BETTER CITIZENS? THE RELATIONSHIP BETWEEN HOMEOWNERSHIP AND RELIGIOUS AND POLITICAL VOLUNTARISM

by

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(Under the Direction of Anne L. Sweaney)

ABSTRACT

What is the relationship between homeownership and citizenship, as measured by religious and political voluntarism? Religious voluntarism is primarily defined by how often respondent volunteered at or through church, synagogue, or mosque, such as serving on a committee, assisting in worship, teaching, or helping others through programs organized by place of worship. Political voluntarism is defined by how often respondent volunteered through organizations to bring about social change, such as civic or community action, working for a political party or advocacy group. Empirical literature reveals modest to tenuous relationships between homeownership and religious and political voluntarism.

Tenure is a matter of choice. Use of a choice variable as a key independent variable in estimations leads to omitted variable bias. With this in mind, this study uses before and after comparisons with two waves of Panel Study of Income Dynamics (PSID) data. The expectation is that estimating the relationship between homeownership and religious and political voluntarism may be less clouded by omitted time invariant

variables. Weaknesses of the study include limited time span of data, and certain weaknesses in variables.

This study finds very little evidence of statistically significant relationships between homeownership and citizenship as measured by religious and political voluntarism given data at hand, variables used, and estimations based on before-and-after comparisons. Future research may include monitoring PSID for future voluntarism variables. Alternatively, other datasets such as the U.S. Census Bureau's Current Population Study (CPS), titled Volunteering in the U.S. may be used to verify results.

The implication of this study is that individual community participation as measured by religious and political voluntarism is not stifled by tenure decisions. Given this dataset and the techniques used here, the assumption that homeowners are better citizens resulting from increased religious and political voluntarism is unfounded.

INDEX WORDS: housing, homeownership, tenure, political voluntarism, religious voluntarism, citizenship

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DEDICATION

For Hampton, Jenkins, and their father

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Thank you to the three members of my committee. Dr. Sweaney, thank you for the endless encouragement and patience during this process. I am grateful for the time and energy that you expended on me. Remembering you, I will do the same for someone else when my time comes. Dr. Atiles, thank you also for your encouragement, patience, and knowing me better than I gave you credit for. I will thank you always for starting me on this road to academia and using research based knowledge to help others. Dr. Nielsen, thank you for all of your help, especially in all matters technical. Having you on the committee made me strive to make this study as buttoned up as possible. All three members: thank you for all acts of seen and unseen kindness showed to me during this process.

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CHAPTER 1

Introduction

Research Question

What is the relationship between homeownership and citizenship, as measured by religious and political voluntarism? As noted by Cohen (1960), citizen participation is the backbone of democracy. The United States has been historically known for democracy and humanitarianism. The citizen volunteer gives time and effort as a means of maintaining this democracy and humanitarianism that is so important to the United States. Sieder (1960) observes that the United States places a premium on continuous improvement in all types of services, including better living and working conditions. Sieder also states that it is imperative for citizens to actively engage themselves in this improvement process. In other words, the backbone of the U.S. democracy is only as strong as made by citizen volunteers.

As indicated by Dietz and Haurin, who examined 30 years of literature related to the consequences of homeowning, homeownership may be associated with outcomes including those related to wealth building, household mobility, labor force behavior, housing maintenance, social and political activity, child outcomes through the provision of a more stable environment in which to raise children, and health, including better environmental health through proper home maintenance (Dietz & Haurin, 2003). These notions are also commonly held as part of popular opinion. Voluntarism is related to

some of these outcomes. For example, the relationship between homeownership and finances might be explained in that homeowners might volunteer in organizations designed to increase property values, such as homeowners' associations. Another example is that homeowners, who may be limited in mobility, might volunteer as members of student-teacher associations as a means of improving local school conditions and child outcomes.

It is unknown whether the relationship between homeownership and citizenship as measured by religious and political voluntarism is causal or due to unobservables. Globally, current literature indicates a variety of positive outcomes associated with homeownership. Dietz and Haurin (2003) observe that there is evidence to substantiate the relationship between homeownership and household behaviors and outcomes, but in much of the previous 30 years, the literature has been theoretically or technically deficient. In an attempt to reconcile some deficiencies, this study seeks a better understanding of the relationship between homeownership and religious and political voluntarism. These two types of voluntarism will be defined further in this chapter.

Definitions

Definition of Homeownership

Green and Malpezzi (2003) observe that tenure is usually measured as a dichotomous choice, that is, households usually rent or own property. Per Morris (1985), whether owned or rented, tenure refers to the term by which property is held. The term homeownership refers to those residential properties whose tenure status is owned. The American Housing Survey of the United States, sponsored by the U.S. Department of

Housing and Urban Development and conducted by the U.S. Census Bureau, defines tenure as follows. Owner-occupied refers to those units with persons in residence having names recorded on the deed, contract to purchase, or mortgage. Included in this definition are elderly consumers who buy and occupy units intending to stay for life, with the property reverting back to the seller upon death. Renter occupied units include all remaining units. Renter occupied units consist of those rented for cash or other compensation, such as tenant provided maintenance work (U.S. Census Bureau, 2007).

Colton (2003) observes that homeownership is complex, and consumers are faced with a multitude of decisions that may impact tenure choice. For example, consumer choice may be influenced by factors including but not limited to income, the economy, type of housing desired, and region inhabited. Additionally, Morris and Winter (1975) remark that housing behavior may be affected by a number of norms. These norms include tenure type (own or rent), space, structure type, quality, and neighborhood.

Definition of Volunteer

This study uses definitions for volunteer derived from studies varying in age, with some considered to be landmark studies. This study uses the word volunteer in two strict capacities. It is used as a verb to indicate the act of freely offering oneself as a volunteer (Webster, 1971). Per Morris (1985), the word volunteer is also used as a noun to denote individuals who give services of their own free will. Volunteers are defined as those who work without pay or material benefit (Sieder, 1960; Wilson & Musick, 1999). Marshall (1964) states that philanthropy does not require payment. Verba, Schlozman, and Brady (1995) define voluntary activity as participation in some activity that is not compulsory

and for which the individual receives token or no compensation. Cnaan, Handy, and Wadsworth (1996) argue that the term volunteer is used too loosely to describe service without compensation and individuals do not know for certain whether or not their activities constitute volunteer service. As a result, the scope of volunteer effort is underreported in surveys.

Definition of Voluntarism

This study uses the term voluntarism to conceptualize personal service given at free will. The narrowest definition of voluntarism refers to the principle of using or relying on voluntary action to do or sustain something (Webster, 1971). Per Merriam-Webster (2009), voluntarism is synonymous with volunteerism. Interestingly, the word volunteerism seems to have been developed more recently, as it does not appear in older reputable references (Webster, 1971). The word voluntarism, as opposed to volunteerism, is chosen for use in this study as it appears more frequently in the literature used here. More broadly, voluntarism has been developed in literature as a concept that places individuals choosing at free will to participate in systems intending to do or sustain something using voluntary action. Thursz (1960) describes voluntarism as a phenomenon where participants are driven to act by an ideal of service. Using the more broad definition used in literature, this study uses the term voluntarism to describe engagement in service at free will and the process by which individuals engage in volunteer activity.

Voluntarism has been called a distinguishing characteristic and cultural trait of the United States, and that countless citizens are motivated to action and dedication by the spirit of voluntarism (Thursz, 1960). Sieder (1960) observes that volunteers may fulfill a

number of roles, including identification of issues needing attention, creation of services attending to said issues, promotion of such services, and dissemination of knowledge and skill in aiding others. These roles may be chosen based on the unique needs of the volunteer. A more current study states that voluntarism serves a number of functions. The individual may volunteer to express certain values, learn more, use skills, experience psychological growth, gain career oriented experience, strengthen social relationships, and reduce negative feelings regarding personal problems (Clary & Mark, 1999).

As defined by Verba, Schlozman, and Brady (1995), voluntarism is the process by which participants become active. As described, the process is composed of several key factors. Individuals have a choice whether or not to participate in the process and must somehow be motivated to act. Individuals must also have the capacity to participate; this capacity may be defined by time, money, and physical abilities. Verba, Schlozman, and Brady observe that individuals are more likely to participate when asked to do so, and therefore recruitment networks play a central role in this voluntarism process.

These statements discussing the importance of voluntarism to the United States do not intend to imply that voluntarism is important only in the U.S. The U.S. is not the only nation of the world with engaged citizens. On the contrary, civic engagement across the globe takes many forms with a number of outcomes. As noted by the United Nations (UN), volunteerism is critical to human development and social change. The UN has developed at set of Millennium Goals that include ending poverty and hunger, ensuring universal education, and eliminating gender inequality in primary and secondary, to name a few (United Nations, 2008). It is stated clearly that achieving the Millennium Goals unequivocally requires the volunteer work of ordinary citizens from around the world.

The UN (2008) recognizes that volunteers, regardless of national identity, play a crucial role in this positive force. Additionally, it is critical to note that these volunteers may belong to a number of varying faiths.

Figure 1 is a concept map that relates individuals to the process by which voluntarism is cultivated. Using the definitions supplied by Verba, Schlozman, and Brady (1995), the concept map intends to illustrate the process by which individuals become active volunteers. Here, a central circle depicting voluntarism dominates the map. Four smaller circles surround voluntarism, each overlapping slightly. Each of these smaller circles features some factor related to the voluntarism process. As illustrated, voluntarism relies on the choice to engage, motivation to act, opportunity to act, and capacity to act.

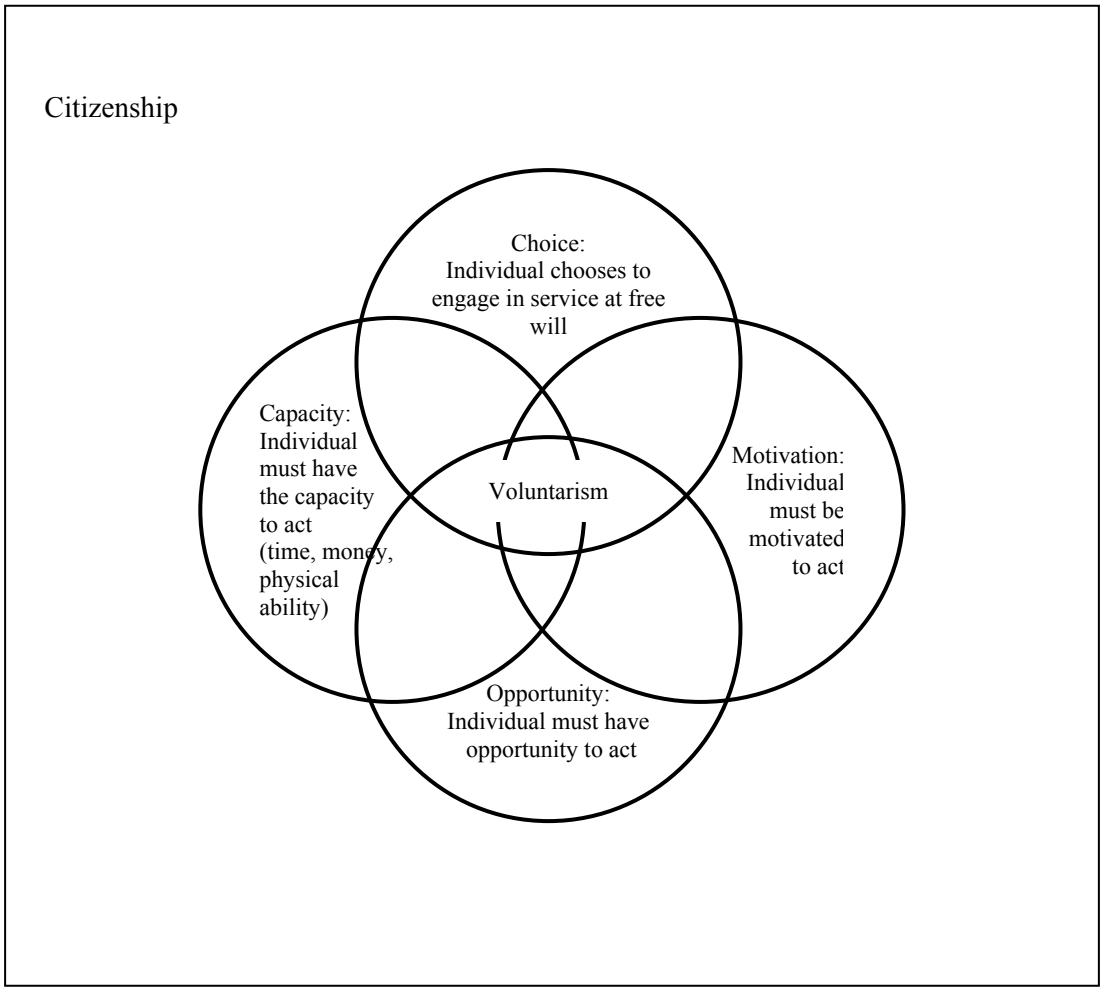

Figure 1. Concept map relating the individual to the process by which participants cultivate voluntarism.

The concepts illustrated in Figure 1 may be applied to any measure of voluntarism, including religious and political voluntarism as used in this study to measure citizenship. This study defines religious voluntarism strictly as service given at free will at or through church, synagogue, or mosque. Religious voluntarism consists of that which occurs only at church, synagogue, or mosque. This measure does not include volunteering through schools, hospitals, and other charities run by religious organizations (University of Michigan, 2003c). Sieder (1960) observes that generally speaking, voluntarism is indigenous to the United States due to rights and responsibilities inherent in Judaic-Christian religious beliefs.

Political voluntarism is defined strictly as service given at free will to organizations that bring about social change, such as civic or community action, or working for a political party or advocacy group (University of Michigan, 2003b). Political voluntarism consists of that which occurs only through organizations that bring about social change, such as civic or community action, working for a political party or advocacy group. This definition does not include voting, which is a voluntary political activity that primarily brings about political change.

Voluntarism as an Appropriate Measure of Citizenship

Conceptually, citizenship may take two forms. Per Kymlicka and Norman (1994) the two citizenship concepts are as follows. First, legal citizenship is defined as legal membership in a community. Second, citizenship as desirable activity defines citizenship by the extent and quality of community participation. Measuring citizenship based on desirable activity as defined places emphasis on personal virtue and community

responsibility. This study is not concerned with the definition of citizenship as legal status. Instead, this study focuses strictly on Kymlicka and Norman's definition of citizenship as desirable activity, where extent and quality of citizenship is positively related to community participation. Under this context, individuals may engage in voluntarism as a means of increasing citizenship as desirable activity.

Again, Cohen (1960) calls citizen participation the backbone of democracy, and observes that voluntary opportunities provide individuals with means of fulfilling social responsibilities. Referring to the political process, Verba and Nie (1972) also indicate that participation lies at the center of democratic theory. Perry and Katula (2001) define service as a dimension of citizenship. Citizens can take ownership of public services via direct participation as volunteers (Marshall, 1964). Levine and Fisher (1984) suggest that government may increase citizenship, for example, by better engaging individuals and neighborhood associations, and creating public- private partnerships.

In a review of sociological literature, Kymlicka and Norman (1994) illustrate that citizenship integrates individual membership within communities and the necessity for justice, or right action. Citizenship is also associated with ideas of individual rights and attachment to distinct communities. The authors note that events including failure of policy that relies on volunteer behavior indicate that the health of democracies depends on justice of the basic structure. The health of democracies also depends on qualities of its citizens, which may arise from a number of variables. For example, participation in the political process with the expectation of increasing public well being, sense of identity including religious identity, and view of others with differing senses of identity constitute qualities that factors into health of democracies. The authors note that

democracies are hard to govern without individuals bearing these qualities. Kymlicka and Norman also observe that civil society theory hypothesizes that healthy democracies rely on self-restraint and civility, and these virtues are inadequately acquired in the market or political participation. Voluntary organizations, including but not limited to churches, teach virtues necessary for healthy democracies. Therefore, this study construes citizenship that satisfies the necessity for justice and community membership may be achieved through religious or political voluntarism, or by a combination of the two.

Wilson and Musick (1999) use the word volunteering in their discussion, stating that volunteering helps maintain civil society as people organize, debate, and create norms related to respect and tolerance. Skills gained from these activities ensure reciprocity inherent in a democracy. Perry and Katula (2001) describe philanthropic and civic behavior that produces public benefit as measures of citizenship, and acknowledge the assumption that service has a positive impact on citizenship. Putnam (2000) observes that individuals learn social and civic skills while participating in voluntary organizations, and calls these learning mediums schools for democracy. Secondary schools, colleges, and universities where social and civic skills are learned may be achieving these ideals through emphasis on service learning.

It may be easy to see why political voluntarism is used as a measure of citizenship. The connection between religious voluntarism and citizenship is less direct, but important nonetheless. Spinner-Halev (2000) notes that there is overlap between virtues associated with citizenship and what he calls the autonomous person, or one that interprets tradition and experience in a manner unique to that individual. Spinner-Halev notes that the autonomous person concept overlaps with that of the good liberal citizen, stating these

individuals are able to think critically, absorb and reflect on other views, and act with sincerity towards others. Spinner-Haley also observes that public morality depends on private virtues, and religion serves as one mediating factor between the individual and other institutions of civil society.

Figure 2 is a diagram that illustrates the relationship between voluntarism and citizenship. Primarily, Cohen (1960), Marshall (1964), Verba and Nie (1972), Kymlicka and Norman (1994), Wilson and Musick (1999), Putnam (2000), and Perry and Katula (2001) are used to create the diagram. The role voluntarism occupies within citizenship as desirable activity is illustrated by two overlapping circles. A circle representing voluntarism overlaps a circle representing citizenship. This demonstrates that voluntarism may play a part in citizenship.

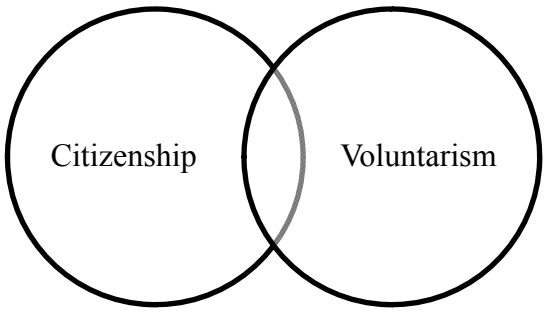

Figure 2. Linear Venn diagram relating voluntarism to citizenship.

Motivation for Study

The relationship between homeownership and citizenship, as measured by religious and political voluntarism is complex on a number of levels. Fundamentally, both voluntarism and tenure involve choice. On average, consumers choose whether to buy or rent; consumers also choose whether they want to volunteer or not. Clearly,

factors such as income play a key role in whether or not individual tenure preferences are realized. Income and the role of income in decision-making are measurable. For example, an individual may be able to afford a home so long as housing costs do not exceed 30% of income. Other factors, such as motivation, may also play a key role in tenure choice. For example, certain individuals may simply be more motivated to own than others. Motivation, and other similar factors, may be relevant to the research question but omitted from datasets. The reason that motivation and other similar variables might not be captured in datasets may be that they are unmeasured or unobserved. Unmeasured or unobserved variables may not be captured in data because they are difficult to measure or not readily apparent. Variables falling into this category include but are not limited to motivation, and are henceforth known as unmeasurables or unobservables.

The concern is that these unmeasurables or unobservables important to the research question are omitted during the research estimation process. Omission of variables important to the research question leads to *omitted variable bias*. Per Stock and Watson (2007), omitted variable bias refers to bias in estimations resulting from excluding a variable that both determines the dependent variable and is correlated with the independent variables in a regression model. Minimizing omitted variable bias is crucial to obtaining more believable results from estimations. This study will use tenure as a key independent variable for the estimation process. Use of a choice variable as a key independent variable in estimations leads to the omission of a control variable that has been not been captured in data, in other words, omitted variable bias. Shlay (2006) observed that notions concerning positive outcomes thought to be related to homeownership may be manufactured through self-selection and unobservables.

Determining the relationship between tenure choice (i.e. homeownership) and citizenship as measured by religious and political voluntarism is crucial. Globally, increased citizenship as measured by voluntarism is assumed to be a positive outcome associated with homeownership. With the hopes of increasing positive outcomes, U.S. policy supported by taxpayer dollars has historically encouraged and favored homeownership. According to the U.S. Census Bureau (2005), by the second quarter of 2004, homeownership rates reached a historic high of 69.2%. These high rates support the homeownership norm, as discussed by Morris and Winter (1975). Morris and Winter state that consumers are affixed to the concept of homeownership.

It was later discovered that rates reached these heights due in some part to consumers selecting into homeownership when it may have been more prudent to rent. As time passed, mortgage markets began spiraling downward and the U.S. housing market and economy suffered tremendously. For example, the Joint Center for Housing Studies at Harvard University reported that by early 2008, the turmoil associated with the housing market extended to the rest of the economy. The economic slowdown was caused in part by decreased home building, falling home prices that impacted consumer borrowing and spending, issues with credit and stock markets, and increased job losses. The Joint Center for Housing Studies predicted steep housing price declines and increased numbers of delinquencies (Joint Center for Housing Studies of Harvard University, 2008). The downfall in the U.S. market has sparked a global recession, which the U.S. is working to help overcome (The White House, 2009). Despite economic woes, homeownership and policies intended to produce homeownership will likely continue. Homeownership plays an undeniable role in the psyche and net wealth of the U.S.

consumer, and will continue to do so for a long time. Belsky (2008) observes that housing wealth will continue to play an important role in the economy and dominate household wealth even after markets are corrected.

In the past, U.S. policies intending to increase homeownership were successful, but have the dollars been effectively spent with respect to expected outcomes, including citizenship? Policies including the Land Act of 1796, the Homestead Act of 1862, and the Housing Act of 1949 created homeownership opportunities directly or through externalities. Public policy intending to invoke positive outcomes is ineffective if results are primarily driven by unmeasurables or unobservables that both determine citizenship as measured by increased voluntarism and are correlated with homeownership. Given the penchant for homeownership, if homeownership policy is enacted with the hopes of stimulating positive outcomes, including increased household wealth, improved home maintenance, increased citizenship through voluntarism, and better child outcomes (Dietz & Haurin, 2003), we must question whether any of these outcomes are real or perceived. As is, empirical evidence is scant as to whether an outcome such as citizenship via increased voluntarism is attributable to homeownership.

The underlying current of this discussion is that distilling the true relationship between homeownership on positive outcomes such as religious and political voluntarism is difficult due to unmeasurables or unobservables including motivation, industry, frugality, and moderation. Although volunteers themselves may be counted, the relationship between homeownership and religious and political voluntarism is more difficult to ascertain. Therefore, this study seeks to ascertain a better understanding of the relationship between homeownership and religious and political voluntarism.

Expected Contributions to the Literature

This study will add to the previous body of literature in several fundamental ways. First, the question of whether tenure has an impact on the outcome citizenship as measured by religious and political voluntarism remains relatively unexplored. Second, the relationship will be examined in a theoretical context using neoclassical, human capital, and social capital theories. These theories were chosen on the basis of their ability to describe how and why individuals engage in voluntarism, for example, as a medium for deriving happiness, investing in themselves, and increasing connections between themselves and others. Third, this study uses tenure as the key independent variable in modeling and acknowledges that tenure is by definition a choice. Panel data will be used to account for the problems associated with using a choice variable as the key independent variable. Panel data are data that are collected on individuals at two or more time periods, resulting in multiple observations for each individual (Stock & Watson, 2007). Duncan (1972) succinctly states that while drawing a causal conclusion is difficult, panel analysis using carefully constructed models suspends obstacles.

Organization of the Remainder of the Dissertation

The remainder of the dissertation will be organized as follows: Chapter 2 will be a literature review which discusses theoretical and empirical work; Chapter 3 will detail research methods; Chapter 4 will discuss results, and Chapter 5 will feature a summary, discussion regarding implications and limitations, and ideas for future research.

CHAPTER 2

Literature Review

Theory and Empirical Works

Two categories of literature will constitute the underpinnings of this study. Theoretical works will be used to describe the relationship between homeownership and the two outcomes religious and political voluntarism. As described, consumers may choose whether or not to engage themselves as volunteers. Knowing that consumers have preferences regarding the activities that fill their time drives the need to understand why some might volunteer. Specifically, three theoretical avenues help illustrate how voluntarism might be generated. First, neoclassical economic theory is used to describe fundamentally that consumers derive utility, or happiness, from voluntarism. Second, human capital theory is used to demonstrate that consumers may cultivate voluntarism as a means of investing in themselves. Third, social capital theory is used to illustrate that those who volunteer may do so in order to increase connectedness between themselves and others, with the expectation of some positive outcome. In short, theory will be used to explain average behavior and make reasonable statements about complicated questions.

Empirical studies will be examined to support theoretical points and reveal key themes within the literature. The literature review will focus on papers that discuss the outcome community involvement defined in part by religious and political voluntarism. Much of the literature does not refer to volunteers, volunteering, or voluntarism explicitly.

Instead, the studies use terms such as activity or action to refer to volunteering. The studies also define voluntary participation via a number of measurements. This study construes religious and political participation to be religious and political voluntarism. This is appropriate because by definition, the activities or actions described in literature are taken of free will and are performed without compensation. Imbedded is the notion that individuals go through a process where individuals choose to engage in service at free will, are motivated to act, have the capacity to act, and have the opportunity to act (Verba, Schlozman, and Brady, 1995).

In literature, activities related to political voluntarism range widely from voting to helping solve local problems. Activities related to religious voluntarism may include but are not limited to attending meetings, having active membership and serving on committees, serving on special projects, and serving on boards (Verba, et al., 1995). Activities related to religious voluntarism in literature that focuses on homeownership are more limited. Authors control for attending religious service as a method of measuring social participation (Kingston and Fries, 1994), community organization involvement and intensity of involvement (Rohe & Stegman, 1994), social capital (DiPasquale & Glaeser, 1999), and social connection (Glaeser & Sacerdote, 2000). An approach that looks at voluntarism more holistically is necessary. Studies that focus exclusively on the relationship between homeownership and religious and political voluntarism, again, are limited.

Theoretical Framework: Description of Relevant Theories

Neoclassical Economic Theory

Neoclassical theory is the foundation of much economic theory; other theories are built upon neoclassical theory. As outlined by Wetzstein, a number of consumer behavior assumptions influence the discussion regarding the relationship between homeownership and religious and political voluntarism. Implicit in neoclassical theory is the notion that consumers are rational and wish to maximize utility, or happiness. It is assumed that utility is measurable (Wetzstein, 2005). Specifically, consumers engage in activities that allocate resources to satisfy wants and increase happiness.

Couched in this discussion are a few key points. It is assumed that consumers are aware of all available tenure choices and make beneficial, not harmful, choices. It is also assumed that consumers have a fixed level of income, as illustrated by a budget constraint. Behavior is restricted by the budget constraint and consumers are forced to make appropriate choices within boundaries. Fundamentally, consumers make housing decisions based on income. By definition, finite resources determine whether or not individuals may engage in homeownership, a priori. It is assumed that consumers have a given set of preferences for goods, and consumers are consistent in their preferences. What generates utility, or happiness, is specific to each individual. However, consumers in the United States on average prefer owned to rented property as evidenced by high homeownership rates and the prominent role that it plays in the consumer psyche. Finally, it is assumed that prices are constant. Embedded in this assumption is that consumers can evaluate the choices available to them and make housing choices based on prices, budget, and preferences. It is also assumed that voluntarism increases utility, or happiness. For

example, people may feel good when caring for other people, acting as stewards for particular causes, or serving their communities.

Sills (1960) explores the motivation behind volunteering, and indicates that in addition to a host of these and other reasons, individuals may volunteer so that they themselves may be aided in the future. Using the National Foundation of Infantile Paralysis as an example, Sills observes that individuals may volunteer to achieve what he calls self-oriented goals. One such goal is future personal advancement in the community. In short, the price of available housing, budget constraints, and unique tenure and voluntarism preferences work in tandem to drive consumer decision-making.

Human Capital Theory: Becker, 1962; Bryant and Zick, 2006

Human capital theory may be used to illuminate the relationship between homeownership and religious and political voluntarism. Human capital, as popularized by Becker (1962) refers to activities that establish resources in people; these activities and resources influence future income. As illustrated by Bryant and Zick (2006), consumers increase human capital by investing in themselves, and self investment is an important form of saving.

The connection between homeownership and human capital accumulation may be described in one phrase: invest in a home, invest in yourself. Most consumers expect to secure personal and financial gains from homeownership; consumers are motivated to invest in their housing with improvements such as new roofing, updated appliances, and landscape maintenance with the anticipation of a positive return. Before benefits are realized, consumers must acquire a great deal of human capital. Awareness that factors

other than homeownership may drive human capital accumulation is important. For example, if one considers the life cycle income hypothesis, increasing human capital may be based on time preferences, need to even out the income stream, and desire to consume when goods and services are cheap. Human capital gained as a result of these time preferences may influence homeownership decisions.

Homeownership, religious and political voluntarism, and human capital accumulation may be described in one phrase: invest in a home, invest in yourself, invest in your community. Religious and political voluntarism may be viewed as an investment in oneself or one's family in two main ways. Volunteers may gain both general and specific training through efforts. Volunteer opportunities essentially provide participants with on-the-job training leading to gains in both general and specific human capital. Résumés are bolstered by volunteer experience.

General human capital can be applied to other employment or volunteer opportunities. For example, certain skills acquired through volunteering, such as grant writing, are not specific to one particular volunteer opportunity. Instead, grant writing skills may be applied to countless volunteer opportunities, and may extend to countless employment opportunities as well. Specific human capital is unique to the place or situation where obtained, and cannot be applied elsewhere. For example, knowledge of a paper filing system gained by volunteering at one place may not transcend to other volunteer or employment opportunities. Both forms of human capital are embedded in the participant. Positive returns are expected for both the volunteer increasing human capital and the recipient of the volunteer services.

Due to high search costs, homeowners may remain in place longer and have more time to invest themselves both in property and communities. This may increase opportunities to accumulate human capital. As briefly noted, homeowners may also become involved in their communities via voluntarism to increase positive impacts on owned property. For example, a homeowner living in a historic district may increase political voluntarism by taking a leadership role on the preservation board with the hopes of improving their own neighborhood or maintaining property value, long term. Another parallel example is regarding one who participates as an officer in their homeowners association, again, taking a leadership role with the same hopes of maintaining property value or improving the neighborhood.

Social Capital Theory: Becker, 1974; Granovetter, 1985; Coleman, 1988; Putnam, 2000

Although neoclassical economic theory and human capital theory are important to this discussion, they cannot fully explain the intricacies associated with all aspects of decision making related to religious and political voluntarism. Therefore, social capital theory is used to help explain why individuals choose to engage themselves as volunteers. Here, it is assumed that consumers establish relationships with the hopes that these relationships will lead to some positive gain. Therefore, time spent volunteering may be seen as a social capital investment.

To begin, Becker (1974) used economic tools to analyze interactions between people. Individual voluntarism may serve as a catalyst for such interactions, and volunteering fosters charitable relationships between individuals. Becker argues that two primary means motivate charitable relationships. Volunteers may instigate and maintain

charitable relationships in order to increase recipient utility. These relationships create a synthetic family, where members give to each other to help insure against future loss. Volunteers may also engage in charitable behavior in order to be recognized in the community or avoid contempt. This fits well in the context of religious and political voluntarism, as political voluntarism provides ample opportunity for community recognition and religious voluntarism may provide refuge from contempt. Regardless of motivation, individuals may engage in volunteer activities as a means of increasing social capital with the expectation of positive outcomes including increased social income. Becker (1974) describes social income as the sum of monetary income and the value of the social environment to the consumer. This sum of two incomes is spent partially on the consumer and partially on others, using interactions as a conduit.

One especially relevant example of connectedness between individuals is drawn from the Meals on Wheels program. Rhoads (1985) discusses the Meals on Wheels program, noting that voluntarism is an important part of philanthropy. Rhoads states that the program has two distinct benefits. Volunteers donate time to take hot, prepared meals to elderly clients in need. As documented, malnutrition is a principle cause of illness among the elderly. Better diets lead to better health ("Meals-on-Wheels projects," 1959). The other benefit is that the meal is delivered by an actual person. Thus, human contact and a sense of caring is brought to the recipient who may have had no contact otherwise. This interaction serves as a conduit for increasing happiness for both the volunteer and the recipient.

Becker's (1974) theory has successfully employed economic tools to describe interactions between people, a concept that had been largely overlooked by economic

literature. Granovetter (1985) also takes issue with the discussion of social capital in economic literature, and comments that classical and neoclassical economists have had a woeful view of interpersonal relations. Granovetter observes the three main concepts of classical and neoclassical economics, that is, production, distribution, and consumption take place without accounting for relations between people. This view of behavior is deemed inadequate and labeled as undersocialized, or where people act as atoms outside of a social context. In addition, Granovetter expressed discontent with sociologist's conceptualization of relations between people. Per Granovetter, sociologists describe behavior as over-socialized. Here, people act according to society's norms and values, are socialized to accept such norms and values without undue burden, and act out of sensitivity to other's opinions. Finding fault with this view, Granovetter puts forward the idea that people do not adhere unquestioningly to norms and values, but instead are driven to act by social relations. Granovetter observes that personal relations are necessary to create trust; some degree of trust is necessary for transactions to occur between agents. The concept of social capital is effectively used to provide a bridge between classical and neoclassical economic theory (under-socialized) and sociological theory (over-socialized) action (Granovetter, 1985). Granovetter's view of social capital may be applied to voluntarism, as follows. Individuals influenced by social relations first decide to volunteer in the religious or political contexts defined here. People entering into these volunteer scenarios build personal relationships that help foster trust. Trust is critical in the facilitation of transactions between the volunteer and recipient.

As stated, it is expected that transactions between volunteer and recipient yield positive returns. The expectation of positive returns makes sense theoretically, as

individuals who give their time expect some positive outcome and those who receive expect some level of benevolence. One can hardly expect that on average, an individual would willfully donate time anticipating some negative return, and that an individual would chose to receive some harmful service.

With Becker (1974) and Granovetter (1985), Coleman (1988) found difficulty with previous treatment of social capital. Coleman critiqued both economic and sociological theory for their respective handling of social capital. Coleman observes that economic theory presumes that people operate alone as a self-interested individuals, and sociological theory presumes action is bound by social norms. Coleman used the concept of social capital to bridge the economic and sociological perspectives of behavior.

Coleman (1988) describes three forms of social capital: (1) obligations and expectations; (2) information flow capability of the social structure; and (3) norms accompanied by sanction. Of these three, the form of social capital most relevant to religious and political voluntarism may be norms accompanied by sanction. For example, a particularly religious individual will follow the norm of service to others inherent in religiosity. By definition, the individual is supported in their efforts by others in their religious group. Likewise, an individual motivated to volunteer for social change will be supported by others motivated to work for the same or similar social change. The three forms of social capital outlined by Coleman all lead to production and the facilitation of action.

Coleman (1988) neatly links the creation of human capital to social capital. Linking human and social capital theories is especially important to religious and political voluntarism, as both theories are used in an attempt to explain why individuals

might volunteer. Coleman states that family and community social capital is critical in the development of human capital in the next generation. Familial social capital is the relationship between family members and children. This social capital, or ties between members of a family, gives children access to members' human capital.

Looking beyond members of the family, Becker (1974) observes that relationships create synthetic families. Social capital is developed and transferred between members of synthetic families. Here, social capital is created as members of a synthetic family engage in volunteer service. Social capital facilitates the transfer of human capital within the synthetic family, from volunteer to recipient. For example, adults may volunteer their time with Sunday schools, youth clubs, or Meals-on-Wheels programs, thereby effectively creating a synthetic family through social capital connections. The concept of a synthetic family is especially evident in religious voluntarism, where adults provide services at free will at or through church, synagogue, or mosque to develop human capital in younger members. In all of these scenarios, the recipient is given access to the volunteer's human capital.

Coleman (1988) also describes the role of community social capital in the development of the young person's human capital. Here, parental relations with community institutions foster development of human capital. For example, a stay-at-home mother may volunteer in their child's parent-teacher organization (PTA). The assumption is that parent engagement will have a positive impact on the school and child performance. As time passes, the family may move to a better opportunity, where the benefit of moving for the family outweighs the cost to the PTA. The PTA is decreased and less production occurs. Another parallel example that fits the definition of religious

voluntarism used in this study is the parent who participates in educational activities with children at their place of worship. Here, a parent may engage in voluntarism by teaching Sunday school or leading other educational activities. If the family moves or the parent is otherwise no longer engaged as a religious educator, less religious education production may occur.

In sum, Coleman's (1988) analysis of social capital fits well with the assumption that religious and political voluntarism is expected to bring some desirable outcome; the connections between people reap positive outcomes for both the volunteer and the recipient. Coming full circle, these connections between people, established for example through volunteer service, gives the recipient access to the volunteer's human capital. Access to human capital helps create human capital.

Putnam (2000) describes social capital as the bonds between individuals created by social networks. These bonds are subject to certain levels of mutual dependence and trustworthiness. As stated, trust is critical in the facilitation of transactions between the volunteer and recipient. Putnam indicates that individuals who trust others volunteer more often. Putnam draws this finding from work of political scientists Rahn and Transue who point out that social trust is a cornerstone of social capital. Rahn and Transue look at trust among young adults in the U.S. Nearly 20 years of nationally representative data were pooled for use in their study. The data are from a project titled Monitoring the Future, which is conducted and maintained by the University of Michigan Institute for Social Research. The main finding is that materialism and social trust are intertwined; materialism erodes trust and trust is linked to civic involvement (Rahn & Transue, 1998).

The trust Putnam (2000) associates with civic engagement and social capital is labeled as 'thin.' Thin trust simply refers to trust from a distance, that is, trust that includes individuals who may be some social distance from the trusting individual. This type of trust is defined as shared social networks, where networks are shared between individuals with reciprocity expectation. Putnam concludes that thin trust is associated with civic engagement and social capital.

Social capital can be generated using a wide variety of mechanisms, including but not limited to membership in voluntary organizations that may be categorized as community, church, or work based. Putnam (2000) puts forward that social capital creates a plethora of benefits. Social capital helps communities solve problems easier, and helps advance communities by increasing trust among individuals and reducing transaction costs related to both social interaction and business. Social capital also makes individuals keenly aware of how, as citizens, we are all linked together to one degree or another. Along this line, social capital creates a path in which information can flow between individuals. This information helps individuals achieve personal goals, such as job acquisition. Finally, Putnam claims that social capital is good for the mind and the body; well-connected individuals are better able to deal with trauma and combat illnesses.

Empirical Literature Review

Empirical literature reveals modest to tenuous relationships between homeownership and religious and political voluntarism. For the purposes of this literature review, examining the relationship between homeownership and a range voluntarism measures helps create a better understanding of the direction and strength of the

association, overall. Literature used in this study many times couches voluntarism in a citizenship context. As defined by literature, political voluntarism includes "voting, . . . work in election campaigns, contributions to campaigns and other political causes, informal activities in local communities, contacts with public officials, affiliation with political organizations, attendance at demonstrations or protests, and service on local governing bodies such as school or zoning boards" (Verba, Schlozman & Brady, 1995, p. 9). This definition varies slightly with the measure of political voluntarism used in this study, that is, service given at free will to organizations that bring about social change, such as civic or community action, or working for a political party or advocacy group (University of Michigan, 2003b). As stated previously, voluntary activities including voting and attendance at demonstrations or protests are not captured in the definition used here. The reason that these activities are not incorporated in the definition is they are not included in the data used in this study.

Religious voluntarism is captured more broadly in the literature as a measure of social involvement. For example, "social involvement or the production of social capital covers a wide array of activities including religious membership, informal social networks, and local volunteer organizations" (Dietz & Haurin, 2003, p. 429). The definition of religious involvement used in this study fits into this, as it measures volunteer activity that occurs at church, synagogue, or mosque (University of Michigan, 2003c). A definition of religious voluntarism broader in scope than the one initially used here to include not only service given at free will at or through church, synagogue, or mosque, but also service given on behalf of these organizations in the community would more readily avail itself to the idea of service as the backbone of democracy. Using the

strict definition here, political voluntarism, or service given at free will to organizations that bring about social change, such as civic or community action, or working for a political party or advocacy group, fits more closely with the idea of participation as the backbone of democracy as observed by Cohen (1960).

Religious voluntarism and political voluntarism are chosen for analysis as both afford ample opportunity to volunteer, and may not be mutually exclusive categories. For instance, as demonstrated by social capital theory, individuals may volunteer in the political process as an avenue for social voluntarism. Conversely, individuals may volunteer via religious organizations as a means of expressing themselves politically. Either way, one volunteer opportunity may satisfy an individual on multiple, complex levels. This study measures religious and political voluntarism as mutually exclusive categories. The reason that religious and political voluntarism are treated as mutually exclusive categories is because the dataset used in this study treats the forms of voluntarism as such.

Organization of Empirical Literature

The studies are first grouped based on whether data used in analysis were limited in scope or nationally representative. It is appropriate to group studies based upon these characteristics as researchers find fault not with the research questions themselves, but more with data and methods. Articles using data limited in scope should not be dismissed due to external validity concerns. As defined by Stock and Watson, external validity refers to whether or not results can be generalized from the population and situation at

hand to other populations and situations. Differences between the population at hand and the population of interest generate concern (Stock & Watson, 2007).

On the contrary, these articles using data limited in scope are important in that they establish some intellectual relationship between homeownership and chosen outcomes, and treat this relationship to formal theoretical and empirical examination. These articles establish the fundamentals of later research, including but not limited to question design and variable choice.

The authors draw meaningful conclusions based on the samples at hand. The concept of triangulation, that is, drawing conclusions using multiple items with similar results, may be applied to the studies. For example, primarily positive relationships are found between homeownership and political voluntarism measured by voting. This relationship holds over time, geographic location, and different populations. Therefore, the results indeed reveal useful information as this relationship is not limited to just one or two isolated studies.

The literature is then organized by studies that use more comprehensive datasets to draw conclusions. Here, external validity is strengthened exponentially. Nationally representative datasets with large sample sizes and variation reduce differences between the population at hand and the population of interest. However, despite greater breadth, the results drawn using these datasets are limited by the dataset itself. For example, the dataset must be chosen carefully to answer questions; not all datasets are appropriate to answer all questions and vice versa. The articles are further divided depending on outcome of interest, that is, religious or political voluntarism.

Empirical Literature: Homeownership and Political Voluntarism

The following studies (Alford & Scoble, 1968; Cox, 1982; Guest & Oropesa, 1986; Perkins, Brown, & Taylor, 1996; Steinberger, 1981; Sykes, 1951) use non-nationally representative data to draw conclusions. To begin, Sykes (1951) examined the relationship between homeownership and knowledge of the community. The study is important in that the author felt a democratic society had to know the characteristics of those who held knowledge of their communities. The study adds to the literature in that at the time, few empirical works had examined the distribution of knowledge as a social phenomenon. Sykes collected data regarding knowledge of the community from 165 Plainfield, New Jersey residents in 1949. Here, individuals completed a three-part questionnaire with entries related to political participation, community knowledge, income, occupation, and length of residence. Sykes concluded that among survey participants, homeowners were more knowledgeable about their communities than renters. The positive relationship between homeownership and community knowledge set the stage for other researchers to follow suit.

Alford and Scoble (1968) sought to examine the conditions that create citizenship and their effect on political process participation. Specifically, it is stated that being a citizen and citizenship are mutually exclusive. This indicates recognition that individuals may choose whether or not to engage themselves as citizens. The authors looked at conditions of group membership that contributed to local political involvement among a sample of 1,635 metro-area Wisconsin adult electorates in 1962. A questionnaire consisting of entries related to political interest, political information, public meeting attendance, and electoral turnout was used to construct an index measuring local political

involvement. The article is important in that it attempts to rectify a previously held theoretical view that participation in the political process was an act of individualism. The authors felt best to analyze behavior within community structures. For example, homeownership was identified as politically relevant and local politicians identified homeowners as having distinct interests. The relevant finding is that community attachment measured by owning a home had a positive influence on local political involvement. Again, although the term political involvement is used, the concept of involvement can be extended to voluntarism in this context.

Steinberger (1981) examined the relationship between communality and political participation. Communal factors, such as homeownership, were defined as those that created ties to the community. It was hypothesized that a positive relationship existed between communality and local political participation. Using data collected in 1975 from 248 individuals in three communities (Perris, CA; West Branch, IA; Bethel, CT), Steinberger found evidence supporting the hypothesis of a positive relationship between communality and local political participation. For example, the permanence of social relations influences participation; those who owned their home and those who resided in the same locale at least five years voted more. Here, a positive relationship makes sense in that those with more permanent roots may have invested themselves to a greater degree in their communities. The study features an excellent theoretical background; it looks at sociological factors related to bonds between people. The study also states that communality is entirely subjective. Steinberger cautioned that the causal relationship between communality and political participation remained unclear.

Cox (1982) questioned why individuals increasingly engaged themselves in acts that intended to improve their neighborhoods. Individuals that played some role in the improvement process were labeled as neighborhood activists. This engagement fits the definition of political voluntarism used here. For example, service given at free will for neighborhood improvement may be construed as community advocacy. Cox used data from metropolitan Columbus, Ohio to see if homeowners exhibited increased activism as defined. For example, respondents could qualify as being an activist by attending local meetings and contacting local officials or politicians regarding neighborhood problems. The hypothesis was that homeowners may exhibit increased activism in order to maintain their investments in their homes and neighborhoods. Here, results revealed that homeowners were more likely to be activists than renters; this effect is increased when the homeowner's neighborhood is experiencing problems.

Guest and Oropesa (1986) used a sample from Seattle, Washington to examine the relationship between friendships and political activity. Political activity was measured by whether individuals had taken action in response to problems. Various measures steeped in voluntarism, such as working through a club or organization, are interpreted as localized voluntarism. The authors controlled for tenure as a means of seeing if behavior resulted from social and economic community investments. More important, the article features a strong theoretical underpinning based on two sociological theories. The first, known as the classical Chicago approach, describes local friendships as important in motivating political action. The second, known as the balance perspective, takes the view that localized friendships alone are not adequate in encouraging political activity. Instead, balance perspective indicates that broader ties including those beyond the community

must be considered when speaking of political action impetus. The authors found that friendships indeed play a role in local political activity, and the combination of friendships between local and extra-local friends motivates action.

Perkins, Brown, and Taylor (1996) used longitudinal data to predict participation in community organizations. The authors controlled for homeownership. The article features a strong theoretical base based on an ecological perspective, that is, a multifaceted approach to measuring levels of participation. Data were collected from three metropolitan areas (Salt Lake City, UT; Baltimore, MD; New York, NY) in time one, collected from two areas at time two (Baltimore, New York: 12-15 month lag), and collected from one area in time three (New York: seven year lag). Data were collected on the individual and block level. The authors found that homeownership significantly affected only community participation at time three, and greater participation occurred on the block rather than individual level. This suggests that neighborhood organizations may be attended in greater numbers and be more effective in neighborhoods with majority homeowners. Again, community participation is interpreted as voluntarism.

Econometric drawbacks of the previous studies include use of limited data. For example, when small, region specific samples are used, both the sample at hand and the setting in which the sample was collected may be sufficiently different than the population of interest. The concern is that the external validity is compromised. In addition, use of choice variables as key independent variables during regression modeling leads to omitted variable bias. Again, omitted variable bias refers to omission of variables important to the research question. These variables may be unmeasured or unobservable.

Subsequent authors built on this body of knowledge and examined the relationship between homeownership and political participation in a theoretical context using more comprehensive datasets and more sophisticated econometrics. The following (Gilderbloom & Markham, 1995; Glaeser & Sacerdote, 2000; Kingston & Fries, 1994; Kingston, Thompson, & Eichar, 1984) are representative of works that use nationally representative datasets to draw conclusions. The studies feature mixed results. Among the studies, the only real common denominator found is a positive relationship between owning a home and voting (Gilderbloom & Markham, 1995; Kingston & Fries, 1994; Kingston, et al., 1984). Although voting is viewed as a measure of citizenship (Perry & Katula, 2001; Verba, Schlozman & Brady, 1995), it may not be called an act of voluntarism under the strict definition used here, that is, service given at free will to organizations that bring about social change, such as civic or community action, or working for a political party or advocacy group. However, Putnam (2000) states that voters are more likely to volunteer, and as stated previously, evidence suggests that voting encourages volunteering. Anecdotally, voting indeed encourages voluntarism as evidenced by the many individuals who volunteer at polling stations.

Kingston, Thompson, and Eichar (1984) used the American National Election Study from 1976 to examine whether homeowners tended toward greater political participation than renters. The authors measured both national and local participation. This research indicates that homeowners did not show a significant increase in local political participation relative to renters. On the national level, results reveal that homeowners were not more likely to have worked for a campaign, attend a rally, or make

a contribution. However, homeowners were more likely to have voted in the 1976 and 1980 presidential primaries and elections.

Kingston and Fries (1994) stated that the connection between business or homeownership and increased social involvement was supported by popular beliefs and limited scholarly analysis, and in light of these observations, took an empirical approach to analyzing this relationship. The General Social Survey (GSS) from 1987 was used as cross sectional data to examine the relationship between homeownership and community involvement, measured in part by participation in political activities. This dataset, maintained by the National Opinion Research Center (NORC), was chosen as it provides a number of public opinion and socio-economic variables necessary to address questions. Kingston and Fries also used separate models for men and women, citing factor that influenced socio-political involvement may have been different for each gender. The authors found very little relationship between homeownership and participation in political activities; both male and female homeowners were more inclined to vote in the presidential election but were not more likely to work on a campaign.

Gilderbloom and Markham (1995) recognized that very little literature addressing the effect of homeownership on political attitudes had been produced up to their time of writing. The authors observed that conventional wisdom hypothesized homeownership to have a conservative effect on political attitudes. Again, it is stated that little empirical evidence supporting this notion existed. The empirical approach taken in this paper places this study on the frontier of literature looking at this relationship. These authors use the General Social Survey (GSS) from 1990 to 1993, which encompassed a number of controls including those related to housing, political attitudes, and voting behavior. It

seems that necessary variables were pulled from the year unique to that variable. Gilderbloom and Markham found that homeownership had no effect on political attitudes, but did have an effect on voting rates.

Glaeser and Sacerdote (2000) examined the connection between types of housing structure and social capital formation using the General Social Survey (GSS). The authors also use the German Socio-Economic Panel to estimate individual fixed effects models to control for innate differences within individuals. Here, an instrumental variable strategy was used, where the instrument is the "average probability of living in an apartment in the person's state in cities which fall in a particular size category" (Glaeser & Sacerdote, 2000, p. 11). Church attendance was included as another control for social interaction. Although the authors make no specific mention of voluntarism, some of the variables used to measure connectivity are steeped in voluntarism. A key finding is that social capital accumulation is affected by housing structure (Glaeser & Sacerdote, 2000).

Social capital accumulation is used in part to measure citizenship. Here, citizenship is defined using a number of variables, including votes in local elections, works to solve local problems, voted in most recent Presidential election, and is involved in local politics. The study found that apartment dwellers are less active in local politics, measured by voting in local elections and working to solve local problems. The authors recognize technical weaknesses, and warn against any policy endorsement based on their conclusions. They did, however, state that results have a clear policy implication in that government should consider the relationship between housing structure and social relationships. This is interpreted to mean that social capital influenced by housing structure may affect political voluntarism.

Despite using nationally representative data better suited to increasing external validity, the majority of these previous studies do not address the fact that homeownership is a matter of choice. The authors recognize that this choice element prohibits inclusion of unmeasurables or unobservables independent variables important to the research questions. The concern is that self-selection inherent in homeownership clouds results, and no true claim as to the relationship between homeownership and outcomes may be made in the majority of the studies. Regardless, the studies are extremely useful in that they take advantage of data previously unavailable to other researchers and present the questions in a deeper theoretical context. Certain trends, such as the positive relationship between homeownership and voting, were evident across the studies; that is, results were not limited to one or two isolated studies.

Empirical Literature: Homeownership and Religious Voluntarism: Social Involvement

The following articles do not focus exclusively on homeownership and religious voluntarism. Instead, they focus on homeownership and social involvement. The scope of literature is broadened as scant empirical work has been done that exclusively focuses on the relationship between homeownership and religious voluntarism. It is appropriate to broaden the scope as religious voluntarism is a measure of social involvement, as seen in the literature. Figure 3 illustrates the relationship between religious voluntarism and social involvement via two overlapping circles. The circle representing religious voluntarism overlaps a circle representing social involvement. This demonstrates that religious voluntarism may play a part in social involvement.

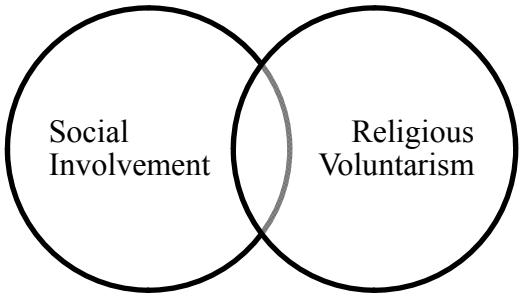

Figure 3. Linear Venn diagram relating religious voluntarism to social involvement.

The first set of articles (Blum & Kingston, 1984; Ditkovsky & van Vliet, 1984; Oliver, 1984; Rohe & Stegman, 1994) use non-nationally representative data to draw conclusions. To begin, Blum and Kingston (1984) questioned whether or not homeownership creates social attachment and maintains prevailing social order. Data from a sample consisting of 973 individuals from Northern California were used for analysis. To help ameliorate the concerns associated with homeownership and self-selection, the authors used three measures steeped in sociological theory to create a construct that describes if or how homeownership maintained social order. The measures included: (1) Fischer's traditionalism scale to measure opinions regarding social matters, (2) participation in voluntary organizations; and (3) informal interactions with neighbors. The authors found that homeowners were more likely to join voluntary organizations and engage in local social networks. It is also stated that all types of self-selection cannot be controlled for in empirical research, and therefore it is difficult for researchers to claim that any effects of homeownership are driven by economic incentive (Blum & Kingston, 1984).

Ditkovsky and van Vliet (1984) acknowledged the assumption that owners care more for their housing than do renters. As with the U.S., Israeli housing policy promotes

home ownership. Historically, Israel promoted ownership as a means of establishing Jewish presence and dominance (Kurz & Blossfeld, 2004, p. 342). More recently, Ditkovsky and van Vliet note that Israeli government encouraged homeownership based in part on the increased care assumption. The authors point out that this assumption did not have a strong empirical foundation. The authors tested whether or not homeowners cared more for their property as evidenced by voluntary participation in building and neighborhood committees. Voluntary participation on building and neighborhood committees by definition increased social involvement both individually and among participants. The authors used a sample of 817 homes maintained by public housing in Israel. The authors found greater representation of owners in building and neighborhood committees, and state with conviction that differences between owners and renters are not due to demographic or socioeconomic differences. Findings are tested with simple chi-squared statistics; no discussion as to whether statistical assumptions are considered. The authors clearly state that caution should be exercised in creating housing policy favoring ownership based on the study.

Oliver (1984) used data gathered in Detroit in 1969 to examine characteristics of those who participated in local collective action. The author wanted to see why certain individuals gave a great deal of time and others only a token to collective action. It was hypothesized that social ties helped determine levels of neighborhood involvement. Social ties between individuals were measured using three separate indices. One of these indices measured an individual's perception of being like other people in the area. The index included questions related to religious beliefs, and asked for example if the individual shared similar religious beliefs as neighbors. Oliver found that having close

ties in the neighborhood was positively related to being active in neighborhood improvement organizations. Also, within neighborhood associations, members were more likely to be homeowners. Length of residence was not found to be significant. However, among members, those with token membership status were more likely to be homeowners, while those with active status were more likely to be renters. The author cites that this unexpected finding is difficult to explain theoretically, and may have been caused by nothing more than a random quirk in the data used for analysis.

Rohe and Stegman (1994) used longitudinal data collected in Baltimore to measure the relationship between homeownership and both political and social involvement via a randomized experiment. The experiment compared experiment results obtained from a treatment group to those of a control group that was selected at random based on similar measurable qualities. Here, participants identified as the treatment group received subsidies, could attend life skills workshops, and purchased new housing units. The authors followed low-income homeowners, interviewing them the day before purchasing a home and 1.5 years later. A total of 125 respondents completed the interview process; this sample consisted mainly of single, African-American women.

The authors measured community participation by both the number of organizations that respondents belonged to and number of meetings attended. Church group involvement was used in part to measure organizational involvement. Again, it is observed that number of meetings attended, rather than number of memberships, may be a better measurement of community participation as more meaningful events may be captured. The study revealed that homeowners actually experienced a decrease in neighboring, measured by a five-question index. Rohe and Stegman (1994) explain that

this decrease may have been caused by increased numbers of new housing units in the area. It is observed that more mature neighborhoods may feature a greater breadth of informal networks used to integrate new residents to the neighborhood. Instead, the authors suggest that new residents of new construction spent time adjusting to the new unit itself, through activities such as decorating. Devoting time to these types of activities related to unit adjustment, by definition, leave less time for neighboring. It was also discovered that homeowners increased participation only in block or neighborhood organizations. No increases were seen for other common avenues of community participation, including school and church activity. The authors conclude that greater social participation is not an outcome of homeownership (Rohe & Stegman, 1994). This article is unique in that it is the only one reviewed that uses a controlled experiment to help rectify problems associated with use of cross sectional data and key independent variable based on choice.

The following articles (Aaronson, 2000; DiPasquale & Glaeser, 1999; Kingston & Fries, 1994; Rossi & Weber, 1996) used nationally representative data to draw conclusions. As stated, external validity is strengthened through the use of large, nationally representative datasets. To begin, in addition to examining the effect of homeownership on political volunteering, Kingston and Fries (1994) examined the relationship between homeownership and social volunteering, measured as worked to solve community problems, formed group to solve community problems, number of memberships in voluntary organizations, or attend religious service. Again, using the General Social Survey, the authors found that homeownership had a modest impact on

social participation; in models, the only significant coefficient was associated with the gender variable *female* and the measure worked to solve local problems.

Rossi and Weber (1996) used three large, nationally representative data sets (General Social Survey [GSS], National Survey of Families and Households [NSFH], and American National Election Studies [ANES]) to analyze the social benefits of homeownership. The authors recognized that homeownership is based on choice. This study examines whether homeowners participate in more social networks measured in part by church membership and attendance. To further capture differences between owners and renters, respondents were asked a variety of questions regarding religious views; the results revealed little difference between owners and renters. In just one dataset (ANES), homeowners were very slightly less likely to attend church than renters. This enforces the impression that few differences existed between owners and renters regarding participation in religious social networks. The authors also examined other behavior related to community improvement, and concluded that homeowners were marginally more likely to participate in community improvement groups. Although not stated explicitly, the concept of voluntarism is captured here in that the activities measured are couched in voluntarism.

Rossi and Weber (1996) stated clearly that homeownership is based on choice. The authors recognize that previous empirical efforts had technical issues. It is also stated that policies intending to improve expected outcomes such as quality of life and strengthen communities through homeownership were supported by weak and inconsistent evidence in literature, and a lack of causality was inherent in previous works. Acknowledging that it is difficult to establish causality, the authors recognize their effort

as being exploratory in nature (Rossi & Weber, 1996). Despite being exploratory in nature, the work is important in that external validity is strengthened in that three large, nationally representative datasets are used for analysis. Although not stated explicitly, the authors used the concept of triangulation to strengthen results. Finally, Rossi and Weber acknowledged that the provision of homeownership opportunities to low-income consumers is not without merit; there are real benefits to owning a home.

The study that perhaps best discusses the impact of homeownership on social outcomes is that of DiPasquale and Glaeser (1999). Here, authors investigated whether homeownership positively influenced social capital formation. To answer the research question, the authors first used the General Social Survey (GSS) data set, treated as cross sectional. Church attendance was used as one social capital measure. The authors recognized that homeownership is a matter of choice, and both ordinary least squares and two-stage least squares with an instrumental variable were used to account for this fact. The instrumental variable is the "homeownership rate of individual's income quartile for each race in individual's state" (DiPasquale & Glaeser, 1999, p. 356).

The authors warned that the instrument is not perfect, but serves to check the robustness of the ordinary least squares results. The instrument is appropriate in that the authors acknowledged imperfection and are extremely cautious in drawing any conclusions based on the instrument. Results obtained from German Socio-Economic Panel data are used to bolster discussion. The authors allow for individual fixed effects in order to control for omitted characteristics that might be correlated with key independent variable, homeownership. Using both the General Social Survey and German Socio-Economic Panel datasets to draw conclusions, the main finding is that homeowners

invested more in social capital. Internal and external validity add to the strength of the article. For example, the authors appropriately identify homeownership as a matter of choice. The authors also use techniques that attempt to address concerns associated with choice variables when used as key independents.

Aaronson (2000) estimated the effect of homeownership on whether a child graduated from high school by age 19. Although the outcome measured is unrelated to religious and political voluntarism, this article is relevant as the Panel Study of Income Dynamics (PSID) was used for estimations. Aaronson recognized that homeownership is based on choice, and effort was made to eliminate ensuing issues through the use of more background variables, time dummies to capture trends, and the same instrumental variable created by DiPasquale and Glaeser (1999). The author stated that results are robust despite imperfect attempts to control for the fact that homeownership is a matter of choice. Aaronson concluded households that achieved stability through ownership were correlated with higher school attainment (Aaronson, 2000). The strength of the study is that choice associated with homeownership and mobility was recognized and addressed, all while acknowledging technical imperfection.

Putnam (2000) made a distinction between two types of individuals that invest in social capital. The first includes individuals who invest time in formal means of connectedness, including participating in volunteer activities. The second includes those who create social capital through informal means, including barbeques, card games, and the like. Putnam stated that those who invest time in formal organizations were more likely to be homeowners and more permanent residents. Participation in formal

organizations includes religious institutions of varying faiths. Additionally, Putnam calls faith communities the single more important storehouse for social capital.

Mesch, Rooney, Steinberg, and Denton (2006) did not consider homeownership in their analysis of the relationship between race, gender, and marital status and giving and volunteering behavior in Indiana. However, the article is relevant as Panel Study of Income Dynamics (PSID) is used to draw conclusions. Although the word voluntarism is not used explicitly, volunteering behavior is interpreted as voluntarism. The authors state that the role of gender is critical to understanding volunteering behavior. The authors observe that conceptually, women are thought to be more altruistic and more social, and that they volunteer more than men. The study reveals that among single individuals, women volunteered more often and gave more time than men.

Conclusions Based on Theoretical and Empirical Literature

Theoretical Literature

Expectations about the relationship between homeownership and citizenship as measured by religious and political voluntarism may be discussed in a theoretical context using neoclassical, human capital, and social capital theories. Neoclassical economic theory assumes that individuals will engage in behavior as a means of increasing utility, or happiness. Therefore, it is expected that homeownership will have a positive relationship with religious and political voluntarism (i.e. citizenship) if individuals derive utility from voluntarism.

Human capital theory indicates that a positive relationship between homeownership and religious and political voluntarism will occur when individuals

simultaneously wish to invest in a home, themselves, and their communities. Individuals embed additional resources in their homes, themselves, and their communities through acquisition of human capital. This supports the assumption that individuals engage in voluntarism expecting some positive, and not negative, outcome.

Social capital theory indicates that a positive relationship between homeowners and this voluntarism under a few different scenarios. Individuals seeking to increase connections between themselves and others may view rooting themselves in a community by owning a home and increasing religious and political voluntarism as a means of doing so. Individuals influenced by social relations may increase religious and political voluntarism. These social relations may stem from the more permanent nature of homeownership. Individuals may participate out of norms established, for example, due to religiosity. Again, the more permanent nature of owning a home may enable those inclined to establish relationships to do so.

Empirical Literature

Expectations about the relationship between homeownership and religious and political voluntarism may be derived from empirical literature. To begin, the scope of the following discussion is limited primarily to those works published after the 1990s, recalling that Dietz and Haurin (2003) criticized most works published prior to the 1990s as having substantial weaknesses, rendering them unreliable. Therefore, the following works are used to develop expectations regarding the relationship between homeownership and religious and political voluntarism.

The best insight into the relationship between homeownership and political voluntarism may be seen via the following studies: despite using non-nationally representative data, the work of Perkins, Brown, and Taylor (1996) is worthy of attention as it is written in a theoretical context and panel data are used to draw conclusions. Here, economic factors including homeownership had a mixed effect on participation in community organizations. Of six possible models, only one provided a statistically positive relationship between homeownership and participation in community organizations. This was established in the New York setting using data collected seven years after initial collection. Again, although the word participation is used, the concept of voluntarism is adequately captured. Due to the inconsistency in findings, a tenuous, positive relationship between homeownership and political voluntarism will be expected in this study.

Next, studies that use nationally representative data and reduce external validity concerns are as follows. Kingston and Fries (1994) Again, although the discussion is not couched in the context of voluntarism, many control variables represent volunteer activity. Key to this study, Kingston and Fries used separate models for men and women, citing that factors affect the sociopolitical involvement for each gender differently. The authors found that only female homeowners were likely to work to solve community problems. Furthermore, ownership was not related to participation in voluntary organizations as evidenced by number of memberships. This study uses voluntarism measured by actual participation, and may yield different results as individuals may participate in activities, yet not belong to specific organizations. Overall, results from Kingston and Fries are interpreted to be limited in scope. The results revealed a positive relationship between

homeownership and social participation. Given this context, a positive relationship between homeownership and political voluntarism is expected for female respondents.

Gilderbloom and Markham (1995) focused efforts on political beliefs and behavior as measured by voting. The authors found that education, religiosity, and age were the most reliable predictors of behavior. Gilderbloom and Markham found a positive relationship between owning a home and voting, and that the number of organizations to which respondents belong positively influenced whether respondent voted in the 1992 presidential election. This study is unable to control for voting patterns and therefore cannot draw any conclusions based on voting. The work is relevant in that according to Putnam (2000) those who vote are more likely to participate in volunteer activities. Finally, Glaeser and Sacerdote (2000) found that owning a home was positively related to the accumulation of social capital. As stated, the authors recognize technical weaknesses, and warn against any policy endorsement based on their conclusions.

Overall, these articles (Gilderbloom & Markham, 1995; Glaeser & Sacerdote, 2000; Kingston & Fries, 1994; Perkins, et al., 1996) reveal modest yet positive relationships between homeownership and their measures of political volunteering. Based on these articles, if a statistically significant relationship is present between homeownership and political voluntarism, it is expected to be positive.

Similarly, the following articles may best shed light on the relationship between homeownership and religious voluntarism. Again, Rohe and Stegman (1994) is worthy of consideration in that panel data are used in conjunction with comparison groups. Articles using nationally representative data include Kingston and Fries (1994), Rossi and Weber

(1996), and DiPasquale and Glaeser (1999). To begin, Rohe and Stegman (1994) examined the relationship between homeownership and both political and social involvement. The authors used a number of variables intending to measure connectedness, including church attendance and intensity of involvement. It was found that among low-income people, homeowners increased participation only in block or neighborhood organizations. Due to the unique sample, the limited scope of the findings, and differences in measuring connectedness, it is more difficult to state resoundingly as to the expected direction between homeownership and religious voluntarism. Nonetheless, in this study, if a relationship is present between homeownership and connectedness, as measured by religious voluntarism, it is expected to be positive. Kingston and Fries (1994) used separate models to predict male and female behavior, and found that females were more likely to work towards solving community problems. The authors note that the coefficients for ownership are minimal. Therefore, if a relationship is present between homeownership and religious voluntarism when gender is examined separately, it is expected to be positive.

Rossi and Weber (1996) determined that homeowners were marginally more likely to participate in community improvement groups than renters. Rossi and Weber used more than one dataset in their study. Results were not consistent across datasets; homeowners increased participation was found using the National Survey of Families and Households (NSFH), but not in the General Social Survey (GSS) dataset. Therefore, if a relationship is present between homeownership and religious voluntarism, it is expected to be positive when measures of participation other than church attendance are used to capture volunteer events. DiPasquale and Glaeser (1999) resoundingly state that

homeowners invest more in social capital, again, measured in part by church attendance. If a relationship exists between homeownership and religious voluntarism, it is expected to be positive. This is based on the measures of religious voluntarism used here.

Hypothesis Drawn from Theory and Empirical Literature

The first step in testing a hypothesis is to create null and alternative hypotheses (Mendenhall & Sincich, 2003). The following hypotheses are based on conclusions drawn from theoretical and prior researcher's empirical work. The hypotheses are unique to each gender, following the work of Kingston and Fries (1994) who used separate models based on gender and Mesch, Rooney, Steinberg, and Denton (2006) who stated that the role of gender is critical to understanding volunteering. Since PSID family level data are used, the word family will be used when describing observations. Families composed of head and wife are limited to respondents who were married in both 2003 and 2005. This study makes no distinction between legal marriage and cohabitation, as PSID does not make a distinction between legal marriage and cohabitation given the variables to be used here. This point will be discussed at length when variables are introduced. PSID refers to families as family units (University of Michigan, 2009c).

Political voluntarism:

Holding all else constant:

H_{O1}: Homeownership has no relationship with citizenship as measured by political voluntarism among female heads of family unit.

H_{A1}: Homeownership is positively related to citizenship as measured by political voluntarism among female heads of family unit.

H_{O2}: Homeownership has no relationship with citizenship as measured by political voluntarism among male heads of family unit.

H_{A2}: Homeownership is positively related to citizenship as measured by political voluntarism among male heads of family unit.

H_{O3}: Homeownership has no relationship with citizenship as measured by political voluntarism among families (head and wife).

H_{A3}: Homeownership is positively related to citizenship as measured by political voluntarism among families (head and wife).

Religious voluntarism:

Holding all else constant:

H_{O4}: Homeownership has no relationship with citizenship as measured by religious voluntarism among female heads of family unit.

H_{A4}: Homeownership is positively related to citizenship as measured by religious voluntarism among female heads of family unit.

H_{O5}: Homeownership has no relationship with citizenship as measured by religious voluntarism among male heads of family unit.

H_{A5}: Homeownership is positively related to citizenship as measured by religious voluntarism among male heads of family unit.

H_{O6}: Homeownership has no relationship with citizenship as measured by religious voluntarism among families (head and wife).

H_{A6}: Homeownership is positively related to citizenship as measured by religious voluntarism among families (head and wife).

Contributions to Previous Literature

Again, this study seeks to determine whether it is homeownership or unmeasured or unobserved characteristics correlated with homeownership that are driving increased religious and political voluntarism. Why would owning a home, as opposed to renting, increase religious and political voluntarism? Globally, it may be that the types of people who are more likely to participate in religious and political volunteer efforts may also be more likely to be homeowners. Fundamentally, homeowners relative to renters may exhibit voluntarism as measured here as a means of increasing utility, acquiring human capital, and building social capital.

As stated, this study will add to the previous body of literature in some key ways. First, the question of whether tenure has an impact on citizenship as measured by religious and political voluntarism remains relatively unexplored. Second, the relationship will be analyzed within a theoretical context using neoclassical, human capital, and social capital theories. Finally, as discussed, tenure is based on choice. The concern is that use of a choice variable as the key independent variable in modeling leads

to the omission of unmeasured or unobserved variables important to the research question. This concern will be addressed by means of appropriate and credible techniques including use of panel data. Specifically, panel data refers to data collected on the same observation over two or more time periods (Stock & Watson, 2003; Wooldridge, 2006). A more complete discussion regarding data selection and appropriateness will follow.

CHAPTER 3

Research Methods

Theoretical Paths through Which Homeownership may be Related to Citizenship Measured by Religious and Political Voluntarism

The basic research question is as follows: what is the relationship between homeownership and religious and political voluntarism (i.e., citizenship)? The theoretical paths through which homeownership may be related to an increase in these types of voluntarism include increased utility, acquisition of human capital, and building social capital, as explained here.

Utility, Supply, and Demand Functions

Before answering the research question, a utility function describing the theoretical relationship between variables must be introduced. The following utility function describes the well being of a consumer as illustrated by consumable goods, volunteer opportunities, tenure choice, goods bought with income, education, religion, and taste shifters. Taste shifters may influence utility. For example, a taste shifter might include belonging to relevant organizations. Equation 1illustrates utility as a function of a number of factors, including but not limited to consumable goods, volunteer opportunities, and tenure choice.

$$U = f(a, b, c, d, e, f, g, h) \qquad i = 1, \ldots, n \tag{1}$$

Where:

Consumable goods	=	a
Volunteer opportunities	=	b
Tenure choice	=	c
Good bought with income	=	d
Education	=	e
Religion	=	f
Taste shifters	=	g
All other goods	=	h
Individual	=	i
Number of entities	=	n

Equation 1. Utility function describing well being as a function of selected variables.

Economic theory dictates that consumers have a fixed level of income as denoted by a budget constraint. Additionally, consumer's time is restrained to 168 hours per week. Per Bryant and Zick (2006), time may be categorized as household production (H), market work (M), or leisure (L). Equation 2 represents possible consumer time allocation, where total time is the sum of time spent in household production, market work, and leisure.

$$T = H + M + L \tag{2}$$

Where:

Household production	=	H
Market work	=	M
Leisure	=	L

Equation 2. Function representing possible time allocation.

Household production refers to time spent on activities related to household management, including but not limited to: care of people including children, house and property care, cooking, and laundry (Bryant & Zick, 2006). Market work refers to all time spent earning income. By default, leisure time is all time not spent engaged in household production or market work. Since volunteers by definition are those who work without pay or material benefit (Sieder, 1960) and voluntarism is beyond the scope of family managerial activities, this study interprets that the only time use category in which religious and political voluntarism may be placed is leisure.

The family budget is composed of both earnings from employment and non-labor income. The budget may account for the time that is spent earning income or spent on leisure. Equation 3 depicts a budget constraint that accounts for both time and financial resources (Bryant & Zick, 2006). The budget constraint, which reveals resources available to the household, is further enriched through incorporation of information about market goods, wage rates, and time.

$$pC + wL = wT + V \tag{3}$$

Where:

Price index for market goods	=	p
Market goods	=	C
Wage rate	=	w
Leisure	=	L
Total time available	=	T
Non-labor income	=	V
Full income: available resources	=	wT + V
Full income: how full income is spent	=	pC + wL

Equation 3. Budget constraint representing income earned during market work and spent on goods and services and leisure (Bryant & Zick, 2006, p. 138).

Full income may be spent on purchased goods (pC). Purchased goods may include owning a home and leisure (wL). Again, this study posits that leisure time may include time spent volunteering. Equation 4 demonstrates that the supply of volunteers is fundamentally determined by need for service, desire to serve, and the price of volunteering. Again, this price is the cost of leisure time (wage rate of volunteer).

$$Q^S(V) = f(S_D, D_S, W) \quad (4)$$

Where:

Service demanded	=	S_D
Desire to serve	=	D_S
Price of volunteering	=	W

Equation 4. Supply function for volunteer as a function of service demanded, individual desire to serve, and price of volunteering.

Equation 5 demonstrates that the demand for homeownership is driven by price of homeownership, price of renting, income, and taste shifters. Each variable may uniquely impact demand.

$$Q^D (H) = f (P_H, P_R, I, P_A) \quad (5)$$

Where:

Price of homeownership	=	P_H
Price of renting	=	P_R
Income	=	I
Taste shifters	=	P_A

Equation 5. Demand function for homeownership as a function of price of homeownership, price of renting, income, and taste shifters.

Variable Choice

As stated, the relationship between homeownership and religious and political voluntarism (i.e. citizenship) may be plagued by the omission of unmeasured or unobserved variables. Using theoretically driven variables in modeling is one way to address this problem. Theory and empirical literature identify the types of variables that should be included in models.

Variable Choice Based on Political Voluntarism Literature

The following studies controlled for a number of independent variables, including: homeownership, income, and race (Gilderbloom & Markham, 1995; Kingston & Fries, 1994; Perkins, et al., 1996). The majority of Rohe and Stegman (1994) population is Black; therefore, race is not controlled. Other studies controlled for age, education, gender, marital status (Gilderbloom & Markham, 1995; Kingston & Fries, 1994), religion or attend religious services (Gilderbloom & Markham, 1995; Kingston & Fries, 1994; Perkins, et al., 1996), and length of residence (Kingston & Fries, 1994; Perkins, et al., 1996).

Variable Choice Based on Religious Voluntarism: Social Involvement Literature

The following studies controlled for a number of independent variables, including: age, education, homeownership, income, and marital status (DiPasquale & Glaeser, 1999; Glaeser & Sacerdote, 2000; Kingston & Fries, 1994; Rohe & Stegman, 1994; Rossi & Weber, 1996). Of the previous, Rossi and Weber used a composite index to measure income and educational attainment. A number of authors control for race (DiPasquale & Glaeser, 1999; Glaeser & Sacerdote, 2000; Kingston & Fries, 1994). Again, the majority of Rohe and Stegman (1994) population is Black; race is not controlled. Other controls include gender (DiPasquale & Glaeser, 1999; Glaeser & Sacerdote, 2000; Kingston & Fries, 1994; Rohe & Stegman, 1994), and number of children (DiPasquale & Glaeser, 1999; Glaeser & Sacerdote, 2000; Rohe & Stegman, 1994; Rossi & Weber, 1996). Others account for length of residence (DiPasquale & Glaeser, 1999; Kingston & Fries, 1994; Rohe & Stegman, 1994), and satisfaction of place measured at the city, community, or neighborhood level (Rohe & Stegman, 1994; Rossi & Weber, 1996). Additionally, only Rossi and Weber (1996) control for religion and attend religious service alone; Rohe and Stegman (1994) control for these two elements but as part of a greater measure of social involvement. Others control only for attending religious service as a part of a greater measure of social participation (Kingston & Fries, 1994).

Choosing the Most Appropriate Data Set

Panel Study of Income Dynamics (PSID)

The Panel Study of Income Dynamics (PSID) dataset was chosen to address the research question. The PSID was first chosen because it features a variable related to homeownership and variables related to religious and political voluntarism. Additionally, other variables deemed important by theory and empirical literature such as number of children in family, employment status, and length of residence are featured. The PSID began in 1968 as a longitudinal study. Researchers collected data from individuals and members of the family unit under a multitude of categories, including those related to demographics and economics (University of Michigan, n.d.). The following must be stated. "The Panel Study of Income Dynamics is primarily sponsored by the National Science Foundation, the National Institute of Aging, and the National Institute of Child Health and Human Development and is conducted by the University of Michigan" (University of Michigan, n.d.). This language is required by PSID.

The majority of most recent PSID data were collected via telephone with the aid of computers. The PSID dataset consists of observations on the same units over time. Panel data are unique in that having more than one observation on the same individual will effectively control for time invariant variables (Duncan, 1972; Stock & Watson, 2003; Wooldridge, 2006). This study will use two waves of PSID data. The year 2003 will be treated as time one, and the year 2005 will be treated as time two. These two years feature the same variables of interest, and therefore allow consistency. This study uses family level data, as opposed to individual level data. The reason that family level data are chosen is that a number of variables related to voluntarism are featured. Individual

level data sets do not contain variables related to voluntarism, and are therefore inappropriate for this study.

As defined by the PSID, the head must be at least 16 years old and hold the most financial responsibility for the family unit. If this person is female, then she is head. If the person is female and married or has been living with a boyfriend for greater than one year, then the husband or boyfriend is head. If this male is somehow incapacitated, then the female is head (University of Michigan, 2009d). As discussed, gender is important to this study; male and female family heads will be analyzed discretely.

Since data are reported at the family level, it is important to account for action taken by family members other than the head. Therefore, to capture the relationship between homeownership and religious and political voluntarism on the family level, this study will examine behavior of the wife. Wife is defined on two levels: wife in the legal sense and "wife" as cohabitating female friend. The variables make no distinction between wife and "wife." Marriage and cohabitation are both captured. Henceforth in this study, the term wife refers to wife in the legal sense and wife as the cohabitating female friend. PSID questions regarding wife's voluntarism parallel those that refer to the head. This study uses responses from both the head and wife, as defined, to capture family religious and political voluntarism. Per PSID staff, there is no direct way to obtain information about sexual orientation. PSID records information based on married or cohabitation status for heads and wives, and does not record information based on sexual orientation for lesbians and gays (PSID Support, 2009).

PSID and Validity Concerns

Can results be generalized to other populations when using the PSID? External validity is strengthened as the PSID is a nationally representative dataset with a large sample size. As of 2005, PSID researchers collected data on approximately 7,500 families. Also, will results be valid for population being studied? Internal validity is strengthened as PSID features a variety of variables that theoretically belong in the models used to answer the research question. The data have been chosen as they are timely and include variables of interest as motivated by theory and literature.

Variables Selected from PSID

PSID features a plethora of variables related to voluntarism and a number of variables required to control for important characteristics that will aid in determining the relationship between being a homeowner and religious and political voluntarism. Family level data contain information reported by head and wife about their voluntarism during the previous year, including the number of session, hours and minutes donated during unique sessions, the type of volunteer work done, and an estimate of the time donated for the entire year's service. The PSID's Child Development Supplement (CDS) dataset contains information about how many organizations to which respondents belong.

These two measurements, one referring to time given and the other referring to the number of organizations to which one belongs, have been used in previous studies as measures of involvement. Rohe and Stegman (1994), Kingston and Fries (1994), DiPasquale and Glaeser (1999), and Glaeser and Sacerdote (2000) used the number of memberships as a determinant in assessing participation. Rohe and Stegman find the

measure of number of organizations to which one belongs to be crude as some individuals may belong in theory only, and do not participate substantively. Therefore, Rohe and Stegman also measure the frequency of involvement based on the number of meetings attended.

Following this sentiment, this study will use how often heads (male or female) and family (head and wife) volunteer as measures of religious and political voluntarism. This measure of time spent volunteering better represents voluntarism as a concept, as follows. How often individuals volunteer, as opposed to number of memberships, captures the process by which individuals engage in voluntarism. Here, the decision to volunteer is made by free will, the individual is motivated to act, the individual has the capacity to act, and some volunteer opportunity is presented. Of all the PSID variables that inquire about how often individuals volunteer, the ones chosen are measured continuously.

Dependent Variables

The variables used to represent political voluntarism are reported using family level data, and data are collected for both head and wife. Although the variable intends to measure voluntarism directed toward social change, political voluntarism plays a prominent role in the description and therefore will be used. The variable supports the notion of citizenship developed via political voluntarism. Additionally, the measure may encompass a variety of opportunities in which one can volunteer. Volunteer activities that may be captured might include but are not limited to writing letters, canvassing, and donating professional services to a political party. Table 1 lists the variables chosen

related to political voluntarism. Again, this variable is measured continuously, ranging as follows: 1 – 96: actual number of volunteering sessions; 97: 97 volunteering sessions or more. That is, if the respondent volunteered one time in 2003, then the value of the variable for that respondent in 2003 is one. This pattern continues until the number of volunteering sessions reaches 97. At this point, volunteering opportunities numbering 97 or greater are represented by the value 97.

Table 1.

Dependent variable: Measure of political voluntarism

Variable name	PSID ID	Question/definition
		YEAR: 2003
head_sc_vol_03	ER23646	During 2002, how often did you (HEAD) volunteer through organizations to bring about social change, such as civic or community action, working for a political party or advocacy group?
wife_sc_vol_03	ER23655	During 2002, how often did (your wife) volunteer through organizations to bring about social change, such as civic or community action, working for a political party or advocacy group?
		YEAR: 2005
head_sc_vol_05	ER27616	During 2004, how often did you (HEAD) volunteer through organizations to bring about social change, such as civic or community action, working for a political party or advocacy group?

Variable name	PSID ID	Question/definition
wife_sc_vol_05	ER27625	During 2004, how often did (your wife) volunteer through organizations to bring about social change, such as civic or community action, working for a political party or advocacy group?

Although the PSID contains a range of variables used to measure religious voluntarism, just one will be initially chosen due to its ability to invoke both social capital formation and voluntarism within a concise boundary. The measure is of how much volunteer activity is conducted at or through respondent's place of worship. Activities included in this measure are serving on a committee, assisting in worship, teaching, or helping others through programs organized by place of worship (University of Michigan, 2003c). Dietz and Haurin (2003) observe that a number of activities, including religious membership, contribute to social involvement or the production of social capital. Factors related to religious involvement were used in composite measures of social behaviors or participation in organizations (Kingston & Fries, 1994; Perkins, et al., 1996; Rohe & Stegman, 1994). Religion is one common vehicle by which individuals might increase voluntarism. Putnam (2000) reports that individuals who are engaged in community projects are likely to attend church.

Volunteering in a religious context is worthy of attention in terms of the sizable population and contributions that these volunteers make. Putnam indicates that local civic and religious networks recruit the vast majority of volunteers, and endeavors taken in

religious settings account for half of all volunteering. Religious volunteering, as defined here, provides individuals an abundance of opportunities in which to volunteer. For example, individuals may engage in volunteer activities including but not limited to serving on committees, leading youth Sunday school education, leading adult discussion groups, or planning social events at the place of worship. Putnam concludes that involvement in religion matters greatly to social capital (Putnam, 2000, p. 66). These statements are based on Putnam's own evidence. It is stated that generalizations are supported by more than one body of independent, credible evidence (Putnam, 2000, p. 26).

Table 2 lists the measure used in this study for religious voluntarism. Again, variables are reported using family level data, and data collected are for head and wife. As with the measure of political voluntarism, the religious voluntarism variable is measured continuously, ranging as follows: 1 – 96: actual number of volunteering sessions; 97: 97 volunteering sessions or more.

Table 2.

Dependent variable: Measure of religious voluntarism

Variable name	PSID ID	Question/definition
		YEAR: 2003
head_r_vol_03	ER23554	During 2002, how often did you (HEAD) do volunteer activity at or through your church, synagogue, or mosque, such as serving on a committee, assisting in worship, teaching, or helping others through programs organized by your place of worship? Please do not include volunteering through schools, hospitals, and other charities run by religious organizations.
wife_r_vol_03	ER23564	During 2002, how often did (your wife) do volunteer activity at or through her church, synagogue, or mosque, such as serving on a committee, assisting in worship, teaching, or helping others through programs organized by her place of worship? Please do not include volunteering through schools, hospitals, and other charities run by religious organizations.

Variable name	PSID ID	Question/definition
		YEAR: 2005
head_r_vol_05	ER27524	During 2004, how often did you (HEAD) do volunteer activity at or through your church, synagogue, or mosque, such as serving on a committee, assisting in worship, teaching, or helping others through programs organized by your place of worship? Please do not include volunteering through schools, hospitals, and other charities run by religious organizations.
wife_r_vol_05	ER27534	During 2004, how often did (your wife) do volunteer activity at or through her church, synagogue, or mosque, such as serving on a committee, assisting in worship, teaching, or helping others through programs organized by her place of worship? Please do not include volunteering through schools, hospitals, and other charities run by religious organizations

Key Independent Variable

Table 3 lists the variables chosen to represent homeownership, the key independent variable used in all models. The variable is coded as follows: those who own their home are coded as one, and all others as zero. The variable reveals insight about tenure on the family, as opposed to the individual level. The inclusion of other independent variables critical to analysis will follow.

Table 3.

Key independent variable

Variable name	Year	PSID ID	Question/definition
home_own_03	2003	ER21042	Do you (or anyone else in your family living there) own the (home/apartment), pay rent, or what? Coded: 1 = Owns or is buying home, either fully or jointly; mobile home owners who rent lots are included here; 5 = Pays rent; 8 = Neither owns nor rents
home_own_05	2005	ER25028	Do you (or anyone else in your family living there) own the (home/apartment), pay rent, or what? Same coding as above

Examining, Cleaning, and Summarizing Data

Wooldridge (2006) outlines that before entering into empirical analysis, one must be sufficiently familiar with the data. This includes not only understanding how data were generated, but also understanding problems inherent in large datasets. To begin, missing data causes issues when the data are missing non-randomly, resulting in a non-random sample. In other words, bias may be introduced when there is some pattern to the missing data. Wooldridge indicates that this is problematic when the dependent variable is affected. This study assumes that data are not missing systematically from the sample, given the dependent variable.

Outliers must be examined. An outlier is an observation with an exceptionally large or small value (Stock & Watson, 2003); or if when questionable observations are deleted from the analysis, significant change in the results ensues (Wooldridge, 2006). Mendenhall and Sincich (2003) suggest using the statistical measure, Cook's Distance (D_i), to determine the overall influence that outliers may have on estimated coefficients. Stock and Watson (2007) suggest fixing any data entry errors, or, dropping the observation from the data set if error cannot be fixed. This study eliminates outliers based on Cook's Distance (D_i).

Possible Estimation Methods

Although a randomized experiment may be the best means of distilling the relationship between independent and dependent variables, this study uses quasi-experimental methods for lack of randomized experimental data to exploit. Since dependent variables are continuous, it is appropriate to use ordinary least squares (OLS)

regression. OLS modeling describes a quantitative relationship between a dependent variable (y) and independent variables ($x_1, \ldots, x_h$). The term parameter refers to a descriptive measure of a population. Parameters in a regression line are also known as coefficients (Stock and Watson, 2007). Statistics, calculated from samples, are used to infer values for parameters (Mendenhall & Sincich, 2003). Unknown parameters are estimated by minimizing the difference between actual observations and estimations.

Instrumental Variable: Two Stage Least Squares

An instrumental variable may be used to compensate for choice inherent in the key independent variable, homeownership. As a means of replicating efforts of previous researchers, models using an instrumental variable may be used to determine the change in probability of volunteer given tenure. One such variable developed by DiPasquale and Glaeser (1999) is used to examine the effect of homeownership on citizenship as measured by investment in local amenities and social capital. As stated, the authors constructed the instrumental variable from the homeownership rate of individual's income quartile for each race in individual's state. Motivated by DiPasquale and Glaeser, Aaronson (2000) used a similar technique to model the effects of homeownership on child outcomes. Aaronson's instrumental variable was family mobility rates prior to a child turning age five.

Use of the instrumental variable addresses concerns related to the omission of unmeasurables or unobservables. Again, unmeasurables or unobservables refers to variables that are not captured in data, but may be important to the research question. An instrumental variable decomposes the key independent variable into two parts. This

decomposition effectively isolates that part of the key independent that is exogenous, or that part of the variable that is not correlated with unmeasured determinants of voluntarism. This exogenous element will then be used to obtain unbiased estimates. Certain assumptions must be met in order for an instrument (z_i) to be valid. First, the instrument must be relevant, expressed as corr (z_i, x_i) $\neq 0$. Avoiding weak instruments is also critical. The F statistic associated with the instrument must be greater or equal to 10 and the t statistic associated with the instrument must be greater than or equal to 3.333. The instrument must be exogenous, meaning that the variable is not correlated with unmeasured determinants of the dependent variable. The instrumental variable must also be one that does not determine the dependent variable but is correlated with the key independent variable.

OLS Regression: Cross Sectional Data Using Variables Simulating Effects of Using Panel Data

Second, panel data may be treated as cross sectional in that one wave is used in analysis and variables that attempt to simulate use of panel data are included. The concern remains that results obtained from cross sectional analysis may not be due to the effect of independent variables on the dependent variable, but instead, due to unmeasurables or unobservables.

OLS Regression: Panel Data with Time Trends

Third, panel data may be used to create a model using dummies that capture time trends. Aaronson (2000) created time dummies to capture trends, most notably in

schooling. Time-varying variables were averaged for respondents. Aaronson argues that the time-averaged variables capture effects critical to the study.

Panel Data: "Before-and-after" Comparisons and Fixed Effects

Fourth, panel data with two time periods may use either before-and-after comparisons or fixed effects estimation to help minimize omitted variable bias resulting from the omission of unmeasured or unobserved variables. Recalling that consumers have self-selected, or chosen, homeownership, the concern is that some important variable may be omitted from modeling. With two time periods, before-and-after and fixed effects estimation controls unmeasured or unobserved variables that vary across individuals but are constant over time (Stock & Watson, 2003). Unmeasured or unobserved variables that may have influenced results in cross sectional analysis may be controlled without actually observing them. Wooldridge (2006) states that by using fixed effects estimation, worrisome unobserved effects disappear. The benefit of using a before-and-after or fixed effects approach is that variables that are either hard to measure, not captured in the data, or both, are controlled. Of all possible unmeasured or unobserved, time-invariant characteristics, those that may be correlated both with homeownership and citizenship as measured by voluntarism include but are not limited to motivation. Regarding time invariance, Dweck (1999) states that belief systems are an integral part of motivational systems. For example, belief systems can influence personal goals. These belief systems are relatively stable over some time.

When panel data with two time periods are used as in this study, estimations may take place three different ways, as illustrated by Stock and Watson (2007). The before-

and-after specification compares the value of the dependent variable in time two to that of the value in time one. Analyzing the change in the dependent variables, religious or political voluntarism, between time one and time two eliminates the influence of omitted variables. Equation 6 illustrates a generic panel data before-and-after specification (Stock and Watson, 2007).

$$y_{it} - y_{it\text{-}1} = \beta_1(x_{it} - x_{it\text{-}1}) + u_{it} - u_{it\text{-}1} \quad (6)$$

Equation 6. Panel data: Before-and-after specification.

Fixed effects modeling with entity demeaned specification estimates unknown individual specific intercepts. The slope of the regression line is the same for all individuals, but each individual has a unique intercept. These different intercepts absorb the influence of omitted variables that are constant over time. Equation 7 exemplifies a generic fixed effects model with individual intercepts (Stock and Watson, 2007).

$$y_{it} = \beta_1(x_{it}) + \alpha_i + u_{it} \quad (7)$$

Equation 7. Panel data: Fixed effects model with *n* individual intercepts.

Finally, fixed effects estimation may take the form where the model features a single intercept and n-1 binary, or dummy, variables to represent individuals save one to avoid a dummy variable trap. Equation 8 represents a generic fixed effects model with a common intercept and binary regressors (Stock and Watson, 2007).

$$y_{it} = \beta_0 + \beta_1 x_{it} + \gamma_2 D2_i + \gamma_3 D3_i + \ldots + \gamma_n Dn_i + u_{it} \quad (8)$$

Equation 8. Panel data: Fixed effects model with a single intercept and n-1 binary regressors.

It is clearly stated that when the number of time periods equals two, before-and-after specification with a suppressed intercept and fixed effects of either form produce identical results (Stock & Watson, 2007). Therefore, use of any one of these three methods with PSID data consisting of two periods results in identical results, regardless of form.

Comparison of Methods

First, the instrumental variable method is flawed. As stated by DiPasquale and Glaeser (1999) and Aaronson (2000), no instrument is perfect. The instruments developed by these authors would be appropriate for use here in that like DiPasquale, Glaeser, and Aaronson, this study attempts to control for the fact that homeownership is a choice variable; when used as the key independent variable, choice variables are accompanied by issues. The limitations associated with instrumental variables may be too great; it may be difficult to prove both relevance and exogeneity. Second, an OLS model applied to cross sectional data will not give the best understanding of the relationship between homeownership and religious and political voluntarism (i.e. citizenship). Using variables that simulate the effects of panel data does not exploit the richness inherent in panel. Using panel data and variables that intend to capture time trends also will not capitalize on the richness of panel data. In conclusion, the most believable results will be estimated using two years of panel data with before-and-after comparisons.

Method Chosen: Panel Data with Two Time Periods and Before-and-After Comparisons

Foremost, it would be thoughtless not to exploit the richness inherent in PSID, as it is a dataset with more than one time period. Therefore, this study will use two waves of PSID data (2005 and 2003). Repeated observations on the same individual may be used to carefully construct regression models that control for omitted variables important to the research question, but not captured in the data as they are hard or impossible to measure. In short, using panel data controls for omitted variable bias that has troubled previous empirical work.

As stated, before-and-after comparison with suppressed intercept, fixed effects with individual intercepts, and fixed effects with a single intercept and n-1 binary regressors are three identical ways of achieving the same results when using panel data with two time periods. The method chosen for this study will be before-and-after comparisons with a suppressed intercept. The expectation is that estimating the relationship between homeownership and religious and political voluntarism may be less clouded by unmeasureable or unobservable variables. Using panel data and before-and-after comparisons will be the most direct route to a better understanding of the relationship between homeownership and religious and political voluntarism.

Before-and-after comparisons do not have the multiple difficulties associated with other regression techniques, notably instrumental variables. Before-and-after comparison is not without issue; critical assumptions must be met regarding omitted variables, sample collection, outliers, multicollinearity, and homoskedasticity. However, careful model construction using theoretically derived variables and proper attention to assumptions is critical. These techniques may produce more convincing results.

Variables Unique to Before-and-After Comparisons

This paper will feature two main models: one with religious voluntarism and another with political voluntarism as continuous dependent variables. Both types of model will feature the same key independent variable, tenure (*home_own*) and the same controls. Before-and-after comparisons prohibit the inclusion of time-constant variables by themselves (Stock and Watson, 2007). For example, race is not included because race does not change over time. By definition, race will be controlled in estimations. Since the change in the variable must have at least some variation across respondents, age is also not controlled in regression modes as it changes by the same amount for each individual (Wooldridge, 2006). Before-and-after comparisons are unique in that the independent variables must be those that change over time. Kingston and Fries (1994), Rohe and Stegman (1994), Gilderbloom and Markham (1995), Perkins, Brown, and Taylor (1996), Rossi and Weber (1996), DiPasquale and Glaeser (1999), and Putnam (2000) will be used as the primary sources for variable selection.

Per Stock and Watson (2007), before-and-after estimations compare values for variables in the second time period (2005) to variables of the first time period (2003). This is represented by $x_{i2005} - x_{i2003}$. In other words, it is the change in variables that is included in specification. Certain variables, such religious voluntarism, are measured continuously. Comparing values obtained in 2005 to values obtained in 2003 yields a single value. This value represents this change from 2005 to 2003. These variables may be interpreted as follows: a one unit increase in x_i is associated with some change in the dependent variable. These values will appear later in means tables.

Other variables are measured as dummies, or binary variables. For example, the variable for marriage is represented as a dummy, where the value one is recorded if respondent is married, and zero if respondent is not. When the values of dummies from 2005 are compared to values from 2003, one of three values may occur: negative one, zero, or one (-1, 0, 1). Using the variable married as an example, these dummy variables may be interpreted as follows: being married is associated with some change in the dependent variable. These values obtained when comparing dummy variables from combinations possible in 2005 to 2003 are presented in Figure 4. The values in the parenthesis represent whether the variable equals one or zero for that year. These values will appear later in frequency tables.

$x_{i2005}\ (1) - x_{i2003}\ (1) = 0$

$x_{i2005}\ (1) - x_{i2003}\ (0) = 1$

$x_{i2005}\ (0) - x_{i2003}\ (0) = 0$

$x_{i2005}\ (0) - x_{i2003}\ (1) = -1$

Figure 4. Possible values for dummy variables compared in 2005 to 2003

Possible variables are motivated by theory and literature, as discussed. The following will be included in models. Note that these variables will be used to construct separate models using head (male or female) and family (head and wife) as units of interest. Gender is held constant and therefore is not appropriate for inclusion in before-and-after comparisons. Instead, it is included here in order to build specific datasets that

will allow the examination of characteristics unique to gender. Table 4 lists variables appropriate for use in models based on before-and-after comparisons.

Table 4.

List of independent variables appropriate for use in before-and-after comparisons

Variable name	Year	PSID ID	Question/definition
marital status	2003 2005	ER24150 ER28049	Marital status of head • This version of marital status makes no distinction was made between those legally married and those who merely cohabited • Coded: categorical variable
income (total family)	2003 2005	ER24099 ER28037	The income reported here was collected in 2003 (2005) about tax year 2002 (2004). • Coded: continuous variable
head education	2003 2005	ER24148 ER28047	Head's completed education level • Coded: continuous - 16 Actual number; if Head is a high school graduate (ER23435=1), the value is 12; 17 indicates that the Head completed at least some postgraduate work

Variable name	Year	PSID ID	Question/definition
wife education	2003 2005	ER24149 ER28048	Wife's completed education level • Coded: continuous; 1-16 represent the actual grade of school completed; e.g., a value of 8 indicates that the Wife/"Wife" completed the eighth grade. A code value of 17 indicates that the Wife/"Wife" completed at least some postgraduate work.
number of children	2003 2005	ER21020 ER25020	Number of Persons Now in the Family Unit Under 18 Years of Age • Coded: continuous variable
length of residence (head only)	2003 2005	ER21117 ER25098	Whether moved since January 1of prior year • Coded: categorical variable

Variable name	Year	PSID ID	Question/definition
employment status (head)	2003 2005	ER21123 ER25104	We would like to know about what you do--are you (HEAD) working now, looking for work, retired, keeping house, a student, or what? • Coded: categorical variable based on categories listed in question; 1= employed; 2 = temp. lay off, maternity leave, sick leave; 3 = looking for work, unemployed; 4 = retired; 5 = disabled; 6 = keeping house; 7 = student; 8 = other, workfare, in prison or jail
employment status (wife)	2003 2005	ER21373 ER25362	We would like to know about what your (wife/"WIFE") does--is she working now, looking for work, retired, keeping house, a student, or what? • Coded: categorical variable as above

Variable name	Year	PSID ID	Question/definition
location_size	2003 2005	ER24145 ER28044	Size of the Largest City in County of Residence • Coded: ordered categorical variable based on the following: 1 SMSA: largest city 500,000 or more; 2 SMSA: largest city 100,000-499,999; 3 SMSA: largest city 50,000-99,999; 4 Non-SMSA: largest city 25,000-49,999; 5 Non-SMSA: largest city 10,000-24,999; 6 Non-SMSA: largest city under 10,000
sex of head	2003 2005	ER21018 ER25018	Sex of head • Coded: categorical (male = 1; female = 0)

Table 5 lists the expected sign of the coefficients associated with the independent variables used in before-and-after comparisons. Here, each variable is juxtaposed with a possible explanation as to expected direction.

Table 5.

Expected sign of independent variables used in before-and-after comparisons

Variable	Expectation	Possible explanation
marital status	-	Singles may see volunteering as an outlet for time and as means of finding a like-minded mate.
income	+	Increased income may provide time to volunteer which, by necessity, is not spent in market work.
education	+	Increased education may expose individuals to a greater variety of social networks and volunteer opportunities.
number of children	+	Parents may volunteer with hopes of creating increased utility for children.
length of residence	+	Increased time in one location offers residents time needed to establish relationships and seek volunteer opportunity.

Variable	Expectation	Possible explanation
employment status	+	Putnam (2000) suggests that employment may increase likelihood of volunteering as those in the workforce may be exposed to social networks that provide volunteer opportunity.
location size	-	Small towns might provide more opportunity to build social networks that provide volunteer opportunity.

Regression Models Based on Before-and-After Comparisons

For modeling used in this study, the estimation will take the form of before-and-after regression model with suppressed intercept. As illustrated by Stock and Watson (2007), the unobservables or unmeasurables that do not change over time (Z_{it}) are factored out using the before-and-after specification. Equation 9 embodies this concept. Here, models are given for time one and time two. Each model features a single variable representing unobservables or unmeasurables that do not change over time (Z_{it}). When the equations are subtracted, Z_{it} is eliminated.

$$\text{a) } y_{it} = \beta_0 + \beta_1 x_{it} + \beta_2 Z_{it} + u_{it} \quad (9)$$
$$\text{b) } y_{it+1} = \beta_0 + \beta_1 x_{it+1} + \beta_2 Z_{it} + u_{it+1}$$

Subtracting equation (a) from equation (b) eliminates Z_{it}.

$$\text{c) } y_{it+1} - y_{it} = \beta_0 + \beta_1 (x_{it+1} - x_{it}) + u_{it+1} - u_{it}$$

Equation 9. Generic before-and-after specification.

Specifically, values of religious voluntarism in 2005 will be compared to values of religious voluntarism in 2003. Values of political voluntarism in 2005 will be compared to values of political voluntarism in 2003. The same procedure applies to independent variables. For independent variables that are binomial in nature, the comparison between 2005 and 2003 will take one of three values as discussed: negative one, zero, or one (-1, 0, 1).

Before-and-After Specification: Simple Regression Models

The following parsimonious simple regression models exhibited in Equations 10 and 11 will establish preliminary relationships and illustrate the importance of controlling for a number of variables. The following simple regression models use before-and-after specification. Models will be estimated separately for male heads, female heads, and families (head and wife). Since just one independent variable, *home_own*, is used, the models are identical. The simple models contain the expression u_{it}, the error term. These error terms contain factors that vary over time, which determine the dependent variable, but are not included as independent variables in the model.

Simple Regression Model: Dependent Variable: Religious Voluntarism

$$\begin{aligned} &r\_vol_{i2005} - r\_vol_{i2003} \\ &\quad = \beta_1(home\_own_{i2005} - home\_own_{i2003}) + u_{i2005} - u_{i2003} \end{aligned} \tag{10}$$

Equation 10. Before-and-after comparison: simple regression model, dependent variable religious voluntarism.

Simple Regression Model: Dependent Variable: Political Voluntarism

$$\begin{aligned} &sc\_vol_{i2005} - sc\_vol_{i2003} \\ &\quad = \beta_1(home\_own_{i2005} - home\_own_{i2003}) + u_{i2005} - u_{i2003} \end{aligned} \tag{11}$$

Equation 11. Before-and-after comparison: simple regression model, dependent variable political voluntarism.

Before-and-After Specification: Multiple Regression with Religious Voluntarism as Dependent Variable

Although simple regression is good for establishing the relationship between variables in equation form, it does not control all of the variables deemed necessary for estimations. Therefore, multiple regression models are used to control factors other than the key independent variable, tenure (*home_own*). The following models exhibited in Equations 12, 13, and 14 represent the before-and-after regression model measuring the relationship between tenure (*home_own*) and religious voluntarism, controlling for other

factors. These models will be estimated separately for male heads, female heads, and families (head and wife).

To avoid the dummy variable trap associated with categorical variables, certain variables have been omitted from regression models. The variable that refers to head employment status as not being in the workforce (*head_nonlabor*) and the variable that refers to the smallest community size (*size6*) are omitted from all models as reference categories. Additionally, the variable that refers to wife employment status as not being in the workforce (*wife_nonlabor*) is omitted from the family model as an additional reference category where appropriate. As with simple regression, the models contain the expression u_{it}, the error term. These error terms contains factors that vary over time, which determine the dependent variable, but are not included as independent variables in the model.

$$
\begin{aligned}
&\text{r\_vol}_{i2005} - \text{r\_vol}_{i2003} \\
&= \beta_1 (\text{home\_own}_{i2005} - \text{home\_own}_{i2003}) + \beta_2 (\text{married}_{i2005} - \text{married}_{i2003}) \\
&+ \beta_3 (\text{income}_{i2005} - \text{income}_{i2003}) + \beta_4 (\text{head\_education}_{i2005} - \text{head\_education}_{i2003}) \\
&+ \beta_5 (\text{children}_{i2005} - \text{children}_{i2003}) + \beta_6 (\text{moved}_{i2005} - \text{moved}_{i2003}) \\
&+ \beta_7 (\text{head\_employed}_{i2005} - \text{head\_employed}_{i2003}) \\
&+ \beta_8 (\text{head\_unemployed}_{i2005} - \text{head\_unemployed}_{i2003}) + \beta_9 (\text{size1}_{i2005} - \text{size1}_{i2003}) \\
&+ \beta_{10} (\text{size2}_{i2005} - \text{size2}_{i2003}) + \beta_{11} (\text{size3}_{i2005} - \text{size3}_{i2003}) + \beta_{12} (\text{size4}_{i2005} - \text{size4}_{i2003}) \\
&+ \beta_{13} (\text{size5}_{i2005} - \text{size5}_{i2003}) + u_{i2005} - u_{i2003}
\end{aligned}
\tag{12}
$$

Equation 12. Male head: Before-and-after comparison, dependent variable religious voluntarism.

$$
\begin{aligned}
&\mathrm{r\_vol}_{i2005} - \mathrm{r\_vol}_{i2003} \\
&= \beta_1 (\mathrm{home\_own}_{i2005} - \mathrm{home\_own}_{i2003}) + \beta_2 (\mathrm{income}_{i2005} - \mathrm{income}_{i2003}) \\
&+ \beta_3 (\mathrm{head\_education}_{i2005} - \mathrm{head\_education}_{i2003}) + \beta_4 (\mathrm{children}_{i2005} - \mathrm{children}_{i2003}) \\
&+ \beta_5 (\mathrm{moved}_{i2005} - \mathrm{moved}_{i2003}) + \beta_6 (\mathrm{head\_employed}_{i2005} - \mathrm{head\_employed}_{i2003}) \\
&+ \beta_7 (\mathrm{head\_unemployed}_{i2005} - \mathrm{head\_unemployed}_{i2003}) + \beta_8 (\mathrm{size1}_{i2005} - \mathrm{size1}_{i2003}) \\
&+ \beta_9 (\mathrm{size2}_{i2005} - \mathrm{size2}_{i2003}) + \beta_{10} (\mathrm{size3}_{i2005} - \mathrm{size3}_{i2003}) + \beta_{11} (\mathrm{size4}_{i2005} - \mathrm{size4}_{i2003}) \\
&+ \beta_{12} (\mathrm{size5}_{i2005} - \mathrm{size5}_{i2003}) + \mathrm{u}_{i2005} - \mathrm{u}_{i2003}
\end{aligned}
\tag{13}
$$

Equation 13. Female head: Before-and-after comparison, dependent variable religious voluntarism.

$$
\begin{aligned}
&\mathrm{r\_vol}_{i2005} - \mathrm{r\_vol}_{i2003} \\
&= \beta_1 (\mathrm{home\_own}_{i2005} - \mathrm{home\_own}_{i2003}) + \beta_2 (\mathrm{income}_{i2005} - \mathrm{income}_{i2003}) \\
&+ \beta_3 (\mathrm{head\_education}_{i2005} - \mathrm{head\_education}_{i2003}) + \beta_4 (\mathrm{wife\_education}_{i2005} - \mathrm{wife\_education}_{i2003}) \\
&+ \beta_5 (\mathrm{children}_{i2005} - \mathrm{children}_{i2003}) + \beta_6 (\mathrm{moved}_{i2005} - \mathrm{moved}_{i2003}) \\
&+ \beta_7 (\mathrm{head\_employed}_{i2005} - \mathrm{head\_employed}_{i2003}) + \beta_8 (\mathrm{head\_unemployed}_{i2005} - \mathrm{head\_unemployed}_{i2003}) \\
&+ \beta_9 (\mathrm{wife\_employed}_{i2005} - \mathrm{wife\_employed}_{i2003}) + \beta_{10} (\mathrm{wife\_unemployed}_{i2005} - \mathrm{wife\_unemployed}_{i2003}) \\
&+ \beta_{11} (\mathrm{size1}_{i2005} - \mathrm{size1}_{i2003}) + \beta_{12} (\mathrm{size2}_{i2005} - \mathrm{size2}_{i2003}) + \beta_{13} (\mathrm{size3}_{i2005} - \mathrm{size3}_{i2003}) \\
&+ \beta_{14} (\mathrm{size4}_{i2005} - \mathrm{size4}_{i2003}) + \beta_{15} (\mathrm{size5}_{i2005} - \mathrm{size5}_{i2003}) + \mathrm{u}_{i2005} - \mathrm{u}_{i2003}
\end{aligned}
\tag{14}
$$

Equation 14. Family: Before-and-after comparison, dependent variable religious voluntarism.

Before-and-After Specification: Multiple Regression with Political Voluntarism as Dependent Variable

The following models represent before-and-after regression models measuring the relationship between tenure (*home_own*) and political voluntarism, controlling for other factors. Again, these models exhibited by Equations 15, 16, and 17 will be estimated separately for male heads, female heads, and families (head and wife). The variables that refer to head employment status as not in the workforce (*head_nonlabor*) and smallest community (*size6*) are omitted from all models as reference categories. The variable referring to wife employment status as not in the workforce (*wife_nonlabor*) is omitted from the family model as an additional reference category.

$$\begin{aligned} &\text{sc\_vol}_{i2005} - \text{sc\_vol}_{i2003} \\ &= \beta_1 (\text{home\_own}_{i2005} - \text{home\_own}_{i2003}) + \beta_2 (\text{married}_{i2005} - \text{married}_{i2003}) + \\ &+ \beta_3 (\text{income}_{i2005} - \text{income}_{i2003}) + \beta_4 (\text{head\_education}_{i2005} - \text{head\_education}_{i2003}) \\ &+ \beta_5 (\text{children}_{i2005} - \text{children}_{i2003}) + \beta_6 (\text{moved}_{i2005} - \text{moved}_{i2003}) \\ &+ \beta_7 (\text{head\_employed}_{i2005} - \text{head\_employed}_{i2003}) \\ &+ \beta_8 (\text{head\_unemployed}_{i2005} - \text{head\_unemployed}_{i2003}) + \beta_9 (\text{size1}_{i2005} - \text{size1}_{i2003}) \\ &+ \beta_{10} (\text{size2}_{i2005} - \text{size2}_{i2003}) + \beta_{11} (\text{size3}_{i2005} - \text{size3}_{i2003}) + \beta_{12} (\text{size4}_{i2005} - \text{size4}_{i2003}) \\ &+ \beta_{13} (\text{size5}_{i2005} - \text{size5}_{i2003}) + u_{i2005} - u_{i2003} \end{aligned} \tag{15}$$

Equation 15. Male head: Before-and-after comparison, dependent variable political voluntarism.

$$
\begin{aligned}
&\mathrm{sc\_vol}_{i2005} - \mathrm{sc\_vol}_{i2003} \\
&= \beta_1 (\mathrm{home\_own}_{i2005} - \mathrm{home\_own}_{i2003}) + \beta_3 (\mathrm{income}_{i2005} - \mathrm{income}_{i2003}) \\
&+ \beta_4 (\mathrm{head\_education}_{i2005} - \mathrm{head\_education}_{i2003}) + \beta_5 (\mathrm{children}_{i2005} - \mathrm{children}_{i2003}) \\
&+ \beta_6 (\mathrm{moved}_{i2005} - \mathrm{moved}_{i2003}) + \beta_7 (\mathrm{head\_employed}_{i2005} - \mathrm{head\_employed}_{i2003}) \\
&+ \beta_8 (\mathrm{head\_unemployed}_{i2005} - \mathrm{head\_unemployed}_{i2003}) + \beta_9 (\mathrm{size1}_{i2005} - \mathrm{size1}_{i2003}) \\
&+ \beta_{10} (\mathrm{size2}_{i2005} - \mathrm{size2}_{i2003}) + \beta_{11} (\mathrm{size3}_{i2005} - \mathrm{size3}_{i2003}) + \beta_{12} (\mathrm{size4}_{i2005} - \mathrm{size4}_{i2003}) \\
&+ \beta_{13} (\mathrm{size5}_{i2005} - \mathrm{size5}_{i2003}) + u_{i2005} - u_{i2003}
\end{aligned}
\tag{16}
$$

Equation 16. Female head: Before-and-after comparison, dependent variable political voluntarism.

$$
\begin{aligned}
&\mathrm{sc\_vol}_{i2005} - \mathrm{sc\_vol}_{i2003} \\
&= \beta_1 (\mathrm{home\_own}_{i2005} - \mathrm{home\_own}_{i2003}) + \beta_2 (\mathrm{income}_{i2005} - \mathrm{income}_{i2003}) \\
&+ \beta_3 (\mathrm{head\_education}_{i2005} - \mathrm{head\_education}_{i2003}) \\
&+ \beta_4 (\mathrm{wife\_education}_{i2005} - \mathrm{wife\_education}_{i2003}) + \beta_5 (\mathrm{children}_{i2005} - \mathrm{children}_{i2003}) \\
&+ \beta_6 (\mathrm{moved}_{i2005} - \mathrm{moved}_{i2003}) + \beta_7 (\mathrm{head\_employed}_{i2005} - \mathrm{head\_employed}_{i2003}) \\
&+ \beta_8 (\mathrm{head\_unemployed}_{i2005} - \mathrm{head\_unemployed}_{i2003}) \\
&+ \beta_9 (\mathrm{wife\_employed}_{i2005} - \mathrm{wife\_employed}_{i2003}) \\
&+ \beta_{10} (\mathrm{wife\_unemployed}_{i2005} - \mathrm{wife\_unemployed}_{i2003}) + \beta_{11} (\mathrm{size1}_{i2005} - \mathrm{size1}_{i2003}) \\
&+ \beta_{12} (\mathrm{size2}_{i2005} - \mathrm{size2}_{i2003}) + \beta_{13} (\mathrm{size3}_{i2005} - \mathrm{size3}_{i2003}) + \beta_{14} (\mathrm{size4}_{i2005} - \mathrm{size4}_{i2003}) \\
&+ \beta_{15} (\mathrm{size5}_{i2005} - \mathrm{size5}_{i2003}) + u_{i2005} - u_{i2003}
\end{aligned}
\tag{17}
$$

Equation 17. Family: Before-and-after comparison, dependent variable political voluntarism.

The family will be divided into head and wife. This model will be used in separate analysis for the head and wife. Looking at each member of the family separately yields

more information about individual behavior. If each member were merged to one unit, then information about individual behavior within the family would be lost.

Before-and-After Comparisons: Assumptions

In order to obtain more credible results, certain assumptions must be addressed while using panel data with before-and-after comparisons, as outlined by Wooldridge (2006) and Stock and Watson (2007). The extent to which these assumptions are met plays a vital role in the credibility of inferences drawn during analysis.

It is assumed that the value of the error term ($u_{i\,2005} - u_{i\,2003}$) given independent variables is zero. Known as zero conditional mean, this assumption implies that there is no omitted variable bias. This study will take measures to prevent omitted variable bias by using theory and empirical literature in developing models. Second, it is assumed that variables for one individual are distributed identically to and independently (i.i.d.) of the variables for another entity. This assumption holds if simple random sampling is used to select observations from the population. As stated by the University of Michigan, the PSID is not based on a simple random sample. It is suggested that variables ER31996 and ER31997 be used for computing sampling errors (University of Michigan, 2009b). Third, it is assumed that large outliers are unlikely. Large outliers have the ability to produce deceptive results. This study will address outliers by deleting them as suggested by Stock and Watson (2007). Fourth, it is assumed that there is no perfect multicollinearity among independent variables. Multicollinearity occurs when moderate to high correlation occurs between two or more independent variables (Mendenhall & Sincich, 2003). When variables are correlated to an increased degree, the effect is that the variables are

redundant. This results in standard errors of estimates being inflated, which in turn causes problem with estimations.

There are several means of addressing multicollinearity. When variables are divided into binary categories, one category must be excluded from regression models in order to avoid what is known as the dummy trap. For example, if employment status is divided into unemployed, employed, and not in the labor force, one category must be omitted from the model to serve as a reference. Inclusion of all categories results in perfect multicollinearity. This study uses variables divided into categories with references. A second multicollinearity detecting method suggested by Mendenhall and Sincich (2003) is calculating the variance inflation factor (VIF) for the parameters.

Wooldridge (2006) states that homoskedasticity is the final assumption. Per Stock and Watson (2007), homoskedasticity refers to constant variance of the error term given independent variables. Error terms that are not constant are referred to as heteroskedastic. Heteroskedasticity leads to inaccurate confidence intervals for parameters ($\beta_i \ldots \beta_k$). Over repeated samples using preset probability, confidence intervals contain the true value of β_i. For example, a 95% confidence interval for β_1 is one that contains the true value of β_1 in 95% of all samples (Stock and Watson, 2007).

Stock and Watson (2007) observe that heteroskedasticity is very common, and economic theory does not give any reason to trust that errors are homoskedastic. It is suggested to err on the side caution and assume errors to be heteroskedastic. It is also observed that no loss is associated with using heteroskedasticity robust standard errors. This paper will use techniques that are robust to heteroskedasticity, namely Taylor series

linearization. Finally, variables used have been used repeatedly by prior researchers, and may not be as suspect to issue.

Weaknesses

There are a variety of assumptions that must be met during any regression analysis. When speaking of multiple regression, Mendenhall and Sincich (2003) observe that the degree to which the analysis is in compliance with the multiple regression assumptions will never be known. The authors also question how far analysis can depart from the assumptions and still obtain believable results. It is stated clearly that flagrant violations of the assumptions render unbelievable results. The need to meet assumptions is not unique to cross sectional data. This study applies Mendenhall and Sincich's discussion to the regression using before-and-after comparisons. This study does not intend to flagrantly violate assumptions, but instead will acknowledge and address each individually and systematically to help insure that any issues are addressed. This study cannot replicate previous studies exactly due to data choice. Despite any differences in variables, the studies are all similar in that the relationship between homeownership and some outcome as measured by political or social participation will be examined.

CHAPTER 4

Results

Meeting the Regression Assumptions

The Panel Study of Income Dynamics (PSID) allows users to download desired variables directly from the website. Using this method, an initial dataset consisting of all variables of interest was created. All analyses are performed using SAS data analysis software. The technique used is before-and-after comparisons using PSID data with two time periods. As stated, before-and-after comparison regression requires different assumptions to be addressed. The assumptions are outlined here per Wooldridge (2006) and Stock and Watson (2007) and are addressed at the appropriate stage of analysis.

No Omitted Variable Bias

Regression using before-and-after comparison assumes no omitted variable bias. As stated, this study takes measures to prevent omitted variable bias by using theory and empirical literature in developing models. The models include only time-varying variables because as defined, time invariant variables are held constant during before-and-after comparisons.

Simple Random Sample

The PSID is not generated via simple random sampling, and therefore does not meet the assumption that variables for one individual are distributed identically to and independently (i.i.d) of the variables for another entity. Use of these data under the assumption that collection was based on simple random sampling results in inaccurate estimations; the probability of Type I errors may be increased (Nielsen, Davern, Jones, & Boies, 2009). A Type I error is one where the null hypothesis is rejected when it is true (Mendenhall and Sincich, 2003). In other words, the conclusion that the independent variable has some relationship to the dependent variable is incorrect. As described here, per PSID recommendation, stratum, cluster, and weight variables were added to account for complex sampling.

Stratum and Cluster. Rust (1985) observes that attention should be paid to sample design when estimating parameters of interest. As stated, PSID staff suggest using variables ER31996 and ER31997 as stratum and cluster variables to compute sampling errors (University of Michigan, 2009e). BRR Stratum ER31996 is identified as the stratum variable, and BRR SECU ER31997 as the cluster variable. This study uses these two variables as recommended during modeling. It is stated clearly that despite BRR prefixes, these variables may be used with data analysis programs based on the Taylor series linearization method. SAS is based on Taylor series linearization (University of Michigan, 2009e). Taylor series linearization may be used for the purposes of variance estimation (Rust, 1985). Rust also notes that using Taylor series linearization yields variance estimates that are sufficiently accurate.

Weights. Samples with unequal selection probabilities may be an inaccurate reflection of the population. The PSID is a sample with unequal selection probabilities, and therefore requires compensatory weighting (University of Michigan, 2009d). The PSID dataset includes weight variables for each year based on data file type, that is, individual or family. This study uses the weight variable ER24179, or 2003 family longitudinal weight, during estimations.

Large Outliers Unlikely

The presence of large outliers may have an impact on the regression analysis and may produce misleading estimations. Following Mendenhall and Sincich (2003), Cook's Distance (D_i), is used to detect outliers during the modeling process. Per Chen, Ender, Mitchell, and Wells (2003), the value at which an observation is considered influential is unique to the number of observations. A general directive is that if the value of Cook's Distance is greater than four divided by the sample size (4/n), then the observation is considered influential (Chen, Ender, Mitchell, & Wells, 2003). This study uses four divided by the sample size as the threshold at which observations are considered influential.

This threshold value is calculated for all subsamples using values unique to that sample. Following Stock and Watson (2007), observations identified as outliers are eliminated from the data set. For multiple regression models using religious voluntarism as the dependent variable: when modeling male heads, the initial sample consisted of 4,226 observations. For male heads and single male heads, 78 observations were removed as outliers, constituting a .54 % reduction in the sample size for male heads and .018%

reduction for single male heads. When modeling female head, 57 observations were removed, constituting a .02% reduction in sample size. For family (head and wife), 78 observations were removed, constituting a .017% reduction in sample size. For models using political voluntarism as the dependent variable: when modeling male heads, 40 observations were removed; this constitutes a .009% reduction in sample size. When modeling single male heads, eight observations were removed, representing a .01% reduction in sample size. When modeling female heads, 20 observations were removed, representing a .007% reduction in sample size. When modeling families (head and wife), 37 observations were removed. This represents a .008% reduction in sample size.

No Perfect Multicollinearity

Regression using before-and after comparisons assumes no perfect multicollinearity. As discussed, multicollinearity occurs when moderate to high correlation exists between two or more independent variables. The sample is first restricted in order to see the relationship between homeownership and religious and political voluntarism among male heads, female heads, and families. Family is further divided into head and wife. Unweighted samples are used to detect multicollinearity. Per Mendenhall and Sincich (2003), variance inflation factors (VIF) were calculated for individual parameters (β_i). As indicated, separate models were built using variables unique to each subsample. For female heads, the education variable (*head_educ_change*) is excluded from analysis from the onset due to lack of variance. For families, the education variable (*head_educ_change*) is excluded for this same reason. This indicates that these education variables are constant, and therefore will not be included in modeling.

This is not surprising given the short time span used here. Wooldridge (2006) remarks that over time, education does not change for most employed individuals. Per Mendenhall and Sincich (2003), any VIF value greater than 10 indicates severe multicollinearity. Per Ott and Longnecker (2001), VIF values equaling one indicate no collinearity. This study uses Ott and Longnecker and Mendenhall and Sincich to set the as the threshold at which multicollinearity may adversely impact models. Multicollinearity presents no issue with any of the models as all values obtained close to one; no value is greater than two. Table 6 reports the highest VIF value obtained for each subsample.

Table 6.

Highest VIF values for each subsample

Sub sample	Religious voluntarism	Political voluntarism
Male heads	1.646	1.65
Female heads	1.722	1.715
Families (head and wife)	1.61	1.612

Homoskedasticity

Again, the word homoskedastic refers to constant variation in the error term, conditional on the independent variables (Stock and Watson, 2007). The term heteroskedastic refers to unequal variances. Whether the error term is homoskedastic or heteroskedastic plays an important role in estimations. Again, heteroskedasticity leads to inaccuracies in constructing confidence intervals.

Here, the Taylor series linearization method addresses complex sampling by computing sampling errors with stratum and cluster variables ER31996 and ER31997. This is beneficial on two levels. Rust (1985) described in detail that Taylor series linearization may be used to address matters relating to sample collection. Additionally, Taylor series linearization is robust to heteroskedasticity (SAS Technical Support, 2009). This study assumes the error term to be heteroskedastic. Taylor series linearization is used with stratum and cluster variables, as recommended by PSID and SAS.

Descriptive Statistics

Means and frequencies are based on the final regression models. All means and frequencies are generated using stratum, cluster, and weight variables. Means and frequencies are first provided for the change variables used. The variables used in estimations are based on before-and-after comparison, and reveal magnitude of change. It is important to note that the confidence intervals for most variables contain both negative and positive values; the intervals contain the value zero. That being said, in this case, it is with 95% confidence that the true population mean lies between the positive upper and lower negative bound. All categorical variables exhibit some variation, that is, change from one status to another.

The variables that measure change from 2005 to 2003 do not give adequate information about the socioeconomic status of the sample. As a result, the 2003 wave is used to provide this socioeconomic information. The weight variable used is from 2003, thus the year 2003 is selected. All 2003 means and frequencies for all subpopulations are calculated using strata, cluster, and weight variables as prescribed. Table 7 presents key

results for continuously measured 2003 variables for male heads. By definition, 100% of this subpopulation is male.

Table 7.

2003 variables means table: Male heads

Variable	Mean	Std error of mean	95% CL for mean	
head_sc_vol_03	.142957	.055149	.0296	.2563
head_r_vol_03	.767037	.09135	.5793	.9548
income_03	79773	2513.685111	74605.8363	84939.7438
head_educ_03	13.436102	.074018	13.284	13.5882
children_03	.773099	.025268	.7212	.825
head_age_05	45.824433	.268215	45.2731	46.3758

Number of observations used: 3859

Sum of weights: 90548.024

Table 8 presents key results for continuously measured change variables for male heads. Values are based on final model.

Table 8.

Change variables means table: Male heads

Variable	Mean	Std error of mean	95% CL for mean	
head_sc_vol_change	.003913	.080261	-.16107	.16889
head_r_vol_change	-.015968	.127904	-.27888	.24694
income_change	6562.995893	1348.125867	3791.88349	9334.1083
head_educ_change	.000384	.00058	-.00081	.00158
children_change	.009958	.012433	-.0156	.03551

Number of observations used: 3747

Sum of weights: 87991.484

Table 9 presents key results for categorical 2003 variables for male heads. Responses are recorded as binomial. All effort is made to base values on final models. Since race does not appear in final models, total used is very slightly different.

Table 9.

2003 variables frequency table: Male heads

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
home_own_03						
	0	972	20129	1921	22.2304	.7883
	1	2887	70419	6766	77.7696	.7883
	Total	3859	90548	8516	100.000	
married_03						
	0	704	16328	1752	18.0321	.7838
	1	3155	74220	6949	81.9679	.7838
	Total	3859	90548	8516	100.000	
moved_03						
	0	2635	62800	5694	69.355	.6657
	1	1224	27748	2902	30.645	.6657
	Total	3859	90548	8516	100.000	
head_employed_03						
	0	752	17578	1921	19.4132	.9331
	1	3107	72970	6842	80.5868	.9331
	Total	3859	90548	8516	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_unemplyed_03						
	0	3719	87671	8187	96.8232	.3233
	1	140	2877	439.60982	3.1768	.3233
	Total	3859	90548	8516	100.000	
head_nonlabor_03						
	0	3247	75846	7163	83.7636	.8287
	1	612	14702	1582	16.2364	.8287
	Total	3859	90548	8516	100.000	
head_latino_03						
	0	3623	87892	8315	97.6847	.4749
	1	216	2083	467.801	2.3153	.4749
	Total	3839	89975	8495	100.000	
head_white_03						
	0	986	12631	1213	14.0388	.9303
	1	2853	77343	7617	85.9612	.9303
	Total	3839	89975	8595	100.000	
head_black_03						
	0	3220	81766	8038	90.8769	.9656
	1	619	8208	963.67065	9.1231	.9656
	Total	3839	89975	8495	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_orace_03						
	0	3688	87635	8272	97.3996	.357
	1	151	2340	394.36086	2.6004	.357
	Total	3839	89975	8495	100.000	

Number of observations used: 3839

Sum of weights: 89974.699

Table 10 presents frequencies for categorical change variables for male heads. As stated, when the values of dummies from 2005 are compared to values from 2003, one of three values may occur: negative one, zero, or one (-1, 0, 1).

Table 10.

Change variables frequency table: Male heads

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
home_own_change						
	-1	124	2902	529.75267	3.2982	.5007
	0	3395	80047	7483	90.9712	.6117
	1	228	5042	579.1668	5.7306	.4371
	Total	3747	87991	8193	100.000	
married_change						
	-1	82	2036	335.96675	2.3143	.2976
	0	3535	82908	7703	94.2227	.6064
	1	130	3047	441.26307	3.463	.3706
	Total	3747	87991	8193	100.000	
moved_change						
	-1	551	12665	1324	14.3931	. 6034
	0	2825	66599	6277	75.6878	. 9134
	1	371	8728	933.87094	9.9191	. 6278
	Total	3747	87991	8193	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_employ_change						
	-1	196	4070	461.39959	4.6259	.3811
	0	3396	80658	7418	91.666	.4604
	1	155	3263	579.69086	3.7081	.4352
	Total	3747	87991	8193	100.000	
head_unemply_change						
	-1	98	2174	388.92725	2.4703	.3021
	0	3583	84749	7801	96.3145	.3647
	1	66	1069	202.14119	1.2152	.2008
	Total	3747	87991	8193	100.000	
head_nonlabor_change						
	-1	74	1369	281.55479	1.5554	.2365
	0	3526	83342	7731	94.7163	.3983
	1	147	3281	385.60482	3.7283	.3214
	Total	3747	87991	8193	100.000	

Number of observations used: 3747

Sum of weights: 87991.484

As shown in Table 10, all categorical variables exhibit some variation, that is, change from one status to another. Table 11 presents key results for continuously measured 2003 variables for female heads. By definition, 100% of this subpopulation is female.

Table 11.

2003 variables means table: Female heads

Variable	Mean	Std error of mean	95% CL for mean	
head_sc_vol_03	.187015	.08981	.002	.372
head_r_vol_03	.692621	.09428	.4984	.8868
income_03	32612	1091.236887	30364.9728	34859.8617
head_educ_03	12.801164	.062039	12.6734	12.9289
children_03	.564298	.039954	.482	.6466
head_age_03	49.746447	.678505	48.349	51.1439

Number of observations used: 1538

Sum of weights: 30550.278

Table 12 presents means for continuous change variables for female heads.

Table 12.

Change variables means table: Female heads

Variable	Mean	Std error of mean	95% CL for mean	
head_sc_vol_change	-.108436	.113308	-.3418	.12493
head_r_vol_change	-.145039	.155975	-.46627	.1762
income_change	958.714753	916.577181	-929.01129	2846.44079
head_educ_change	0	0	0	0
children_change	-.034355	.011357	-.05774	-.01097

Number of observations used: 1193

Sum of weights: 23122.002

Table 13 presents key results for categorical 2003 variables for female heads. Responses are recorded as binomial. All effort is made to base values on final models. Since race does not appear in final models, total used is very slightly different.

Table 13.

2003 variables frequency table: Female heads

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
home_own_03						
	0	816	14845	1599	48.593	1.9614
	1	722	15705	1753	51.407	1.9614
	Total	1538	30550	3131	100.000	
moved_03						
	0	918	18305	1911	59.9179	1.6606
	1	620	12245	1385	40.0821	1.6606
	Total	1538	30550	3131	100.000	
head_employed_03						
	0	576	11596	1395	37.957	1.4772
	1	962	18954	1855	62.043	1.4772
	Total	1538	30550	3131	100.000	
head_unemployed_03						
	0	1431	28716	2824	93.9959	.8804
	1	107	1834	395.3974	6.0041	.8804
	Total	1538	30550	3131	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_nonlabor_03						
	0	1069	20789	2159	68.047	1.3037
	1	469	9762	1085	31.953	1.3037
	Total	1538	30550	3131	100.000	
head_latino_03						
	0	1482	29982	3063	98.7836	.2339
	1	47	369.206	83.73532	1.2164	.2339
	Total	1529	30352	3107	100.000	
head_white_03						
	0	681	7674	831.3046	25.284	2.0962
	1	848	22678	2602	74.716	2.0962
	Total	1529	30352	3107	100.000	
head_black_03						
	0	941	23614	2722	77.8021	2.1914
	1	588	6737	773.11942	22.1979	2.1914
	Total	1529	30352	3107	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_orace_03						
	0	1483	29784	3038	98.1304	.4657
	1	46	567.465	158.20888	1.8696	.4657
	Total	1603	30352	3107	100.000	

Number of observations used: 1529

Sum of weights: 30351.694

Table 14 presents key results for change variables that are not measured continuously for female heads. When the values of dummies from 2005 are compared to values from 2003, one of three values may occur: negative one, zero, or one (-1, 0, 1).

Table 14.

Change variables frequency table: Female heads

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
home_own_change						
	-1	57	1406	292.01647	6.0798	1.1708
	0	1070	20454	2456	88.4623	1.5161
	1	66	1262	224.28223	5.4579	.8854
	Total	1193	23122	2652	100.000	
moved_change						
	-1	174	3520	604.79596	15.2214	1.4794
	0	873	17040	1975	73.694	1.7189
	1	146	2563	326.52957	11.0846	1.153
	Total	1193	23122	2652	100.000	
head_employ_change						
	-1	84	1370	213.53263	5.9267	.7301
	0	1040	20565	2377	88.942	1.0459
	1	69	1186	220.72329	5.1313	.6871
	Total	1193	23122	2652	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_unemply_change						
	-1	63	1063	255.1343	4.5971	.7936
	0	1086	21413	2420	92.6104	.8931
	1	44	645.683	147.81289	2.7925	.6093
	Total	1193	23122	2652	100.000	
head_nonlabor_change						
	-1	32	525.608	168.09906	2.2732	.663
	0	1095	21470	2405	92.8536	1.0113
	1	66	1127	258.47867	4.8732	.8095
	Total	1193	23122	2652	100.000	
Number of observations used: 1193						
Sum of weights: 23122.002						

Table 15 presents key results for continuously measured 2003 variables for models concerned with families (head and wife), that is, those that examine behavior of family (head and wife).

Table 15.

2003 variables means table: Families (head and wife)

Variable	Mean	Std error of mean	95% CL for mean	
head_sc_vol_03	.148433	.066234	.0123	.2846
wife_sc_vol_03	.172681	.049377	.0712	.2742
head_r_vol_03	.853343	.108446	.6304	1.0763
wife_r_vol_03	1.170667	.115995	.9322	1.4091
income_03	87438	2771.491805	81740.6721	93134.4381
head_educ_03	13.456911	.072851	13.3072	13.6067
wife_educ_03	13.444729	.058404	13.3247	13.5648
children_03	.90844	.029107	.8486	.9683
head_age_03	46.90332	.265498	46.3576	47.4491
wife_age_03	44.56972	.229722	44.0975	45.0419

Number of observations used: 3171

Sum of weights: 74631.269

Table 16 presents key results for continuously measured change variables for models concerned with families (head and wife). Again, these models intend to examine behavior of family (head and wife).

Table 16.

Change variables means table: Families (head and wife)

Variable	Mean	Std error of mean	95% CL for mean	
head_sc_vol_change	-.073578	.075527	-.22883	.08167
wife_sc_vol_change	-.036976	.053554	-.14706	.07311
head_r_vol_change	.018873	.16094	-.31194	.34969
wife_r_vol_change	-.062136	.160974	-.39302	.26875
income_change	5709.855776	1509.193837	2607.66342	8812.04814
head_educ_change	0	0	.00000	.00000
wife_educ_change	.00395	.002788	-.00178	.00968
children_change	.000544	.013434	-.02707	.02816

Number of observations used: 2831

Sum of weights: 66733.672

Table 17 presents key results for categorical 2003 variables for families (head and wife). Responses are recorded as binomial. All effort is made to base values on final models. Since race does not appear in final models, total used is very slightly different.

Table 17.

2003 variables frequency table: Families (head and wife)

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
home_own_03						
	0	573	11256	1120	15.0816	.6669
	1	2598	63376	5981	84.9184	.6669
	Total	3171	74631	6964	100.000	
moved_03						
	0	2296	55075	5026	73.7963	.671
	1	875	19556	2020	26.2037	.671
	Total	3171	74631	6964	100.000	
head_employed_03						
	0	586	13933	1548	18.6691	1.008
	1	2585	60698	5660	81.3309	1.008
	Total	3171	74631	6964	100.000	
head_unemployed_03						
	0	3082	72843	6690	97.6035	.3645
	1	89	1789	373.34229	2.3965	.3645
	Total	3171	74631	6964	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_nonlabor_03						
	0	2674	62487	5931	83.7274	.9461
	1	497	12144	1285	16.2726	.9461
	Total	3171	74631	6964	100.000	
wife_employed_03						
	0	1027	24182	2298	32.4024	1.1035
	1	2144	50449	4885	67.5976	1.1035
	Total	3171	74631	6964	100.000	
wife_unemployed_03						
	0	3090	73129	6907	97.9876	.2747
	1	81	1502	197.99881	2.0124	.2747
	Total	3171	74631	6964	100.000	
wife_nonlabor_03						
	0	2225	51951	4931	69.61	.9828
	1	946	22680	2213	30.39	.9828
	Total	3171	74631	6964	100.000	
head_latino _03						
	0	2973	72558	6812	97.4913	.5319
	1	190	1867	424.48977	2.5087	.5319
	Total	3163	74425	6955	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_white_03						
	0	749	9527	901.15691	12.8013	.8935
	1	2414	64897	6332	87.1987	.8935
	Total	3163	74425	6955	100.000	
head_black_03						
	0	2718	68583	6663	92.1511	.9291
	1	445	5842	730.69074	7.8489	.9291
	Total	3163	74425	6955	100.000	
head_orace_03						
	0	3049	72606	6785	97.5564	.3350
	1	114	1819	304.22172	2.4436	.3350
	Total	3163	74425	6955	100.000	
wife_latino_03						
	0	2974	72792	6810	97.8202	.4864
	1	186	1622	385.19891	2.1798	.4864
	Total	3160	74414	6933	100.000	
wife_white_03						
	0	731	9031	888.00906	12.1358	.9801
	1	2429	65383	6396	87.8642	.9801
	Total	3160	74414	6933	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
wife_black_03						
	0	2731	68904	6664	92.5961	.8617
	1	429	5510	672.33342	7.4039	.8617
	Total	3160	74414	6933	100.000	
wife_orace_03						
	0	3044	72515	6795	99.043	.2685
	1	70	700.643	201.29472	.957	.2685
	Total	3114	73215	6839	100.000	
Number of observations used: 3114						
Sum of weights: 73215.452						

Table 18 presents key results for variables that are not continuously measured for models concerned with the family (head and wife). As stated, when the values of dummies from 2005 are compared to values from 2003, one of three values may occur: negative one, zero, or one (-1, 0, 1).

Table 18.

Change variables frequency table: Families (head and wife)

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
home_own_change						
	-1	58	1375	366.39556	2.0597	.501
	0	2635	62447	5789	93.5765	.5203
	1	138	2912	347.54149	4.3637	.3802
	Total	2831	66734	6170	100.000	
moved_change						
	-1	414	9366	925.9208	14.0352	.5831
	0	2156	51189	4740	76.7062	.9843
	1	261	6179	812.80602	9.2586	.7665
	Total	2831	66734	6170	100.000	
head_employ_change						
	-1	140	2802	387.94851	4.1982	.3946
	0	2585	61673	5560	92.4165	.4567
	1	106	2259	424.43699	3.3854	.4387
	Total	2831	66734	6170	100.000	

Variable	Possible values	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_unemply_change						
	-1	60	1321	307.54261	1.9802	.3585
	0	2726	64759	5850	97.0415	.4294
	1	45	652.909	183.44381	.9784	.2316
	Total	2831	66734	6170	100.000	
head_nonlabor_change						
	-1	53	1012	202.75274	1.5164	.2361
	0	2676	63499	5852	95.1527	.4668
	1	102	2223	327.71273	3.3309	.398
	Total	2831	66734	6170	100.000	
wife_employ_change						
	-1	227	4935	544.16894	7.3947	.7087
	0	2402	57213	5589	85.734	1.0157
	1	202	4585	532.94821	6.8713	.6736
	Total	2831	66734	6170	100.000	

Variable	Possible values	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
wife_unemply_change						
	-1	34	1202	184.87324	1.8015	.3295
	0	2726	64886	6128	97.2315	.3991
	1	41	645.341	154.73656	.967	.2174
	Total	2831	66734	6170	100.000	
wife_nonlabor_change						
	-1	166	3848	495.37943	5.7665	.5214
	0	2451	58131	5550	87.1091	.7797
	1	214	4754	476.46693	7.1244	.6103
	Total	2831	66734	6170	100.000	

Number of observations used: 2831

Sum of weights: 66733.672

In addition, Table 19 presents 2003 community size means. These values are based on the sample itself, not on any one subsample. Values are presented for all community sizes, from the smallest communities (*size6_05*) to the largest (*size1_05*).

Table 19.

2003 community size means based on entire sample

Variable	Possible value	Frequency	Percent	Cumulative frequency	Cumulative percent
size1_05	0	7562	83.77	7562	83.77
	1	1465	16.23	9027	100.00
size2_05					
	0	6974	77.26	6974	77.26
	1	2053	22.74	9027	100.00
size3_05					
	0	8149	90.27	8149	90.27
	1	878	9.73	9027	100.00
size4_05					
	0	8110	89.84	8110	89.84
	1	917	10.16	9027	100.00
size5_05					
	0	7789	86.29	7789	86.29
	1	1238	13.71	9027	100.00
size6_05					
	0	7616	84.37	7616	84.37
	1	1411	15.63	9027	100.00

Testing Model Utility

In the regression models used in this study, it is tested whether or not a statistically significant relationship exists between the independent variables and the dependent variables, religious and political voluntarism. In other words, it is tested whether or not all of the coefficients ($\beta_1 \ldots \beta_k$) simultaneously equal zero. This test, known as the global F test, compares a calculated value to a critical value. If the calculated value exceeds the critical value, then the hypothesis that all coefficients equal zero is rejected. Once the model is determined to have some value per the F statistic, it is tested whether or not the slopes β_i for each independent variable are equal to zero. Equation 18 gives the formula for this test statistic (Mendenhall and Sincich, 2003). The test statistic for each parameter is composed of the least squares estimator ($\hat{\beta}_i$) divided by the respective standard error. Looking at the formula for the test statistic emphasizes the need to tend to standard errors as carefully as possible. The test statistic is compared to a critical value. If the test statistic is greater than the critical value, then the null hypothesis that the parameter is equal to zero is rejected.

$$t = \frac{\hat{\beta}_i}{s_{\hat{\beta}i}} \tag{18}$$

Equation 18. Test statistic.

When using simple regression, there is just one coefficient of concern. Therefore, simple regression models rely on t tests. Multiple regression relies on both the global F test and t tests. Alternatively, for both simple and multiple regression, statistical significance may be determined by comparing calculated observed significance levels, or

p values, to a predetermined significance level (α). This study uses α = .1 and .05, both commonly used in empirical analysis. The null hypothesis that the coefficient equals zero is rejected when the p value is smaller than the level of significance. Results will be discussed as appropriate.

Simple Regression Results

Although these simple models using religious and political voluntarism as dependent variables do not control for all of possible elements, they do provide important initial insight. All simple regressions use stratum, cluster, and weight variables during modeling. The simple regression models are applied to each subsample, that is, male heads, female heads, and families (head and wife). Again, families are further divided into head and wife.

Although these categories may seem somewhat complete, upon closer inspection, the addition of another subset was deemed necessary in order to offer better means of subset comparison. Models for male and female heads are almost identical; the difference is that the model for male heads controls for marriage. However, the models do not capture the same type of head. For example, male heads can be married or unmarried. Models that do not control for variables that may influence voluntarism among married men, such as factors related to the wife, may be omitting important variables. In contrast, by PSID codebook definition, female heads are restricted to those women who are unmarried. In order to make subsamples more comparable, male heads were further restricted to those who were unmarried in both 2003 and 2005. This way, both unmarried women and men can be analyzed apart from those married.

Table 20 presents results obtained via simple regression using religious voluntarism as the dependent variable. Homeownership is the single independent variable.

Simple Regression: Religious Voluntarism

Table 20.

Simple regression, dependent variable: Religious voluntarism

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
Key independent variable	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
home_own_change	.078 (.046) t = 1.70	-.008 (.028) t = -.28	. 009 (. 055) t = .17	.031 (.067) t = .47	-.14 (.206) t = -.68
Summary statistics					
N	3932	560	1243	3144	3151
R^2	.0002	.0000004	.0000006	.000028	.000039
Pr >F	.1001	.7815	.8668	.6409	.4997

* Significant at α = .1

** Significant at α = .05

As seen in Table 20, no statistically significant relationship exists for any population at any significance level commonly used in analysis, that is, at 10% or less. Restricting the sample to single male heads makes no statistical difference. The standard errors associated with the estimates are mainly small relative to the coefficient, which may indicate that enough individual variation is present for estimations. These results do not support an initial relationship.

Simple Regression: Political Voluntarism

Table 21 presents results obtained via simple regression using political voluntarism as the dependent variable and homeownership as the single independent variable. Results are presented for each subsample.

Table 21.

Simple regression, dependent variable: Political voluntarism

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
Key independent variable	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
home_own_change	.001 (.001) t = 1.02	.104 (.072) t = 1.44	.006 (.006) t = .91	.002 (.002) t = 1.04	.117 (.115) t = 1.02
Summary statistics					
N	3993	563	1264	3208	3206
R^2	.000001	.000059	.000019	.0000003	.000228
Pr >F	.3177	.1606	.3722	.3052	.3155

* Significant at α = .1

** Significant at α = .05

As seen in Table 21, the simple regression model featuring political voluntarism as the dependent variable also does not yield any statistically significant results at 10% or smaller significance levels. In sum, no statistical relationship is revealed using either religious or political voluntarism as dependent variables in simple models for any subsample. These initial models provide some insight, but do not depict the entire matter with any real clarity. Therefore, multiple regression models that control for a number of other variables will be used to reinforce that any relationship between homeownership and religious and political voluntarism is lacking.

Multiple Regression Results

All multiple regression models use stratum, cluster, and weight variables during analysis. Per Stock and Watson (2007), the intercept is suppressed as necessary condition to estimate before-and-after comparisons using panel data with two time periods. Again, this yields the same results as fixed effects estimations using two time periods. All models yield small coefficients of determination (R^2). Wooldridge cautions against putting too much weight on R^2, citing that low values do not indicate violation of the zero conditional mean, or omitted variable bias assumption. Instead, low values may indicate that variables that impact the dependent variable are not present in models (Wooldridge, 2006).

Multiple Regression: Religious Voluntarism

Table 22 presents multiple regression results for models using religious voluntarism as the dependent variable. The symbol (---) indicates that variables were excluded due to irrelevance to model or lack of variation.

Table 22.

Multiple regression, dependent variable: Religious voluntarism

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Key independent variable					
	.083	.067	.122	.12	-.031
home_own_change	(.064)	(.078)	(.097)	(.076)	(.255)
	t = 1.30	t = .86	t = 1.26	t = 1.58	t = -.12
Other independent variables					
	.000	.000	-.000	.000	.000
income_change	(.000)	(.000)	(.000)	(.000)	(.000)
	t = -.72	t = .76	t = -.44	t = .31	t = -19
	.002	-.022			
head_educ_change	(.069)	(.029)	---	---	---
	t = .04	t = -.76	---	---	---

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
children_change	.049 (.042) t = 1.18	-.15 (.16) t = -.94	.126 (.166) t = .76	.09 (.059) t = 1.52	-.214 (.208) t = -1.03
moved_change	-.074 (.052) t = -1.43	.023 (.042) t = .55	-.125 (.132) t = -.94	-.068 (.068) t = -1.01	-.614 (.418) t = -1.47
head_employ_change	.079 (.082) t = .96	.419 (.322) t =1.30	-.053 (.248) t = -.21	-.009 (.075) t = -.12	-1.134 (.98) t = -1.16

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
head_unemply_change	.005 (.091) t = .06	.357 (.272) t = 1.31	.145 (.368) t = .39	-.062 (.085) t = -.73	-1.45 (1.042) t = -1.39
size1_change	.152 (.119) t = 1.27	.188 (.133) t = 1.41	.003 (.101) t = .03	.037 (.106) t = .34	-.041 (.293) t = -.14
size2_change	.084 (.104) t = .8	.137 (.12) t = 1.14	-.125 (.109) t = -1.15	-.072 (.104) t = -.7	-.313 (.223) t = -1.40

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
size3_change	.111 (.1) t = 1.1	--- --- ---	.029 (.057) t = .51	.196** (.082) t = 2.39	.003 (.385) t = .01
size4_change	.302 (.199) t = 1.51	.186 (.123) t = 1.52	-.016 (.144) t = -.11	.069 (.107) t = .64	-.905* (.518) t = -1.75
size5_change	.2* (.109) t = 1.83	.202 (.147) t = 1.37	.11 (.131) t = .84	.14* (.08) t = 1.74	-.142 (.334) t = -.42

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
married_change	.001 (.073) t = .02	---	---	---	---
wife_educ_change	---	---	---	.194* (.113) t = 1.71	.076 (.654) t = .12
wife_employ_change	---	---	---	.001 (.097) t = .01	-1.241* (.664) t = -1.87

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
wife_unemply_change	---	---	---	-.084 (.166) t = -.51	-1.273** (.558) t = -2.28
Summary statistics					
N	3684	517	1227	2870	2878
R^2	.000717	.00352	.002524	.001128	.009893
Pr >F	.003	.4102	.4204	.0008	.0011

* Significant at α = .1; **Significant at α = .05

Reference categories:

- Male heads(married and unmarried): head_nonlabor_change; size6_change
- Female heads: head_nonlabor_change; size6_change
- Families: head_nonlabor_change; wife_non_labor_change; size6_change

Not surprisingly, Table 22 presents results for the key independent variable, homeownership that are consistent with those obtained from simple regression analysis. That is, the coefficients associated with homeownership are not statistically significant. Among the remaining variables, seven are statistically significant and will be discussed here. Four of the seven are related to size of the community in which respondent lives. It seems that community size is associated with an increase in religious voluntarism when communities are small, that is, when the population of the largest city is 10,000-24,999 (*size5*) for male heads and family (head) (columns one and four). As community size decreases, the results mainly point to increases in religious voluntarism, as measured here. These results are consistent with Putnam, who observed that the size of a community is important to certain volunteer behaviors. Volunteer behavior such as formal volunteering and working on community projects are more prevalent in smaller towns (Putnam, 2000). An increase in religious voluntarism is seen for families (head) when communities are midsized, that is, when the largest city population is 50,000-99,999 (*size3*) (column 4). The magnitudes of these three coefficients are all below .2, and the standard errors are all small relative to the coefficient. This indicates that enough variation may be present to estimate the coefficients with a level of precision (Wooldridge, 2006). The other statistically significant variable related to community size is found for families (wife) (column 5). Here, a decrease in religious voluntarism is seen when the largest city in a community has a population between 25,000 and 49,999 (*size4*).

The other three significant variables are related to the wife's education and working status (column 5). The reference group for the employment categorical variables refers to those individuals not in the workforce. Being employed is found to have a

negative impact on religious voluntarism. This makes sense, theoretically, as wives that may manage a home, family, and career may have less time for volunteering. Unemployment also has a negative impact on religious voluntarism. Perhaps this may be explained as those who are unemployed spend available time seeking market work, as opposed to engaging in the leisure activity volunteering. An increase in education is positively related to religious voluntarism. Increased education may lead to more and better employment opportunities, which per Putnam (2000) increases the likelihood of volunteering. Additionally, models were estimated using samples that retained outliers. This does not change the regression results for the key coefficient for both simple and multiple regression when religious voluntarism is used as the dependent variable in unique models for male heads, single male heads, female heads, and families divided into head and wife.

The results of this study are mainly supported by the literature selected to draw expectations. This literature mainly found tenuous if any relationships between homeownership and outcomes of interest. Rohe and Stegman (1994) found that among low-income people, homeowners increased participation only in block or neighborhood organizations. The results of this study are supported, given that Rohe and Stegman found very little evidence of a positive relationship. Kingston and Fries (1994) used separate models to predict male and female behavior, and found that females were more likely to work towards solving community problems. It was expected that treating genders separately would yield a positive relationship for women. This study may yield different results as compared to Kingston and Fries due to the use of different data, techniques, and measures of voluntary involvement.

Rossi and Weber (1996) determined that homeowners were marginally more likely to participate in community improvement groups than renters. The authors state clearly that this benefit of homeownership is supported only weakly. For example, results are not consistent across datasets; results are found in one dataset, but not in another, more comprehensive dataset. The results of this study are supported given the weaknesses in Rossi and Weber's results.

DiPasquale and Glaeser (1999) resoundingly state that homeowners invest more in social capital, again, measured in part by church attendance. Although a positive relationship was expected between homeownership and religious voluntarism, the differences in results may be driven by different measures. For example, to capture more volunteer events, this study uses participation measured as religious voluntarism, rather than church attendance used by DiPasquale and Glaeser.

Multiple Regression: Political Voluntarism

Table 23 presents multiple regression results for models using political voluntarism as the dependent variable. The symbol (---) indicates that the variable is not used in modeling either because it was inappropriate given the model or not enough variation was present for estimations.

Table 23.

Multiple regression, dependent variable: Political voluntarism

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Key independent variable:					
home_own_change	.026 (.023) t = 1.13	.073 (.062) t = 1.18	.048 (.042) t = 1.14	.002 (.004) t = .4	.136 (.141) t = .96
Other independent variables:					
income_change	-.000 (.000) t = -.70	-.000 (.000) t = -.56	.000 (.000) t = .9	-.000 (.000) t = -.07	-.000 (.000) t = -1.05

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables:	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
head_educ_change	-.001	.007	---	---	---
	(.01)	(.013)			
	t = -.13	t = .56	---	---	---
children_change	-.015*	-.006	-.015	-.003	.372
	(.009)	(.021)	(.021)	(.005)	(.327)
	t = -1.81	t = -.28	t = -.69	t = -.61	t = 1.14

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables:	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
moved_change	.007	-.16	-.03	.001	-.026
	(.013)	(.17)	(.027)	(.009)	(.042)
	t = .57	t = -.94	t = -1.15	t = .16	t = -.61
head_employ_change	-.012	-.144	-.12	.014	-.19
	(.02)	(.086)	(.081)	(.009)	(.185)
	t = -.6	t = -1.67	t = -1.47	t = 1.51	t = -1.03
head_unemply_change	-.024	.021	-.113*	-.006	-.478
	(.02)	(.133)	(.065)	(.014)	(.424)
	t = -1.32	t = .16	t = -1.73	t = -.45	t = -1.13

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables:	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
size1_change	-.013	-.018	.028	-.0002	.115
	(.01)	(.107)	(.033)	(.004)	(.099)
	t = -1.33	t = -.17	t = .87	t = -.06	t = 1.16
size2_change	-.008*	-.019	.024	-.0001	.045
	(.01)	(.087)	(.038)	(.004)	(.044)
	t = -.88	t = -.22	t = .63	t = -.04	t = 1.03
size3_change	-.017	.038	.035	.022	.097
	(.017)	(.119)	(.047)	(.017)	(.07)
	t = 1	t = .32	t = .75	t = 1.25	t = 1.38

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables:	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
size4_change	-.03	-.061	-.113	-.013	.045
	(.018)	(.099)	(.096)	(.016)	(.088)
	t = -1.65	t = -.62	t = -1.17	t = -.83	t = .52
size5_change	-.014	-.006	.023	.002	.035
	(.017)	(.124)	(.019)	(.004)	(.061)
	t = -.88	t = -.05	t = 1.23	t = .56	t = .58
married_change	.009				
	(.01)	---	---	---	---
	t = .86	---	---	---	---

				Families	
	(1)	(2)	(3)	(4)	(5)
	Male heads	Unmarried male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables:	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
wife_educ_change	---	---	---	-.003	.09
				(.008)	(.207)
	---	---	---	t = -.35	t = .43
wife_employ_change	---	---	---	.019	-.131
				(.017)	(.118)
	---	---	---	t = 1.13	t = -1.11
wife_unemply_change	---	---	---	.014	-.163
				(.013)	(.121)
	---	---	---	t = 1.09	t = -1.35

Summary statistics

N	3735	528	1252	2926	2924
R^2	.000522	.009129	.005446	.000468	.01227
Pr >F	.1991	.7733	.4288	.3762	<.0001

* Significant at α = .1

** Significant at α = .05

Reference categories:

- Male heads (married and unmarried): head_nonlabor_change; size6_change
- Female heads: head_nonlabor_change; size6_change
- Families: head_nonlabor_change; wife_non_labor_change; size6_change

The multiple regression models using political voluntarism as the dependent variable yield three statistically significant variables. Of these three, one is related to the size of the community in which the respondent lives. For male heads (column 1), living in a relatively large community is associated with a decrease in political voluntarism. This is somewhat surprising, as larger communities may offer greater number of ways in which one might engage as a political volunteer. Again, this model may not control for all relevant factors. Additionally, the magnitude of the coefficient is very, very small. The standard error, which is larger than the coefficient, is quite small as well. For this same subsample, the coefficient associated with children is statistically significant; the accompanying standard error is small relative to the coefficient (column 1). This indicates that an additional child in the home is associated with a decrease in political voluntarism for male heads. Again, a word of caution is in order; as discussed, this model

(column 1) may not hold all else constant. Better models for male subsamples (columns two and four) do not yield significant results.

For female heads (column 3), being unemployed is associated with decreased political voluntarism. Again, the reference category for this group of categorical employment variables is not in the workforce. The negative coefficient associated with this variable makes sense theoretically, as those who are unemployed may not have access to the world of politics. Additionally, these women may be too engaged by household production for political voluntarism. The standard error associated with this coefficient is small relative to the coefficient, indicating adequate variation for regressions. Additionally, models were estimated using samples that retained outliers. This does not change the regression results for the key coefficient for both simple and multiple regression when political voluntarism is used as the dependent variable in unique models for male heads, single male heads, female heads, and families divided into head and wife.

The results of this study are mostly supported by literature. Empirical studies (Gilderbloom & Markham, 1995; Glaeser & Sacerdote, 2000; Kingston & Fries, 1994; Perkins, et al., 1996) reveal very limited modest, positive relationships between homeownership and political voluntarism. Results mostly indicate that homeownership is positively related to voting. The results of this study are supported, given the empirical limitations of the articles and differences in political voluntarism measurement.

Kingston and Fries (1994) also used separate models for men and women, citing that factors affect the sociopolitical involvement for each gender differently. Although the authors found that female homeowners were more likely to work to solve community

problems, this study finds that gender does not make a difference in full models. Differences in how participation is measured may be driving the dissimilar results. For example, Kingston and Fries used number of memberships as a measure of participation. Here, participation is measured by unique events. Since Kingston and Fries' results are interpreted to be limited in scope, the lack of a relationship between homeownership and political voluntarism is not altogether surprising.

Gilderbloom and Markham (1995) found a positive relationship between owning a home and voting, and that the number of organizations to which respondents belonged positively influenced whether respondent voted in the 1992 presidential election. The differences in findings between this study and that of Gilderbloom and Markham are not worrisome, though, and perhaps may be explained through the use of different measures of political activity. Gilderbloom and Markham's definition of political activity is quite narrow, measured as voting in one election and number of memberships to which respondents belong. This study is broader in scope in that actual political volunteer activity is measured.

Perkins, Brown, and Taylor (1996) recognized that homeownership is based on choice, and used panel data as a means of addressing issues associated with choice variables used as the key independent in modeling. These authors found that only one of six possible models yielded a statistically positive relationship between homeownership and participation in community organizations. Data collected seven years after an initial collection in New York establishes this relationship. Generally speaking, Perkins, Brown, and Taylor's results support their null hypothesis that homeownership has no relationship with their measures of community participation.

Glaeser and Sacerdote (2000) found that building type was related to the accumulation of social capital, which impacts citizenship defined by local and national political involvement. The authors found that apartment residents were less involved in local politics, and building structure had no relationship with participation in national politics. However, the coefficient associated with the variable is very, very small. Additionally, it seems that the bulk of results were gained using cross sectional data and ordinary least squares. Although this study does not control for building structure, it is assumed that homeowners inhabit certain types of structures more frequently than renters, and the lack of impact on political voluntarism is not surprising. The assumption is supported by Morris and Winter (1975), who state that the structure type norm for homeowners is single-family.

Sensitivity Analysis

Wooldridge (2006) observes that papers should contain sensitivity analysis where original models are modified in reasonable ways. The political voluntarism models are not modified as the PSID does not feature any other variables that capture any other political activity, including voting. However, the PSID does feature another variable that measures religious voluntarism. Here, respondents are asked to account for volunteer activity that occurred through schools, hospitals, and other charities run by religious organizations (University of Michigan, 2003d, 2003e). This measure is different from the one used previously, which accounts for religious volunteer activity that occurred at or through church, synagogue, or mosque, such as serving on a committee, assisting in worship, teaching, or helping others through programs organized by place of worship

(University of Michigan, 2003f, 2003g). In addition to being a different measure of religious voluntarism, the new measure much better embodies the concept community participation critical to citizenship as the volunteer activity actually takes place in the community. Table 24 lists the new variables intending to measure religious voluntarism.

Table 24.

Dependent variable: New measure of religious voluntarism

Variable name	Year	PSID ID	Question/definition
			• Calculated Annual Hours Volunteering Through Religious Organizations. • This includes volunteering through schools, hospitals, and other charities run by religious organizations.
	2003	ER23559	
head_religion_new	2005	ER27529	• Coded: Continuous variable
			• Calculated Annual Hours Volunteering Through Religious Organizations: WIFE/"WIFE" • This includes include volunteering through schools, hospitals, and other charities run by religious organizations.
	2003	ER23569	
wife_religion_new	2005	ER27539	• Coded: Continuous variable

The initial sample sizes for these variables are quite small. The PSID codebook indicates that the total samples sizes for these four variables range from only 726 to 1,020 (University of Michigan, 2003d, 2003e, 2003f, 2003g). After performing initial diagnostics and analysis, unmarried male heads were eliminated as a subsample; the sample size reduced to 20. Anecdotally, results indicated no statistical significance. Additionally, the variables related to education (head education, wife education) are

eliminated from models from the beginning. Not enough variation was present to perform estimations.

Altering the model with this new religious voluntarism variable necessitated addressing the regression assumptions as before. Regarding multicollinearity, variance inflation factors (VIF) were calculated for each parameter. The greatest VIF value among the variables is 2.44957; therefore, multicollinearity presents no issue per this measure based on Mendenhall and Sincich's (2003) observation that any VIF value greater than 10 indicates severe multicollinearity. Cook's Distance (D_i) was used to identify influential outliers, which were then removed based on the threshold discussed prior, that is, four divided by the sample size (4/n). For male heads, 14 observations were eliminated; this constitutes a .012% reduction in sample size. For female heads, 13 observations were eliminated; this constitutes a .037% reduction in sample size. For families (head and wife), 15 observations were eliminated, representing a .045% reduction in sample size.

Sensitivity Analysis Descriptive Statistics

Table 25 presents the means of continuously measured 2003 variables for the subsample male heads. These means are based on the models using the new measure of religious voluntarism.

Table 25.

New religion 2003 variables means table: Male heads

Variable	Mean	Std error of mean	95% CL for Mean	
head_r2_vol_03	136.013475	14.299324	106.5011	165.5258
income_03	86967	3273.306879	80211.4087	93722.9554
children_03	.97759	.058152	.8576	1.0976
head_age_03	47.287441	.581762	46.0867	48.4881

Number of Observations Used: 542

Sum of weights: 13294.073

Table 26 presents the means of continuously measured change variables for the subsample male heads, given the new measure of religious voluntarism.

Table 26.

New religion change variables means table: Male heads

Variable name	Mean	Std error of mean	95% CL for mean	
head_r2_vol_change	-5.377817	17.136468	-40.7457	29.9901
income_change	5002.104449	4206.836228	-3680.3788	13684.5877
children_change	-.047578	.039639	-.1294	.0342

Number of observations used: 310

Sum of weights: 7634.306

Table 27 presents the frequencies of the 2003 variables that are not measured continuously for the subsample male heads. Values are based on the final model.

Table 27.

New religion 2003 variables frequency table: Male heads

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
home_own_03						
	0	75	1796	284.7569	13.5101	1.6754
	1	467	11498	1170	86.4899	1.6754
	Total	542	13294	1326	100.000	
married_03						
	0	56	1470	252.2219	11.0568	1.53
	1	486	11824	1194	88.9432	1.53
	Total	542	13294	1326	100.000	
moved_03						
	0	405	10075	1001	75.7893	1.4408
	1	137	3219	392.69544	24.2107	1.4408
	Total	542	13294	1326	100.000	
head_employed_03						
	0	78	1957	292.39833	14.7187	1.6768
	1	464	11337	1158	85.2813	1.6768
	Total	542	13294	1326	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_unemplyed_03						
	0	534	13105	1294	98.5783	.5336
	1	8	189.008	77.10391	1.4217	.5336
	Total	542	13294	1326	100.000	
head_nonlabor_03						
	0	472	11526	1196	86.703	1.8504
	1	70	1768	290.4038	13.297	1.8504
	Total	542	13294	1326	100.000	
head_latino_03						
	0	526	12992	1287	98.2046	.9344
	1	14	237.52	129.45031	1.7954	.9344
	Total	540	13229	1324	100.000	
head_white_03						
	0	100	1311	219.7	9.909	1.3166
	1	440	11918	1203	90.091	1.3166
	Total	540	13229	1324	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_black_03						
	0	472	12320	1249	93.1245	.9602
	1	68	909.579	150.71317	6.8755	.9602
	Total	540	13229	1324	100.000	
head_orace_03						
	0	522	13065	1315	98.7619	.3125
	1	18	163.789	41.79328	1.2381	.3125
	Total	540	13229	1324	100.000	
Number of observations used: 540						
Sum of weights: 13229.247						

Table 28 presents the frequencies of change variables that are not measured continuously for the subsample male heads, and are based on the final model. When the values of dummies from 2005 are compared to values from 2003, one of three values may occur: negative one, zero, or one (-1, 0, 1).

Table 28.

New religion change variables frequency table: Male heads

Variable name	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
home_own_change						
	-1	5	159.37	84.84943	2.0876	1.0483
	0	294	7275	794.3396	95.2891	1.5585
	1	11	200.274	79.5754	2.6233	1.0769
	Total	310	7634	817.96722	100.000	
married_change						
	-1	2	45.065	32.53539	.5903	.4277
	0	298	7399	832.33987	96.9211	1.3006
	1	10	189.988	76.85824	2.4886	1.077
	Total	310	7634	817.96722	100.000	
moved_change						
	-1	43	1035	191.25552	13.5582	2.0285
	0	247	6095	720.77234	79.8415	2.6929
	1	20	503.887	130.31359	6.6003	1.7771
	Total	310	7634	817.96722	100.000	

Variable name	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_employed_change						
	-1	10	241.208	78.9964	3.1595	.9792
	0	292	7176	776.17567	93.9971	1.2458
	1	8	217.068	82.09597	2.8433	1.0357
	Total	310	7634	817.96722	100.000	
head_unemplyed_change						
	-1	3	95.207	66.87138	1.2471	.8386
	0	306	7520	795.41833	98.5066	.8648
	1	1	18.805	18.805	.2463	.2452
	Total	310	7634	817.96722	100.000	
Number of observations used: 310						
Sum of weights: 7634.306						

Table 29 presents the means of continuously measured 2003 variables for the subsample female heads, given the new measure of religious voluntarism. Values are based on the final model.

Table 29.

New religion 2003 variables means table: Female heads

Variable name	Mean	Std error of mean	95% CL for mean	
head_r2_vol_03	158.449782	33.845456	87.3431	229.5564
income_03	35961	1817.437077	32142.9156	39779.5029
children_03	.415781	.049694	.3114	.5202
head_age_03	54.131873	1.325955	51.3461	56.9176
Number of observations used: 201				
Sum of weights: 3854.123				

Table 30 presents the means of continuously measured change variables for the subsample female heads. Values are based on the final model.

Table 30.

New religion change variables means table: Female heads

Variable name	Mean	Std error of mean	95% CL for mean	
head_r2_vol_change	-53.029325	33.067755	-123.95261	17.89396
income_change	5275.220258	1778.475595	1460.76948	9089.67104
children_change	-.072992	.037103	-.15257	.00659

Number of observations used: 91

Sum of weights: 1701.045

Table 31 presents the frequencies of 2003 variables that are not measured continuously for the subsample female heads. Values are based on the final model.

Table 31.

New religion 2003 variables frequency table: Female heads

Variable	Possible value	Frequency	Weighted Frequency	Std dev of wgt freq	Percent	Std error of %
home_own_03						
	0	76	1181	223.28824	30.6376	3.9314
	1	125	2673	353.4231	69.3624	3.9314
	Total	201	3854	484.53854	100.000	
moved_03						
	0	149	2949	415.84491	76.5070	4.1475
	1	52	905.45	188.29344	23.493	4.1475
	Total	201	3854	484.53854	100.000	
head_employed_03						
	0	66	1462	231.15823	37.9359	3.9052
	1	135	2392	343.52246	62.0641	3.9052
	Total	201	3854	484.53854	100.000	
head_unemplyed_03						
	0	194	3776	480.241	97.9699	1.1533
	1	7	78.241	44.76431	2.0301	1.1533
	Total	201	3854	484.53854	100.000	

Variable	Possible value	Frequency	Weighted Frequency	Std dev of wgt freq	Percent	Std error of %
head_nonlabor_03						
	0	142	2470	343.26928	64.0942	3.5265
	1	59	1384	217.04891	35.9058	3.5265
	Total	201	3854	484.53854	100.000	
head_latino_03						
	0	198	3802	497.08598	99.7825	.1617
	1	2	8.286	6.26819	.2175	.1617
	Total	200	3810	498.199	100.000	
head_white_03						
	0	85	641.709	167.93383	16.8428	3.7112
	1	115	3168	431.11944	83.1572	3.7112
	Total	200	3810	498.199	100.000	
head_black_03						
	0	124	3205	434.2033	84.1289	3.7076
	1	76	604.686	165.96176	15.8711	3.7076
	Total	200	3810	498.199	100.000	

Variable	Possible value	Frequency	Weighted Frequency	Std dev of wgt freq	Percent	Std error of %
head_orace_03						
	0	193	3781	496.15761	99.2457	.3191
	1	7	28.737	12.2511	.7543	.3191
	Total	200	3810	498.199	100.000	

Number of observations used: 200

Sum of weights: 3809.982

Table 32 presents the frequencies of change variables that are not measured continuously for the subsample female heads, and are based on the final model. When the values of dummies from 2005 are compared to values from 2003, one of three values may occur: negative one, zero, or one (-1, 0, 1).

Table 32.

New religion change variables frequency table: Female heads

Variable name	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
home_own_change						
	-1	3	10.908	5.14832	.6413	.3616
	0	86	1682	285.81469	98.908	.6083
	1	2	7.667	6.04104	.4507	.3588
	Total	91	1701	283.80818	100.000	
moved_change						
	-1	9	268.529	104.44877	15.7861	5.4877
	0	77	1366	258.15403	80.3167	6.4069
	1	5	66.292	49.34135	3.8971	2.9364
	Total	91	1701	283.80818	100.000	
head_employed_change						
	-1	2	46.137	25.006	2.7123	1.6229
	0	83	1577	298.08249	92.7205	3.3259
	1	6	77.69	41.40405	4.5672	2.6449
	Total	91	1701	283.80818	100.000	

Variable name	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_unemplyed_change						
	-1	4	37.554	29.63892	2.2077	1.7741
	0	87	1663	284.79659	97.7923	1.7741
	Total	91	1701	283.80818	100.000	
head_nonlabor_change						
	-1	2	40.136	28.58537	2.3595	1.805
	0	87	1615	297.10679	94.9282	2.6081
	1	2	46.137	25.006	2.7123	1.6229
	Total	91	1701	283.80818	100.000	

Number of observations used: 91

Sum of weights: 1701.045

Table 33 presents key results for continuously measured 2003 variables. Results are presented for models concerned with families (head and wife).

Table 33.

New religion 2003 variables means table: Families (head and wife)

Variable	Mean	Std error of mean	95% CL for mean	
head_r2_vol_03	146.58171	17.257108	110.9648	182.1986
wife_r2_vol_03	141.015532	9.730905	120.9319	161.0991
income_03	93496	2987.403603	87330.1591	99661.5551
children_03	1.086978	.068211	.9462	1.2278
head_age_03	47.034728	.724025	45.5404	48.529
wife_age_03	45.026593	.717853	43.545	46.5082

Number of observations used: 405

Sum of weights: 10075.657

Table 34 presents the means of continuously measured variables for the subsample families (head and wife). Values are based on variables used in final models.

Table 34.

New religion change variables means table: Families (head and wife)

Variable name	Mean	Std error of Mean	95% CL for mean	
head_r2_vol_change	-29.546587	27.34687	-86.2605	27.1674
wife_r2_vol_change	28.147792	55.695749	-87.3581	143.6537
income_change	5063.431751	4448.219977	-4161.6119	14288.4754
children_change	-.049816	.045384	-.1439	.0443

Number of observations used: 232

Sum of weights: 5740.788

Table 35 presents the frequencies of variables that are not continuously measured for the subsample families (head and wife). Values are based on variables used in final models.

Table 35.

New religion 2003 variables frequency table: Families (head and wife)

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
home_own_03						
	0	38	792.576	189.26988	7.8662	1.6275
	1	367	9283	990.04312	92.1338	1.6275
	Total	405	10076	1072	100.000	
moved_03						
	0	311	7880	827.30069	78.209	1.8095
	1	94	2196	319.40051	21.791	1.8095
	Total	405	10076	1072	100.000	
head_employed_03						
	0	52	1352	298.02459	13.4203	2.098
	1	353	8723	868.38381	86.5797	2.098
	Total	405	10076	1072	100.000	
head_unemplyed_03						
	0	399	9913	1044	98.3831	.6852
	1	6	162.915	74.02746	1.6169	.6852
	Total	405	10076	1072	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_nonlabor_03						
	0	359	8886	898.97984	88.1966	2.1412
	1	46	1189	283.10077	11.8034	2.1412
	Total	405	10076	1072	100.000	
wife_employed_03						
	0	115	3066	371.47499	30.4272	2.4987
	1	290	7010	831.65599	69.5728	2.4987
	Total	405	10076	1072	100.000	
wife_unemplyed_03						
	0	401	10028	1071	99.5235	.4234
	1	4	48.006	42.58472	.4765	.4234
	Total	405	10076	1072	100.000	
wife_nonlabor_03						
	0	294	7058	832.09997	70.0492	2.4473
	1	111	3018	366.95776	29.9508	2.4473
	Total	405	10076	1072	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
head_latino_03						
	0	396	9870	1044	98.4165	1.0313
	1	8	158.801	107.09278	1.5835	1.0313
	Total	404	10028	1071	100.000	
head_white_03						
	0	69	870.868	170.65624	8.684	1.5651
	1	335	9158	1012	91.316	1.5651
	Total	404	10028	1071	100.000	
head_black_03						
	0	353	9371	1039	93.4449	1.2400
	1	51	657.366	126.21056	6.5551	1.2400
	Total	404	10028	1071	100.000	
head_orace_03						
	0	394	9974	1070	99.4545	.2199
	1	10	54.701	21.52167	.5455	.2199
	Total	404	10028	1071	100.000	

Variable	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of %
wife_latino_03						
	0	391	9815	1038	98.2007	1.0525
	1	11	179.833	109.45732	1.7993	1.0525
	Total	402	9994	1067	100.000	
wife_white_03						
	0	77	1104	195.9888	11.0429	1.8407
	1	325	8891	1004	88.9571	1.8407
	Total	402	9994	1067	100.000	
wife_black_03						
	0	350	9316	1026	93.2116	1.2869
	1	52	678.462	135.44078	6.7884	1.2869
	Total	402	9994	1067	100.000	
wife_orace_03						
	0	388	9749	1075	99.6482	.1469
	1	8	34.417	14.27357	.3518	.1469
	Total	396	9783	1076	100.000	

Number of observations used: 396

Sum of weights: 9783.464

Table 36 presents key results for change variables that are not continuously measured. Results are presented for models concerned with families (head and wife). As stated, when the values of dummies from 2005 are compared to values from 2003, one of three values may occur: negative one, zero, or one (-1, 0, 1).

Table 36.

New religion change variables frequency table: Families (head and wife)

Variable name	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of%
home_own_change						
	-1	5	165.319	86.93766	2.8797	1.4573
	0	220	5463	667.09367	95.1633	1.7788
	1	7	112.345	50.54491	1.957	.8524
	Total	232	5741	695.89299	100.000	
moved_change						
	-1	31	672.089	166.55194	11.7073	2.3303
	0	186	4687	608.70544	81.6441	2.6472
	1	15	381.685	102.3	6.6487	1.9202
	Total	232	5741	695.89299	100.000	
head_employed_change						
	-1	9	216.606	78.07926	3.7731	1.4343
	0	218	5394	679.86072	93.9547	1.6966
	1	5	130.444	73.40147	2.2722	1.222
	Total	232	5741	695.89299	100.000	

Variable name	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of%
head_unemplyed_change						
	-1	3	95.207	66.87138	1.6584	1.1127
	0	228	5627	673.47729	98.014	1.1437
	1	1	18.805	18.805	.3276	.324
	Total	232	5741	695.89299	100.000	
head_nonlabor_change						
	-1	2	35.237	30.26541	.6138	.5326
	0	222	5508	702.02873	95.9407	1.315
	1	8	197.801	75.78089	3.4455	1.3987
	Total	232	5741	695.89299	100.000	
wife_employed_change						
	-1	13	454.046	155.23791	7.9091	2.3727
	0	204	4831	647.4533	84.1555	4.0533
	1	15	455.554	143.95898	7.9354	2.6001
	Total	232	5741	695.89299	100.000	

Variable name	Possible value	Frequency	Weighted frequency	Std dev of wgt freq	Percent	Std error of%
wife_unemplyed_change						
	-1	1	33.189	33.189	.5781	.5825
	0	230	5692	700.11006	99.1473	.6573
	1	1	15.761	15.761	.2745	.2831
	Total	232	5741	695.89299	100.000	
wife_nonlabor_change						
	-1	14	422.365	117.63969	7.3573	2.1383
	0	206	4880	637.45713	85.0082	3.694
	1	12	438.285	154.43574	7.6346	2.3408
	Total	232	5741	695.89299	100.000	

Number of observations used: 232

Sum of weights: 5740.788

Sensitivity Analysis Regression Results

As with all prior models, the following regressions use stratum, cluster, and weight variables as prescribed by PSID. Each regression model features the new measure of religious voluntarism as the dependent variable. Intercepts are suppressed as necessary condition to estimate before-and-after comparisons using panel data with two time periods. Again, this yields the same results as fixed effects estimations using two time periods. The subsamples used include male heads, female heads, and families (head and wife). Family is further divided into head and wife. Table 37 presents the simple regression results from the model using the new measure of religious voluntarism as the dependent variable.

Table 37.

Simple regression, dependent variable: New measure of religious voluntarism

			Family	
	(1)	(2)	(3)	(4)
	Male heads	Female heads	Dependent: Head	Dependent: Wife
Key independent variable:	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
home_own_change	-15.824 (19.835) t = -.8	93.11* (50.436) t = 1.85	2.525 (17.447) t = .14	-27.671 (34.301) t = -.81
Summary statistics				
N	311	97	279	362
R^2	.000527	.001006	.0000009	.000307
Pr >F	.4317	.0763	.886	.4266

* Significant at α = .1

** Significant at α = .05

When using change in homeownership as the single independent variable and the new measure of religious voluntarism as the dependent variable, statistical significance occurs at the 10% level for female heads. Before any conclusion is drawn, the remaining independent variables must be added to models. Without these additional variables, no real statement can be made regarding the relationship due to inability to hold all else constant. Head education, wife education, and wife unemployment are eliminated from models as not enough variation is present to perform estimations. Table 38 presents the multiple regression results from models using the new measure of religious voluntarism as the dependent variable.

Table 38.

Multiple regression, dependent variable: New measure of religious voluntarism

			Families	
	(1)	(2)	(3)	(4)
	Male heads	Female heads	Dependent: Head	Dependent: Wife
	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Key independent variable:	2.352	101.736	-7.021	-72.433*
home_own_change	(23.688)	(73.434)	(36.073)	(40.64)
	t = .1	t = 1.39	t = -.19	t = -1.78
Other independent variables:				
income_change	-.000	-.004	-.000	.00019
	(.000)	(.002)	(.000)	(.0003)
	t = -.16	t = -1.67	t = -.4	t = .54

			Families	
	(1)	(2)	(3)	(4)
	Male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables:	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
children_change	12.471	39.019	31.203	38.304**
	(19.077)	(70.716)	(28.834)	(17.654)
	t = .65	t = .55	t = 1.08	t = 2.17
moved_change	20.256	-78.834*	9.235	46.729
	(25.292)	(43.449)	(28.804)	(30.694)
	t = .8	t = -1.81	t = .32	t = 1.52
head_employ_change	66.046	27.295	43.337	42.656
	(46.464)	(35.79)	(52.92)	(54.809)
	t = 1.42	t = .76	t = .82	t = .78

			Families	
	(1)	(2)	(3)	(4)
	Male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables:	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
head_unemply_change	16.726	-34.751	-7.045	-2.266
	(56.21)	(61.18)	60.194	(85.472)
	t = .3	t = .57	t = -.12	t = -.03
size1_change	103.636	---	178.392**	267.225*
	(61.179)		(86.587)	(154.166)
	t = 1.69	---	t = 2.06	t = 1.73
size2_change	27.184	---	---	-94.207**
	(29.219)			(27.719)
	t = .93	---	---	t = -3.40

			Families	
	(1)	(2)	(3)	(4)
	Male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables:	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
size3_change	-48.411**	---	-79.569**	-60.587**
	(9.962)		(28.204)	(24.928)
	t = -4.86	---	t = -2.82	t = -2.43
size4_change	39.782	---	-23.879	-126.131**
	(38.536)		(62.155)	(44.398)
	t = 1.03	---	t = -.38	t = -2.84
size5_change	-10.138	---	-48.225	-133.649**
	(20.256)		(40.272)	(27.983)
	t = -.5	---	t = -1.2	t = -4.78

			Families	
	(1)	(2)	(3)	(4)
	Male heads	Female heads	Dependent: Head	Dependent: Wife
Other independent variables:	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
married_change	-53.682**	---	---	---
	(24.907)			
	t = -2.16	---	---	---
wife_employ_change	---	---	23.963	63.314
			(24.21)	(37.696)
	---	---	t = .99	t = 1.68

Summary statistics

N	310	91	278	362
R^2	.006776	.0382	.0122	.009525
Pr >F	<.0001	.2162	<.0001	<.0001

* Significant at α = .1; ** Significant at α = .05

t values calculated using the rounded values here

Reference categories:

- Male heads (married and unmarried): head_nonlabor_change; size6_change
- Female heads: head_nonlabor_change; size6_change
- Families: head_nonlabor_change; wife_non_labor_change; size6_change

Other notes:

The symbol --- indicates that the variable is not used in modeling either because it was inappropriate given the model or not enough variation was present for estimations.

Again, the new dependent variable is recorded in hours spent volunteering through schools, hospitals, and other charities run by religious organizations. Since the variable is recorded in hours spent volunteering, the coefficients are larger than those associated with the previous measure of religious voluntarism, which measures unique events. The standard errors associated with the new measure are also much larger. Wooldridge (2006) observes that if the standard error associated with the coefficient is large relative to the coefficient, then enough individual variation may not be present for estimations; small variation can lead to large standard errors. Notably, the standard errors associated with a number of the statistically significant variables are large. This may indicate that not enough variation is present to estimate these parameters with precision.

Table 38 reveals surprising statistical significance for the key independent variable related to tenure (*home_own_change*) for family (wife) (column 4). This is surprising in that it is the first, and only, statistically significant key independent variable among all models and subsamples at a level of significance of 10% or smaller. Table 25 yields 11 other statistically significant variables. Nine of these are related to the size of the community in which the respondent lives. This is not surprising, as the other multiple regression models with different dependent variables followed similar patterns. For male heads (column 1)*:* Family (head) (column 3), and Family (wife) (column 4), the coefficient for communities with largest city 50,000-99,999 (*size3*) is statistically significant and negative. The consistency across subsamples may indicate that living in this size community is associated with a decrease in religious voluntarism, given the new measure. These results are unique to the new measure of religious voluntarism. The magnitude of the coefficients is large, and the standard errors are smaller than the respective coefficients.

Additionally, negative coefficients are seen with family (wife) (column 4) for three more variables related to community size. It seems that as community size decreases, religious voluntarism for this group decreases. Perhaps not as many avenues exist for volunteering as measured by the new religious voluntarism variable. For family (head) (column 3) and family (wife) (column 4), the community size variable is statistically significant and positive for the largest communities (*size1*). That is, being in the largest communities is associated with increased religious voluntarism. Living in the largest communities (*size1*) may give these married individuals more opportunity to

participate as described by the new measure of voluntarism. The coefficients associated with these variables are large. The standard errors are smaller relative to the coefficients.

For male heads, the coefficient associated with being married is statistically significant (column 1). Here, being married is associated with decreased religious voluntarism. Perhaps this is an indication that marriage reduces the time available for volunteering in this capacity for men. Another statistically significant coefficient is associated with moving (column 2). That is, having moved is associated with a decrease in religious voluntarism for female heads, under the new measure. This makes sense, theoretically, as recently moved single women may have been too busy getting adjusted and taking care of needs unique to being single, leaving little leisure time to engage as volunteers. The last statistically significant variable is found for families (wife) (column 4). An additional child in the home is positively associated with the new measure of religious voluntarism. This makes sense, theoretically, if children are school aged. Having school aged children occupied during the day may afford wives opportunity to participate in the community.

Additionally, models were estimated using samples that retained outliers. This does not change the regression results for the key coefficient for both simple and multiple regression when the new measure of religious voluntarism is used as the dependent variable in unique models for male heads, female heads, and head of families. For the model for families divided into wife, the results that were significant at 10% become insignificant.

The relationship between homeownership and the new measure of religious voluntarism not sound. First, when multiple hypothesis tests are performed on the same

set of data, the chance of obtaining a Type I error is increased (Yin, 2009).To reduce the possibility that results are Type I in nature, a reduced level of significance (α) is imposed. Level of significance of α = .01 was chosen. At this level, the key coefficient, tenure (home_own) becomes statistically insignificant for families (wife). This result is more responsible than any result obtained at higher levels of significance.

More reasons indicating that the relationship is not sound is that since several variables have been omitted from the models due to lack of variation, models may not be able to hold all else constant. Obtaining more data with greater variation will allow the inclusion of these variables deemed important to the research question. Until then, findings must be interpreted with caution. Also, in 2003, 69.55% of the subsample of families (wife) was employed; in 2005, this number is 71.36%. In other words, the bulk of the subsample families (wife) was employed both years. Also, 58.18% of this sample of families (wife) had children under age 18 in the home in each year. With these two statistics in mind, a negative coefficient associated with the new measure of voluntarism is not entirely unexpected given the subsample demographics. More than half of the families (wife) subsample was both employed in the workforce and had children under 18 at home. Simultaneously, working and caring for children may reduce the time available for these wives to volunteer, given this new definition.

Regardless, use of the new measure of religious voluntarism does not yield resounding statistically significant results across subsamples. These results mostly support conclusions based on models using the other measure of religious voluntarism, that is, volunteer activity that occurred at or through church, synagogue, or mosque, such as serving on a committee, assisting in worship, teaching, or helping others through

programs organized by place of worship. Despite using different measures of religious voluntarism, the conclusion remains basically the same.

The results may be analyzed in light of neoclassical, human capital, and social capital theories. Neoclassical economic theory assumes that individuals will engage in behavior as a means of increasing some utility, or happiness. It was expected that homeownership would have a positive relationship with religious and political voluntarism if individuals derive utility from voluntarism. Human capital theory suggested a positive relationship between homeownership and religious and political voluntarism when individuals simultaneously wish to invest in a home, themselves, and their communities. Social capital theory proposed a positive relationship between homeowners and voluntarism, for example, when individuals seek to increase connections between themselves and others by rooting themselves in a community through homeownership and voluntarism. Social relations established by community rootedness or religiosity may also influence religious and political voluntarism.

The overall lack of significant relationships does not mean that theory is completely flawed; it can hardly be stated that that homeowners derive little or no utility from religious and political voluntarism, individuals do not wish to simultaneously invest in a home, themselves, and their communities, or that individuals do not desire to increase connections between themselves and others by rooting themselves in a community through homeownership and religious and political voluntarism. Most critically, results do not undermine the one important assumption, that is, that individuals engage in these types of volunteer activities expecting some positive, and not negative, outcome. As evidenced, there is some degree of religious and political voluntarism

among individuals. Instead, the results merely indicate that given this particular Panel Studies of Income Dynamics (PSID) dataset, the variables used in this study, and estimation using before-and-after comparisons, homeownership has no overwhelming statistical relationship with either religious or political voluntarism.

Analysis of Results Based on Hypotheses

Given the data, variables, and techniques used here, it has been determined that the null hypotheses cannot be rejected. Resoundingly, homeownership has no relationship with citizenship as measured by political voluntarism among female heads of family unit, male heads of family unit, and families (head and wife). In sum, this study fails to reject the null hypothesis that homeownership has no relationship to citizenship as measured by political voluntarism among female heads, male heads, and families (head and wife), holding all else constant. The various models feature some statistically significant, mostly related to community size. The results of this study are mostly supported by literature. As stated, a few empirical studies reveal very limited modest, positive relationships between homeownership and political voluntarism. As stated, empirical results mostly indicate that homeownership is positively related to voting. As also stated, the results of this study are supported, given the empirical limitations of the articles and differences in political voluntarism measurement.

Additionally, homeownership has no relationship with citizenship as measured by religious voluntarism among female heads of family unit, among female heads of family unit, male heads of family unit, and among families (head and wife).This study fails to reject the null hypothesis that homeownership has no relationship to citizenship as

measured by this single religious voluntarism variable among male heads, female heads, and families (head and wife), holding all else constant. These results are mainly supported by the literature selected to draw expectations; as stated, the literature mainly found tenuous if any relationships between homeownership and varied outcomes of interest designed to measure social participation and religious voluntarism.

This study fails to reject the null hypothesis that homeownership has no relationship to citizenship as measured by the new religious voluntarism variable among male heads, female heads, and families (head and wife). Although statistical significance occurred at the 10% level, these results cannot be construed as valid for a number of reasons. First, since multiple analyses were performed, it was deemed necessary that the level of significance (α) be reduced to .01. This self imposed restraint eliminated any statistical significance for the key independent variable, tenure (*home_own*) that occurred when the level of significance was .1. Additionally, the models are unable to hold all else constant, and several of the independent variables were eliminated from models due to lack of variation necessary to perform estimations. Therefore, this study fails to reject the null hypothesis that homeownership has no relationship with citizenship as measured by two different religious voluntarism variables given a level of significance (α) of .01. These findings are consistent among female heads, male heads, and families (head and wife).

CHAPTER 5

Conclusions

Contributions

This study seeks to better illuminate the relationship between homeownership and citizenship, as measured by religious and political voluntarism. As stated, whether tenure has an impact on the outcome citizenship as measured by religious and political voluntarism had been relatively unexplored. Although important intellectually, some previous literature fails to address key issues when estimating the relationship between homeownership and related outcomes. For example, homeownership is a matter of choice. Serious concerns arise when choice variables such as homeownership are used as key independent variables in regression modeling. The concern here is that other variables important to the research question, including those that are unmeasured or unobserved, have been omitted from models.

The models used in this study are built using theory and previous literature, and are assumed to illustrate the relationship between homeownership and religious and political voluntarism, controlling for other factors. It is acknowledged from the beginning that tenure is by definition, based on choice. The use of cross sectional data without accounting for this choice would not yield even mildly convincing results. As a result, this study uses the Panel Study of Income Dynamic (PSID) to account for the problems associated with using a choice variable as the key independent variables in modeling.

Specifically, two periods of data from 2003 and 2005 are used to make before-and-after comparisons. The use of before-and-after comparisons allows time invariant unmeasurables and unobservables to be eliminated, reducing the possibility of omitted variable bias. Acknowledgement of homeownership as a choice variable and use of before-and-after comparison gets closer to a better understanding of the relationship between homeownership and religious and political voluntarism than would cross sectional data with ordinary least squares.

Key Findings

This study finds very little evidence of statistically significant relationships between homeownership and citizenship as measured by religious and political voluntarism given data at hand, variables used, and estimations based on before-and-after comparisons. Of the 22 statistically significant variables, 13 are related to community size. Initially, models use a measure of religious voluntarism as follows: volunteer activity that occurred at or through church, synagogue, or mosque, such as serving on a committee, assisting in worship, teaching, or helping others through programs organized by place of worship. Here, coefficients indicate that as community size decreases, religious voluntarism increases. This finding is in accordance with Putnam (2000), who states that formal volunteering may be more prevalent in smaller communities.

The only other statistically significant variable shared across subsamples is that related to the number of children in the home. Having children in the home is associated with a decrease in political voluntarism among male heads. As discussed, the concern is that the model related to male heads may not entirely capture behavior as intended due to

PSID definitions of family head. Family head defaults to male. Therefore, male heads may be married or not. Female heads, on the other hand, are by definition single. In attempts to compare between male and female heads, the male heads model did not control for variables related to wives. With the expectation of more accurate results, a subsample limited to unmarried male heads was created. This restriction made no statistical difference.

A second measure of religious voluntarism is used in analysis. Here, the measure is annual hours volunteering through religious organizations, which includes volunteering through schools, hospitals, and other charities run by religious organizations. Models using the new measure of religious voluntarism yield opposite results, that is, for smaller communities, religious voluntarism under the new measure decreases. A word of caution is in order, though. The subsample used for this model is small. Some variables yielded little variation crucial to estimations. Hence, these variables were not included in models. The concern is that the models were unable to hold all else constant. Alternatively, it just may be that larger cities offer more of this type of voluntarism opportunity.

When the new measure of religious voluntarism is used as a dependent variable in models, the coefficient associated with having children in the home is statistically significant and positive for the subsample families (wives). Having children in the home is associated with increased religious voluntarism under the new measure. It may be that mothers are investing in their communities and perhaps their children by volunteering through religious organizations, which includes volunteering through schools, hospitals, and other charities run by religious organizations. The same caution applies to this result as lack of variation prohibited inclusion of certain variables in model.

In addition to controlling for a host of factors, this study examines the relationship between homeownership and voluntarism based on gender. Models are created for male heads, female heads, and families (head and wife) where individuals are married in both 2003 and 2005 to see if gender makes a difference to the relationship. It seems that across genders, homeownership does not make an overwhelming difference to religious and political voluntarism as measured by this study. These results are consistent across the gender-based subsamples. When used as the dependent variable, the new religious voluntarism measure yielded significant results for the subsample families (wife) at a .1 level of significance (α).

Some words of caution are in order. As stated, when multiple hypothesis tests are performed on the same set of data, the chance of obtaining a Type I error is increased (Yin, 2009).To reduce the possibility that results are Type I in nature, a reduced level of significance (α) is imposed. No statistical significance occurred at $\alpha = .01$ for any subpopulation. Additionally, models may not be able to holds all else constant resulting from the exclusion of variables due to lack of variation.

Overall, results may be discussed in a theoretical context using neoclassical, human capital, and social capital theories. Given neoclassical economic theory, it was assumed that individuals volunteer as a means of increasing utility, or happiness. Given human capital theory, it was assumed that individuals volunteer when investing in a home, themselves, and their communities. Here, it was thought that individuals embedded additional resources in their homes, themselves, and their communities through acquisition of human capital. Social capital theory assumed a few key concepts. It was thought that individuals volunteered to increase connections between themselves and

others. These connections may have been enhanced through the rooting process inherent in homeownership and engagement in religious and political voluntarism. Social relations that might have stemmed from the more permanent nature of homeownership may have influenced individuals to increase religious and political voluntarism. Finally, individuals may have exhibited voluntarism out of norms established, for example, due to tenure status or religiosity.

Given the data and the techniques used here, the presumed relationship between homeownership and citizenship as measured by religious and political voluntarism did not materialize. This was not altogether surprising. It was thought a priori that differences between genders may have somehow appeared in results. When differences did not materialize, it became apparent that failing to reject all null hypotheses was the most conservative and responsible means of analysis, given data, models, and techniques used.

It is still reasonable to expect that both homeowning and renting consumers derive happiness from religious and political voluntarism, increase human capital via religious and political voluntarism, and establish and strengthen connections between themselves and others through religious and political voluntarism. It may be that religious and political voluntarism and subsequent utility, human capital, and social capital are driven by factors other than homeownership. Since data reveal acts of voluntarism, the assumption still stands that individuals engage in these types of volunteer activities expecting some positive, and not negative, outcome.

Weaknesses

Limited Time Span of Data

This study uses Panel Study of Income Dynamics (PSID) data with two time periods. Using PSID panel data with more than two time periods would yield more observations, increasing the amount of data from which inferences are drawn. Having more time periods would allow more time to lapse between the first and last wave, and thus increasing individual variation. Unfortunately, the variables chosen for use in this study appear just in the 2003 and 2005 waves. Two time periods spanned by just two years do not capture long run relationships and may not capture enough change within individuals. Little change leads to imprecise measurements.

Data and Variables

The variable that intends to measure connectedness measured through time may not be sufficient. The PSID variable chosen to represent this is length of residence, which asks respondents whether or not they moved since January 1 of prior year. Unfortunately, this does not capture different levels of rootedness that might accompany different lengths of tenure. For example, all individuals living in their address since January 1 of the prior year would be recorded as did not move. This does not differentiate whether the individual had lived at address for two or 20 years. A person with a longer period of tenure would undoubtedly have more time with which to develop connectedness in the community, and theoretically cultivate religious and political voluntarism. Additionally, it is unknown whether the individual moved down the street, across town, or elsewhere. Knowing where individuals moved from and where they moved to may impact

connectedness, which in turn may affect religious and political voluntarism. Wooldridge (2006) observes that the possibility always exists that models do not control enough time-varying factors.

Additionally, since data are family level, the head and wife are analyzed separately. Although separate analysis yields more information about individual behavior, it ignores behaviors that occur jointly between head and wife. For example, tenure and time use decisions are likely to be made jointly. Separate analysis ignores any bargaining between head and wife.

Causality

During analysis, the concern is ever present that some variable important to the research question is not present in data. Some variables, such as income, are often times measured and therefore are included as controls in models. Other variables, such as motivation, are either unmeasured or unobserved, and therefore are omitted from data. Before-and-after comparison is a respected tool for omitting unmeasured or unobserved variables that do not change over time, carefully suspending obstacles (Duncan, 1972). Although using this tool is respected, drawing causal conclusions is still problematic. Stock and Watson (2007) define causality to be the effect of an action or treatment on an outcome, measured via a randomized experiment. Here, the treatment is accepted as the cause of change or lack thereof in the outcome. This study does not use data from a controlled randomized experiment. Primarily for this and other reasons, this study makes no claim to causality.

Future Research

If PSID includes religious and political voluntarism variables in future waves, then future research may use the additional waves to build new models. These models would reflect the use of more than two waves of data. For example, fixed effects with three or more time periods may be used for estimations. Currently, the 2007 wave does not feature voluntarism variables. Also, the 2009 wave does not contain variables related to voluntarism (University of Michigan, 2009a). If a future wave contains voluntarism variables, then longer time span may be analyzed. Having a greater span of data will increase individual variation important to estimations. This may allow future research to include variables that were excluded from estimations due to lack of variation.

Finally, future research may address a problem inherent in large datasets, that is, understating the nature of missing data. Missing data raises concern when the data are missing non-randomly; there is some pattern to the missing data. This results in a non-random sample. This study assumes that data are not missing systematically from the sample, given the dependent variables. One means of addressing this issue is via imputation. PSID imputes values for the 2003 and 2005 income variables used here, but leaves all other imputation to the discretion of the researcher (University of Michigan, 2003a, 2005). Observations with missing values may be retained via imputation, which may provide better variance estimates. As to acceptable imputation thresholds, Orr (1995) states that imputation is appropriate for moderate nonresponse levels. Orr posits that a nonresponse rate of 90% is generally acceptable. That is, imputation is appropriate when 10% of respondents are missing. If imputation is performed, it is imperative to indicate

which values have been imputed (Dorofeev & Grant, 2006). Results from imputed and non-imputed data may be compared for consistency.

Also, age is held constant because by definition, all respondents aged at the same rate. Future research may examine different age groups, which are based on life stages, to see if the stage that one occupies in life makes any difference to the results. Future research may also examine the relationship between homeownership and other measures of voluntarism that indicate citizenship. For example, other measures of voluntarism include but are not limited to volunteer activity related to youth, seniors, people in poor health, or people in need of basic services.

Additionally, the same analysis may be performed using a different dataset. Here, results can be compared. The arguments presented here may be strengthened if consistency occurs. The U.S. Census Bureau provides one such dataset, via the Current Population Survey supplement survey, Volunteering in the U.S. This dataset is panel is nature, and contains a number of important variables that might allow study replication.

Final Observations

As noted, the United States is historically known for democracy and humanitarianism. Sieder (1960) observes that the United States places a premium on continuous improvement in all types of services, including better living and working conditions. Sieder also states that citizen engagement is vital to this improvement process.

Given this dataset and the techniques used here, the assumption that homeowners are better citizens resulting from increased religious and political voluntarism is unfounded. Results overwhelmingly indicate that tenure does not matter. Given that the

tenure norm in the U.S. is homeownership, renting might be seen as a less attractive option to ownership. Those who rent may be perceived to be somehow lesser than those who own. The implication of this study is that individual community participation as measured by religious and political voluntarism is not stifled by renting. Additionally, given this dataset and the techniques used here, results overwhelming indicate that gender does not matter. There are no tremendous differences between men and women and the relationship between homeownership and religious and political voluntarism.

This study indicates that calls to religious and political voluntarism as measured here are not limited by tenure or gender. Renters and homeowners of each gender have opportunities to increase voluntarism that helps continuous improvement in all types of services, including better living and working conditions per Sieder (1960). This voluntarism may include religious and political voluntarism as defined here. Individuals can play an important and unique role in community improvement via voluntarism regardless of tenure choice and gender.

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