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What is the Effect of Social Capital on Community Resiliency Against Social Decay?

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Abstract

This thesis builds off of the work of Robert Putnam and Charles Murray by using a fixed effects regression model and a first difference regression model to see if there is a relationship between the number of community institutions within a county and that county's resiliency against social decay. Historically, it has been difficult to determine if there is a causal relationship in either direction between these variables because they are endogenous. That is, the underlying factors that determine whether a county will have low levels of social capital also determine whether the same county will have high levels of social decay. For example, income level is strongly correlated with both variables, and even if one controls for income level, it is difficult to control for the advantages that come with being wealthy and lead to higher levels of social capital. Due to this, it is difficult to say whether a higher income level leads to more social capital and increased resiliency against decay simultaneously, or if higher social capital itself causes increased resiliency. This thesis counteracts this endogeneity by introducing an exogeneous factor into the data, the decline in manufacturing employment. Using data primarily from the Census Bureau, Pennsylvania State's Northeast Center for Rural Development, and the China Shock Project, I find that there is little evidence for any relationship between social capital and resiliency against social decay. The one exception to this is religious organizations, for which a clear, positive effect exists across multiple variables and both regression models. Further research should focus on different approaches to measuring social capital and expand the scope of this thesis by including additional variables, as well as by using survey data about community participation instead of relying on the number of institutions in an area.

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I would also like to thank the friends I've made at Claremont McKenna for supporting me all along this journey. I can hardly express how grateful I am to you all. Even though college is coming to an end, I will hold on to my friendships with you all for the rest of my life.

Finally, I would like to thank my family and my friends back home for being the ones who originally taught me how transformative and valuable a community can in someone's life.

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I. Introduction

Many American communities are suffering from a profound social decay.[1] Opioid use is rampant, and deaths from suicide are taking a heavier toll than at any other time in recent history (Institute for Health Metrics and Evaluation, 2014). Something has very clearly gone wrong. At the same time, social capital[2] is declining. Elks Lodges, rotary clubs, churches, and labor unions, once staples in many communities, are shuttering (Putnam, 2000). This thesis explores whether there is a connection between the two phenomenon by examining whether higher levels of social capital make communities more resilient against social decay.

The two seminal works on social capital and community well-being are *Bowling Alone* by Robert Putnam and *Coming Apart* by Charles Murray. In addition to this, a number of subsequent papers of been written on this topic. However, all such studies have fallen victim to the same problem. They take endogenous variables and treat them as being exogenous. For example, wealthy communities tend to be rich in social capital (Carney, 2019), so even if one controls for household income, one cannot control for the advantages in social capital that come with being wealthy. If a regression shows that there is a correlation between social capital and increased resiliency, it is not obvious if wealth leads to both higher levels of social capital and higher levels of resiliency against decay simultaneously, or if it is in fact higher levels of social capital that lead to higher levels of resiliency. This thesis overcomes this problem by introducing a source of exogenous variation into this framework, the decline in manufacturing employment that resulted from an increase in the number of imports from China. This is variable is exogenous because China was not directing its exports into different markets depending on how rich or poor

[1] Social Decay is defined here as declining community well-being. Mortality rates, poverty rates, and economic mobility at a community level are key indicators of this.
[2] Social Capital is defined here as being a type of community institution that foster social cohesion.

they were, or how much social capital they had. Communities otherwise similar in nature did not experience the shock equally. The extent of the shock was based on the type of industry present in towns heavily reliant on one particular industry, a factor completely unrelated to a town's social capital levels.

This literature hypothesizes that even after exogeneity had been introduced into the data, there would be a clear effect demonstrating that social capital is correlated with higher resiliency against social decay. People are social animals, and a strong community fabric should help them overcome the symptoms that accompany negative economic shocks. However, this thesis finds once a source of exogeneous variation is introduced, there is evidence the religious organizations have a positive effect on community well-being, but there is little evidence of any effect for other types of community institutions.

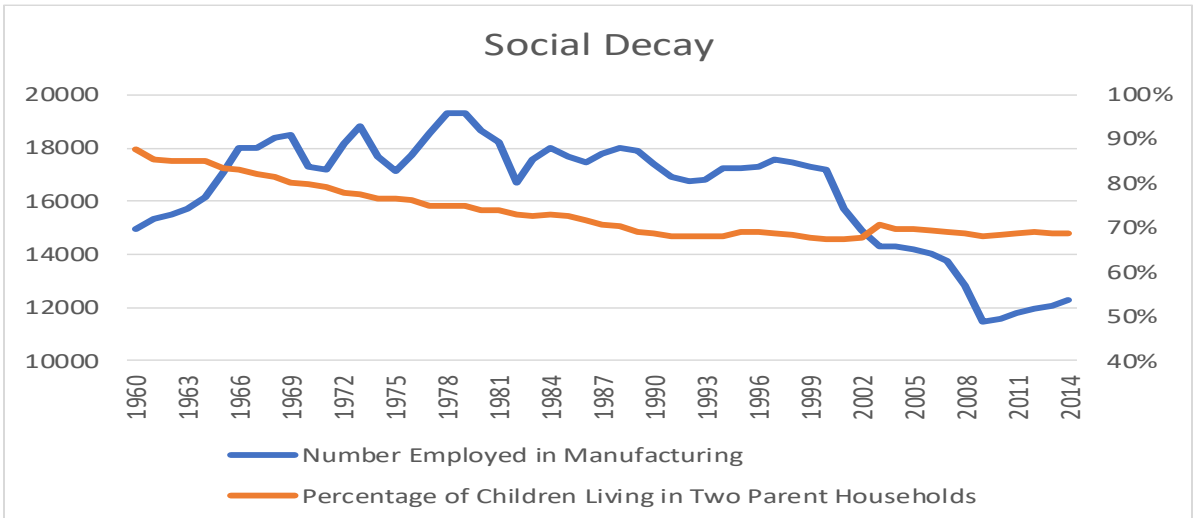
The rest of this thesis proceeds as follows. Section 2.1 summarizes the two books that motivate this thesis, and the subsequent critiques of those books. Section 2.2 details other studies that have attempted to ascertain the effects of social capital on community well-being, and where those studies went astray. Section 2.3 describes how this thesis overcomes the problems present in the other studies by imposing a source of exogeneity on communities so that the effects of social capital can be accurately measured. Section 3 reviews the empirical theory behind this thesis and includes a discussion of the variables. Section 4.1 discusses the two models used in this thesis, the fixed effects model and the first difference model, and why both are necessary. Section 4.2 details the results of the fixed effects model. Section 4.3 details the results of the first difference model. Section 5 summarizes the conclusions of this paper, recommends further research, and discusses potential policy solutions to this problem

II. Background

2.1 Bowling Alone, Coming Apart, and Their Critiques

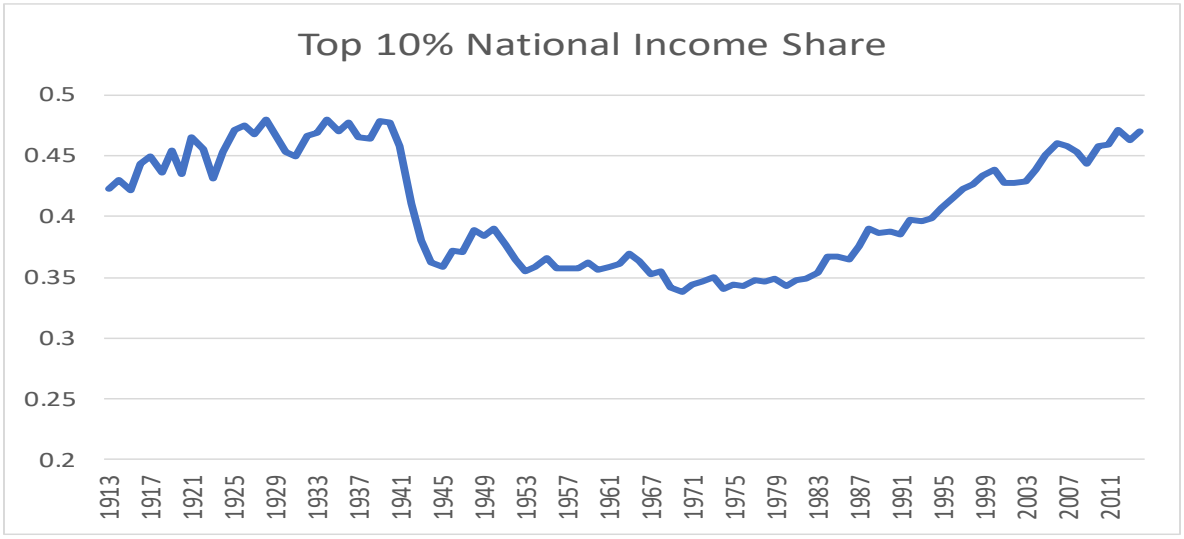
Since the end of the World War II, the United States has put an end to segregation, extended the full franchise to people of color, promoted a greater inclusion of women in the workplace. Additionally, per capita income has quadrupled over this time period (The Federal Reserve, 2018). But many changes have clearly been for the worse. Over the same period, the traditional two parent family has collapsed as a social norm, well-paying blue-collar work in manufacturing, once prevalent, has declined precipitously, and drug overdoses have skyrocketed. The progress that the United States made over the past seventy-five years has been accompanied by a profound social decay. Figure 1 displays two measures that exemplify this social decay, the number of workers employed in manufacturing and the percentage of children living in two parent households over time. This figure suggests that there might be a relationship between the two. Note that the decline in manufacturing employment is even worse than Figure 1 makes it appear, as the raw number of workers employed in manufacturing does not take into account population growth.

Figure 1



Simultaneously, this era has seen the highest levels of economic inequality since the Gilded Age (Zucman, 2019). Figure 2 demonstrates the pre-tax income share of the wealthiest 10% of the U.S. population over the past century. The chief difference between the Gilded Age and modernity is that the inequality of modernity is geographically based. America's cities and suburbs are far wealthier than its rural areas (PBS, 2016), and the ongoing social decay is also heavily concentrated in rural communities. This is geographic separation is particularly problematic, as the presence of some wealthier people in an otherwise low-income community can give the residents of that community a social capital advantages over those who have no high income people residing in their community (Reardon and Bischoff, 2016).

Figure 2



The twin problems of income inequality and social decay exacerbate a third problem, that of economic mobility. A large body of literature shows that children who grow up in communities that are poorer and experiencing social decay are at a severe disadvantage (Ferguson et al, 2007). They are more likely than others to drop out of high school, less likely to

go to college, more likely to be below the poverty line once they begin working, and as adults, they are more likely to be prone to the deaths of despair caused by drug overdoses, alcohol abuse, and suicide. It is unclear whether the source of this disadvantage is entirely based on low incomes, or if social capital plays a role as well.

This thesis explores both whether communities with higher levels of social capital will be more resilient against social decay. It was primarily inspired by two books. The first is *Bowling Alone* by Robert Putnam (2000), who was the first to examine the decline of civic and community organizations in great detail. Putnam observed that, starting from 1975 and continuing onward, there had been a steep participatory decline in the types of civic organizations that form a community's social fabric by bringing people together for civic discussions. This decline in participation was wide ranging and encompassed a diverse array of organizations, including Elks Lodges, rotary clubs, political organizations, and labor unions. The book's title comes from an example that Putnam used. Between 1975 and 1995, the number of Americans who participated in bowling leagues declined markedly, while the number of Americans who were going bowling increased significantly. In other words, more people were going bowling, but they were not doing it in such a way where they could meet new people and make meaningful connections in their communities. Instead, people were going bowling alone.

At first glance, it might appear as if *Bowling Alone* has nothing to do with the social decay of many American communities. Nevertheless, a substantial body of research suggests that greater access to social capital and a stronger community fabric can result in better community well-being (Cass et al, 2018). Specifically, there is a strong correlation between greater levels of social capital and lower crime rates, healthier populations, and higher household incomes. What seems to follow from this correlation is that two causal mechanisms are possible. Either greater

social capital leads to better community health, or the opposite is true. However, a third possibility exists. Social capital could make communities more resilient against shocks that adversely affect them. For example, if a community suffers from a profound economic shock, then higher levels of social capital might prevent that community from succumbing to the resulting symptoms of that shock, such as higher levels of fentanyl and alcohol abuse. If people can rely on others in their community to help them through hard times, they might not succumb to substance abuse as a coping mechanism. Once this possibility is considered, it becomes reasonable to think that there might be a relationship between resiliency against social decay and the decline of social capital.

This possibility is strongly suggested in the second book that inspired this thesis, *Coming Apart* by Charles Murray (2012). His argument is that since 1960, the United States has been increasingly divided between an upper and a lower class. The most concerning aspect of this trend is that these two new classes have vastly different social mores and lifestyles. The members of the new upper class are more likely to attend religious services every week, more likely to get married and stay married, and more likely to participate in the types of hobbies where they can meet other people and make meaningful social connections. The new lower class is more likely to have children out of wedlock, more likely to not attend church, and their hobby of choice is to stay at home and watch television in isolation for prolonged periods. Furthermore, the new lower class is far more likely to have experienced social decay in their communities. Murray points out that in the new lower class, the traditional family structure has disappeared, and both trust in one's neighbors and individual work ethic have declined. In the new upper class, the traditional two parent family is intact, and both trust and work ethic have declined minimally if at all. While Putnam was the first to identify a decline in civic participation, Murray was the first to pinpoint

that both this participatory decline, and America's ongoing social decay, are primarily confined to this new lower class. Although his two class framework would seem to suggest that that income is fueling this decline, Murray hypothesizes that this decline will be at least partially mitigated in the event of higher levels of social capital.

While there are exceptions, the primary mechanism for determining who ends up in which class is who completes a bachelor's degree. People who complete a four-year degree tend to maintain lasting friendships with those who also completed a four-year degree, they tend to marry people who also have a four-year degree, and they tend to live in the same neighborhoods as those who have four-year degrees. Most crucially for this thesis, people with four year degrees have higher incomes. These patterns exacerbate the problem posed by what Murray refers to as the college sorting system, as people only rarely associate with those who are not of the same social class. Thus, they only rarely expose themselves to the ideas and mores of the other class. As a result of this, both classes are increasingly ignorant of the problems, concerns, and motivations of the other.

Bowling Alone and *Coming Apart* together paint an alarming picture of contemporary America. They indicate that Americans without a college education are increasingly isolated from one another, are having difficulty forging lasting social connections, and that their communities are in disarray. Either compounding or contributing to this problem is that well-paying blue-collar work in manufacturing has largely disappeared or been automated away. In its stead are low paying service jobs with little work schedule stability (Santacreu & Zhu, 2018). If one does not have a cognitive job for which going to college is a prerequisite, the quality of work has declined over the past several decades. As Murray points out, this decline in the quality of blue-collar work has led many to take out disability benefits from Social Security and drop out of

the work force altogether, contributing to a lack of industriousness. Murray's new lower class is isolated and both materially and socially poorer than their college educated counterparts, who are increasingly unable to learn about their concerns and motivations. Put together, Putnam and Murray's argument is essentially that the United States allowed social capital to deteriorate, which in turn exacerbated the economic shocks and social decay experienced by the working class.

This problem may also be further compounded by public policy. As recently as the 1990s, much of public policy was dedicated to providing community and social capital-based solutions. Yet, as Ryan Streeter (2019) points out in *National Affairs*, it seems that at the turn of the millennium, many policy makers began to abandon any solutions that might strengthen social capital. A reality of modernity is that solutions around social capital has become just as polarized as other policy issues. Unlike past eras, the Republicans now seem to be the only party willing to support social capital organizations, favoring policies such as public-private partnerships and continued tax exemptions for churches. The Democrats favor national solutions that, while potentially solving community problems, often weaken local organizations. This polarization around social capital is increasingly problematic, for even as policy makers abandon such solutions, an abundance of research has been released suggesting that stronger social capital is correlated with higher median household incomes, increased life satisfaction, improved health and lower rates of crime (Streeter, 2019).

Although *Bowling Alone* and *Coming Apart* have both proved to be highly influential, and although there has been other research since they were written demonstrating that increasing the amount of social capital has a beneficial effect on communities, it is important to note that the scholarly consensus on this issue is not uniform. Lenkowsky (2000) is one of several critics

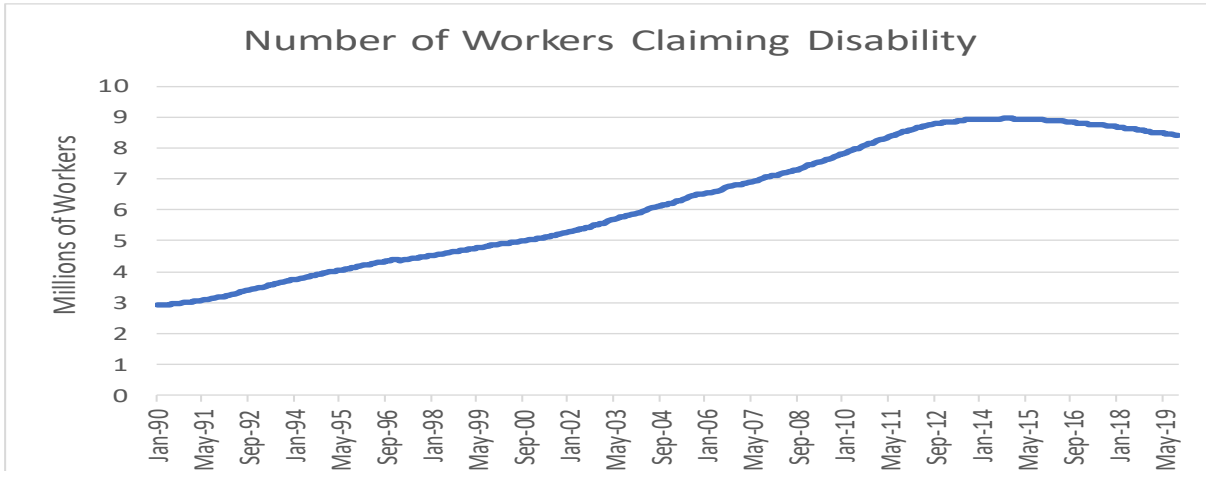
who contends that Putnam missed something fundamental. He argues that, while American participation in civic organizations is declining, it is not because Americans are growing increasingly isolated from each other. Rather, Americans are increasing their involvement with different, newer types of organizations at the expense of more traditional civic organizations. To give some examples of this, while participation in long-standing organizations such as Elks Lodges and rotary clubs has been declining, Americans are volunteering more often than ever before. Furthermore, Lenkowsky notes that while mainline protestant denominations have seen declining church attendance, the number of people who attend evangelical denominations every Sunday has actually grown.

Murray is also not immune to criticism, and indeed the backlash to his work has been harsher than the backlash to Putnam's. One of Murray's most pointed critiques comes from Frum (2012), whose primary source of contention with *Coming Apart* is that Murray blames phenomena such as the decline in religiosity and the decline of industriousness among the new lower class on some sort of vaguely defined moral decline. Frum argues that Murray's contention lacks an empirical backing, and that there must have been an outside economic or political force that drove this transformation in social mores. If that outside force can be identified and counteracted, then the decline of the working class that Murray laments can be reversed as well. Frum also takes issue with Murray choosing to start his analysis in the year 1960, arguing that the history of the cultural values and social mores of America's working class takes on a far more complex history if one extends the time period of analysis back into the early decades of the 20th century. It is entirely possible that the decades leading up to 1960 were a unique period in the United States' history that enabled wide-spread equality and working-class

prosperity, and that the "decline" Murray documented is not so much a unique and alarming collapse but a return to what was the norm during and before the early 20th century.

In addition to Frum's critique, it should be noted that one circumstance of Murray's argument has changed. Murray links the growing numbers of Americans taking out disability benefits from Social Security as evidence that traditional American work ethic has been declining. While that was true when Murray wrote *Coming Apart*, for the past four years, the number of Americans who are claiming disability has actually been declining, which could invalidate that aspect of his argument (Social Security Administration, 2019). Figure 3 details the rise and subsequent decline in the number of workers claiming disability since 1990.

Figure 3

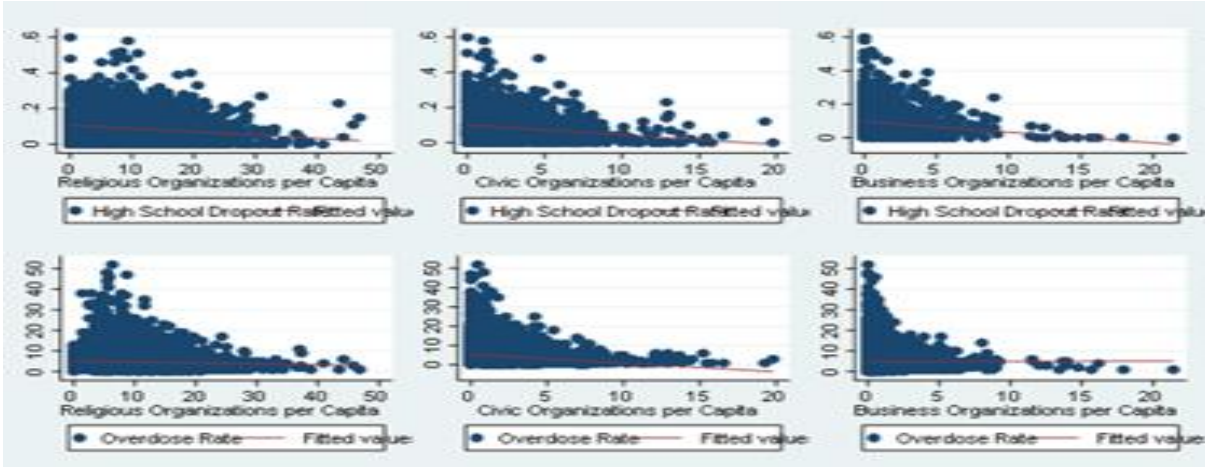


While the picture that Putnam and Murray paint of contemporary America is grim, these counter arguments demonstrate that it is possible that the situation is not quite as dark as they first make it appear. It is worth highlighting these objections to note both that there are serious challenges to certain aspects of their arguments, as well as that context can change with time, and that an aspect of their argument that may have been true when it was first written might not

necessarily be true currently. One of the chief goals of this thesis is to potentially further this critical literature, as it determines whether Murray's hypothesis about social capital is correct, or whether Frum is accurate in his criticism.

The central idea that underpins Murray's thesis is that, holding household income constant, social capital is what primarily makes communities resilient against social decay. In other words, Murray is not arguing that those who attain bachelor's degrees tend to be wealthier, and that it is this wealth that makes communities less vulnerable to social decay. The fact that higher levels of wealth and education happen to be correlated with higher levels of social capital is entirely circumstantial. Figure 4 illustrates how Murray arrived at this conclusion through the use of different scatter plots. The six scatter plots featured in this figure illustrate the correlations between three types of community organizations and two types of social decay. The measure of social capital in the top row is the high school dropout rate, while in the bottom row it is the drug overdose rate. As one can see, in the absence of all other variables, social capital and measures of social decay are negatively correlated with each other, with one exception where the line is essentially flat.

Figure 4: Scatter Plot Matrix of Social Capital and Social Decay Variables



One can argue, as Frum does, that Murray exhibits flawed reasoning by utilizing this method. What this thesis explores is whether Murray is incorrect, and if social capital is not the primary mechanism that determines resiliency against social decay. Historically, it has been extraordinarily difficult to determine whether social capital has a causal effect on social decay. This is because these variables are endogenous with each other. That is, many of the same underlying factors determine whether a community will have both high levels of social capital and high resistance to social decay. Suppose, for example, that a manufacturing plant is the primary employer in a small town. If that plant closes, it is not difficult to imagine that the entire community becomes hollowed out. People stop attending church and start taking fentanyl simultaneously. Yet if one were to fail to factor in the plant closing, as Murray did on a national level, it would be easy to conclude that a decline in social capital is what led the community to become susceptible to social decay. Frum is correct in that *Coming Apart's* flaw is that Murray takes two variables that are endogenous and treats them as if they are not.

2.2 Other Relevant Studies of Social Capital

Although Bowling Alone and Coming Apart are considered to be the two seminal works on social capital, there have been a number of other papers studying the effects of social capital on community health. All such papers that are relevant to this thesis either conducted a study similar to either Putnam's (2000) and Murray's (2012), or they influenced the regression model that will be used in this thesis by prompting the introduction of a new element into that model. For the former, they all suffer from Murray's methodological difficulty. They treat endogenous variables as if they are exogenous.

The most immediately relevant of these papers is by Drummey (2008), who measured how various types of social capital, ranging broadly from the number of books in the home to the

after school programs a child participates in, affects student test scores. Of particular applicability is what she termed “educational cultural capital,” a measure of student participation in after school clubs and activities. Drummey found that increased participation in after school activities has a positive effect on student test scores. However, Drummey failed to deal with the question of variable endogeneity.

It has been long established that wealthier people will tend to have higher access to social capital. Sandstrom & Alper (2019) gave a concise account of this phenomenon in an article for Pew Research Center. In order to control for income and better measure the mobility resulting from student test scores, Drummey distinguished “social mobility” from “social reproduction.” Social mobility measures whether students of lower socio-economic status will experience more pronounced economic mobility when they have access to social capital. By contrast, social reproduction measures whether students who are already of a higher socio-economic status can replicate their parents economic success when they have access to social capital. Drummey found that the educational cultural capital subset has a clear, positive effect for social reproduction. Her results also support the hypothesis that educational cultural capital has a positive effect on social mobility, but the results were muted compared with social reproduction. Drummey’s findings are informative, but it remains unclear whether lower socio-economic status naturally leads to lower levels of social capital, which in turn leads to lower test scores, or whether lower socio-economic status leads to lower levels of both simultaneously. She does not answer the central question of this thesis because she fails to introduce an exogenous factor which would affect both sets of children.

It should be noted however, that together with ongoing economic developments in the United States, Drummey’s finding is concerning. Reardon and Bischoff (2016) have found that

"income segregation" is on the rise in the United States. Income segregation refers to the number of families living in poor or affluent neighborhoods in a given metropolitan area relative to that metropolitan area's median income. Reardon and Bischoff discovered that this phenomenon has gotten steadily worse since 1970, with income inequality being the driving force. The implication is that, over time, the children of the wealthy will be concentrated in the same schools and the same neighborhoods. They will live their lives separated from those of a different socioeconomic status. and as Drummey discusses, the children of the wealthy are more likely to participate in after school activities than those who are not. If wealthier children become increasingly concentrated in wealthier schools, then they will have an abundance of social capital available to them compared with other children in the United States. Having fewer children participating in after school activities will limit opportunities for those who want to engage in them, further harming their educational outcomes as a result. Once again, this example illustrates the point that even if one controls for median income, it is difficult to control for other advantages that accompany higher levels of income.

Another relevant paper is from Krause & Reeves (2017), who examined the causes of community economic mobility in rural areas. They concluded that two of the primary indicators for rural economic mobility are family stability and access to social capital. A various proxies for social capital, such as voter turnout and the religiosity of the local population. As with the case of income segregation and test scores, severe consequences loom for rural communities given the importance of these two indicators. For example, in a paper written after *Bowling Alone*, Putnam (2018) noted that familial bonds are fraying. Families are growing smaller, and many will never have children at all. Putnam argues that this trend will mean that many of the elderly will face their old age "kinless" and will be forced to live in isolation. If they have little money saved for

retirement, lacking any type of familial or communal safety net could allow many elderly to fall into poverty as they continue to age (Verdery and Margolis, 2017). This problem has the potential to be especially acute in rural communities, which often lack easy access to social services, and it will continue to fuel social decay in these communities. Furthermore, Krause and Reeves also note that many people in rural communities disproportionately face significant health problems and barriers to economic mobility that puts them at a disadvantage compared to those who reside in urban and suburban areas. So although family stability and social capital are predictors for community mobility in rural areas, large proportions are already at a disadvantage compared to cities.

Once again, the flaw in this study is that it succumbs to the endogeneity problem. Rural communities can vary immensely in terms of socio-economic status (Chetty, 2014). For those that are poorer, this raises the question of whether their poverty is limiting both their social capital and their mobility simultaneously. It is also possible that their poverty is limiting their social capital exclusively, and that this lack of social capital is what's limiting their mobility. In addition to this, Krause and Reeves' study differs from this thesis in three ways. Their definition of social capital was different, and the variables they used because of this focused mostly on family structure and measures of civic engagement such as voter turnout. In focusing exclusively on mobility, their scope was narrower than what this thesis examines. Finally, in focusing on rural areas exclusively, their study is limited in scope.

Similarly to Krause and Reeves, Austin (2017) gave an account of how people in rural areas, especially single mothers, face obstacles that stem from an absence of social capital. Austin documented how individuals living in cities have an inherent advantage against social decay compared with those in rural areas. This is because people living in cities have close

proximity and easy access to social capital and resources meant to help support them compared to those who live in rural areas. It should be noted that Austin's definition of social capital is much more expansive than the definition given in this thesis. In addition to different types of organizations, Austin expands her definition to include different types of social and physical infrastructure. For example, one of the key problems she identifies is that community colleges do not have educational programs designed that cater to those living in rural areas.

With that said, her findings are of great interest to this thesis. Austin identified the presence of churches as being an important factor in determining whether a rural community will experience social decay. One other important finding Austin had is that, unless one believes that a lack of opportunity in his community is holding him back, one is unlikely to attribute community dynamics or social capital as contributing to his major life decisions. So while it is possible that the community plays an unseen role in crafting one's life decisions, people do not often recognize this on their own. Instead they believe themselves to completely autonomous individuals. Austin's study differs from this thesis in two key ways. It is both limited in scope, and the effect is not estimated empirically. Austin conducted her research by interviewing single mothers in rural communities, so while it is interesting to hear their needs and perspectives, it does not mathematically inform whether social capital affects social decay.

The disadvantages that Krause, Reeves, and Austin highlight are not true of all rural communities. In his Equality of Opportunity Project, Chetty measured how geography affects economic mobility. He examined the median household incomes of a sample of individuals who grew up in a given county, even if they no longer lived in that county. Although large metro areas did well, Chetty found that many of the counties with the highest economic mobility are in the rural areas of the Great Plains and Upper Midwest. Likewise, in a working paper at Purdue

University, Smith et al. (2017), surveyed and compared extant literature on economic mobility, and concluded that even when differences in income are accounted for, there are large geographic variances in mobility. Their findings are not just applicable to rural areas, but they apply to cities as well. For instance, a low-income student in San Jose is almost three times as likely as a low-income student from Charlotte to experience upward economic mobility. Both of these studies suggest that there are other factors involved in determining economic mobility besides income.

In all likelihood, these differences stem from different factors. A study from Ferrie, Massey, & Rothbaum (2016), discussed one potential cause, and suggested that this regional inequality has deep roots. They discovered that the educational attainment of not just one's parents, but also of one's grandparents, can have a discernable effect on one's own educational attainment. This finding likely accounts for some of the mobility differences among counties. A lack of educational emphasis from one's family and community might not have been a problem in an era where a high level of education was not necessary to receive a high paying job. It is severely consequential in an era that places a premium on educational attainment, and it results in economic hardship for communities that do not emphasize it.

Ferrie, Massey, and Rothbaum's finding also implies that a community's educational attainment is affected by its underlying culture. In an era when a college degree was not a prerequisite for entry into the middle class, one's family and community would have to value education if one was encouraged to pursue a college degree. Now to be sure, how highly a community values education is just one part of its culture. Other factors play a part. Huggins & Thompson (2015) explored how a community's underlying culture and characteristics affect entrepreneurship, and how that in turn affects how communities recover from an economic

downturn. They ascertained that communities that experience higher levels of entrepreneurship and economic resiliency are characterized primarily by their diversity, access to education, and openness to experience. Though their paper did not examine the effect of culture on social decay directly, they demonstrated that differences in a community's culture apart from education can affect a community's economic resiliency and economic growth.

While the last four studies cited do not deal with social decay, they are important for this thesis because they have identified something crucial. That is, a community's underlying culture matters for both the educational attainment of its students and for its economic activity. If the underlying culture of a place can affect these variables, it is not unreasonable to suggest that they can affect social decay. As such, all of these studies reveal the need to control for cultural differences when examining how social capital affects social decay. These cultural differences are influential, and controlling for them will be equally important as controlling for median household income.

2.3 The China Shock Exogeneity Test

With the exception of the four studies that deal with the importance of cultural differences, all of the works listed above, including Murray's, suffer from the same identification problem. They fail to take into account the fact that they are working with endogenous variables, and they treat them as if they are exogenous. This thesis escapes this problem by introducing something that is actually exogenous into what Murray originally examined, the decline in manufacturing employment from 1990-2008. This data was gathered from a dataset used in a paper by Autor, Dorn, and Hanson (2013) of the China Shock Project. The conclusion of their paper was that China's entry into the World Trade Organization was the primary cause of a severe decline manufacturing employment across the United States. The decline had extensive

repercussions. It transformed the nature of blue-collar work while causing many communities to economically stagnate. Furthermore, they found that this effect was not limited in nature. Every county in the United States was affected by the decline in some fashion. This event was unexpected and caught many observers off-guard, as China had been a provisional member of the WTO before its full entry. Due to its prior provisional membership, the effect on employment was not expected to be drastic. It should be noted that China's full entry into the WTO brought many positive benefits with it in addition to the manufacturing employment decline, and many towns actually experienced a boom from its entry. Areas generally only did poorly if they were a small town that was solely reliant on one type of industry or one major employer. With that said, the seminal and widespread nature of the event makes it the perfect variable to test Murray's thesis. China was not directing its imports into counties based on that counties level of income or social capital; therefore, the extent of the manufacturing employment decline varies considerably across regions that are of otherwise similar demographic and socioeconomic conditions. This is important, as once this source of exogenous variation is applied to the regression model used in this thesis, the model will not be picking up regional differences.

In testing Murray's conclusion in *Coming Apart*, this thesis attempts to answer one central question. How will changing the number of different types of community organizations within a county affect that county's resiliency against social decay? Although it is dedicated to testing Murray's conclusion, this thesis hypothesizes that yes, involvement in one's community will be positively correlated with resiliency against social decay. People need a strong social fabric in order to help them overcome difficult economic circumstances and prevent them from succumbing to despair. It does not seem unreasonable to suggest, for example, that by relying on the support of people he has met in different areas of his life, such as at a Rotary club or at

church, that someone will be prevented from turning to opioids or falling into poverty when he loses his job.

This thesis offers several unique contributions to the existing literature on social capital. Primarily, it introduces a source of exogenous variation into a test that had only previously been conducted with endogenous data, something that has never been attempted before. This thesis is also unique in that it is the first study to account for how innate cultural differences affect resiliency against social decay across counties by measuring the effects of community involvement across time and through a variety of economic circumstances. It will do so by using a type of regression model that measures variation within counties as well as between counties. More detail will be given on how this will be done in the next section. In addition to this, this thesis is unique in that it is the first to examine how the physical presence of community institutions affects resiliency against social decay. It should be noted that in this respect, it differs from Murray's work, as he relied on self-reported survey data.

For the purposes of this thesis it is important to clarify some definitions. Moving forward, the terms social capital and community organization are interchangeable. They refer to any organization that fosters involvement in one's community in such a way that one has the ability to meet other people and forge lasting social connections. From here on out, unless otherwise indicated, the term social stress points will refer to the measures of social decay that this thesis has chosen to study. It is also useful to define the six independent variables in this thesis. Their selection and definition come from Pennsylvania State's Northeast Center for Rural Development (2006, with updates). A *religious organization* can be a church, a synagogue, or a mosque, but it is also more expansive than that. It can also refer to any organization that meets for a religious purpose or is motivated by religion, but is not necessarily a place of worship. A

civic association is a group that represents either a neighborhood or a town in order to address issues of local concern. A *business association* is a group that represents the interests of different businesses within the same industry. A *professional association* is a group of people who share the same occupation who meet to discuss changes within that occupation. It can also seek to represent the interests of a particular profession. A *fitness organization* is a place people go to for exercise. It can refer to a gymnasium, a YMCA, or a recreational sports league. A *labor union* is a group of workers who group together for better bargaining power against their management so that they can receive better pay and benefits.

III. Data

Table 1: Summary Statistics	Mean	Standard Deviation
Civic Associations per Capita	1.53	1.66
Religious Organizations per Capita	8.74	4.79
Fitness Organizations per Capita	0.44	0.62
Business Associations per Capita	0.71	1.04
Professional Associations per Capita	0.14	0.43
Labor Unions per Capita	0.48	0.69
Manufacturing Employment Rate	0.11	0.05
Civic Associations*Manufacturing Employment	0.17	0.2
Religious Organizations*Manufacturing Employment	0.98	0.72
Fitness Organizations*Manufacturing Employment	0.04	0.06
Business Associations*Manufacturing Employment	0.07	0.09
Professional Associations*Manufacturing Employment	0.01	0.04
Labor Unions*Manufacturing Employment	0.06	0.1

Table 2: Summary Statistics for Change in Variable Values from 1990-2010	Mean	Standard Deviation
Civic Associations per Capita	-0.43	1.45
Religious Organizations per Capita	1.89	3.4
Fitness Organizations per Capita	0.54	0.81
Business Associations per Capita	0.33	0.33
Professional Associations per Capita	0	0.44
Labor Unions per Capita	-0.17	0.59
Manufacturing Employment Rate	-0.04	0.04
Civic Associations*Manufacturing Employment	0.01	0.05
Religious Organizations*Manufacturing Employment	-0.05	0.17
Fitness Organizations*Manufacturing Employment	-0.02	0.04
Business Associations*Manufacturing Employment	-0.01	0.04
Professional Associations*Manufacturing Employment	0	0.02
Labor Unions*Manufacturing Employment	0.01	0.03

The tables above include summary statistics for both the data itself and the change in the value of the data over time. The data includes the six independent variables of interest and their interaction terms. It also includes the controlling variable manufacturing employment, as this is what the independent variables will be interacted with. For the independent variables, it should be noted that the data as described here is not how the data appears in its original form. Pennsylvania State's original dataset includes the list of the total number of different types of community organizations for each county. In order to be of use, this had to be converted to per capita form by dividing the number of community organizations in a county by the county's total population. As the values this produced were minuscule, the data was then scaled by 10,000. Within the tables, the interaction variables should be of particular interest, as they are how

exogeneity is introduced into the model, and as such, they are going to be the variables of interest in the regression output.

It should also be noted that the data in the second summary statistics table provides evidence against Robert Putnam's (2000) thesis that there has been a decline in participation in community organizations. The only types of organizations that show a decline in their number over a twenty year period are civic organizations and labor unions. All four other types of organizations have increased in number. This gives credence to the views of Lenkowsky (2000) and Putnam's other critics, who argue that participation in such organizations is not declining so much as it is shifting to new types of organizations. So while many traditional organizations such as civic associations and labor unions may be on the decline, a greater number of Americans appear to be joining organizations related to their professions, joining gyms and playing in intramural sports leagues.

As previously stated, the goal of this thesis will be to measure how the physical presence of community institutions effects community resilience against social decay through introducing an exogenous variable into the data. The regression model that will be used to discover if such an effect exists will have multiple independent and dependent variables for measure of social capital and social decay respectively. It will also contain controlling variables in order to gain a more accurate rendering of that effect. All three variable categories will have either its own unique dataset, or it will have multiple datasets for the different variables in each category.

The number of community institutions within a county will serve as the independent variable in the regression model. This overarching variable will be split into six other variables, each of which represents its own type of community institution. The data for the independent variables comes from Pennsylvania State University's Northeast Center for Rural Development

(2006, with updates). Within the dataset, the number of divisions for community institutions extends across ten categories, but only six have been selected for this thesis. Some examples of variables that were not included are political organizations, golf clubs, and bowling leagues. The reason for the non-inclusion of these variables is that far more than a majority of counties had no such organizations. This means that they would only impart information for a relatively small number of counties that are either highly populated, highly affluent, or both. The six variables that have been selected for use in the regression model are religious organizations, civic organizations, business organizations, professional organizations, fitness clubs, and labor unions. While there were many counties that still did not have one of these types of organizations, all six variables were present in a majority of counties. Thus, these variables will be far more informative about their effects on the dependent variables of interest than the four that were not included.

The Pennsylvania State dataset also updates existing variables over a number of different years. These updates do not occur over fixed intervals, and can occur anywhere from four to seven years after the release of the previous data. Pennsylvania State claims that the reason for this seeming randomness is that the resources they needed to take social capital measurements were only available at certain times. The years that are currently covered by the data span from 1990-2014, with measurements for the years 1990, 1997, 2005, 2009, and 2014. However, this thesis will only use data through 2009, as the available data for this study's source of exogeneity, the data from the China Shock Project, does not extend beyond that year.

In addition to the independent variables the regression will have seven different controlling variables. As stated previously, the most important of these controlling variables is derived from a paper by Autor, Dorn, and Hanson (2013) detailing the role of China in the

decline of manufacturing employment in the United States. Given that the extent of the decline varied considerably across counties, it is beneficial to the regression model to include it as a controlling variable. However, this thesis will also use the change in manufacturing employment as an interaction term with each of the independent variables. An interaction term multiples two regression variables together in order to see if those variables have any appreciable effect on each other, in addition to their on the dependent variable. Interacting the decline in manufacturing employment with the social capital variables will demonstrate whether the presence of community institutions played a role in either preventing or slowing the social decay within counties that experienced an acute decline in manufacturing employment. Within the regression model, the interaction term will be represented as:

BX*China

Where BX is one of the six measures of social capital and China is the decline in manufacturing employment.

Another controlling variable chosen for the regression model is county level median household income. In order to have this controlling variable closely align with the years in the social capital dataset, multiple datasets are used for this variable, all of which are from either the Census Bureau's decennial census or the American Community Survey's five year estimates (ACS). The reason for this variable's inclusion is that much literature has been written demonstrating that communities that are wealthier will be more likely to have those who live there participate in community institutions. It can be reasonably inferred that communities where people are more likely to participate in communal activities will have a greater number of community institutions once population size has been adjusted for. In addition to median

outcome, five different proxy variables will be used in order to control for any racial disparities in social decay outcomes, White, Black, Hispanic, Asian, and Native American.

What this thesis is ultimately trying to measure is social decay, but that is a broad concept in and of itself, and it necessitates a series of proxy variables. While the list of proxy variables chosen for this thesis might not be comprehensive, five proxy measures were selected for use in this thesis, all of which represent a unique measurement of community health. The first of these is high school dropout rates for 16 – 19 year olds. It is a well-known fact that education can improve one's life standing through increasing one's lifetime income. Using the dropout rate as a proxy will measure student educational outcomes. If the dropout rate is negatively correlated with an increase in social capital, it can be said that the presence of social capital institutions in a community has a positive effect on educational outcomes. Likewise, the college attainment rate is a different proxy meant to measure educational outcomes. Just as with those who complete high school, students who attend college will increase their earning potential (Federal Reserve, 2018). However, the key difference here is that virtually every child growing up in a community will attend high school, and as such it gives a broader indication of community health. By contrast, college attainment is a more targeted measurement, as only a subset of people in a community will have completed a four year degree. In this instance, it can be said that if the college attainment rate is positively correlated with an increase in social capital, then social capital will have a positive effect on educational outcomes. Like the controlling variables median household income, there are multiple datasets for every year measured, all of which are from either the decennial census or the five year estimates of the ACS.

Although both the high school dropout rate and the college attainment rate are good indicators of community health, on their own, they suffer a weakness of only measuring social

resilience among the young. Other measures are needed in order to capture resiliency among the entirety of the population. Using the poverty rate among the working age population gives one the ability to measure any effect on resiliency side-by-side with educational attainment. This way, social mobility can be measured both for young people and people of prime working age. As with the other dependent and controlling variables, the datasets used for the working age poverty rate from the decennial census and the yearly estimates of the ACS. In addition to this, this thesis will also examine resiliency against drug overdoses. This measure is especially relevant as overdoses from opioids have increased both dramatically and steadily over the past thirty years (Institute for Health Metric and Evaluation, 2014). The last social stress point this thesis measures is suicides. While suicides have not increased as dramatically as overdoses over the past thirty years, they have risen just as steadily. Accordingly, they are now a key factor in the deaths of despair that are adversely affecting many communities. The data for both of these variables has been taken from the Institute of Health Metrics and Evaluation.

It should be noted that in many cases, data for the independent, dependent, and controlling variables was not all available for the same year. For example, Autor, Dorn, and Hanson's data for manufacturing employment ended in the year 2008, but the social capital data was only available in 2009. Given the nature of the data, it is unlikely that manufacturing employment or the number of community institutions in a county changed dramatically over the course of a one to three year period, especially so if economic conditions were relatively stable during that time. As a result, this thesis extrapolates some of the data through grouping adjacent years together. This occurred in two particular instances, the first is the period from 1997-2000, and the second is the period from 2008-2009.

IV. Results

4.1 The Two Regression Models

Variation in the data over time carries the benefit of being able to control for factors within counties that are abstract and difficult to measure. For instance, as suggested by the study from Huggins and Thompson, it is possible that some communities have innate cultural differences that foster greater levels of social resiliency among their populations compared with other communities. Even within the United States, different regions and communities can have different cultures and social norms that might affect participation in community institutions. For instance, a small town composed primarily of Lutherans in the Upper Midwest might naturally have a stronger community than Catholics living in Boston. The opposite might also be true. Varying the data over time will control for any possible cultural differences by enabling this thesis to use a type of regression that will vary counties against themselves in addition to against each other.

Furthermore, the presence of these innate cultural differences, with no good way to measure them empirically or include them in the regression model, is why this thesis will include two separate regression models. Both are meant to account for these cultural difference, but in different ways. The first such model is known as a fixed effects model, so named because it includes a fixed effect term in addition to the usual regression coefficients. The role of this fixed effect term will be to give a numerical value to any variables that the regression does not account for and are likely to not change over time. Cultural differences are likely to be the primary variable captured by the fixed effect term, but it will also capture all other variation from factors not included in the regression model. This particular model will include two fixed effect terms. The first, county fixed effects, will capture unexplained variation that changes across time but

remains constant across counties. The second, year fixed effects, will capture unexplained variation that changes across counties but remains constant overtime. Before measuring the different observations in a dataset against one another, a fixed effects model measures all of the different data points within a county at different times to see what effect any change in the independent variable had on the dependent variable within that particular county. The regression equation for the fixed effects model is reproduced below:

Fixed Effects: $Y_{it}=Bchina_{it}+Bchina*X_{it}+BX_{it}+BZ_{it}+\theta_i+\Psi_t+\varepsilon_{it}$

The subscript i represents changes across counties, while the subscript t represents changes across time. BX represents all of the social capital independent variables. Bchina is the variable that will be used for Autor, Dorn, and Hanson's data on manufacturing employment. As explained in the data section, Bchina*X is an interaction term between the social capital variables and the change in manufacturing employment, which will be present for all six social capital variables. BZ represents the other controlling variables in the equation, county level median household income and race. Y is the dependent variable and represents the five proxy measures of social decay. The county fixed effect term θ captures unexplained variation in the data across counties. The time fixed effect term Ψ captures unexplained variation in the data across time. The ε represents the error term, which captures any variation not captured by the model itself or the fixed effect terms.

The second model that this thesis will use is known as a first difference model. This model has the same role as the fixed effects model in that it is meant to control for variables that are difficult to measure empirically. Unlike the fixed effect model, the first difference model does not measure the effect of all of the data points within a county. Its name comes from the fact that one subtracts the oldest set of data points from the most recent set of data points to come

up with the difference. This difference measures how much a particular independent or controlling variable has changed over time, and what the effect this change has upon the change in the dependent variable of interest. The equation for the first difference model is reproduced below:

First Difference: $\Delta Y_{it}=\Delta Bchina_{it}+\Delta Bchina*\Delta X_{it}+\Delta BX_{it}+\Delta BZ_{it}+\Delta c_i+\Delta \varepsilon_{it}$

All of the terms in this model represent the same things they did in the fixed effects model, with the primary difference being the addition of the symbol Δ, which signifies change over time. The one exception to this is the c, which replaces the fixed effects term and represents the omitted variables that the model will be accounting for through measuring the change in the data over time.

Both models are intended to accomplish the same task, so one might ask: Why not use just one or the other? There are distinct advantages and disadvantages that come with using one model over the other, and though the difference is subtle, the two models actually measure two different things. On the whole, the fixed effects model is generally the more preferable of the two. The reason for this is that a fixed effects model will first compare all of the individual observations in a given county to the mean of that county's observations, before comparing those observations to other counties in the dataset. By comparing each observation to its county mean, it operates more like a typical cross-sectional regression with the chief difference being that it has the ability to measure data over time. In addition to this, a fixed effects model has the added advantage of using all of the observations in a dataset when producing the regression output, as opposed to just the oldest and the most recent sets of observations.

The primary disadvantage of a fixed effects model, in this particular case, is that it carries with it the risk of producing a flawed outcome. In order to match up all of the social capital variables with available data for the dependent and controlling variables, this thesis uses observations from three different years over a twenty year period. It is possible that both there will not be enough observations within a specific county and that the twenty year period will not be long enough, given the independent variables that this thesis uses, to produce a reliable regression output. Community organizations, like all institutions, are built slowly, and once they are built, they can stand for years without being torn down, even in the face of declining membership. Due to this, there might be too little variability in the data for the model to be perfectly executed, and the results could be flawed. The trouble is that there will be no definitive way of knowing whether the model's results will be flawed or not. So when viewing the regression output for the fixed effects model, it might be better to take them with a larger grain of salt than the output for the first difference model.

The advantage of the first difference model is that it does not carry this inherent risk. The reason for this is that it does not compare a county's individual observations to the mean of those observations, and thus will not fall victim to limited variability. It simply takes the difference between the most recent data and the oldest data and compares that observation to all other observations in the model. So even if there is only a small change over the twenty year period, having 3,105 observations in the model ensures that there will be enough variability in the data to produce a reliable regression output. Yet even though it carries no risk with it, the first difference model is not the best possible estimator. Provided that it does not succumb to a lack of variability, the fixed effects model is preferable. The reason for this is that by only measuring the overall change in the data, the first difference model does not account for multiple data points

within a county and how those data points vary from each other. Thus, while the first difference model helps control for factors in the data which are difficult to measure, it does not account for these factors as efficiently as the fixed effects model does.

Before moving onto the regression outputs, it should be noted that as a result of there being five different dependent variables, five regression equations will be used for both regression models to measure the effects of different institutions on social mobility. However, all regressions ultimately come from the same two overarching regression equations that govern each model.

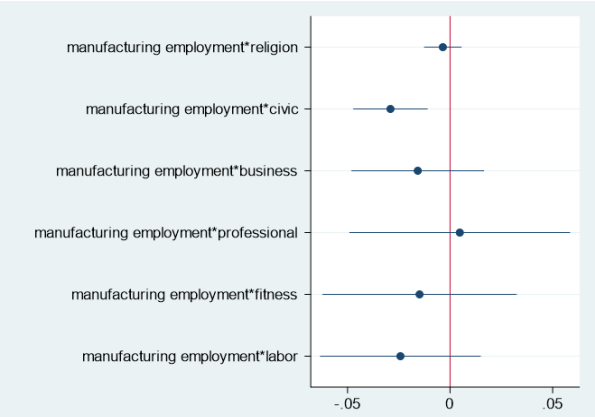
4.2 Fixed Effects Model Results

Table 3: Fixed Effects Model Regression Coefficients	**High School Dropout Rate**	**Poverty Rate**	**College Attainment Rate**	**Overdose Rate**	**Suicide Rate**
Manufacturing Employment Rate	0.503***	-0.440***	-0.014	-57.39***	-6.637***
	(0.0484)	(0.0306)	(0.0459)	(3.096)	(1.535)
Civic Associations*Manufacturing Employment	-0.0291***	-0.0215***	-0.0421***	1.901***	0.687*
	(0.00921)	(0.0068)	(0.0163)	(0.597)	(0.364)
Religious Organizations*Manufacturing Employment	-0.00353	0.00184	0.0278***	-0.678***	-0.778***
	(0.0046)	(0.00268)	(0.00475)	(0.256)	(0.135)
Fitness Organizations*Manufacturing Employment	-0.0149	0.0214*	0.0767**	-0.88	1.178*
	(0.0241)	(0.0129)	(0.0344)	(1.216)	(0.659)
Business Associations*Manufacturing Employment	-0.0157	0.0314***	-0.0128	2.062**	1.404**
	(0.0164)	(0.012)	(0.0218)	(0.863)	(0.59)
Professional Associations*Manufacturing Employment	0.00475	-0.0198	0.104**	0.849	-0.209
	(0.0274)	(0.0198)	(0.0509)	(1.923)	(0.93)
Labor Unions*Manufacturing Employment	-0.0242	-0.0700***	0.00238	-0.163	0.109
	(0.0199)	(0.0116)	(0.0247)	(2.171)	(0.815)

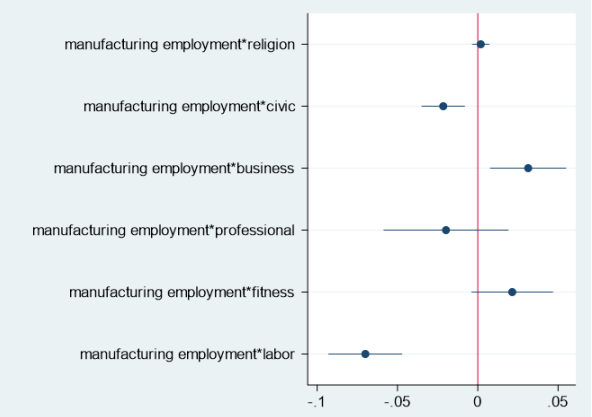
Note: The asterisks next to the numbers in table 3 indicate statistical significance. One asterisk indicates significance at a 90% confidence level, two at a 95% confidence level, and three at a 99% confidence level.

Figure 5: Fixed Effects Coefficient Plots

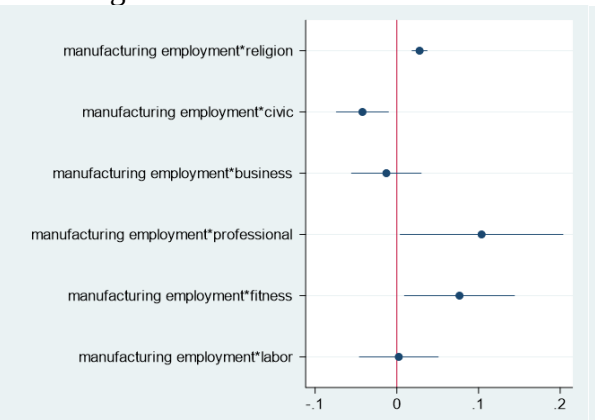
High School Dropout Rate Coefficients



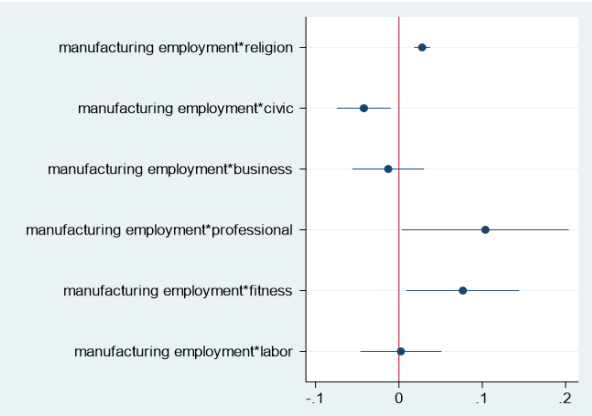
Poverty Rate Coefficients



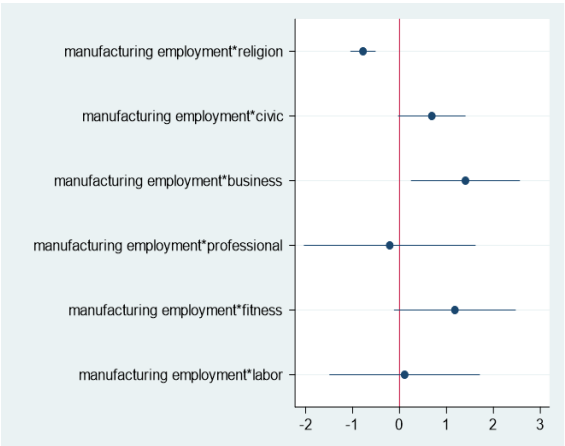
College Attainment Rate Coefficients



Overdose Rate Coefficients



Suicide Rate Coefficients



The table and the figure listed above detail the regression output and the coefficient plots for fixed effects model. Table 3 lists the regression coefficients and the standard error for each

variable of interest, while figure 5 gives five different coefficient plots each based on one of the proxy variables for social decay. The tables lists out all of the interactions between the social capital measures and the decline in manufacturing employment. Although manufacturing employment by itself serves as a control variable, it is important to include in the tables as it is the source of exogeneity for the test.

Of all of the interaction terms, only religious organizations have a correlations that are beneficial for the community across multiple variables. Higher numbers of religious organizations are correlated with a higher college attainment rate, a lower overdose rate, and a lower suicide rate, all at a 99% confidence level. Religious organizations stand out as being the only type of community institution that seems to promote resiliency against social decay. Thus, this type of organization could be the only type that betters the community through a stronger social fabric. The two other possible exceptions to this are professional organizations and labor unions which are correlated with a higher college attainment rate at a 95% confidence level and a lower poverty rate at the 99% confidence level respectively. However, given that these are the only dependent variables these types of institutions have any effect on, it is doubtful that they have a beneficial effect due to any sort of strengthening of the social fabric. Professional associations might correlate with higher college attainment because counties with more professional organizations are likely to have a higher number of professionals, whose children are more likely to attend college than others. At the same time, labor unions might correlate with a lower poverty rate because they fight against economic insecurity.

There are several other variables in this equation that correlate with a higher resistance to social decay in some measures, but this was counteracted by the fact that these same variables also correlate with lower resistance to social decay on other measures. Fitness organizations are

correlated with a higher college attainment rate at a 95% confidence level, but they are also correlated with a higher poverty rate and a higher suicide rate at a 90% confidence level. Similarly, civic organizations are correlated with a lower high school drop out rate and a lower poverty rate at a 99% confidence level, but they are just as highly correlated with a lower college attainment rate and a higher overdose rate. This seems counterintuitive. Why might this be? While purely speculative, this could be because civic associations have a unique place among these variables, as they might be targeted specifically towards helping the materially disadvantaged, and as such may be located in lower income areas. They might succeed in their aims of preventing children from dropping out of high school and giving the poorest in their community a helping hand. However, by virtue of being in a lower income area, they will be correlated with higher levels of social decay for measures they are not trying to protect against. Fitness organizations present a harder puzzle, and it is possible that its correlations might be entirely spurious.

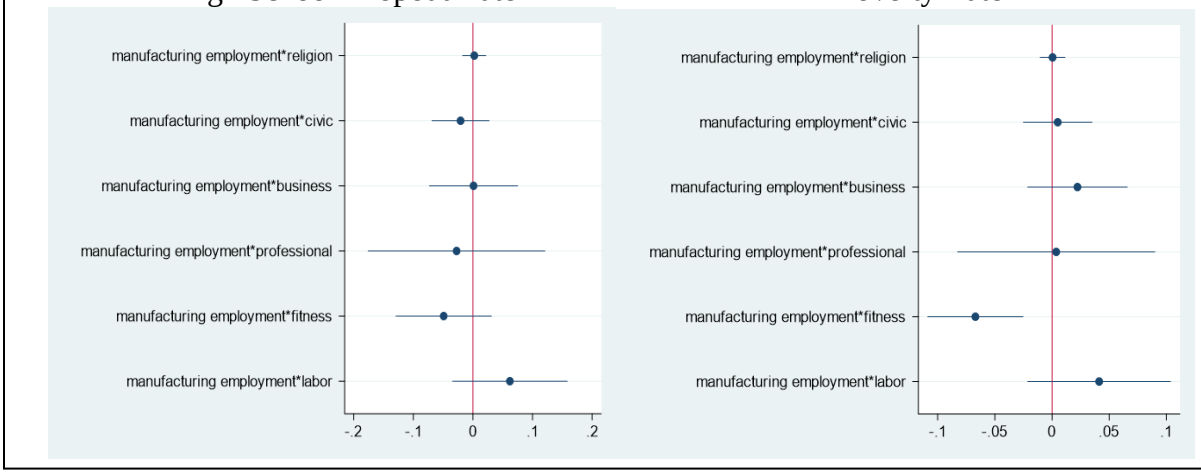
Although not an interaction term, it is also worth noting the effect of manufacturing employment on the overdose rate because of its magnitude. A one point increase in an area's manufacturing employment rate results in the overdose rate declining by 57 points. This dwarfs all other regression coefficients in the regression output, and it seems to indicate that the decline in manufacturing employment played a large role in fueling the drug overdose, and more specifically the opioid, epidemic.

4.3 First Difference Model Results

Table 4: Difference Model Regression Coefficients	High School Dropout Rate	Poverty Rate	College Attainment Rate	Overdose Rate	Suicide Rate
Manufacturing Employment Rate	0.3559***	-0.3392***	-0.0702***	-18.135***	1.441
	(0.0458)	(0.0257)	(0.0182)	(2.8586)	(1.2153)
Civic Associations*Manufacturing Employment	-0.0208	0.0049	0.0394***	1.8589	-0.6311
	(0.0245)	(0.0153)	(0.0123)	(1.3355)	(0.6228)
Religious Organizations*Manufacturing Employment	0.0021	0.0005	0.0107**	-0.3728	0.0534
	(0.001)	(0.0055)	(0.0043)	(0.4663)	(0.2087)
Fitness Organizations*Manufacturing Employment	-0.0492	-0.067***	-0.0708***	-2.6891	0.3259
	(0.0409)	(0.0212)	(0.0177)	(1.945)	(1.0437)
Business Associations*Manufacturing Employment	0.001	0.0222	0.0388***	4.6113**	0.4623
	(0.0378)	(0.0222)	(0.0134)	(1.7764)	(0.7525)
Professional Associations*Manufacturing Employment	-0.0275	0.0036	-0.0059	-2.1071	-0.4854
	(0.0757)	(0.044)	(0.0423)	(3.4267)	(1.8892)
Labor Unions*Manufacturing Employment	0.0619	0.0412	-0.0293	-2.3976	-1.1472
	(0.0491)	(0.0319)	(0.0207)	(4.7672)	(1.8206)

Note: The asterisks next to the numbers in table 4 indicate statistical significance. One asterisk indicates significance at a 90% confidence level, two at a 95% confidence level, and three at a 99% confidence level.

Figure 6: First Difference Coefficient Plots



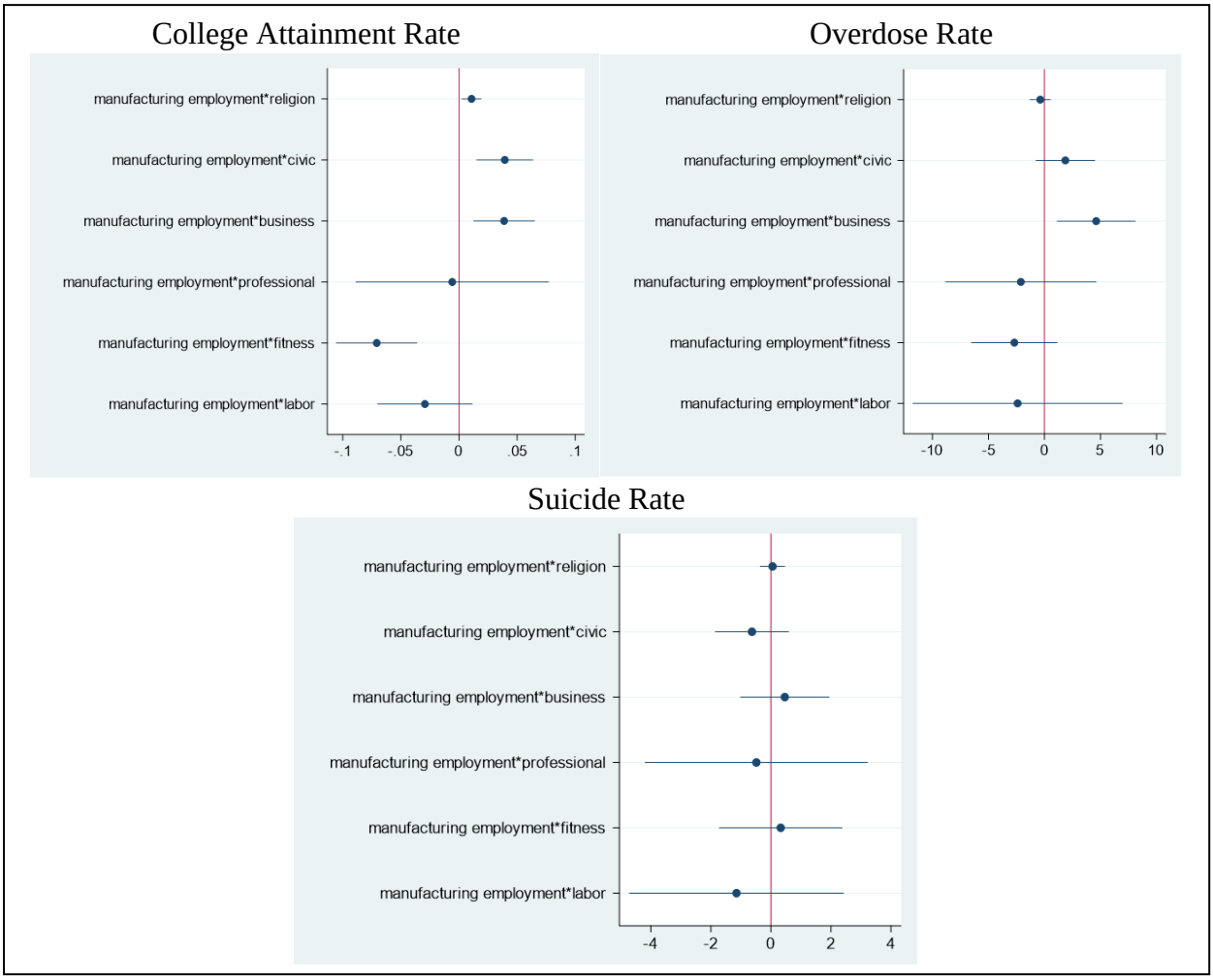


Table 4 lists the regression coefficients and the standard errors for the first difference model, while figure 6 is a collection of coefficient plots for each variable. The regression output in this model largely serves to confirm the validity of the regression output in the fixed effects model. One of the primary indicators of this is the outsized effect that manufacturing employment, the source of exogeneity, has on the overdose rate, dwarfing all others in the regression output. There is also a remarkable lack of statistically significant correlations across multiple variables. Beyond this, as with the fixed effects model, fitness organizations display counterintuitive results, demonstrating a simultaneous statistically significant correlations of a lower poverty rate and a lower college attainment rate, both at a 99% confidence level. In

addition, this model also features a counterintuitive effect for business associations, which seem to increase both the college attainment rate and the overdose rate at a 99% and a 95% confidence level respectively.

However it should also be noted that there are several notable departures from the fixed effects model. To begin with, religious organizations are correlated with a higher college attainment rate, at a 95% confidence level, but nothing else, whereas in the fixed effects model religious organizations had a beneficial correlation on a wide variety of outcomes. Additionally, there are no counterintuitive effects for civic associations in the first difference model. In the fixed effects model, it was correlated with a wide variety of variables, sometimes with increased resiliency and sometimes with decreased resiliency. In the first difference model, the only statistically significant correlation is with a higher college attainment rate at a 99% confidence level.

With these few exceptions, community organizations seem to be largely uncorrelated with increased resiliency against social decay. When one compares the results in the first difference model to the results in the fixed effects model, religious organizations stand out as being the only type of community institution that had an unambiguous effect on increased social resiliency across multiple variables and both models. This gives evidence against Murray's (2012) view that a decline in social capital is responsible for ongoing social decay. Once a source of exogeneity is introduced into the model, only religious organizations seem to have any effect on community resiliency.

V. Conclusion

This thesis examines one central question. Is a greater amount of social capital correlated with increased resiliency against social decay. For the most part, the answer to this question is no, with one exception. Religious organizations are the only variable that seem to have a consistent, positive effect on increased social resiliency. Across both models, it was correlated with a higher college attainment at a statistically significant level, and in the fixed effects model, it was correlated with a lower overdose rate and a lower suicide rate at a statistically significant level. Across both models, all other variables were either completely uncorrelated, or they produced an ambiguous effect, correlating with either higher or lower levels of social decay depending upon the variable in question.

This thesis raises two objections to the books that inspired it, *Bowling Alone* and *Coming Apart*. Purely from a perspective of material well-being, this thesis raises the possibility that a decline in community participation might not entirely be a bad thing, again with religious organizations being the exception. It was rare for one of the independent variables to be correlated with any of the dependent variables at a statistically significant level. Even when such a correlation existed, the effect was dwarfed by the manufacturing employment rate. With that said, this thesis cannot contribute to arguments that state that a decline in community involvement is harmful for reasons that are not strictly related to economic mobility or material well-being. Putnam's (2000) thesis in *Bowling Alone*, that a decline in community involvement leads to a coarsening of political discourse and a decline in civic participation, still stands.

This thesis also gives evidence to David Frum (2012) in his critique of Murray (2012). Although Frum never directly addressed the fact that social capital and social decay are

endogenous, he raised the objection that it was likely that there is some type of economic or political force at work behind the ongoing social decay, not a moral decline resulting from the decline of social capital. With the exception of religious organizations, whose decline likely is not contributing to this decline by themselves, Frum appears to have been right. There are other sources behind America's ongoing social decay.

Incidentally, this thesis may have found one of Frum's economic forces behind this decline. Although not one of the primary aims of this thesis, one interesting finding from the data is that the manufacturing employment rate is strongly correlated with drug overdoses, so much so that this coefficient was at least four times as high as all other coefficients across both models. This startling effect occurs even after controlling for median household income. In addition to this, manufacturing employment was correlated with a lower poverty rate across both models. A key inference from this phenomenon is that the decline in manufacturing employment has played an outsized role in the social decay plaguing many communities. Further research should be provided on this point, and potential solutions to reverse the worst effects of the decline should be examined.

In addition to this point, this thesis suggests other areas that further research should be conducted in. It is entirely possible that measuring the number of community organizations in a county on a per capita basis was a defective approach, as this might not have captured the accurate extent of community engagement. For example, many churches will continue to stand even though weekly attendance may be declining. Due to this possibility, further research should use survey data to examine the links between reported community involvement from community residents with the dependent variables presented in this thesis. Returning to Lenkowsky's criticism of Putnam, it is also possible that any decline in the number of community

organizations have been masked by Americans opting instead for other activities. Instead of participating in civic leagues, many Americans might simply be volunteering instead. Further research should examine a larger extent of activities, including volunteer work. Additionally, an unintentional finding of this thesis was that the decline in manufacturing employment has played an outsized role in community decay. Further research should also be conducted on this point by examining how the decline in manufacturing employment has affected social stress points in communities beyond what is examined in this thesis, and policy solutions should be explored for how to mitigate the worst effects of the decline.

This thesis did have one key finding, which was that religious organizations do play a role in mitigating social decay. Policy solutions to ongoing social problem should look for ways to both increase the number of religious organizations in a community and strengthen their involvement in the community. One such solution involves loosening zoning laws to allow religious establishments to coexist alongside housing developments. Many communities in the south have areas known as “church row,” where there is a street or a block with churches of different denominations all alongside each other. These areas exist because current zoning laws often prevent churches from coexisting in the same developments as houses, businesses, or shopping centers. In addition to this, current tax law states that charitable donations, including tithes, can be included among itemized tax deductions. The law could potentially go further than this by also including a tax credit for charitable donations, either generally or exclusively to religious organizations. Finding policy solutions, both to strengthen the role of religious organizations in communities and to mitigate the worst effects of the decline in manufacturing employment, is crucial, as the well-being of many American communities depends on it.

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