitable giving at the state level. In other words, the residents' average belief in religion may not be as important as the existence of more religious adherents or congregations. This may indicate that formalization or institutionalization of religious groups and their adherents may be more helpful in promoting philanthropic behaviors, compared to regional religiosity: average score of belief in importance of religion.

5.2 Theoretical Contributions

First and foremost, this study contributes to the literature by providing a more comprehensive understanding of why there are differences in charitable giving across the states from the macro perspectives of social capital, income inequality, political ideology, and cultural capital. Building upon Gittell and Tebaldi (2006)'s pioneering study which focused on the level of charitable giving at the state level, this study moved beyond to not only add a whole new line of analyses exploring and explaining the variation in the rate of charitable giving, but also include important new factors from the perspectives of social capital, political ideology, and cultural capital. The addition of the whole new line of analyses on the variation in the rate of charitable giving moved beyond and extended the boundary of the literature from solely focusing on the level of charitable giving to focusing on both the level and the rate of charitable giving at contextual level. The addition of the influential new predictors in this study not only substantially improved the explanatory power of the final models compared to the Gittell and Tebaldi (2006) study, but also offered new perspectives and insights on explaining the variation in the level of charitable giving.

Secondly, this study contributed to the literature by revealing a more complex and nuanced picture on why there are substantial variations in both the level and rate of charitable giving across the states and by challenging the notions that "red states are more donative", that "higher density of nonprofits attracts more donations", and that "government spending crowds out private donations". Specifically, compared to previous research, this study revealed several purely new findings: there are three significant interactive effects between political ideology and public welfare expenditure, between the

density of charitable organizations and income inequality, and between public welfare expenditure and income inequality on the level of charitable giving; and there are also two significant interactive effects between political ideology and public welfare expenditure, and between the density of charitable organizations and income inequality on the rate of charitable giving. These novel findings indicate that there are complex relationships or mechanisms among the social, economic, political factors that jointly or interactively influence the variations in the level and rate of charitable giving at the state level. The notions that "red states are more donative" and that "higher density of nonprofits attracts more donations" are challenged here since the impacts of political ideology and density of charitable organizations on both the level and the rate of charitable giving are not independent, but conditional on public welfare expenditure and income inequality, respectively. The notion that "government spending crowds out private donations" is also challenged here since this study revealed a more nuanced conditional crowd-out/in model of government spending on private contributions. These novel, more complex and nuanced findings by this study are moving beyond previous research. For instance, the Paarlberg et al. (2018) study focused on exploring the mediating effect of tax burden between political ideology and the level of charitable giving at the county level but did not consider the potential interactive effect between political ideology and public welfare expenditure on the level of charitable giving at county level. In addition, the Paarlberg et al. (2018) study did not include the density of charitable organizations and income inequality in their model and thus entirely neglected the potential interactive effects between the density of charitable organizations and income inequality on the level of charitable giving at the county level, and between

public welfare expenditure and income inequality.

What is more, this study contributes to the literature by showing the necessity to disentangle the density of nonprofit organizations into two types and differentiate the impact of the density of charitable organizations from the impact of the density of associational organizations on the level and rate of charitable giving at the contextual level since the density of charitable organizations and the density of associational organizations may play different or even opposite roles in affecting the level and rate of charitable giving at the contextual level. In this study, the density of associational organizations consistently has an independent and negative relationship with both the level and rate of charitable giving at the state level, while the marginal effects of the density of charitable organizations on both the level and rate of charitable giving are moderated by the level of income inequality at the state level. The reason for these differential effects by these two types of density of nonprofit organizations might be that associational organizations and charitable organizations work differently in the communities: associational organizations focus more on exclusive member-based mutual benefits and for most part, on advocacy related issues, and usually cannot accept tax-deductible donations, while charitable organizations exist (especially public charities) for broader public benefits of the entire society, are eligible to receive tax-deductible contributions, and usually actively solicit information on donation requests and thus promote donations in the communities. This is also a novel finding that previous studies did not reveal. For instance, the only previous study (Rotolo & Wilson, 2012) that used the density of nonprofits to predict variation in volunteer rate at the state level only used the density of associational organizations to measure the density of nonprofits and did not

consider the potential different effects between the density of charitable organizations and the density of associational organizations. This novel finding can offer insights for future research. For future studies under this line of research, scholars should consider the potential different mechanisms that the density of charitable organizations and the density of associational organizations might have in affecting the level and rate of charitable giving and volunteering at contextual level.

Lastly, this study is the first empirical research that not only explored both the level and the rate of charitable giving at the contextual level at the same time, but also compared and revealed different effects that different factors might have on the level of and the rate of charitable giving at the state level. Previous contextual level studies on charitable giving or volunteering never explored and compared the level and rate of charitable giving or volunteering at the same time in a single study. Drawing insights from some individual level studies that revealed different effects of individual-level predictors on the two stages (whether donate and the amount of donation) of charitable giving at the individual level, this study also observed and revealed that different predictors at the state level might work differently on the level of and the rate of charitable giving at the state level. Some predictors, such as the density of associational organizations, volunteer rate, percentage of itemizing, and religiosity, will consistently have significant positive or negative, or no significant relationship with both the level and the rate of charitable giving, respectively. Yet, other predictors, such as the density of charitable organizations, income inequality, political ideology, public welfare expenditure, the density of religious aggregations, and the ratio of religious adherents may have different effects on the level and the rate of charitable giving. For instance,

although the density of charitable organizations and income inequality have significant interactive effects on both the level and the rate of charitable giving at the state level, these two interactive effects work differently since income inequality serves as a negative moderator between the density of charitable organizations and the level of charitable giving, yet also plays as a positive moderator for the density of charitable organizations on the rate of charitable giving. These novel findings can shed light for future research. For future studies under this line of research, scholars should be aware of and consider the potential different effects by different predictors on the two stages (giving rate and giving level) of charitable giving at the contextual level.

5.3 Practical and Policy Implications

First and foremost, a higher density of nonprofit organizations in a state may be helpful in terms of attracting more donations and attracting more people to donate to charitable causes in the state, but state policymakers and leaders in the nonprofit sector should be advised and aware that a higher density of nonprofits in a region does not necessarily bring in positive benefits in terms of attracting more private donations or higher participation rate in charitable giving. There are several conditions that need to be considered before advocating for and promoting nonprofit growth in a region. First, on the demand side, are there substantial and diverse demands for public goods and services in the region? When a region has a high level of racial diversity and income inequality, the demands for public goods and services tend to be high and diverse as well. Then the next question to be asked is what the solution is to meet the demands for public goods and services? Do the residents prefer a public solution more, that is, provision of the public goods and services through government spending on public welfare programs, or

prefer a private solution more, that is, provision through private donations to nonprofits or a mixed strategy? If residents in a state prefer the private solution more than the public solution, then advocating for and promoting nonprofit growth in the region may be the right path to meet the demands and solve issues of racial disparities and income inequality in the region if the nonprofit sector in the region is not developed. To advocate for, cultivate and promote the growth of nonprofits in a region, the potential differential effects that charitable organizations and associational organizations may have on both the level and rate of charitable giving in the region should also be considered. In most situations, it is charitable organizations rather than associational organizations that may be helpful in terms of not only attracting more participation in charitable giving through active solicitation for donations, but also providing direct public goods and services through raised private donations. It should also be noted that in places with high level of income inequality, increasing the density of charitable organizations may be helpful in attracting a higher percentage of participation in philanthropy, but may not necessarily increase the average giving level in the region. When these charitable organizations are primarily funded through private donations, rather than by government funding through public welfare programs, the density of charitable organizations may be helpful in terms of attracting more donations in the region because these donor-dependent charitable organizations usually actively seek for donations from donors rather than relying on grants and subsidies from the government public welfare programs.

What is more, on the supply side of charitable giving, a conservative-leaning political ideology, meaning a higher percentage of conservative residents (or higher percentage of constituents voting for Republican candidates in presidential elections) in a

state, may be helpful in promoting regional philanthropy, but it may not necessarily increase the average level of donations or attract a higher percentage of residents to participate in charitable giving. Whether a higher percentage of conservative residents could mean more private donations per capita and higher participation rate in philanthropy may depend upon to what level the government funding has been spent on offering and delivery of public welfare goods and services in the state. In a state where there is a conservative state government that limits its residents' access to public services, and where most residents are conservative and prefer a private solution for public services through charitable giving, a positive effect of a conservative political ideology on giving in the state may be possibly revealed. If a democratic governor was elected in a state where the majority of residents tend to be conservative, and the governor managed to increase government spending on public welfare by loosening access of public welfare benefits to more residents (through legislative and/or administrative approach), some of the conservative residents may respond against the state government's action of increasing government spending on public welfare by reducing private donations in the subsequent time periods. On the contrary, if a republican governor was elected in a state where most residents tend to be liberal, and the governor managed to cut government spending on public welfare by tightening residents' access to public welfare benefits (through legislative and/or administrative approach), the state government may need to put efforts to guide public charities to transform from more dependent on government funding to more donor dependent. The state government could help to increase the capacities of these charitable organizations in fundraising and cultivate a more inclusive donation culture that can engage more people in charitable giving in the communities.

Last but not the least, state policymakers should also be advised that increasing or decreasing government spending on public welfare programs in a state may have different consequences on charitable giving in a state, depending on the level of income inequality in a state. When the level of income inequality in a state is relatively high, increasing the level of public welfare expenditure per capita may be helpful in terms of attracting more donations. Under this scenario, the high level of income inequality represents high demand for public goods and services and increasing government spending on public welfare programs may crowd in private donations to supplement public spending in delivery of public services. However, when the level of income inequality in a state is relatively low, increasing the level of public welfare expenditure per capita may crowd out people's motivation to contribute to offering of public services through private donations since a relatively lower level of income inequality represents a relatively lower demand for public goods and services. If the state government increases government spending on public welfare, conservative residents may think that most demands for public services would be met by government spending and thus there might be less need for private contributions. Therefore, it is recommended that this type of polices should be made based on the condition of income inequality and the demands for public services in the state.

5.4 Limitations and Directions for Future Study

There are several limitations in this study. First, the scope of this study is the state-level differences in charitable giving in the U.S. and does not cover the potential variations in the level and rate of charitable giving at county and/or city level. Charitable giving at the county or city level within states may also vary. Therefore, the findings

based on the state-level analyses may not be applicable to lower regional analyses. Second, the study is based on data at the state level in the U.S. Thus, the findings may not be generalizable to represent regional differences in philanthropy in other countries or contexts. Third, given the cross-sectional nature of the data, all the results on the relationships among the independent and dependent variables in this study are correlational, rather than causal. Fourth, the measurement for the level of charitable giving at the state level, such as giving per tax filer and contributions as percentage of adjusted gross income, might be limited in the sense that the itemized donations based on the IRS tax return data was estimated to represent about 60% of total donations in the U.S. and thus cannot represent the full picture of donations in the U.S. Further, this study only captures level of giving by individuals and excludes grantmaking by private foundations and federated campaigns as well as earned income. Some of the inferences regarding the interplay of state funding and level of giving might be moderated by the availability of other forms of donative and earned revenue. In particular, there is variation by US region in terms of the number, growth and density of private, corporate and community foundations over time. This could be an indicator about some aspect of social capital, culture, or political economy.

In addition, for the analyses on the level of charitable giving, it is currently impossible to do a multilevel analysis that includes individual level data on giving amount for each state to compare the results with results based on the IRS return data due to lack of individual-level dataset that not only measures the amount of donations by the respondents but also is large enough and representative at the state level. A nationally representative sample with a few thousands of respondents, like the Philanthropy Panel

Study conducted by Indiana University Lily Family School of Philanthropy, is not sufficient to estimate an average giving amount for each state. The sample size of the Current Population Survey Volunteer Supplement is large enough for estimation of both the level and rate of charitable giving at the state level, however, the CPS Volunteer Supplement survey only includes a single question on whether the respondents donated to charitable causes and does not have further information about the amount of donations and whether the donation is for secular or religious causes. Further, the IRS tax return data only captures the level of giving by individuals and may have excluded donations made by corporations to public charities and private foundations, which may affect individual giving. Also, the current regression model may have not captured all the factors that could contribute to interplay of government funding and the level of charitable giving since their relation might be moderated by the availability of other forms of donative and earned income by charitable organizations, for instance grants from private foundations, and earned revenue through service provision. In particular, there is also variation by U.S. region in terms of the number, growth and density of private, corporate and community foundations over time.

What's more, the measurement for the density of charitable organizations and the density of associational organizations may not be perfect and may cause limitations in the explanation of the results since the composition of charitable organizations and associational organizations are more complex than hypothesized. For instance, hybrid charitable organizations (501 c3) often work both on service provision and advocacy (and/or public education) to varying degrees and sometimes in response to conditions or needs in their environments. These organizations may need to be differentiated when

measuring the density of charitable organizations or considering the implications of some of the findings related to nonprofit density in this study. The existence of this hybrid nature of charitable organizations may also vary across counties or cities within the states, as will the density of nonprofits and income inequality. Finally, as an indicator for social capital, data about trust at the state level either does not exist, or current nationally representative samples, such as the American National Election Studies, are not sufficient to be used to estimate a reliable state-level trust variable, even using the multilevel regression and poststratification approach.

The abovementioned limitations can provide directions for further study under this line of research. First and foremost, the findings of this study need to be tested with more data on difference levels and in different countries or contexts. For instance, if data on public welfare spending per capita is available at the county level, further research should test if county-level political ideology also has a significant interactive effect with county-level public welfare spending per capita. This potential interactive effect should also be tested in other countries to see if this is a unique phenomenon in the US because of the two-party political system in the US. In addition, if measurements for the density of charitable organizations, associational organizations, and religious congregations are available at the county level, the potential differential effects that the density of charitable organizations and the density of associational organizations might have on the both the level of rate of charitable giving should be tested at the county level as well. Also, the potential interactive effects between the density of charitable organizations and income inequality on both the level and rate of charitable giving should be tested as well.

Secondly, given that the data used for the current study is cross-sectional by nature,

future research could try to collect a panel data to test if causal inferences can be made. The challenge would be that some key state level independent variables may remain quite stable even in a five-to-ten-year period, such as religiosity, density of charitable organizations, density of religious congregations, and income inequality. Little variation over time might be observed if the data is collected year by year and only within a relatively short period, such as between 2010 and 2020. It would be better to collect a longer panel that can cover a range of twenty to thirty years, and data could be collected every two or three years so that more substantial variation could be observed, and causal inference can be made. This would be the ideal scenario, but future research could move towards this direction with more and more data expected to be available in the future.

In addition, in future studies, it might be better to separate private foundations from public charities in the measurement for the density of charitable organizations since these two types of charitable organizations may behave differently in terms of fundraising in the communities. Among public charities, three major types of organizations may need to be separated, based on their dependence on either donors, government-funding, or revenue-generating, and to be tested separately. Also, sometimes hybrid nature of charitable organizations (501 c3) that work on both service provision and advocacy could also be treated as a distinct type of organizations in the measurement for density of charitable organizations, though this would involve considering novel use of extant fields in the IRS Form 990 (such as lobbying activities) or mission related activities or the collection of new data; at a minimum, it is important to consider hybridity when interpreting the results and considering the implications. Among the associational organizations, advocacy organizations might also need to be separated from other

membership-based organizations as their focus and activities might be different and thus has different relations with fundraising in the nonprofit sector.

What is more, if future CPS Volunteer Supplement surveys can include questions about the amount of charitable giving and whether the donation is religious or secular, a multilevel analysis including both the individual level predictors and state level factors can be done to estimate the level of giving at the state level. The results from the multilevel analysis can be compared to check the robustness of the results based on the IRS tax return data. Also, with information about whether the donation is religious or secular and about the amount of religious donation and secular donation, different findings for the level and rate of religious versus secular giving might be revealed at the state level.

Last but not the least, if county-level data on the social capital, political ideology, and cultural capital measurements is available in the future and can be added into the two-level model, a three-level multilevel model should be used to test whether there are cross-level interaction effects among these social, political, and cultural factors.

Notes:

1. Contextual level in this study refers to regional or cross-national level.

2. According to the Urban Institute, public welfare expenditures include "cash assistance through Temporary Assistance for Needy Families (TANF), Supplemental Security Income, and other payments made directly to individuals as well as payments to physicians and other service providers under programs like Medicaid". Among the share of total direct general state and local spending by functional category, public welfare was the largest expenditure (22.3%) in 2019. And about "92 percent of direct spending on public welfare occurred at the state level in 2019". Also, "state agencies, rather than local governments, typically provide public welfare benefits directly to individuals". In addition, "states can take actions that make it easier or more difficult for people to access benefits." Please click the following link to the Urban Institute website for more information about public welfare expenditures at the state and local level. https://www.urban.org/policy-centers/cross-center-initiatives/state-and-local-finance-initiative/state-and-local-backgrounders/public-welfare-expenditures

3. Data about average giving and giving rate at the state level from https://generosityforlife.org/ based on the Indiana University Lilly Family School of Philanthropy's Philanthropy Panel Study is also considered in this study. As seen in Table 5.4 in the appendix, the 2010 average giving and 2010 giving rate at the state level were used as alternative dependent variables and regressed on the state level predictors. However, the total R^2 in both models are relatively much lower compared to the R^2 statistics in Table 4.2 and 4.6. In addition, for most of the key independent variables (including the interaction terms), their coefficients are not statistically significant. These results are not as good as the results based on data from the IRS tax return and the CPS Volunteer Supplement. The reasons behind this might be the following: first, the Philanthropy Panel Study is based on a national sample ($N \approx 9{,}000$) in the Panel Study of Income Dynamics (PSID). This national sample may not be reliable and sufficient to generate a representative estimation for state-level average giving amount and giving rate across the states compared to the IRS tax return data and the CPS Volunteer Supplement. We can also find from Table 5.2 that the correlations between the measurements for average giving based on the IRS tax return data (2009-2011) and the Philanthropy Panel Study (2010) data are only 0.341, 0.401, and 0.304. From Table 5.3, it is also revealed that the correlation between the measurement for giving rate based on the CPS Volunteer Supplement (2009-2011) and the Philanthropy Panel Study (2010) data is only 0.404. In other words, the PPS 2010 data can only represent about 30%-40% of the IRS tax return data and the CPS Volunteer Supplement data. Therefore, it is concluded that the IRS tax return data and the CPS Volunteer Supplement data are more reliable.

Appendix

As seen in the following Table 5.1, after adding three-way and four-way interaction terms among political ideology, public welfare expenditure, density of public charities, and Gini Index into the regression model on average giving per tax filer (model panel 5.1) and comparing it with model panel 4.2D, no significant evidence can be found to support a three-way or four-way interactive effect among these four independent variables.

Table 5.1 Test for Three- or Four-way Interactive Effects Among Key IVs

Ln (Giving Per Tax Filer)	**4.2D**	**5.1**
Political Ideology*Public Welfare Expenditure* Gini Index* Density of Charitable Organizations	-	0.0005(0.001)
Political Ideology*Public Welfare Expenditure* Density of Charitable Organizations	-	-0.0002(0.001)
Public Welfare Expenditure*Density of Charitable Organizations*Gini Index	-	0.0002(0.000)
Political Ideology*Public Welfare Expenditure* Gini Index	-	-0.005(0.069)
Density of Charitable Organizations*Public Welfare Expenditure	-	-0.0002(0.001)
Political Ideology*Gini Index	-	-47.602(101.143)
Political Ideology*Public Welfare Expenditure	-0.002 (0.001)**	0.000 (0.032)
Density of Public Charities*Gini Index	-0.229 (0.051)***	-1.054 (1.773)
Welfare Expenditure Per Capita*Gini Index	0.006 (0.001)***	-0.005 (0.069)
Density of Public Charities	0.105 (0.022)***	0.493 (0.800)
Political Ideology	3.405 (0.872)***	25.741 (45.751)
Welfare Expenditure Per Capita	-0.0017 (0.001)*	0.0052 (0.009)
Gini Index	3.703 (2.788)	57.504 (66.236)
Density of Associational Organizations	-0.010 (0.004)*	-0.011 (0.007)
Density of Religious Congregations	0.023 (0.007)**	0.021 (0.010)*
Ratio of Religious Adherents	-0.118 (0.188)	-0.167 (0.315)
Religiosity	0.011 (0.078)	0.060 (0.120)
Volunteer Rate	0.020 (0.006)**	0.020 (0.007)**
Income Per Capita	0.000 (0.000)**	0.000 (0.000)*
Tax Burden Rate	-4.185 (2.431)$^{+}$	-4.566 (3.886)
Household Composition	1.240 (0.807)	0.318 (1.295)
Labor Force Composition	0.011 (0.010)	0.001 (0.015)
Race Heterogeneity	0.680 (0.187)**	0.669 (0.305)*
Educational Attainment	-0.029 (0.011)*	-0.027 (0.018)
Percentage Itemizing	0.170 (0.573)	3.288 (0.867)**
Constant	3.392 (1.786)$^{+}$	-22.440 (29.327)
Number of observations	51	51
F	132.71	.
Prob > F	0.000	.
R^2	0.928	0.943

Note: Robust standard errors in parentheses. $^{+}$ p<0.1; * p<0.05; ** p<0.01; *** p<0.001

Table 5.2 Correlations between 3-year Average Giving Per Filer, Per Itemizer, and Per Giver (IRS Tax Return 2009-2011) and 2010 Average Giving at State-level (Philanthropy Panel Survey 2010)

	3-year Average Giving Per Filer	3-year Average Giving Per Itemizer	3-year Average Giving Per Giver	Average Giving PPS2010
3-year Average Giving Per Filer	1.0000			
3-year Average Giving Per Itemizer	0.6769	1.0000		
	0.0000			
3-year Average Giving Per Giver	0.5557	0.9704	1.0000	
	0.0000	0.0000		
Average Giving PPS2010	0.3414	0.4010	0.3042	1.0000
	0.0153	0.0039	0.0317	

Table 5.3 Correlation between Pooled 3-year Average Giving Rate (CPS Volunteer Supplement 2009-2011) and 2010 Giving Rate at State-level (Philanthropy Panel Survey 2010)

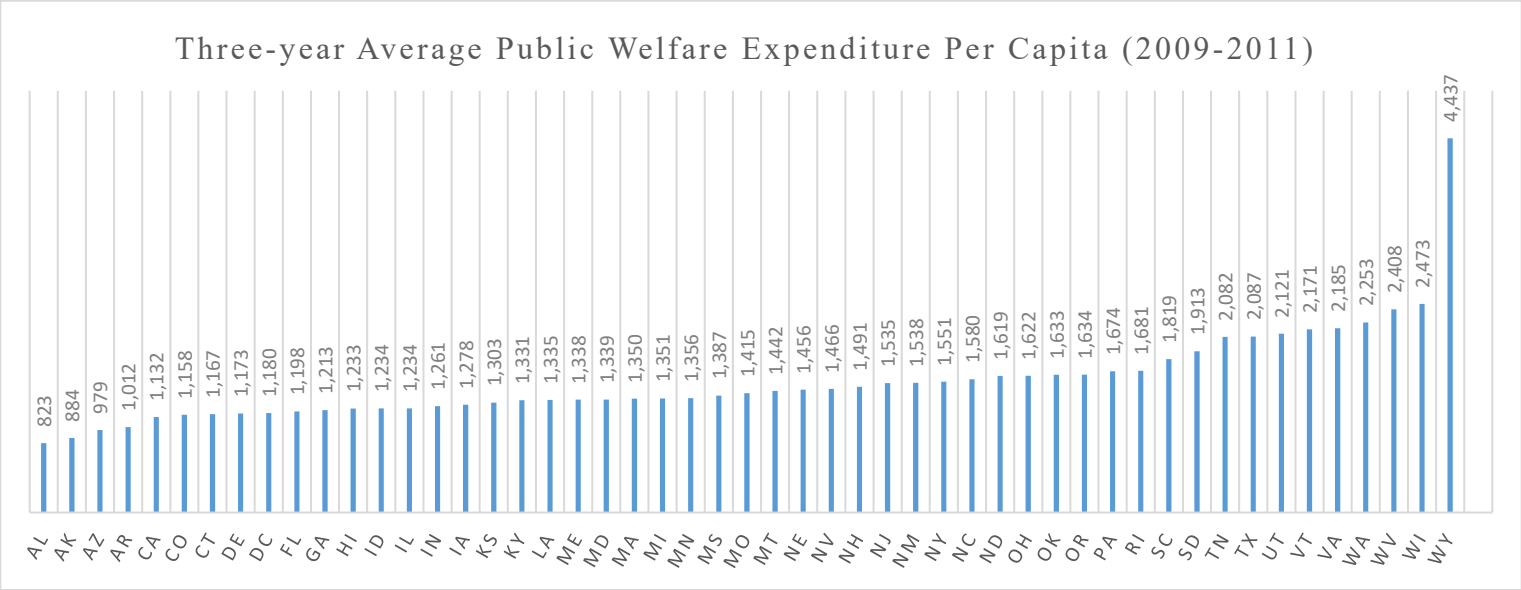
	3-year Pooled Average Giving Rate	Percent Giving PPS 2010
3-year Pooled Average Giving Rate	1.0000	
Percent of Giving PPS 2010	0.4039	1.0000
	0.0036	

Table 5.4 OLS Regressions on Average Giving and Giving Rate (Philanthropy Panel Survey 2010)

Dependent Variables	**Ln (Average Giving 2010-PPS)**	**Giving Rate 2010-PPS**
Political Ideology * Welfare Expenditure Per Capita	0.006(0.003) *	-0.002 (0.001) $^{+}$
Density of Charitable Organizations * Gini Index	0.955 (0.627)	-0.024 (0.164)
Welfare Expenditure Per Capita * Gini Index	0.007 (0.009)	-0.003 (0.002)
Density of Charitable Organizations	-0.445 (0.276)	0.003 (0.072)
Political Ideology	-7.764 (4.735)	1.302 (1.379)
Welfare Expenditure Per Capita	-0.006 (0.005)	0.002 (0.001) $^{+}$
Gini Index	-51.546 (24.009) *	4.883 (5.270)
Density of Associational Organizations	-0.007 (.016)	-0.003 (0.004)
Density of Religious Congregations	0.023 (0.032)	0.017 (0.007) *
Ratio of Religious Adherents	2.570 (0.959) *	-0.0001 (0.255)
Religiosity	-1.063 (0.327) **	-0.042 (0.142)
Volunteer Rate	0.028 (0.029)	0.001 (0.006)
Income Per Capita	-0.000 (0.000)	0.000 (0.000)
Tax Burden Rate	8.858 (9.113)	-1.126 (2.183)
Household Composition	-8.579 (3.679) *	1.173 (1.017)
Labor Force Composition	-0.061 (0.055)	-0.002 (0.009)
Race Heterogeneity	2.743 (1.169) *	-0.169 (0.282)
Educational Attainment	0.087 (0.062)	0.002 (0.015)
Percentage Itemizing	-3.690 (2.419)	-0.217 (0.786)
Constant	39.014 (11.263)	-2.480 (2.550)
Number of observations	50	50
F	7.50	6.24
Prob > F	0.000	0.000
R^2	0.659	0.67.2

Note: Robust standard errors in parentheses. $^{+}$ p<0.1; * p<0.05; ** p<0.01; *** p<0.001

Figure 5.1 Three-year Average Public Welfare Expenditure Per Capita Across the States (2009-2011)



Source: State & Local Government Finance Data Query System (2009-2011). Unit: USD

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