

EFFECT OF ECONOMIC FREEDOM ON SOCIAL CAPITAL: PANEL EVIDENCE FROM  
U.S. CONTIGUOUS STATES

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**Title**

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Contiguous States

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State University's regulations and meets the accepted standards for the degree of

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## **ABSTRACT**

This thesis examines the relationship between economic freedom and social capital in U.S. contiguous states from the 1980s to the 2000s as there is a shortcoming of literature on the topic. This study develops a composite social capital index that captures important aspects of social capital such as voter turnout, social trust, informal socialization and religious participation. This study finds that the changes in subnational level economic freedom measures have positive significant effects on social capital while the levels of economic freedom measures have no significant effect on social capital. Moreover, no significant link between all government level economic freedom measures and social capital is observed. This study also investigates the link between economic freedom and social trust, used as a measure of social capital in previous studies; no significant link between economic freedom and social trust is investigated.

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## 1. INTRODUCTION

Putnam (1995a, 1995b, 2000) claims that social capital has been declining over the past decades (since the 1970s) in the U.S. He argues that voter turnout has decreased, people have involved less in organizations and religious affairs, and socializing among people has declined. A decrease in civic engagement may affect negatively the health of a country since strong civic engagement is important for political, social and economic issues such as better schools, faster economic development, lower crime, better neighborhoods, and more effective government (Putnam 1995a, 2000). Moreover, Coleman (1988) and Fukuyama (1995, 2001) independently mention the importance of social capital and agree that the presence of social capital in society is beneficial to both individuals and society. Putnam (1995a, 1995b, 2000) identifies the factors affecting social capital such as education, pressures of time and money, role of women in modern decades, mobility, race, generation effects, change in technology, and the rise of welfare state.

Empirical studies have examined factors affecting social capital in U.S. states. For instances, Glaeser et al. (2002) find that age, gender, education, and home ownership are important factors for social capital. Rupasingha et al. (2006) find that education, female labor force participation, community attachment, age, income inequality, and ethnic homogeneity have significant effects on social capital. However, there are not a lot of studies that examine the effects of institutions or policies on social capital. This is a major omission as government involvements or policies can be influential for individuals' decisions to engage in civic affairs.

How do institutions affect social capital? North (1991) states that effective institutions are required to reduce transaction costs, and they are beneficial to cooperative actions. He defines institutions as "the humanly devised constraints that structure political, economic and social

interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conducts), and formal rules (constitutions, laws, property rights)” (1991, p.97). Hence, there would be a link between economic freedom and social capital since economic freedom as an institution (or government policies in market activities) can provide ground for social interactions that produce social capital.

The link between economic freedom and social capital, however, is not clear since economic freedom may either increase or decrease social capital, or there might be no link at all between these two factors in a society. Referring to Fukuyama (1995), Putnam (1995b) claims that the rise of the welfare state is one of the causes of civil disengagement as big government replaces private choices and undermines civil assets. Therefore, economic freedom may increase social capital as it demands minimum involvement of government in market activities. Berggren and Jordahl (2006) hypothesize that there is a positive relationship between economic freedom and social capital; on the other hand, they point out that “commercialism erodes civic assets such as social capital” (2006, p. 142).

Hence, the relationship between economic freedom and social capital is unclear. A study by Berggren and Jordahl (2006) examining the relationship between economic freedom and social capital across countries, which is defined as trust in their study, is the first effort to investigate the link between economic freedom and social capital. Their findings show that there is a positive link between economic freedom and trust. Using the dynamic panel dataset of U.S. states, Jackson et al. (2014) examine the link between economic freedom and social capital in the U.S. Taking advantage of social capital index developed by Hawes et al. (2013), they find that there is no clear empirical link between economic freedom and social capital. However, it is important to notice that social capital index of Hawes et al. (2013) used in Jackson et al. (2014)

does not capture attitudinal aspects of social capital such as trust, which is an important aspect of social capital.

One possible answer for competing results of these two studies is the use of different measures of social capital – generalized trust in Berggren and Jordahl (2006), and a social capital index (constructed based on non-attitudinal aspects of social capital) in Jackson et al. (2014). Hence, it would be interesting to see what type of relationship between economic freedom and social capital would exist if a composite social capital index that could capture both attitudinal and non-attitudinal aspects of social capital is used as a measure of social capital.

Besides the limited number of studies for the relationship between economic freedom and social capital, there exists a problem in conducting empirical research related to social capital. Fukuyama (2001) points out that one of the weaknesses of the social capital is that there is no consensus among scholars in measuring social capital. The same problem exists in defining social capital since social capital is a multi-dimensional concept. Various measures such as trust, group or organizational memberships, and civic engagement are used to capture the concept of social capital in previous studies. Hence, to capture important aspects of social capital mentioned in previous social capital literature, a composite social capital index of U.S. contiguous states is developed in this study. Using the Fraser Institute's Economic Freedom Index of North America, this study is able to estimate the link between Economic freedom and social capital across U.S. contiguous states over three decades – from the 1980s to the 2000s. Besides, by estimating the link between economic freedom and trust, this study hopes to serve as a bridge between the two previous studies – Berggren and Jordahl (2006), and Jackson et al. (2014).

The contributions of this study to existing social capital and economic freedom literature is threefold. First, this study develops a composite social capital index of U.S. contiguous states.

Second, this study estimates possible links between economic freedom and social capital in the U.S. to examine whether economic institutions or government policies affect social capital (2014). Third, the relationship between economic freedom and trust is also examined to compare with the findings of Berggren and Jordahl (2006). Moreover, this study also estimates the links between the areas of economic freedom and social capital (and trust as well) since the Fraser Institute's Economic Freedom index of North America is made up of three distinct areas – size of government, takings and discriminatory taxation, and labor market freedom.

This thesis is organized as follows. Section 2 introduces social capital while section 3 presents the process of developing a social capital index. Section 4 gives information about economic freedom, and section 5 details possible links between economic freedom and social capital. Data and empirical approach, and results are discussed in sections 6 and 7 respectively. Finally, section 8 concludes with the findings and discussions.

## **2. SOCIAL CAPITAL**

The weakness of concept of social capital is that there is no consensus among scholars in defining and measuring social capital since it is a multi-dimensional concept. It is reasonable to assume that each component (or aspect) of social capital can be implied as social capital based on circumstances; on the other hand, all aspects of social capital can also form to establish a definition or concept of social capital. In addition, the problem with social capital is not just in defining and measuring, also it is debatable to analogize social capital to physical capital. Therefore, in this section, the definitions and concepts of social capital by various scholars from different fields – economics, political science and sociology – are discussed.

### **2.1. Definitions of Social Capital**

Putnam (2000) states that the term “social capital” had been created at least six times in the twentieth century. According to him, L.J. Hanifan, a state supervisor of rural schools in West Virginia, is the first person who used the term “social capital”. Hanifan used the term “social capital” in 1916 to stress how community involvement was crucial for success of schools. Hanifan refers to social capital as “those tangible substances [that] count for most in the daily lives of people: namely good will, fellowship, sympathy, and social intercourse among the individuals and families who make up a social unit...” (Putnam 2000, p. 19). Hanifan’s idea of social capital was not noticed by other social commentators at his time but scholars in different fields of studies - Canadian sociologists in the 1950s, urbanist Jane Jacobs in the 1960s, economist Glenn Loury in the 1970s, and social theorist Pierre Bourdieu in the 1980s - has explored the idea of social capital independently during the twentieth century (Putnam 2000).

Sobel (2002) surveys the literature of social capital, and he offers the definition of social capital by Bourdieu (1986) as follow: “Social capital is an attribute of an individual in a social

context. One can acquire social capital through purposeful actions and can transform social capital into conventional economic gains. The ability to do so, however, depends on the nature of the social obligations, connections, and networks available to you.” Bourdieu (1986) discusses how profits accrued from social capital can be different according to the size and nature of social networks or connections that an individual has. Individuals can sometimes be benefited from social capital through unconscious pursuit of social capital. For instance, living in a neighborhood where social capital is abundant such as higher stock or level of trust among people in the neighborhood.

Sociologist James S. Coleman (1988, p.98) states “... social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors – whether persons or corporate actors – within the structure...” According to Coleman (1988), accumulating of social capital is within the structures such as ties through family, community and religious affiliation. He describes how social ties can facilitate transactions among individuals living in a society where social capital is abundant.

Putnam (1995, p.67) defines social capital as “features to social organization such as networks, norms, and social trust that facilitate coordinating and cooperation for mutual benefit.” Later in his book “Bowling Alone: The Collapse and Revival of American Community”, Putnam (2000, p.19) describes social capital as “...connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them”. Hence, social capital can be described as social interactions among individuals, and trust and norms of reciprocity are built through the interactions that later channel mutual benefits (either economic or non-economic gains) for individuals.

According to Fukuyama (2001, p.7), “Social capital is an instantiated informal norm that promotes co-operation between two or more individuals.” He states that instantiated informal norms are in a wide range - as simple as reciprocity between two friends and as complex as the formally built system of practices or beliefs such as religions. Only when individuals start interacting, the norm of reciprocity comes into realization. Otherwise, the norm of reciprocity is never practiced even though it may exist. He argues that “trust, networks, civil society, and the like, which have been associated with social capital, are all epiphenomenal, arising as a result of social capital but not constituting social capital itself”. Referring to his point of view, social capital causes trust, networks, civil society, and the like forms in social context.

In Woolcock’s words, social capital is described as “the information, trust, and norms of reciprocity inhering in one’s social networks” (1998, p.153). Newton (1997, p.575) defines social capital in three dimensions “... (a) norms and values, (b) networks, or (c) consequences – voluntarily produced collective facilities and resources”, where he means norms as trust. He states that trust is important for a society to deal with social and political stability. The lack of trust leads a society to chaos. Stiglitz (1999) defines social capital in four aspects – tacit knowledge, a collection of networks, reputation and organizational perspectives; the presence of social capital helps individual cope with moral hazard and incentive problems existing in market activities.

Glaeser et al. describe social capital of an individual as “... a person’s social characteristics – including social skills, charisma, and the size of his Rolodex...” (2002, p. F438). Hence, in the modern world of advanced technology in communication, one may measure social capital of a person by the contact lists in his mobile phone, and numbers of friends or followers in his social media accounts such as twitter, facebook or etc. Sobel (2002), drawing on

the compiled works of previous social capital scholars, considers social capital as circumstances where individuals obtain benefits through joining groups and networks. From the view of Paxton (1999, 2002), individuals accumulate social capital through a network of ties (associational ties) where trust, reciprocity and optimism among individuals are necessary. When social capital is acquired, it makes it easier for production of goods at different levels – individual, group and community. Robinson, Schmid and Siles (2002) define social capital as sympathy among individuals or groups. The existence of sympathy among groups or individuals may lead to create beneficial treatments or circumstances for groups and individuals.

Based on the definitions and concepts of social capital by scholars, social capital, in general, can be described as an intangible asset accumulated through social interactions among individuals, and the accumulated social capital later benefits both individuals and society. Trust, reciprocity, sympathy, norms, connections and the like are created through social interactions. Each of these factors (formed as a result of social interactions) can be assumed as a form (or an aspect) of social capital or these entities altogether can form social capital.

## **2.2. Channeling Social Capital through Social Interactions**

Social interactions are important as they are sources of social capital. Without social interactions, it is not possible to build trust, norms, networks and etc. When individuals interact, the building of trust, norms, reciprocity, sympathy and such attitudinal aspects in social context among individuals is processed. The process of building such things can take shorter or longer based on size, characteristics, historical and cultural background of a society. Importantly, frequency of interactions among individuals may account for accumulation of social capital. The process may take shorter if individuals interact more frequently. When individuals interact quite often, it would take shorter time for them to know and learn about each other. Consequently,



frequent interaction leads to accumulate trust, reciprocity or other attitudinal aspects of social capital among individuals faster. Frequency of social interactions may depend on culture of a society. For instance, people living in a religious society are likely to go to church on every Sunday (or their particular religious institutions frequently); in such society, frequency of social interaction is high as participation in religious events involves interactions among individuals. Stiglitz (1999) once mentions that history plays important role in promoting social capital. Hence, societies where people actively involves in social affairs historically witness frequent interactions of individuals, and social capital in such societies might be relatively higher as socializing could be a tradition or custom of such societies.

Glaeser et al. (2002) find that accumulation of social capital is contingent on individuals' investment decisions, and individuals accumulate their social capital when their incentives for joining groups or participating in social activities are high. A utility maximizing individual invests when he sees profitable returns. When returns are not feasible, people will stop investing. Considering social capital as both investment and consumption goods, people invest time and money in social capital accumulating process, which could range from informal socializing to joining a formal organization. Returns from social capital can exist in different forms. For instance, it could be satisfaction that an individual gains through informal socializing activities such as socializing with friends or economic outcomes such as gaining information about job opportunities (or even getting a job) through joining formal social networks.

It might be possible to assume that frequent interaction may also lead individuals not to accumulate social capital when benefits are not feasible in the short term. Suppose that individuals care about only particular short-term benefits (or do not see any short-term benefits) through being members of organizations or networks, then they are likely to quickly quit being

members of such groups. For instance, a person may join a professional organization to get information about more career opportunities to advance his career so he frequently involves in activities such as attending weekly meetings. If he does not obtain any resourceful information about career or job opportunities, assumed as particular short-term benefits, in a short term (let's say a month or may be two), then he may assume or realize that being in a such organization would be a waste of time. Then, he is likely to quit being a member or going to weekly meetings as the more he involves, the quicker he can realize the pros and cons of being involved in social organizations. Hence, frequent interactions can be quite influential to individuals' social capital investment decisions.

### **2.3. Capital Aspects of Social Capital**

Does social capital have properties of capital? Does it differ from the other types of capitals such as physical capital and human capital? Arrow (1999) and Solow (1999) in *Social Capital: A Multifaceted Perspective*, edited by Dasgupta and Serageldin, published by the World Bank, independently criticize that social capital lacks particular properties that define something as "capital". According to Arrow (1999, p. 4), "the term "capital" implies three aspects: (a) extension in time; (b) deliberate sacrifice in the present for future benefit; and (c) alienability." Arrow (1999) argues that social capital completely lacks the second aspect of capital; individuals may not join the networks or associations for explicit economic gains (calculated benefits) such as getting a job through the networks of friends but for other reasons, and hence, individuals need not make material sacrifice for future calculated benefits. Moreover, individuals cannot transfer or sell social capital to each other. Physical capital such as a computer can be transferred among individuals via the market but social capital lacks such aspect of capital.

Solow (1999) criticizes that the term “social capital” is not an appropriate term since it lacks the particular aspect of capital such as a rate of return in comparison with physical capital. Solow (1999, p.7) states that “any stock of capital is a cumulation of past flows of investment, with past flows of depreciation netted out.” Solow (1999) points out that social capital lacks that aspect of capital. According to him, stock of social capital is vaguely measurable, and “behavior patterns” might be more appropriate term instead of social capital.

Coleman (1988) first claims the like of social capital in comparison to the other types of capitals such as physical and human capital. According to him, social capital, like the other types of capital, is created through changes. Physical capital is created by the changes in materials, and human capital is created by the changes in individuals’ knowledge and abilities. Like these types of capitals, social capital is also created by the process of changes in the relations among individuals. A computer, as an example of physical capital, is made through transformations of different raw hardware and transformed materials come together as a final product called a computer. Knowledge and capabilities of individuals is accumulated through the process of learning, and later accumulated capabilities come as human capital. Relationships among individuals are changed through time; as individuals interact more and more, the relationships among individuals become closer and lead to the formation of social capital.

Moreover, Coleman (1988) argues how social capital is useful for production just like physical and human capital. He states that social capital facilitates production easier just like physical and human capital – “for example, a group within which there is extensive trustworthiness and extensive trust is able to accomplish much more than a comparable group without that trustworthiness and trust” (1988, p.S101). Putnam (2000) compares the notions of social capital with physical and human capitals. According to him, as physical capital (tools) and

human capital (education) are required for production and increase productivity in both individual and collective actions, social capital (social contacts among individuals) can increase productivity as well.

Sobel (2002) points out that the efforts of Coleman (1988), Glaeser et al. (2002), and Stiglitz (1999) are not convincing enough to analogize social capital to physical capital. However, scholars mention that research on social capital should not be ignored even though social capital is a controversial concept in term of its analogy to physical capital. Sobel (2002) offers the conclusion of Dasgupta (1999, p. 398) in *Social Capital: A Multifaceted Perspective* as follows: “social capital is useful insofar as it draws our attention to those particular institutions serving economic life that might otherwise go unnoted”. Even though Solow (1999, p.6) is critical of the term “social capital”, he cautions that not to imply his critics on ideas of social capital as “the underlying ideas are unimportant or irrelevant to economic performance.” Hence, research on social capital are crucial to political, social and economic issues; its impacts on society should not be ignored just because of its controversial nature.

#### **2.4. What is Social Capital Good for?**

Scholars have mentioned that positive effects of social capital on broad categories of social and economic issues. Coleman (1988), Putnam (1995a, 1995b, 2000), and Fukuyama (1995, 2001) independently discuss the importance of social capital, and how its presence in society is beneficial to both individuals and society. Coleman (1988) shows how social capital, existing both within and outside of family, can reduce high school dropout rates. Putnam (2000) argues that quality of education, neighborhoods, economy, democracy, happiness and health are contingent on social capital.

Jackson et al. (2014) discuss several functions of social capital. Social capital reduces transaction cost; such kind of function is called the “grease” function. The wholesale diamond market operated by Jewish community in Brooklyn, New York is a great example of such function, offered by Coleman (1988), to illustrate how social capital can help reduce transaction cost in market activities. Jewish are most likely to marry within their own community and live in the same neighborhood. The whole diamond market operated by Jewish is within the closed-knit community. During the process of negotiating a diamond sale, a bag of diamonds, the subject of a sale, will be handed over from a merchant to another merchant to examine the quality of diamonds in his private time. Since the community is small, defecting the game (such as stealing diamonds or replacing with other nonprecious stones) by the merchant who is in possession of diamonds to examine is impossible; even if he attempts to defect the game, punishment is likely to be bigger than the value of diamonds he would steal as he is likely to be punished in terms of family, community and business ties.

Hence, agents in this particular example, Jewish diamond merchants, are least likely to defect the game (the process of negotiating diamond sale) easily. What facilitates the process of wholesale diamond sale in Jewish community is social capital – strong relationships and networks in the community; and social capital serves as an informal institution in Jewish community. Since the defecting the game in this particular example is least likely to happen, it builds trust among the agents, and trust is accumulated over time. Existence of trustworthiness in the community can facilitate not only the sale process of diamonds but also on other social and business occasions. Hence, strong relationships, networks and trustworthiness serve as grease to reduce transaction costs in market activities.

Another example of social capital's grease function is that social capital serves as information channel for individuals (Coleman 1988). A person can gather required information through interaction with friends or colleagues who share same interest; such social interactions can bring up-to-date news or developments of one's particular field or interest without gathering all the available information by oneself. Moreover, a person who belongs to professional organizations can obtain useful information about job opportunities easily as mentioned previously; he or she can reduce amount of time to look for better job opportunities or professional development through networks and affiliations. Hence, such social interactions and affiliations can reduce transaction cost – information cost in this example – for individuals.

Another function of social capital is called “glue” function that can hold societies together (Jackson et al. 2014). Putnam (2000) mentions that social capital can “bridge” diverse societies; with presence of abundant social capital, different networks or societies can access external resources and information. On the other hand, social capital can “bond” homogenous groups – not limited to ethnicity but applied to all sorts of different groups based on demographics, interests or hobbies. Bonding function among the homogenous ethnic group can provide social and physiological support to less fortunate members of the society. Besides grease and glue functions of social capital, social capital (in terms of relationships, sympathy, empathy and the like) is a consumption good for human beings. Relationships with others can fulfill social needs of human beings since physiological needs alone do not fulfill healthy lives for humankind. Moreover, social capital can serve as a part of protection against bad forms of authorities (Jackson et al. 2014).

Empirical studies show the positive effect of social capital on economic growth or development, for instances, Knack and Keefer (1997); Whiteley (2000); Helliwell and Putnam

(1995); Knack and Zak (2003); and Bjørnskov (2012). The positive impact of social capital is not just on growth, but also on other areas, such as the quality of government (Knack 2002), financial development (Guiso, Sapienza and Zingales 2000), democracy (Paxton 2002), and knowledge creation (McFadyen and Cannella 2004). Increase in social capital can also reduce homicide (Rosenfeld, Messner and Baumer 2001). These aforementioned studies are just some selected examples that show impacts of social capital on socio-economic issues.

Even though studies show that social capital is good for society, its externalities can be both positive and negative depending on the types of social capital. Putnam (2000) mentions the dark side of social capital such as social capital in terrorist or extremist groups. Strong existence of social capital in such groups such as ties among its members affect negatively on society. An extremist group is likely to grow animosity against the rest of society, and it will lead violence and chaos to society when the group becomes more powerful. Just as a good combination of human capital, physical capital and social capital can prosper society, a bad combination of those capitals - a nuclear scientist (human capital) from a terrorist group (social capital) possessing raw materials for nuclear weapons (physical capital) - is destructive to society.

## **2.5. What Affects Social Capital?**

Studies have examined the factors affecting social capital. Glaeser et al. (2002) study the formation of social capital in the U.S. by analyzing individual investment to accumulate social capital. Using responses to organization membership questions from the General Social Survey (GSS) as social capital variable, their findings show that individuals aged between 30 and 50 are more likely to join groups or organizations than the others. In addition, they find that females are less likely to join groups than males. Their findings show that both education and home ownership are statistically significantly positive for almost all types of memberships.

Rupasingha et al. (2006) identify factors which matter production of social capital at the level of U.S. counties. They present the production function for social capital using associational activity and other indicators of social capital such as the percentage of voters during presidential elections. They find that education, female labor participation, community attachment, age, and families and children are significantly positive to the producing of social capital. Among these variables, they conclude that education is the single most important determinant of social capital. Homeownership and ethnic heterogeneity have negative and significant effect on social capital. Even though the impact of income inequality is negative, it is not very significant.

Knack and Zak (2003) shows the factors that affect trust through the components such as formal institutions, inequality, and social distance. They find that education, income distribution, and communication are important factors for building trust. They conclude that policies that influence trust levels are strengthening formal institutions by raising years in school, expanding civil liberties, and increasing press freedoms. Increase in education and redistributive transfers can reduce income inequality that eventually affect trust building process. They point out that trust can be directly raised through communication by increasing the number of land-based phones, mobile phones, paved roads and through greater civil liberties. Education is the most important factor that affect positively on social capital based on these studies. Institutions can promote social coherency in societies, and that would later bring benefits to societies, however, Stiglitz (1999) mentions that institutions can be inefficient, and inefficient institutions may persist. Not a lot of studies, however, has examined effect of institutions on social capital, so this study expands the current literature on social capital by studying how economic institutions can affect social capital.



### **3. DEVELOPING A SOCIAL CAPITAL INDEX**

One of the objectives of this study is to develop a social capital index that captures many aspects of social capital defined by Putnam (2000). Hawes et al. (2013) break down Putnam's social capital definition into five categories: community and organizational life, engagement in public affairs, community volunteerism, informal sociability, and social trust. The first three categories are captured in a social capital index constructed by Hawes et al. (2013), but attitudinal aspects of social capital (informal sociability and social trust) are not included in their social capital measure.

To capture both attitudinal and non-attitudinal aspects of social capital, this study includes four measures of social capital: voter turnout, informal socialization, religious participation and social trust. Hawes et al. (2013) include voter turnout under the category of engagement in public affairs. This study, however, is not able to include community volunteerism as it is not possible to have any access for data related to such issue. Even though the data for community and organizational life is available, this study is unable to include the membership variable that can capture such aspect since it does not pass a threshold for arbitrary sample size – detail about that is discussed in subsection 3.2. The measure of social capital in this study, however, is able to capture most important aspects of social capital.

#### **3.1. Data**

Survey responses from General Social Survey (GSS) spanning from 1972 to 2012 are collected to create the social capital index. National Opinion Research Center at the University of Chicago has conducted the GSS since 1972 to monitor the societal changes in the U.S. The GSS conducts personal interviews to adults (aged 18 years or older) from randomly selected households. The questions included in the survey are designed to capture the attitudes, behaviors

and attributes of individuals toward American society. Samples in the GSS are drawn from English speaking adults till 2004, and samples from Spanish speaking adults have been included after 2006. The survey has been conducted biannually since 1994, and it was conducted annually from 1972 to 1994 (except in 1979, 1981 and 1992).

One drawback of using data from the GSS is that the survey is not designed to produce estimates at state-level; hence, the sampling units are not states. Data for some states are completely unavailable in the GSS (for instance, there is no observation for Nevada and Nebraska). In addition, there are significantly less number of respondents for some states in a particular decade, and those observations are dropped to avoid inaccurate estimates. Hawes et al. (2013), however, point out that measures such as social trust (varies by decades) developed through the GSS data produce reliable estimates by referring to the works of Brace et al. (2002), and Uslaner and Brown (2005). Therefore, this study is able to develop the social capital index that varies by decades (from the 1970s to the 2000s).

The first category of the social capital index is voter turnout that can be used as a proxy to measure political participation of individuals, which falls under the category of engagement in public affairs in Hawes et al. (2013). The percentage of respondents that voted in presidential elections is used to capture voter turnout. The second category is informal socialization that includes socializing activities such as socializing at bar, socializing with friends who are not from respondents' neighborhood, and socializing with neighbors, relatives, siblings, and parents. This study is not able to include socializing with siblings and parents as the components of social capital due to the fewer number of respondents to these items.

In addition, arbitration is required to make a threshold in calculating the percentage of respondents involving in socializing activities as socializing a few times per year does not

accumulate or generate social capital. This study uses socializing at least once a month as a threshold in calculating social capital index, and there are four items – socializing at bar, socializing with friends, socializing with relatives and socializing with neighbors<sup>1</sup> - in the informal socializing variable. The same threshold is applied to the third category – participating in religious services; hence, percentage of respondents that attend religious services at least once a month is used to capture the religious participation.

Table 1: Questions in the GSS related to Social Capital

Description	Question
1. Voter Turnout	
Did respondents vote in the presidential election?	Do you remember for sure whether or not you voted in that election?
2. Informal Socialization	
Spend evening at Bar	Go to a bar or tavern?
Spend evening with relatives	Spend a social evening with relatives?
Spend evening with neighbors	Spend a social evening with someone who lives in your neighborhood?
Spend evening with friends	Spend a social evening with your friends?
3. Religious Participation	
Attend religious services	How often do you attend religious services?
4. Social Trust	
Can people be trusted	Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?
Can people be trusted	Do you think people can be trusted?

The final component is social trust. To calculate social trust, respondents' answers to two questions that fall under the description of trustworthiness of people is used. The first question asks respondents whether respondents would say that most people can be trusted or that you can't be too careful in dealing with people. And the second questions asks respondents whether

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<sup>1</sup> The cumulative percentage of respondents involving in informal socializing is calculated by cumulating the percentage of respondents that socialize every day, once or twice a week, several times a month or once a month (at least). Same calculation is applied to the fourth component – religious participating.

respondents think people can be trusted. Based on these two questions, the percentage of respondents that agree that people can be trusted is calculated. Table 1 provides the descriptions and questions used in the GSS while table 2 presents the summary of descriptive statistics of the social capital items used in this study.

Table 2: Descriptive Statistics of Social Capital Items in the GSS

Items	Obs.	Mean	S. D.	Min.	Max.
<b>1. Voter Turnout</b>					
Average percent of respondents vote in presidential elections	142	.705	.063	.547	.869
<b>2. Informal Socialization</b>					
Percentage of respondents that spend the evening at bar at least once a month	142	.264	.079	.036	.5
Percentage of respondents that spend the evening with friends at least once a month	142	.638	.067	.394	.776
Percentage of respondents that spend the evening with neighbors at least once a month	142	.509	.073	.349	.719
Percentage of respondents that spend the evening with relatives at least once a month	142	.705	.063	.488	.853
<b>3. Religious Participation</b>					
Percentage of respondents that attend religious services at least once a month	142	.434	.091	.212	.753
<b>4. Social Trust</b>					
Percentage of respondents that believe people can be trusted	142	.395	.107	.124	.678

### 3.2. Principal Component Analysis (PCA) of Social Capital

Principal component analysis (PCA), which is a statistical technique for data reduction, is used to develop state-level social capital measure that varies by decades. PCA aims to find unit-length linear combinations of the variables with greatest variance (capturing the maximum possible information from the original variables). To avoid unreliable estimates, choosing an arbitrary sample size as a threshold is required since there are fewer number of respondents for some questions in some states in the GSS data. Following Uslaner and Brown (2005), a minimum sample of 50 respondents is selected, and the observations that have less than 50

respondents are dropped. That leads this study to drop two of the informal socializing variables such as socializing with siblings and socializing with parents, and the membership variable since most of the observations from the original data have less than 50 respondents and do not pass the arbitrary threshold. Finally, 142 observations for U.S. contiguous states (some states are dropped due to the fewer observations) are retained for this study.

Table 3 presents the principal components loadings from PCA. The first three principal components among the seven components are retained since these components have eigenvalues greater 1; furthermore, they explain 71.96 percent of variation in the original data set. The first component has higher eigenvalue than the two other components. Moreover, there is the drop of eigenvalues after the first component, and the difference between eigenvalues of first and second components is 1.24254. The first component explains the most variation in the data followed by the second and third component. The first component explains 36.80 percent of variation in all the components, followed by, the second and third components explaining 19.05 percent of variation and 16.11 percent of variation in all the components respectively.

The first component captures mostly voter turnout and social trust; it also captures one element of informal socialization – socializing at bar. The second component captures components of informal socializing – mostly socializing with community and socializing with relatives –, and religious participation. Compared to the two other components, the second component loads more on religious participation. The third component captures mostly social trust and socializing with friends – one of the main components of informal socialization.

As one of the objectives of this study is to create a single index of social capital, the first component is retained as the social capital index. Only the predicted scores from the first component is used as the single index of social capital since all the components retained (also the

predicted scores for each component) after principal component loadings are not correlated to each other. In addition, the first component explains the most variations in the items that are used to develop the social capital index. To check the appropriateness of using the PCA method for the data to develop the social capital index of this study, Kaiser-Meyer-Olkin (KMO) sampling adequacy test is performed, and the overall KMO value is 0.5813 indicating a satisfactory score - (any KMO value above 50 is considered as satisfactory) Hence, the PCA method is appropriate to develop the social capital index from the GSS data.

Table 3: Principal Components Loadings from Principal Component Analysis (PCA)

	Comp. 1	Comp. 2	Comp. 3	Unexplained variation
Eigenvalues	2.58	1.33	1.13	
Proportion of variance	0.368	0.191	0.1611	0.2804
1. Voter Turnout				
Average percent of respondents vote in presidential elections	0.4277	0.1948	0.1407	.4558
2. Informal Socialization				
Percentage of respondents that spend the evening at bar at least once a month	0.4404	0.3979	- 0.1184	.2736
Percentage of respondents that spend the evening with friends at least once a month	0.3138	0.3640	-0.6069	.1542
Percentage of respondents that spend the evening with neighbors at least once a month	-0.2144	0.5231	0.3921	.3432
Percentage of respondents that spend the evening with relatives at least once a month	-0.3601	0.4142	-0.3494	.2979
3. Religious Participation				
Percentage of respondents that attend religious services at least once a month	-0.3738	0.4571	0.2481	.146
4. Social Trust				
Percentage of respondents that agree people can be trusted	0.4567	0.1308	0.5104	.292
KMO measure	0.5813			

### 3.3. Ranking Social Capital in U.S. Contiguous States

With the developed social capital index for U.S. contiguous states, it is possible to rank social capital in U.S. contiguous states. Tables 4 to 7 present rankings of social capital in U.S. contiguous states in each decade respectively. Some states are not included in the rankings because of limited data availability or not passing the arbitrary threshold for minimum sample size. Hence, states such as Nebraska, Nevada and New Mexico are not included for rankings in all decades, and other states such as Delaware, Idaho, Kentucky, Maine, Mississippi, New Hampshire, Rhode Island, South Dakota, Utah, Vermont and Wyoming are not included in three different decades. Hence, it is difficult to analyze whether social capital has increased or declined in such states over four decades.

Table 4: Social Capital Rankings for U.S. Contiguous States in the 1970s

State	Rank	State	Rank	State	Rank
Iowa	1	New Jersey	17	North Carolina	33
Montana	2	Missouri	18	Delaware	NA
Washington	3	Ohio	19	Idaho	NA
Oregon	4	Oklahoma	20	Kentucky	NA
Connecticut	5	Florida	21	Maine	NA
Minnesota	6	Maryland	22	Mississippi	NA
Illinois	7	Arkansas	23	Nebraska	NA
Wisconsin	8	Arizona	24	Nevada	NA
Colorado	9	Tennessee	25	New Hampshire	NA
California	10	Texas	26	New Mexico	NA
Massachusetts	11	West Virginia	27	North Dakota	NA
Michigan	12	Louisiana	28	Rhode Island	NA
Indiana	13	South Carolina	29	South Dakota	NA
Kansas	14	Georgia	30	Utah	NA
New York	15	Virginia	31	Vermont	NA
Pennsylvania	16	Alabama	32	Wyoming	NA

Table 4 presents rankings of social capital in U.S. contiguous states in the 1970s. This study observes, in the 1970s, that Iowa ranks number 1, followed by Montana, Washington, Oregon and Connecticut, while South Carolina, Georgia, Virginia, Alabama and North Carolina

are in the bottom five. In the 1980s, Oregon and Washington, the states that are in the top five of the rankings in the 1970s, are still in the top five while states such as Alabama and North Carolina are still in the bottom five - same as in the 1970s - as reported in table 5. Social capital rankings in the 1990s are provided in the table 6. Minnesota ranks number 1, and it is along with Colorado, North Dakota, South Dakota and Washington to stand as the top five states that have the highest social capital in the 1990s compared to the other states. On the other hand, the southern states such as Mississippi, Tennessee and Alabama are in the bottom five. Table 7 presents rankings of social capital in the 2000s. Among the ranked states, Kansas ranks number 1, followed by Colorado, Maine, Minnesota and Oregon, in the 2000s. The southern states rank in the lowest five – Alabama, Oklahoma, Louisiana, Georgia and Arkansas.

Table 5: Social Capital Rankings for U.S. Contiguous States in the 1980s

State	Rank	State	Rank	State	Rank
Oregon	1	Pennsylvania	17	Georgia	33
Wyoming	2	Maryland	18	Kentucky	34
Washington	3	New Jersey	19	Tennessee	35
Wisconsin	4	Florida	20	North Carolina	36
North Dakota	5	Kansas	21	Arkansas	37
New Hampshire	6	Virginia	22	Alabama	38
Colorado	7	Missouri	23	Delaware	NA
Minnesota	8	South Carolina	24	Idaho	NA
Massachusetts	9	Ohio	25	Maine	NA
Arizona	10	New York	26	Mississippi	NA
Illinois	11	Oklahoma	27	Montana	NA
Iowa	12	Indiana	28	Nebraska	NA
California	13	Texas	29	Nevada	NA
Connecticut	14	Utah	30	New Mexico	NA
Michigan	15	West Virginia	31	South Dakota	NA
Rhode Island	16	Louisiana	32	Vermont	NA

Social capital in Kansas has grown the most over the past decades – especially from the 1980s to the 2000s. This study observes that Minnesota, Colorado, Oregon and Washington have stable and high social capital over the past four decades while social capital in the southern states



is considered as the lowest – questioning the causes of low social capital in the south. It is important to keep in mind that some states are excluded in the rankings because of the data limitation. It would be worth to notice that the rankings might be a bit different if none of states are excluded in the rankings.

Table 6: Social Capital Rankings for U.S. Contiguous States in the 1990s

State	Rank	State	Rank	State	Rank
Minnesota	1	Michigan	17	North Carolina	33
Colorado	2	Indiana	18	Tennessee	34
North Dakota	3	Illinois	19	Kentucky	35
South Dakota	4	Missouri	20	Alabama	36
Washington	5	Virginia	21	Arkansas	NA
Vermont	6	New York	22	Idaho	NA
Massachusetts	7	Maryland	23	Iowa	NA
Wisconsin	8	Georgia	24	Maine	NA
Oregon	9	Ohio	25	Nebraska	NA
Arizona	10	Oklahoma	26	Nevada	NA
Montana	11	Texas	27	New Hampshire	NA
Kansas	12	Pennsylvania	28	New Mexico	NA
California	13	South Carolina	29	Rhode Island	NA
Connecticut	14	New Jersey	30	Utah	NA
Louisiana	15	Delaware	31	West Virginia	NA
Florida	16	Mississippi	32	Wyoming	NA

Table 7: Social Capital Rankings for U.S. Contiguous States in the 2000s

State	Rank	State	Rank	State	Rank
Kansas	1	South Carolina	17	Georgia	33
Colorado	2	Indiana	18	Arkansas	34
Minnesota	3	Illinois	19	Connecticut	NA
Maine	4	Michigan	20	Delaware	NA
Oregon	5	Maryland	21	Kentucky	NA
Wyoming	6	Pennsylvania	22	Mississippi	NA
Idaho	7	Ohio	23	Montana	NA
Massachusetts	8	Florida	24	Nebraska	NA
Washington	9	West Virginia	25	Nevada	NA
Iowa	10	Missouri	26	New Hampshire	NA
California	11	Tennessee	27	New Mexico	NA
Wisconsin	12	Texas	28	North Dakota	NA
Virginia	13	North Carolina	29	Rhode Island	NA
Arizona	14	Alabama	30	South Dakota	NA
New York	15	Oklahoma	31	Utah	NA
New Jersey	16	Louisiana	32	Vermont	NA

### **3.4. Drawbacks of the Social Capital Index**

There are several drawbacks in the developed social capital index of this study. First, the GSS is not designed for state-level estimates but individual-level estimates, hence this study aggregates individuals' estimates to generate data for each state in a particular time period (decades here). Second, data for Nebraska and Nevada in all periods are not available, moreover, no data is available for some states in some periods. For instance, there is no data for North Dakota in the 1970s. Third, even when there is data for some states in a particular period, dropping observations is inevitable if there are less respondents for these states than the threshold of minimum sample size, which is required to avoid inaccurate estimates.

The major drawback of the social capital index is excluding associational membership variable. Following the work of Uslaner and Brown (2005), minimum sample of 50 respondents is chosen, and that causes many observations to be dropped. The trade-off between keeping more observations in the estimations and including membership variable is inevitable; that leads to drop the membership variables in PCA analysis of developing the composite social capital index in U.S. contiguous states. Even though the social capital index in this study is not flawless, it enables this study to investigate the link between economic freedom and social capital which is the main objective of this study.

## 4. ECONOMIC FREEDOM

This section discusses about definition of economic freedom, comparisons between economic freedom and other types of freedom such as political liberty and civil liberty, and effects of economic freedom on political, social and economic issues.

### 4.1. What is Economic Freedom?

In the *Economic Freedom of the World (1975-1995)*, Gwartney et al. (1996), mention that the main ingredients of economic freedom are personal choice, protection of private property, and freedom of exchange. Gwartney and Lawson (2003) adds an additional component – freedom to compete in market activities (which means that individuals have rights to compete and enter markets whichever they desire without the orders of anyone or any governing body) – to the ingredients of economic freedom. Gwartney et al. (1996, p.12) define economic freedom in this way: “Individuals have economic freedom, when (a) property they acquire without the use of force, fraud, or theft is protected from physical invasions by others and (b) they are free to use, exchange, or give away their property as long as their actions do not violate the identical rights of others.”

When economic freedom is present, all decision makings are left to individuals. Hence, individuals decide what and how much to consume or produce, for whom to produce, what markets to enter, when to enter or leave the market, and so on (Karabegovic et al. 2003). With the presence of economic freedom, the basic questions of economics are answered; individuals themselves handle all economic transactions with their own decisions dictated by the market. Hence, the presence of economic freedom guarantees individuals something they value that is not separable from humanity, and freedom that comes with humanity has intrinsic value (Gwartney et al. 1996).

## **4.2. Economic Freedom and the Role of Government**

What affects economic freedom? Government highly influences economic freedom as the presence of economic freedom is contingent on actions of government. If government involves more than required in individuals' lives, economic freedom of individuals is more likely to decrease. So what should government do not to infringe on individuals' economic freedom? Government needs to limit its role in individuals' daily lives. The ideal role of government is to provide protective and productive functions to their citizens (Gwartney et al. 1996). Protective function means that government has to provide strong legal structure and law enforcement system to individuals; productive function means that government is responsible for providing limited set of public goods such as national defense to citizens. Any government actions beyond these functions are not beneficial to individuals and decrease economic freedom as private choice is restricted by government actions.

In general, economic freedom demands government to provide legal protection (as a protective function) to individuals. Legal protection is important for economic progress. If property rights are not guaranteed to individuals, aggressors (including the state) can take their properties by force or expropriating. In addition, the absence of legal protection limits voluntary exchange of individuals, and it leads to reduced economic progress. For instance, suppose a simple trading scenario between persons A and B; A and B voluntarily agree that they will exchange goods X and Y. Without legal protection, A can take Y from B by exercising force without providing X to B, and vice versa. With the presence of strong legal institutions, both A and B are protected by property rights and that ensures that no one would appropriate other's properties. In addition, government cannot dictate both A and B to trade or not to trade; the

market will lead A and B to decide whether to trade or what to trade. In such a way, the presence of legal protection reduces transaction costs in economic activity.

#### **4.3. Economic Freedom and other Types of Freedom**

Freedom is an integral part of humanity, and economic freedom is different from other types of freedom such as political freedom and civil liberty (Gwartney et al. 1996). Political freedom guarantees individuals to elect government officials and involve in political issues voluntarily. On the other hand, civil liberty guarantees individuals to hold different religious views, different expressions, freedom of press and assembly.

Gwartney and Lawson (2003) argue that the presence of economic freedom can increase political freedom and civil liberty, and vice versa. For instance, when economic freedom is present, individuals' choices are not limited, and hence they can decide what to produce, consume and such. Through this experience, individuals voluntarily participate in political issues such as voting in free and fair elections, and individuals also voluntarily hold opinion regarding religions and such. Experiences of Chile, Taiwan, and South Korea show that increase in economic freedom is likely to cause increases in political freedom. Likewise, the presence of strong legal institutions provided by elected government officials can increase economic freedom. By that way, political and civil liberties can increase economic freedom.

Gwartney and Lawson (2003), however, caution that governments that guarantee political and civil liberties may set policies that conflict with economic freedom as democratic governments can impose higher taxation and expenditures, for instance, Scandinavian countries. Such kind of government involvement would be beneficial only in those countries, where societies are racially homogeneous, and the citizens of such counties consider distribution of welfare through taxes as helping their own people (Sachs 2008).

#### 4.4. Effects of Economic Freedom

Both country-level and state-level studies have found that economic freedom has no infringement on broad categories of political, social and economic issues<sup>2</sup>. Using the Economic Freedom of the World Index, first developed by Gwartney et al. in 1996 to measure economic freedom at international level, studies find that economic freedom has positive significant effect on growth across countries<sup>3</sup>, for examples, Dawson (1998, 2003); Gwartney et al. (1999); de Haan and Sturm (2000); Carlsson and Lundstrom (2002); Doucouliagos and Ulubasoglu (2008). Moreover, Berggren (1999) finds that economic freedom does not harm equality; Scully (2002) finds the economic freedom has a positive impact on both economic growth and income equality. Economic freedom affects not just on growth and income equality, Burgess et al. (2009) find that economic freedom also can reduce both internal and external conflicts.

Karabegovic et al. (2002) first developed the North America Economic Freedom Index, an extension of the Economic Freedom of the World Index, to measure economic freedom in U.S. states and Canada provinces. Taking advantage of the North America Economic Freedom Index, scholars have been able to examine impacts of economic freedom on social and economic issues at state level in the U.S. Karabegovic et al. (2003) find that economic freedom has positive effects on economic growth in U.S. states and Canadian provinces. Their findings were confirmed by Compton et al. (2011) via evidence from U.S. states.

Ashby and Sobel (2008); Bennett and Vedder (2013); and Apergis et al. (2014) examine the relationship between economic freedom and income inequality in U.S. states and confirm that an increase in economic freedom reduces income inequality across U.S. states. Moreover,

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<sup>2</sup>A list of the articles that study the effects of economic freedom on social and economic issues can be found at <http://www.freetheworld.com/papers.html>

<sup>3</sup> Berggren (2003) surveys the benefits of economic freedom on different issues such as growth, income equality, wealth, quality of life and the like.

economic freedom can promote entrepreneurship in the U.S. (Kreft and Sobel 2005; Hall et al. 2013). Apergis et al. (2012) examine the effect of economic freedom on corruption in U.S. states and find a negative relationship between long-run economic freedom and corruption; Belasen and Hafer (2012) find a positive relationship between economic freedom and well-being. The above studies are some selected examples of studies that examine the effects of economic freedom on socio-economic issues, and no single study has found negative impacts of economic freedom on social and economic issues both at international- and state-level so far. Hence, the health of a country or society is contingent on economic freedom, *ceteris paribus*.

## **5. THE LINK BETWEEN ECONOMIC FREEDOM AND SOCIAL CAPITAL**

North (1991) mentions that institutions provide ground for economic, political and social interactions. Hence, it is reasonable to assume that there might be a link between economic freedom as an economic institution and social capital, which is a product of social interactions. However, the theoretical link or relationship between economic freedom and social capital is ambiguous depending on definitions and measurements of social capital. Both economic freedom and social capital can help individuals reduce transaction cost as mentioned in the previous sections. Economic freedom can serve as a substitute for social capital in terms of associational memberships (or ties) and social trust in market activities. If so, there might be a negative relationship between economic freedom and social capital or may be no relationship at all. If not, the link might be a positive relationship.

Social capital is considered as both an investment and a consumption. Individuals invest in social capital, for instance – involving in all sorts of social occasions in both formal and informal settings requires individuals to invest their time at least, to consume benefits generated through social interactions. With the presence of economic freedom, individuals are granted legal protections in market activities that enforce contracts and negotiations involved in market activities and reduce transaction costs. Then, it might lead individuals not to invest in social capital since close ties or trust among individuals to make transactions easier is substituted by the legal protection in market activities. In such way, economic freedom can reduce social capital.

On the other hand, there might be no link between economic freedom and social capital as historical or cultural ties among individuals may not be affected by the presence of economic freedom. Referring to the example of the Jewish community in New York City offered by Coleman (1988), economic freedom may not affect social interactions in the community as the



culture and history of the Jewish community would make social interactions amongst the community habitual. These factors can undermine the fact that social capital is form of investment. Hence, even when economic freedom is present, Jewish would still involve in social occasions to consume other benefits rather than economic ones.

It is also possible to think that economic freedom can have a positive impact on social capital. As previously stated, social capital can be described as a process of accumulating intangible capital that later brings benefits to not only individuals but also society as a whole. Accumulating social capital begins when individuals interact. That could be as simple as the building of friendship among individuals, and as complex as relationships among members of a community and even the relationships between economic agents in market activities. So how would economic freedom increase social capital in market activities? When economic freedom is present, individuals are free to involve in voluntary exchange and guarded against all the odds that might arise during transactions. Hence, individuals' decisions such as whom to trade with or what to trade shall entirely be left to themselves. Thus, economic freedom grants individuals to participate in economic activities by their own decisions, and that leads individuals to interact with other agents in the market place. Then, it is reasonable to imply that more economic freedom leads to more interactions among individuals, and that eventually lead to building trust among individuals as they participate in market activities.

Jackson et al. (2014) also mention that individuals can use economic freedom to form associations; moreover, economic freedom can bring benefits to individuals in terms of generating economic benefits such as additional income and leisure, hence, people can use those benefits to involve in civic engagement. Hence, economic freedom may encourage people to involve more in religious affairs (or joining hobby clubs) as the results of benefits, which are in

forms of additional income and leisure, generated by economic freedom. On the other hand, it may not be a case in a society where people are religious and participation in religious affairs is considered as a custom.

The presence of economic freedom would enable individuals to practice their freedom in political affairs as well. Then, economic freedom may increase voter turnout as individuals make their own decisions on whom to elect as their officials just like the way they make their decisions in market activities. However, one should not undermine political liberty since it might influence individuals' decisions more than economic freedom in political affairs. Hence, economic freedom may not affect political participation of individuals in democratic countries but the impact of economic freedom might be positive and influential on individuals in less democratic countries. Hence, economic freedom may even increase political freedom (that channels increase in voter turnout) in less democratic countries or societies as mentioned by Gwartney and Lawson (2003). Therefore, the effect of economic freedom on social capital in terms of voter turnout may be contingent on political nature of a county. Hence, the relationship between economic freedom and social capital is ambiguous theoretically; and there are not enough empirical studies on that issue. Hence, it remains questionable.

Berggren and Jordahl (2006) conduct a cross-countries study to examine the effect of economic freedom on social capital in term of trust by using the Fraser Institute's Economic Freedom of the World, and generalized trust from the World Value Survey. Instead of investigating the effect of overall economic freedom on trust, they investigate the effect of each area of economic freedom (Economic Freedom of World Index is made up of five areas) on generalized trust (which is defined as trusting people in general no matter you know or not while

particularized trust is defined as trusting people you know)<sup>4</sup>. They find that “legal structure and security of property rights” is important to build generalized trust and positive effect on that. “Access to sound money” is also statistically significant and positively related with trust. “Regulation of credit, labor, and business” is positively related to trust and statistically significant only when other control variables are not included. The other two areas of economic freedom such as “size of government” and “freedom to exchange with foreigners” are not significant in any type of models. In addition, they find that religious fractionalization, economic inequality (Gini) and religion are statistically significant and tends to decrease trust. They conclude that economic freedom has a positive effect on social capital (defined as trust), and “legal structure and security of property rights” is the most important factor building trust.

Jackson et al. (2014) investigate the effect of economic freedom on social capital (defined in civic engagement, community organizational life and community volunteerism) in a different approach. Using a dynamic panel of U.S. states, they are able to control for variance over time and across states to avoid the problem of omitted variable bias (which may arise as an issue to Berggren and Jordahl’s study (2006)). They find that the level of economic freedom has a significant and negative impact on the level of social capital when OLS estimation method is applied while they find that the change in economic freedom has no effect on social capital. Since the nature of endogeneity between economic freedom and social capital as mentioned by Berggren and Jordahl (2006), Jackson et al. (2014) exploit the System Generalized Method of Moments (GMM) estimation technique to handle the endogeneity. When endogeneity is controlled, no significant relationship between the level of economic freedom and the growth

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<sup>4</sup>In contrast to generalized and particularized trust, Putnam (2000) distinguishes another type of trust – trust in government – from trust among people. Putnam (2000, p.137) defines trust in government as “a cause or a consequence of social trust, but it is not the same thing as social trust.”

rate of social capital is found. They find that racial homogeneity and education has significant effect on social capital. They conclude that there is no clear link between economic freedom and social capital. Since these two empirical studies show different results of the link between economic freedom and social capital, more research on the issue is required. This study serves to add another literature on the issue of economic freedom (or institutions) and social capital.

## 6. DATA AND EMPIRICAL APPROACH

### 6.1. Data

This study examines the relationship between economic freedom and social capital in U.S. contiguous states during three decades – from the 1980s to the 2000s. This study defines the decade 1980s as the period covering years from 1981 to 1990, and the same pattern follows for the 1990s and the 2000s. The measures of social capital are obtained from the Generalized Social Survey (GSS); two measures of social capital are used in this study as different measures of social capital were used in previous studies – particularized trust, synonymous with social trust, in Berggren and Jordahl (2006), and a social capital index of Hawes et al (2013), which does not include social trust, in Jackson et al. (2014). The first measure of social capital is overall social capital (referred as “social capital” instead of using overall social capital in this study) developed by using Principal Component Analysis (PCA) as described in the section 3. The second measure of social capital is social trust.

The data for economic freedom is obtained from the Fraser Institute’s North America Economic Freedom Index, updated by Stansel and McMahon (2013), and the data spans from 1981 to 2011. The North American Economic Freedom Index is measured at two levels - the subnational level (which includes provincial and municipal governments in Canada, and the state and local governments in the U.S.); the all-government level (that includes all level of governments - federal, provincial/state, and municipal/local) – in Canada and the U.S. The purpose of measuring economic freedom at two different government levels is to examine impacts of different levels of government on economic freedom. A scale from 0 to 10 was used to indicate the level of economic freedom in a particular state; the number 10 is assigned to a

state which has the highest level of economic freedom while the number 0 is assigned to indicate the lowest level of economic freedom.

The overall economic freedom is composed of three main equally weighted areas – Size of Government, Takings and Discriminatory Taxation, and Labor Market Freedom; each area is made up of subcomponents. Size of government consists of three subcomponents – General Consumption Expenditures by Government as a Percentage of GDP, Transfers and Subsidies as a percentage of GDP, and Social Security Payments as a Percentage of GDP. The main idea of this area is to give an idea of role of government in a free economy. Economic freedom is reduced when government involves beyond productive and protective functions of government (i.e. government should not spend more than providing public goods such as the national defense). Taxing one person to support another individual violates the property rights of individuals by government. In addition, replacing private choice for retirement with mandatory government arrangements decreases economic freedom of individuals (Stansel and McMahon 2013).

The second area of economic freedom - Takings and Discriminatory Taxation – is composed of four subcomponents: Total Tax Revenue as a Percentage of GDP, Top Marginal Income Tax Rate, and the Income Threshold at Which It Applies, Indirect Tax Revenue as a Percentage of GDP and Sales Taxes Collected as a Percentage of GDP. This component captures the idea that economic freedom diminishes when tax burden restricts private choice. Economic freedom diminishes more when collected taxes spent are not close to services that government provides (Stansel and McMahon 2013). Moreover, Gwartney et al. (1996) state that “high marginal tax rates discriminate against the productive citizens and deny them the fruits of their labor”.

The final area of economic freedom – Labor Market Freedom – composed of Minimum Wage Legislation, Government Employment as a Percentage of Total State/Provincial Employment, and Union Density (measured by percentage of unionized workers in a state). This area stresses that economic freedom is reduced when government makes restrictions on labor markets. Minimum wage laws can have negative impacts on the work force rather than positive impacts as it restricts the ability of employees and employers to negotiate contracts to their liking. High demands or levels of government employment may indicate that governments is providing goods and services that could be supplied by private sector. Union Density may indicate that government violates rights of workers to join union or not by forcing employees to join union. It is important to keep in mind that the term “economic freedom” refers to the overall economic freedom index, and the term “economic freedom measures” refers to both the overall economic freedom index and its three areas in this study.

To isolate effect of economic freedom measures on social capital, a set of control variables is included. The selection of control variables is based on the previous studies such as Glaeser et al. (2002), Berggren and Jordahl (2006), and Jackson et al. (2014). The set of control variables in this study includes education (Educ) measured by the percentage of population of a state that is 25 years or older with a Bachelor’s degree or higher, income inequality measure that is the gini coefficient on income inequality of a state (Gini), Herfindahl-Hirschman Index of racial homogeneity (HHI) to measure a state’s racial homogeneity<sup>5</sup>, the percentage of population

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$$HHI_i = \sum_{k=1}^4 s_{i,k}^2$$

where  $k$  indexes for racial group in state  $i$ , and  $s$  is the percentage of each racial group population. The above formula is used to calculate for HHI index. Four racial groups (Caucasian; African American; American Indian & Alaska Native; and Asian & Pacific Islander) are included in calculation of HHI index. According to US Census

of a state residing in metropolitan areas (Metro), the log of the household median income of a state in 2012 US dollars (logIncome), the log of population of a state (logpop), unemployment rate of a state (Unemployment), the percentage of a state's population that is 25 years or younger (Young) and the percentage of a state's population that own house (Homeownership). The variable – Homeownership – is not included in both previous studies – Berggren and Jordahl (2006) and Jackson et al. (2014) but Glaeser et al. (2002) document the significant effect of homeownership on social capital.

Data for education, income inequality (Gini), HHI index of racial homogeneity, population and homeownership are collected from the U.S. Census Bureau; data for unemployment rate and the percentage of younger population come from the Bureau of Labor Statistics (BLS). Data for household median income and the metro population are gathered from the Bureau of Economic Analysis (BEA). As this study focuses on decennial data, the average value of each variable within a decade is used if annual data is available for each decade. Hence, average values for following variables – Metro, Income, Population, Unemployment, Young and Homeownership<sup>6</sup> - are used for a particular state in a decade. As decennial data for education is available from 1990, 2000 and 2010 surveys from the U.S. Census Bureau, we do not calculate average value for education variable. Data for Gini and HHI is not available annually so data from 1990, 2000 and 2010 of these variables are used for each decade respectively. Table 8 presents descriptions of the variables, and table 9 presents the summary statistics of the variables, and social capital measures have less observations than the other variables.

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Bureau, Hispanic origin is considered an ethnicity, not a race; Hispanics may be of any race. Hence, Hispanics is not included in calculation of HHI index as a race.

<sup>6</sup> Data from 1981 to 1983 is not available for variables – income and homeownership. Hence, the average values from 1984 to 1990. Monthly data is used for unemployment, so first average values for each year are calculated and then average values for each decade are calculated.



Table 8: Descriptions of the Variables

Variables	Descriptions
SC	Social Capital
CSC	Change in Social Capital
Trust	Social Trust
CTrust	Change in Social Trust
Vote	Voter Turnout
CVote	Change in Voter Turnout
Religion	Religious Participation
CReligion	Change in Religious Participation
EFAL	Economic Freedom measured at All Government Level
EFSL	Economic Freedom measured at Subnational Level
SGAL	Size of Government measured at All Government Level
SGSL	Size of Government measured at Subnational Level
TDTAL	Takings and Discriminatory Taxation measured at All Government Level
TDTSL	Takings and Discriminatory Taxation measured at Subnational Level
LMAL	Labor Market Freedom measured at All Government Level
LMSL	Labor Market Freedom measured at Subnational Level
CEFAL	Change in Economic Freedom measured at All Government Level
CEFSL	Change in Economic Freedom measured at Subnational Level
CSGAL	Change in Size of Government measured at All Government Level
CSGSL	Change in Size of Government measured at Subnational Level
CTDTAL	Change in Takings and Discriminatory Taxation measured at All Government Level
CTDTSL	Change in Takings and Discriminatory Taxation measured at Subnational Level
CLMAL	Change in Labor Market Freedom measured at All Government Level
CLMSL	Change in Labor Market Freedom measured at Subnational Level
Educ	The percentage of population of a state that is 25 years or older with a Bachelor's degree or higher
Gini	Gini Index of Income Inequality
HHI	HHI index of Racial Homogeneity
Metro	The percentage of population of a state residing in metropolitan areas
Young	The percentage of a state's population that is 25 years or younger
Homeownership	The percentage of a state's population that own house
logIncome	The log of household median income
logPop	The log of level of state's population
Unemployment	Unemployment rate of a state

Table 9: Summary Statistics

Variables	N.	Mean	S.D.	Min.	Max.
SC	108	0.087	1.586	-3.652	3.133
CSC	91	0.095	1.063	-2.745	2.928
Trust	110	0.378	0.107	0.124	0.679
CTrust	96	-0.033	0.068	-0.218	0.152
Vote	112	0.712	0.059	0.572	0.869
CVote	99	0.007	0.049	-0.134	0.141
Religion	112	0.429	0.090	0.212	0.753
CReligion	99	-0.014	0.059	-0.164	0.181
EFAL	144	6.644	0.521	5.133	8.116
EFSL	144	6.808	0.684	5.124	8.082
SGAL	144	7.149	0.843	4.402	8.849
SGSL	144	7.327	0.883	5.332	9.073
TDTAL	144	6.142	0.497	5.086	7.682
TDTSL	144	6.477	0.787	4.370	8.400
LMAL	144	6.641	0.762	4.410	8.006
LMSL	144	6.620	0.862	4.396	8.596
CEFAL	144	0.371	0.749	-0.698	1.852
CEFSL	144	0.028	0.543	-1.431	1.207
CSGAL	144	-0.191	0.750	-2.036	1.098
CSGSL	144	-0.363	0.846	-2.542	1.712
CTDTAL	144	0.570	1.287	-1.816	3.118
CTDTSL	144	0.015	0.671	-2.913	1.599
CLMAL	144	0.734	0.721	-0.396	2.233
CLMSL	144	0.433	0.620	-1.660	1.880
Educ	144	0.236	0.054	0.123	0.390
Gini	144	0.443	0.022	0.385	0.499
HHI	144	0.735	0.128	0.470	0.973
Metro	144	0.738	0.194	0.293	1.000
Young	144	0.379	0.032	0.318	0.511
Homeownership	144	0.683	0.049	0.516	0.785
logIncome	144	10.83	0.153	10.436	11.154
logPop	144	15.062	0.991	13.073	17.397
Unemployment	144	0.059	0.015	.027	0.104

## 6.2. Empirical Approach

The following model is used to estimate the link between economic freedom measures and social capital measures:

$$SC_{it} = \alpha + \beta EF_{it} + \theta X_{it} + u_i + v_t + \varepsilon_{it} \quad (\text{Eq.1})$$

where  $i$  indexes for states and  $t$  indexes for time.  $SC_{it}$  is the measures of social capital (both overall social capital and trust),  $EF_{it}$  is the measures of economic freedom, and  $X_{it}$  is the set of control variables. The terms  $u_i$  and  $v_t$  represent unobserved state fixed-effect and time effect respectively, and  $\varepsilon_{it}$  is the error term.

The main variable of interest in this study is economic freedom measures, which is considered in two forms – the average levels of economic freedom measures during the decade and the changes in economic freedom measures between two consecutive decades, by following the previous literature on economic freedom and growth (for instance, Compton et al. 2011). Compton et al. (2011, p.427) state that “...the “level” of freedom in our regressions measures short-run deviations from long-run mean of freedom, while the “change” of freedom measures short-run deviations from long-run mean of changes in freedom.” to make a distinction between the use of “level” and “change” of variables in regressions. This study also considers the dependent variable, social capital measures, in two forms – the average level of social capital (and social trust) in a decade, and the change in social capital (and social trust) between two consecutive decades. Considering the dependent variable and the variable of interest in two forms allow this study to see whether different modeling in variables produces different results.

The panel dataset allows this study to capture variances over time (for instance, policy or institutional changes over time) and across states (heterogeneity in institutions and cultural background etc. among U.S. contiguous states). The empirical model is estimated by using the Ordinary Least Squares (OLS) method. The panel data set allows this study to apply different OLS panel estimation methods – OLS (pooled method), OLS with time-fixed effects, OLS with state-fixed effects, and OLS with both time- and state- fixed effects – to examine the relationship between economic freedom and social capital. The reasons of using different OLS methods is to

see whether the variable of interest (economic freedom) is still significant for the dependent variable (social capital) when time- and state- fixed effects are accounted.

## 7. RESULTS

In this section, the results of the links between economic freedom and social capital (trust as well) are discussed. As economic freedom is measured at two levels – subnational level and all government level, the results are presented in two separate subsections. Subsection 7.1 presents the effects of subnational level economic freedom on social capital and trust while subsection 7.2 presents the effects of all government level economic freedom on social capital and trust. Since data for other components of social capital is available, the effects of economic freedom on these components also are discussed in subsection 7.3.

### 7.1. Effects of Subnational Level Economic Freedom Measures

Table 9 reports the coefficient estimates of the effect of the level of subnational level economic freedom index (EFSL) on the level of social capital. Columns 1 and 2 of table 9 present coefficient estimates of OLS (pooled method) without additional control variables and with additional control variables respectively. Columns 3 and 4 follow the same pattern but they present coefficient estimates of OLS with time-fixed effects while columns 5 and 6 present the estimates of OLS with state-fixed effects. Regression estimates reported in columns 7 and 8 include both time- and state- fixed effects. All the tables reporting regression estimates follow the same format.

The results in table 9 suggest that the effect of the level of economic freedom on the level of social capital is negative. Economic freedom is not significant in columns 1 through 4 while it becomes significant at 10 percent level when state-fixed effects, and both time- and state- fixed effects are controlled in columns 5 through 8. Only additional control variable that is significant is the percentage of a state's population residing in a metropolitan area when state-fixed effects are controlled. It suggests that an increase in percent of population living in a metro area (metro)

can increase the level of social capital. The value of  $R^2$ , the coefficient of determination, gets significantly larger when state-fixed effects are included as reported in column 5. The value of  $R^2$  of column 1 reports that the model can explain 0.3 percent of variation in the level of social capital while 90.7 percent of variation is explained in column 8. Therefore, including additional control variables time- and state-fixed effects can increase explanatory power.

Table 10: Level of Economic Freedom (SL) and Level of Social Capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
EFSL	-0.131 (0.245)	-0.0476 (0.262)	-0.131 (0.246)	-0.0432 (0.264)	-0.301* (0.159)	-0.317* (0.164)	-0.303* (0.170)	-0.331* (0.175)
Educ		-0.453 (5.962)		-0.108 (6.007)		-0.566 (4.238)		-0.0336 (4.452)
Gini		8.537 (14.14)		7.989 (14.35)		-7.755 (8.686)		-8.307 (9.479)
HHI		1.981 (1.967)		1.982 (1.962)		-1.100 (1.137)		-1.334 (1.235)
Metro		1.421 (1.753)		1.525 (1.776)		1.979** (0.893)		2.137* (1.069)
logIncome		-1.493 (2.674)		-1.752 (2.715)		-1.136 (1.613)		-1.538 (2.014)
logPop		-0.006 (0.264)		-0.006 (0.265)		-0.186 (0.148)		-0.216 (0.160)
Unemployment		-5.210 (11.59)		-6.347 (12.12)		1.571 (8.556)		2.644 (10.33)
Young		-2.647 (6.492)		-3.143 (6.477)		4.284 (3.875)		4.115 (4.325)
Homeownership		0.194 (3.555)		-0.0165 (3.669)		-1.299 (2.645)		-1.351 (2.736)
1990s			0.0242 (0.376)	-0.0480 (0.414)			0.0160 (0.200)	0.0752 (0.245)
2000s			0.0129 (0.390)	0.118 (0.408)			-0.0425 (0.188)	0.126 (0.271)
Constant	0.979 (1.672)	11.68 (32.01)	0.972 (1.713)	14.93 (32.35)	-0.761 (1.388)	16.05 (19.22)	-0.742 (1.435)	21.04 (24.99)
Observations	108	108	108	108	108	108	108	108
R-squared	0.003	0.040	0.003	0.042	0.885	0.907	0.885	0.907

Robust standard errors in parentheses

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

The relationships between the levels of the areas of economic freedom and the level of social capital are examined, and the results suggest that the levels of areas of economic freedom - size of government, takings and discriminatory taxation, and labor market freedom – do not have significant effect on the level of social capital. Same as the results from table 9, metro is the only significant control variable. Moreover, the explanatory power of the model becomes larger when time- and state- fixed effects are included. Results from regression estimates are not reported as they are insignificant; instead the summary of these results is reported in column 1 of panel A of table 20.

The effects of the levels of economic freedom measures on the change in social capital are investigated to see whether the levels of economic freedom measures affect differently on social capital if social capital is modelled differently. Table 10 presents the results of the effect of the level of economic freedom on the change in social capital. The level of economic freedom is significant in columns 5 and 7, but not significant in other columns. Significance of level of freedom disappears when additional control variables, and time- and state- fixed effects are included. None of the additional control variables are significant, and it suggests that nothing has significant effects on social capital except state-fixed effects. Two other areas of economic freedom – size of government, and takings and discriminatory taxation do not have any significant impacts on the change in social capital as well.

However, it gets interesting when the link between labor market freedom and social capital is examined. Table 11 gives the results of the effect of the level of labor market freedom on the change in social capital. Unlike the other measures of economic freedom, the level of labor market freedom has a negative effect on the change in social capital and is significant at 10 percent level when state-fixed effects are controlled; controlling both time- and state- fixed

effects increases its significance to 5 percent level. However, its significant level diminishes to 10 percent level when additional control variables are included. Time dummies are negatively significant in columns 7 and 8, and it can be implied that social capital has declined in the 1990s and the 2000s compared to the 1980s. Summary of the effects of the levels of economic freedom and its areas on the change in social capital is reported in column 2 of panel B of table 20.

Table 11: Level of Economic Freedom (SL) and Change in Social Capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
EFSL	-0.168 (0.168)	-0.259 (0.194)	-0.162 (0.171)	-0.208 (0.205)	-0.492* (0.287)	-0.562 (0.337)	-0.479* (0.280)	-0.476 (0.334)
Educ		3.328 (4.681)		3.572 (4.958)		-3.641 (6.319)		-4.575 (6.567)
Gini		-5.662 (9.298)		-7.124 (9.608)		-14.05 (12.73)		-13.90 (12.61)
HHI		-1.608 (1.476)		-1.283 (1.436)		-2.713 (2.151)		-1.719 (2.098)
Metro		0.342 (1.469)		0.300 (1.479)		2.274 (1.726)		1.983 (1.746)
logIncome		-1.986 (1.946)		-1.967 (1.979)		-1.650 (2.720)		-0.519 (2.992)
logPop		0.0336 (0.208)		0.0950 (0.211)		-0.287 (0.242)		-0.168 (0.248)
Unemployment		-0.987 (7.470)		-5.017 (8.467)		1.562 (13.42)		-8.044 (16.22)
Young		1.169 (5.601)		0.242 (5.750)		2.627 (5.908)		1.104 (6.693)
Homeownership		-3.274 (3.319)		-3.804 (3.451)		-3.806 (4.536)		-4.762 (4.787)
1990s			-0.331 (0.259)	-0.413 (0.317)			-0.450 (0.316)	-0.610 (0.367)
2000s			-0.350 (0.290)	-0.233 (0.310)			-0.546* (0.281)	-0.487 (0.357)
Constant	1.254 (1.179)	27.39 (21.99)	1.435 (1.210)	27.48 (21.89)	4.413* (2.216)	35.14 (32.62)	4.647** (2.163)	22.74 (36.71)
Observations	91	91	91	91	91	91	91	91
R-squared	0.011	0.077	0.034	0.096	0.284	0.406	0.332	0.439

Robust standard errors in parentheses

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



Table 12: Level of Labor Market Freedom (SL) and Change in Social Capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
LMSL	-0.087	-0.219	-0.120	-0.197	-0.404*	-0.469	-0.559**	-0.528*
	(0.129)	(0.165)	(0.137)	(0.177)	(0.223)	(0.298)	(0.242)	(0.310)
Educ		4.908		4.850		-2.155		-3.142
		(5.132)		(5.387)		(6.737)		(7.017)
Gini		-4.634		-6.074		-12.45		-11.50
		(9.703)		(9.939)		(13.30)		(12.65)
HHI		-1.664		-1.352		-2.514		-1.688
		(1.451)		(1.419)		(2.063)		(2.002)
Metro		0.317		0.253		2.190		1.665
		(1.449)		(1.453)		(1.744)		(1.699)
logIncome		-2.528		-2.334		-2.605		-0.941
		(2.087)		(2.090)		(2.968)		(2.981)
logPop		0.0366		0.103		-0.244		-0.0903
		(0.209)		(0.212)		(0.242)		(0.259)
Unemployment		-1.065		-5.015		0.844		-9.296
		(7.200)		(8.049)		(12.54)		(14.63)
Young		0.139		-0.506		2.804		1.292
		(5.561)		(5.707)		(5.688)		(6.299)
Homeownership		-3.217		-3.550		-4.188		-4.029
		(3.423)		(3.598)		(4.324)		(4.626)
1990s			-0.354	-0.435			-0.533*	-0.674*
			(0.257)	(0.305)			(0.294)	(0.348)
2000s			-0.398	-0.295			-0.788**	-0.691*
			(0.300)	(0.316)			(0.300)	(0.370)
Constant	0.677	32.49	1.137	30.66	3.637**	43.03	5.187***	24.81
	(0.889)	(23.33)	(0.980)	(22.86)	(1.650)	(35.30)	(1.846)	(36.05)
Observations	91	91	91	91	91	91	91	91
R-squared	0.005	0.074	0.033	0.096	0.282	0.403	0.365	0.454

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Unlike the levels of economic freedom measures, the changes in economic freedom measures affect differently on social capital (both level and change). The changes in economic freedom measures, except takings and discriminatory taxation, have positive significant effects on social capital. Table 12 gives the results of coefficient estimates of the effect of the change in economic freedom on the level of social capital. Results from columns 1 through 4 suggest that

the change in economic freedom does not have significant effect on the level of social capital. However, its coefficients become statistically significant at 10 percent level when state-fixed effects (reported in columns 5 and 6 respectively), and both time- and state- fixed effects (reported in columns 7 and 8 respectively) are included. Metro is the only significant control variable.

Table 13: Change in Economic Freedom (SL) and Level of Social Capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
CEFSL	-0.078 (0.268)	-0.142 (0.287)	-0.078 (0.270)	-0.152 (0.293)	0.453** (0.172)	0.371** (0.168)	0.452** (0.178)	0.377** (0.177)
Educ		-1.014 (6.066)		-0.666 (6.135)		-1.154 (4.178)		-0.720 (4.370)
Gini		7.456 (14.03)		6.670 (14.20)		-4.574 (8.778)		-5.015 (9.471)
HHI		2.167 (2.016)		2.180 (2.028)		-0.0332 (1.085)		-0.181 (1.207)
Metro		1.526 (1.771)		1.641 (1.789)		1.822* (0.936)		1.956* (1.120)
logIncome		-1.477 (2.694)		-1.739 (2.735)		-1.057 (1.642)		-1.393 (2.003)
logPop		0.00353 (0.260)		0.00777 (0.262)		-0.200 (0.148)		-0.223 (0.163)
Unemployment		-5.046 (11.69)		-6.581 (12.14)		1.547 (8.129)		2.199 (9.389)
Young		-3.319 (6.384)		-3.892 (6.292)		5.766 (3.887)		5.596 (4.209)
Homeownership		-0.215 (3.451)		-0.480 (3.530)		-3.023 (2.584)		-3.159 (2.584)
1990s			0.007 (0.377)	-0.092 (0.416)			-0.001 (0.184)	0.0483 (0.232)
2000s			0.000 (0.393)	0.0972 (0.410)			-0.0452 (0.193)	0.100 (0.270)
Constant	0.0879 (0.153)	11.96 (31.84)	0.0856 (0.289)	15.41 (32.14)	-2.97*** (0.638)	11.72 (19.69)	-2.95*** (0.668)	15.82 (24.60)
Observations	108	108	108	108	108	108	108	108
R-squared	0.001	0.042	0.001	0.044	0.886	0.907	0.887	0.907

Robust standard errors in parentheses

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

Table 14: Change in Size of Government (SL) and Level of Social Capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
CSGSL	0.062	0.031	0.063	0.030	0.347**	0.312*	0.348**	0.334*
	(0.171)	(0.189)	(0.173)	(0.193)	(0.156)	(0.159)	(0.165)	(0.179)
Educ		-0.282		0.065		-1.614		-1.113
		(6.051)		(6.113)		(4.146)		(4.270)
Gini		8.775		8.191		-5.090		-5.455
		(14.02)		(14.20)		(8.827)		(9.561)
HHI		2.053		2.048		-0.0181		-0.231
		(2.090)		(2.113)		(1.091)		(1.243)
Metro		1.379		1.486		1.849*		2.011*
		(1.768)		(1.791)		(0.967)		(1.154)
logIncome		-1.529		-1.787		-0.943		-1.374
		(2.674)		(2.718)		(1.653)		(2.028)
logPop		-0.003		-0.004		-0.197		-0.234
		(0.265)		(0.267)		(0.144)		(0.161)
Unemployment		-5.684		-6.854		2.408		4.029
		(11.71)		(12.16)		(8.095)		(9.344)
Young		-2.816		-3.304		6.041		6.066
		(6.283)		(6.191)		(3.963)		(4.233)
Homeownership		0.145		-0.063		-3.165		-3.281
		(3.470)		(3.567)		(2.496)		(2.542)
1990s			0.022	-0.054			0.022	0.104
			(0.379)	(0.418)			(0.185)	(0.244)
2000s			0.00942	0.116			-0.0187	0.146
			(0.393)	(0.413)			(0.199)	(0.288)
Constant	0.110	11.68	0.0995	14.96	-2.89***	10.75	-2.89***	15.84
	(0.166)	(31.86)	(0.294)	(32.23)	(0.664)	(19.87)	(0.685)	(25.07)
Observations	108	108	108	108	108	108	108	108
R-squared	0.001	0.040	0.001	0.042	0.885	0.908	0.885	0.908

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Table 13 and 15 report the results of the effects of the change in size government and the change in labor market freedom on the level of social capital respectively. The results follow the same pattern of table 11. Even though economic freedom and two of it areas have positive significant effects on the level of social capital, the second area of economic freedom – takings and discriminatory taxation – do not have significant effect on the level of social capital. Table

14 reports the estimates of effect of the change in takings and discriminatory taxation on the level of social capital. Takings and discriminatory taxation does not seem to have any link with social capital. However, metro is still significant variable same as the results from tables 12, 13 and 15.

Table 15: Change in Takings and Discriminatory Taxation (SL) and Level of Social Capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
CTDTSL	-0.069 (0.221)	-0.142 (0.244)	-0.071 (0.220)	-0.146 (0.248)	0.108 (0.128)	-0.004 (0.157)	0.101 (0.136)	0.003 (0.169)
Educ		-0.232 (5.934)		0.140 (5.972)		-2.050 (4.260)		-1.537 (4.626)
Gini		7.111 (14.18)		6.369 (14.36)		-6.678 (9.161)		-7.241 (9.849)
HHI		2.090 (1.990)		2.105 (1.999)		0.046 (1.114)		-0.065 (1.226)
Metro		1.558 (1.758)		1.660 (1.772)		2.177** (0.972)		2.288** (1.125)
logIncome		-1.653 (2.665)		-1.902 (2.692)		-1.120 (1.612)		-1.414 (2.039)
logPop		0.002 (0.259)		0.008 (0.260)		-0.178 (0.153)		-0.191 (0.172)
Unemployment		-5.180 (11.67)		-6.783 (12.10)		3.396 (8.865)		2.753 (10.40)
Young		-4.122 (6.520)		-4.675 (6.458)		5.424 (4.133)		4.965 (4.602)
Homeownership		0.080 (3.416)		-0.165 (3.503)		-2.712 (2.551)		-2.966 (2.640)
1990s			0.005 (0.374)	-0.101 (0.411)			-0.03 (0.189)	-0.018 (0.243)
2000s			-0.011 (0.388)	0.080 (0.412)			-0.047 (0.203)	0.069 (0.295)
Constant	0.0857 (0.153)	14.00 (31.74)	0.0875 (0.287)	17.24 (31.88)	-2.93*** (0.682)	12.61 (19.49)	-2.91*** (0.707)	16.48 (25.36)
Observations	108	108	108	108	108	108	108	108
R-squared	0.001	0.043	0.001	0.045	0.878	0.901	0.878	0.902

Robust standard errors in parentheses

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

Table 16: Change in Labor Market Freedom (SL) and Level of Social Capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
CLMSL	-0.202	-0.229	-0.205	-0.248	0.531***	0.487***	0.580***	0.494***
	(0.237)	(0.274)	(0.239)	(0.279)	(0.185)	(0.149)	(0.188)	(0.166)
Educ		-1.900		-1.573		-0.10		-0.254
		(6.422)		(6.477)		(4.083)		(4.458)
Gini		6.813		5.948		-6.412		-6.199
		(14.31)		(14.45)		(8.394)		(8.940)
HHI		2.055		2.042		-0.0154		0.0476
		(2.005)		(2.010)		(0.996)		(1.125)
Metro		1.507		1.645		2.084**		2.021*
		(1.773)		(1.797)		(0.900)		(1.060)
logIncome		-1.270		-1.572		-1.731		-1.593
		(2.739)		(2.778)		(1.613)		(1.949)
logPop		-0.001		-0.002		-0.193		-0.183
		(0.261)		(0.263)		(0.130)		(0.146)
Unemployment		-5.270		-6.728		2.102		1.793
		(11.56)		(12.08)		(7.789)		(9.238)
Young		-2.524		-3.098		4.734		4.802
		(6.382)		(6.301)		(3.447)		(3.884)
Homeownership		-0.483		-0.781		-2.999		-2.945
		(3.447)		(3.534)		(2.453)		(2.494)
1990s			0.020	-0.069			-0.047	-0.0207
			(0.375)	(0.411)			(0.169)	(0.210)
2000s			0.041	0.142			-0.194	-0.044
			(0.392)	(0.405)			(0.189)	(0.268)
Constant	0.173	10.37	0.154	14.36	-3.38***	19.22	-3.33***	17.52
	(0.171)	(32.17)	(0.299)	(32.51)	(0.645)	(19.34)	(0.716)	(24.10)
Observations	108	108	108	108	108	108	108	108
R-squared	0.007	0.045	0.007	0.048	0.893	0.914	0.895	0.914

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

The link between the change in economic freedom and the change in social capital is also investigated, the results are not different the estimates of effects of the changes in economic freedom measures on the level of social capital, except the fact that homeownership has negative significant effects on social capital, and metro is not significant. This study finds that the change in economic freedom has positive significant effect on the change in social capital. Moreover, the

changes in areas of economic freedom, except takings and discriminatory taxation, affects positively on the change in social capital. Tables 16 to 19 report regression estimates of the effects of the changes in economic freedom and its three areas on the change in social capital respectively. The results suggest that the change in economic freedom measures – except takings and discriminatory taxation – increases both level of and change in social capital.

Table 17: Change in Economic Freedom (SL) and Change in Social Capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
CEFSL	0.206 (0.234)	0.233 (0.257)	0.188 (0.234)	0.176 (0.244)	0.823*** (0.295)	0.785** (0.298)	0.804*** (0.292)	0.716** (0.288)
Educ		4.366 (4.916)		4.408 (5.222)		-4.485 (5.791)		-5.245 (6.291)
Gini		-4.663 (9.553)		-6.505 (9.708)		-9.442 (12.76)		-9.695 (12.12)
HHI		-1.162 (1.437)		-0.912 (1.393)		-1.068 (1.902)		-0.318 (1.989)
Metro		-0.016 (1.426)		0.0310 (1.416)		1.527 (1.720)		1.287 (1.727)
logIncome		-2.245 (1.975)		-2.192 (2.023)		-1.267 (2.691)		-0.139 (2.879)
logPop		0.0385 (0.215)		0.102 (0.217)		-0.303 (0.237)		-0.183 (0.252)
Unemployment		-3.151 (7.367)		-6.969 (7.969)		-0.410 (12.32)		-9.805 (13.96)
Young		0.611 (5.572)		-0.300 (5.645)		5.382 (5.173)		3.562 (6.110)
Homeownership		-3.997 (3.272)		-4.444 (3.302)		-7.327* (4.083)		-7.754* (4.107)
1990s			-0.328 (0.256)	-0.437 (0.293)			-0.442 (0.299)	-0.608* (0.346)
2000s			-0.336 (0.289)	-0.235 (0.307)			-0.539* (0.284)	-0.498 (0.352)
Constant	0.0982 (0.112)	28.44 (21.62)	0.313 (0.196)	28.60 (21.69)	0.812 (0.493)	26.11 (31.68)	1.138* (0.664)	14.38 (34.58)
Observations	91	91	91	91	91	91	91	91
R-squared	0.011	0.069	0.033	0.090	0.317	0.429	0.364	0.463

Robust standard errors in parentheses

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

This study notices that magnitudes of the changes in economic freedom measures are larger on the change in social capital than on the level of social capital. Hence, this study implies that the changes in economic freedom have more impacts on the change in social capital than on the level of social capital, even though the changes in economic freedom measures (except takings and discriminatory taxation) have significant effects on both the forms of social capital.

Table 18: Change in Size Government (SL) and Change in Social Capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
CSGSL	0.138 (0.134)	0.146 (0.159)	0.121 (0.132)	0.104 (0.153)	0.710*** (0.237)	0.724*** (0.225)	0.652** (0.244)	0.632*** (0.235)
Educ		4.497 (5.018)		4.487 (5.338)		-5.226 (5.677)		-5.839 (6.179)
Gini		-5.561 (9.654)		-7.224 (9.890)		-11.10 (12.37)		-11.29 (12.19)
HHI		-1.272 (1.446)		-0.988 (1.400)		-1.130 (1.885)		-0.514 (2.040)
Metro		0.0676 (1.421)		0.105 (1.422)		1.582 (1.809)		1.425 (1.815)
logIncome		-2.326 (2.008)		-2.259 (2.075)		-1.150 (2.770)		-0.270 (2.978)
logPop		0.0319 (0.215)		0.0974 (0.217)		-0.302 (0.224)		-0.203 (0.243)
Unemployment		-3.196 (7.367)		-6.980 (7.983)		0.621 (11.81)		-6.910 (13.93)
Young		0.0681 (5.627)		-0.723 (5.689)		5.910 (5.192)		4.319 (6.029)
Homeownership		-3.858 (3.307)		-4.367 (3.335)		-7.503* (3.767)		-7.786* (3.967)
1990s			-0.323 (0.257)	-0.437 (0.294)			-0.381 (0.304)	-0.489 (0.360)
2000s			-0.330 (0.291)	-0.229 (0.311)			-0.474 (0.289)	-0.400 (0.371)
Constant	0.148 (0.116)	29.96 (22.09)	0.353* (0.200)	29.83 (22.47)	0.977* (0.530)	25.70 (32.16)	1.245* (0.685)	16.47 (35.57)
Observations	91	91	91	91	91	91	91	91
R-squared	0.012	0.068	0.033	0.089	0.327	0.451	0.362	0.472

Robust standard errors in parentheses

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

As the values of coefficient of determination increase when control variables, and time- and state-fixed effects are included in the regressions, the summary results are based on the column 8 of the regression tables (all of the tables for summary results follow the same reason). All of the results suggest that omitted variable bias is inevitable when unobserved state- and time- fixed effects are not controlled, hence, it is important to control those fixed effects.

Table 19: Change in Takings and Discriminatory Taxations (SL) and Change in Social Capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
CTDTSL	0.023 (0.188)	0.072 (0.226)	0.002 (0.186)	0.022 (0.219)	0.293 (0.238)	0.206 (0.282)	0.260 (0.224)	0.169 (0.270)
Educ		3.444 (4.738)		3.776 (5.031)		-5.989 (6.019)		-6.375 (6.476)
Gini		-5.533 (9.468)		-7.529 (9.616)		-11.02 (13.24)		-11.68 (12.79)
HHI		-1.035 (1.404)		-0.799 (1.367)		-0.962 (2.006)		-0.190 (2.037)
Metro		0.147 (1.456)		0.198 (1.432)		2.018 (1.886)		1.787 (1.866)
logIncome		-2.088 (1.981)		-2.104 (2.007)		-1.144 (2.839)		-0.108 (2.975)
logPop		0.0496 (0.210)		0.116 (0.213)		-0.281 (0.261)		-0.153 (0.272)
Unemployment		-2.316 (7.308)		-6.548 (7.997)		1.479 (13.32)		-9.878 (15.73)
Young		0.760 (5.923)		-0.555 (5.990)		5.086 (5.867)		2.679 (6.912)
Homeownership		-4.228 (3.295)		-4.619 (3.339)		-6.684 (4.268)		-7.413* (4.361)
1990s			-0.342 (0.255)	-0.470 (0.301)			-0.484 (0.310)	-0.706* (0.365)
2000s			-0.348 (0.281)	-0.255 (0.312)			-0.516* (0.291)	-0.518 (0.377)
Constant	0.0966 (0.114)	27.00 (21.57)	0.319 (0.192)	28.03 (21.45)	0.936 (0.563)	24.61 (32.67)	1.250* (0.709)	14.46 (35.53)
Observations	91	91	91	91	91	91	91	91
R-squared	0.000	0.060	0.024	0.084	0.253	0.372	0.300	0.415

Robust standard errors in parentheses

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



Table 20: Change in Labor Market Freedom (SL) and Change in Social Capital

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
CLMSL	0.185	0.206	0.200	0.206	0.762**	0.710*	0.883**	0.755**
	(0.211)	(0.238)	(0.208)	(0.223)	(0.352)	(0.369)	(0.338)	(0.340)
Educ		4.683		4.866		-3.558		-4.648
		(4.991)		(5.299)		(5.823)		(6.338)
Gini		-4.680		-6.207		-11.37		-10.65
		(9.769)		(9.946)		(12.73)		(11.68)
HHI		-1.042		-0.788		-1.044		-0.0586
		(1.401)		(1.369)		(1.856)		(1.885)
Metro		0.0987		0.0602		1.769		1.265
		(1.425)		(1.426)		(1.660)		(1.601)
logIncome		-2.381		-2.284		-2.170		-0.529
		(1.989)		(2.031)		(2.660)		(2.762)
logPop		0.0504		0.118		-0.255		-0.105
		(0.206)		(0.210)		(0.229)		(0.246)
Unemployment		-2.711		-7.028		0.141		-10.63
		(7.295)		(7.971)		(12.44)		(13.64)
Young		-0.471		-1.250		3.319		1.662
		(5.538)		(5.684)		(5.278)		(6.091)
Homeownership		-3.985		-4.347		-7.350*		-7.692*
		(3.231)		(3.279)		(4.114)		(4.132)
1990s			-0.345	-0.473			-0.496*	-0.70**
			(0.258)	(0.304)			(0.283)	(0.331)
2000s			-0.374	-0.284			-0.722**	-0.669*
			(0.294)	(0.313)			(0.289)	(0.360)
Constant	0.0226	29.78	0.249	29.25	0.217	35.75	0.537	17.83
	(0.131)	(21.91)	(0.205)	(21.91)	(0.582)	(31.41)	(0.737)	(33.62)
Observations	91	91	91	91	91	91	91	91
R-squared	0.012	0.068	0.038	0.094	0.321	0.431	0.395	0.482

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

To summarize the results, the level of economic freedom does not have significant effect on social capital. However, the changes in subnational level economic freedom measures have positive impacts on social capital (both level and change) - suggesting that when state and local governments relax the policies that previously restrained market activities, individuals are encouraged to increase civil assets, such as social capital. Hence, state and local governments

should be aware that economic policies are required to be monitored as the changes in policies can have huge impacts on the societal changes. When economic policies are not beneficial to society, the governments need to take actions to review and change the policies.

Table 21: Summary of Effects of Economic Freedom Measures (SL) on Social Capital

Panel A. Level of Economic Freedom Measures on Social Capital		
	(1)	(2)
	Level	Change
Economic Freedom Index	(-)*	(-)
1.Size of Government	(-)	(-)
2.Takings and Discriminatory Taxation	(-)	(-)
3.Labor Market Freedom	(-)	(-)*
Panel B. Change in Economic Freedom Measures on Social Capital		
	Level	Change
Economic Freedom Index	(+)**	(+)**
1.Size of Government	(+)*	(+)**
2.Takings and Discriminatory Taxation	(+)	(+)
3.Labor Market Freedom	(+)**	(+)**
+ & - indicate the signs of freedom Variables; ***, ** and * indicate significant level at 1%, 5% and 10% respectively.		

To compare the findings of this study and those of Berggren and Jordahl (2006), the link between economic freedom and social trust is examined. Table 21 reports the coefficient estimates of the effect of the level of economic freedom on the level of social trust. The results suggest that the level of economic freedom is significant and may have negative impact on the level of social trust when state-fixed effects along with (or without) additional control variables are controlled. It is still significant when both time- and state-fixed effects are added, but the significant level of economic freedom diminishes when additional control variables are included as suggested by the coefficient estimates of column 8. HHI, metro, income and population are significant when only state-fixed effects are controlled; however, these variables become insignificant when time dummies are included. Time dummies are significant in all of the regressions, and that suggests that social trust has declined in the U.S. over the past two decades

compared to the 1980s. Such findings confirm with Putnam’s claim – trust among people has declined over the past decades (Putnam 1995a, 1995b, and 2000).

Table 22: Level of Economic Freedom (SL) and Level of Social Trust

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
EFSL	-0.023 (0.018)	-0.023 (0.02)	-0.021 (0.0172)	-0.013 (0.0193)	-0.03** (0.012)	-0.03** (0.013)	-0.02** (0.008)	-0.017 (0.0104)
Educ		0.102 (0.379)		0.0158 (0.387)		0.220 (0.347)		-0.160 (0.334)
Gini		-0.109 (0.967)		-0.0917 (0.907)		-0.777 (0.766)		-0.303 (0.563)
HHI		0.004 (0.138)		0.089 (0.136)		-0.172* (0.098)		0.016 (0.081)
Metro		0.003 (0.099)		-0.035 (0.102)		0.136* (0.068)		0.051 (0.063)
logIncome		-0.092 (0.183)		-0.0189 (0.176)		-0.28** (0.131)		-0.045 (0.132)
logPop		0.001 (0.016)		0.0113 (0.016)		-0.02** (0.01)		-0.004 (0.011)
Unemployment		0.595 (0.902)		0.103 (0.902)		1.182 (0.722)		0.278 (0.611)
Young		-0.339 (0.505)		-0.347 (0.498)		-0.122 (0.298)		-0.0159 (0.297)
Homeownership		0.0678 (0.237)		0.00120 (0.238)		0.0542 (0.193)		0.0375 (0.188)
1990s			-0.06** (0.0254)	-0.06** (0.027)			-0.1*** (0.010)	-0.1*** (0.02)
2000s			-0.1*** (0.024)	-0.1*** (0.03)			-0.1*** (0.012)	-0.1*** (0.017)
Constant	0.5*** (0.126)	1.595 (2.136)	0.56*** (0.117)	0.666 (2.007)	0.4*** (0.095)	3.907** (1.591)	0.41*** (0.0818)	0.985 (1.627)
Observations	110	110	110	110	110	110	110	110
R-squared	0.022	0.050	0.108	0.128	0.812	0.860	0.912	0.916

Robust standard errors in parentheses

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

The similar results are observed when the level of social trust is regressed against the areas of economic freedom; the significances of the areas of economic freedom disappear when both state- and time- fixed effects along with the control variables are controlled. Tables of the

regression estimates for the effects of the level of areas of economic freedom on the level of social trust are not reported; instead, the summary of the results is provided in column 1 of panel A of table 23.

Table 23: Level of Economic Freedom (SL) and Change in Social Trust

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	OLS	OLS	OLS TF	OLS TF	OLS SF	OLS SF	OLS TF&SF	OLS TF&SF
EFSL	-0.009 (0.011)	-0.000 (0.017)	-0.008 (0.011)	0.002 (0.017)	-0.022 (0.015)	-0.006 (0.018)	-0.018 (0.015)	-0.006 (0.019)
Educ		-0.101 (0.309)		-0.020 (0.311)		-0.539 (0.483)		-0.465 (0.557)
Gini		0.604 (0.522)		0.461 (0.549)		0.191 (0.823)		0.125 (0.92)
HHI		0.120 (0.110)		0.120 (0.108)		0.196 (0.140)		0.177 (0.153)
Metro		-0.045 (0.082)		-0.028 (0.083)		-0.016 (0.116)		-0.002 (0.128)
logIncome		-0.025 (0.135)		-0.073 (0.133)		-0.018 (0.213)		-0.05 (0.255)
logPop		-0.005 (0.011)		-0.004 (0.012)		0.003 (0.014)		0.001 (0.017)
Unemployment		0.144 (0.581)		-0.081 (0.603)		1.108 (1.188)		1.114 (1.263)
Young		0.016 (0.341)		-0.074 (0.342)		0.304 (0.455)		0.268 (0.503)
Homeownership		-0.059 (0.225)		-0.136 (0.226)		0.016 (0.336)		-0.008 (0.338)
1990s			-0.023 (0.016)	-0.017 (0.0175)			-0.022 (0.020)	0.000 (0.024)
2000s			0.01 (0.018)	0.012 (0.016)			0.004 (0.019)	0.009 (0.023)
Constant	0.029 (0.077)	0.029 (1.464)	0.024 (0.079)	0.653 (1.423)	0.161 (0.129)	-0.140 (2.528)	0.139 (0.125)	0.309 (3.088)
Observations	96	96	96	96	96	96	96	96
R-squared	0.007	0.097	0.047	0.122	0.265	0.386	0.290	0.389

Robust standard errors in parentheses

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

The results in table 22 indicate that the level of economic freedom does not have significant effect on the change in social trust; none of the control variables are significant as

well. Moreover, the levels of the areas of economic freedom do not have significant effects on the change in social capital. The summary of these results is presented in column 2 of panel A of table 23. The effect of the changes in economic freedom measures on both the level of social trust and the change in social trust are also estimated; no significant link between the change in economic freedom and social trust (both level and change) is observed. The summary of the results is presented in panel B of table 23.

The findings of this study suggest that economic freedom has no significant effect on social trust and do not confirm with Berggren and Jordahl’s (2006) findings. One of the possible answer is the use of the different datasets – cross-countries data in Berggren and Jordahl (2006) and panel dataset of U.S. contiguous states in this study. An advantage of using panel dataset is that it enables this study to control unobserved time- and state- fixed effects. It is important to control time- and state- fixed state effects since social capital is a dynamic concept and its existence can be varied across different societies.

Table 24: Summary of Effects of Economic Freedom Measures (SL) on Social Trust

Panel A. Level of Economic Freedom Measures on Social Trust		
	Level	Change
Economic Freedom index	(-)	(-)
1.Size of Government	(-)	(+)
2.Takings and Discriminatory Taxation	(-)	(-)
3.Labor Market Freedom	(-)	(-)
Panel B. Change in Economic Freedom Measures on Social Trust		
	Level	Change
Economic Freedom index	(+)	(-)
1.Size of Government	(+)	(+)
2.Takings and Discriminatory Taxation	(-)	(-)
3.Labor Market Freedom	(+)	(+)
+ & - indicate the signs of freedom Variables; ***, ** and * indicate significant level at 1%, 5% and 10% respectively.		

## 7.2. Effects of All Government Level Economic Freedom Measures

All government level economic freedom allows scholars to observe the impacts of federal government along with the impacts of state and local level governments on economic activities. All the same estimation methods used in investigating the effects of subnational level economic freedom measures on social capital and social trust are used. Surprisingly, there is no significant relationship between economic freedom (and its areas) and social capital, except the relationship between the change in labor market freedom and the change in social capital. This study observes the diminishing significances of the changes in economic freedom measures when different governmental level measures of economic freedom are applied but the signs of economic freedom measures do not change. This study implies that state level governments (including local levels) may have more impact on social affairs than the federal government. The summary results is reported in table 24.

Table 25: Summary of Effects of Economic Freedom Measures (AL) on Social Capital

Panel A. Level of Economic Freedom Measures on Social Capital		
	Level	Change
Economic Freedom Index	(-)	(-)
1.Size of Government	(-)	(-)
2.Takings and discriminatory Taxation	(-)	(-)
3.Labor Market Freedom	(-)	(-)
Panel B. Change in Economic Freedom Measures on Social Capital		
	Level	Change
Economic Freedom Index	(+)	(+)
1.Size of Government	(+)	(+)
2.Takings and Discriminatory Taxation	(-)	(-)
3.Labor Market Freedom	(+)	(+)**
+ & - indicate the signs of freedom Variables; ***, ** and * indicate significant level at 1%, 5% and 10% respectively.		

The results from the effect of economic freedom on social trust are not different from those of economic freedom on social capital. Hence, this study implies that economic freedom and its areas measured at all government level have no significant effect on social trust. The

results confirm the findings of the effects of subnational level economic freedom measures on social trust. This study implies that economic freedom is not influential on social trust among individuals. The findings do not confirm those of Berggren and Jordahl (2006). The summary of results the effect of economic freedom on social trust is reported in table 25.

Table 26: Summary of Effects of Economic Freedom Measures (AL) on Social Trust

Panel A. Level of Economic Freedom Measures on Social Trust		
	Level	Change
Economic Freedom Index	(-)	(-)
1.Size of Government	(-)	(-)
2.Takings and discriminatory Taxation	(-)	(-)
3.Labor Market Freedom	(-)	(-)
Panel B. Change in Economic Freedom Measures on Social Trust		
	Level	Change
Economic Freedom Index	(+)	(+)
1.Size of Government	(+)	(+)
2.Takings and Discriminatory Taxation	(-)	(-)
3.Labor Market Freedom	(-)	(+)
+ & - indicate the signs of freedom variables; ***, ** and * indicate significant level of the variables.		

### 7.3. Economic Freedom and other Components of Social Capital

As the social capital index of this study is made up of four components, this study is able to examine effects of economic freedom on other components of social capital, besides social trust. This study finds that economic freedom (measured at both subnational level and all government level) has no significant effect on voter turnout; in addition, voter turnout is not significantly linked with the areas of economic freedom except the change in takings and discriminatory taxation. The results suggest that the change in takings and discriminatory taxation measured both at all government level and subnational level can impact negatively on the level of voter turnout. Hence, the change in government tax policies may affect people to participate in politic affairs. As an increase in taxation reduce additional income for people, they

would have to spend more of their time on generating income to compensate the fraction of income which is taxed, and that eventually lead them to disengage in political affairs. The summary results of effect of economic freedom on voter turnout are reported in tables 26 and 27.

Table 27: Summary of Effects of Economic Freedom Measures (SL) on Voter Turnout

Panel A: Level of Economic Freedom Measures on Voter Turnout		
	(1)	(2)
	Level	Change
Economic Freedom Index	(-)	(+)
1.Size of Government	(-)	(+)
2.Takings and Discriminatory Taxation	(-)	(-)
3.Labor Market Freedom	(+)	(+)
Panel B: Change in Economic Freedom Measures on Voter Turnout		
	Level	Change
Economic Freedom Index	(-)	(-)
1.Size of Government	(-)	(+)
2.Takings and Discriminatory Taxation	(-)*	(-)
3.Labor Market Freedom	(-)	(-)
+ & - indicate the signs of freedom Variables; ***, ** and * indicate significant level at 1%, 5% and 10% respectively.		

Table 28: Summary of Effects of Economic Freedom Measures (AL) on Voter Turnout

Panel A: Level of Economic Freedom Measures on Voter Turnout		
	(1)	(2)
	Level	Change
Economic Freedom Index	(-)	(-)
1.Size of Government	(-)	(+)
2.Takings and Discriminatory Taxation	(-)	(-)
3.Labor Market Freedom	(+)	(+)
Panel B: Change in Economic Freedom Measures on Voter Turnout		
	Level	Change
Economic Freedom Index	(-)	(-)
1.Size of Government	(-)	(+)
2.Takings and Discriminatory Taxation	(-)*	(-)
3.Labor Market Freedom	(-)	(+)
+ & - indicate the signs of freedom Variables; ***, ** and * indicate significant level at 1%, 5% and 10% respectively.		



The link between economic freedom and religious participation is explored. This study finds that there is no clear link between the levels of economic freedom measures at subnational level and religious participation while the changes in economic freedom measures, except takings and discriminatory taxation, have negative effects on the level of religious participation. No significant link between the changes in economic freedom measures, except labor market freedom, and the change in religious participation is observed. In addition, there is no significant link between economic freedom measured at all government level and religious participation. Summary results of the effect of economic freedom on religious participation is presented in tables 28 and 29.

Table 29: Summary of Effects of Economic Freedom Measures (SL) on Religious Participation

Panel A: Level of Economic Freedom Measures on Religious Participation		
	(1)	(2)
	Level	Change
Economic Freedom Index	(+)	(+)
1.Size of Government	(+)	(+)
2.Takings and Discriminatory Taxation	(-)	(-)
3.Labor Market Freedom	(+)	(+)
Panel B: Change in Economic Freedom Measures on Religious Participation		
	Level	Change
Economic Freedom Index	(-)*	(-)
1.Size of Government	(-)*	(-)
2.Takings and Discriminatory Taxation	(-)	(-)
3.Labor Market Freedom	(-)**	(-)**
+ & - indicate the signs of freedom Variables; ***, ** and * indicate significant level at 1%, 5% and 10% respectively.		

To examine the link between economic freedom and informal socialization, a composite index for informal socialization is needed since there are four different types of socialization data are available from the General Social Survey (GSS). Hence, this study creates a composite index for informal socialization by using principal component analysis (PCA) method as the way the social capital index is developed in section 5. This study, however, is unable to investigate the

link between economic freedom and informal socialization since KMO value for appropriateness of the data for informal socialization is less than .50, and that indicates that socialization data is not appropriate to use PCA method. The findings suggest that economic freedom does not have strong significant impacts on the components (or aspects) of social capital such as voter turnout and religious participation.

Table 30: Summary of Effects of Economic Freedom Measures (AL) on Religious Participation

Panel A: Level of Economic Freedom Measures on Religious Participation		
	(1)	(2)
	Level	Change
Economic Freedom Index	(+)	(+)
1.Size of Government	(+)	(+)
2.Takings and Discriminatory Taxation	(+)	(-)
3.Labor Market Freedom	(+)	(+)
Panel B: Change in Economic Freedom Measures on Religious Participation		
	Level	Change
Economic Freedom Index	(-)	(-)
1.Size of Government	(-)	(-)
2.Takings and Discriminatory Taxation	(+)	(-)
3.Labor Market Freedom	(-)**	(-)
+ & - indicate the signs of freedom Variables; ***, ** and * indicate significant level at 1%, 5% and 10% respectively.		

## 8. CONCLUSION

Using the survey responses from the GSS, this study develops a composite social capital index spanning from the 1970s to the 2000s in U.S. contiguous states. The social capital developed in this study is able to capture both attitudinal aspects and non-attitudinal aspects of social capital. The developed social capital index enables this study to investigate the link between economic freedom and social capital in U.S. contiguous states from the 1980s to the 2000s. This study observes that the levels of economic freedom measured at the subnational level does not have any significant effects on social capital while there is a positive significant link between the changes in economic freedom and social capital. Moreover, there is no significant effect of economic freedom measured at the all government level on social capital. The link between economic freedom measures and social trust is explored, and no significant link is observed.

One of the main objectives of this study is to compare the findings of this study and these of the previous studies. The results of the effects of all government level economic freedom on social capital in this study confirm the findings of Jackson et al. (2014) - suggesting that there is no significant link between economic freedom and social capital in the U.S. - while the results of the changes in economic freedom measures at subnational level contradict their findings. Comparing with the results of Berggren and Jordahl (2006), the findings of this study suggest that economic freedom measures (measured at both subnational level and all government level) have no impact on social trust - contradicting to the results of Berggren and Jordahl (2006).

One of the advantages of this study over Berggren and Jordahl (2006) is that this study is able to control variances over time and cross states. It is important to control unobserved state- and time- fixed effects since the existence of social capital can be varied overtime and depends

on the characteristics of societies. Another advantage of this study would be that there are less variances involved in this study since states-level data is used in this study compared to a cross-country study in Berggren and Jordahl (2006). The advantage of this study over Jackson et al. (2014) is that the composite social capital measure of this study is able to include non-attitudinal aspects of social capital, informal socialization and social trust that are not included in their study.

It is also important to note that there are several drawbacks in this study. First, the composite social capital index is not able to capture associational memberships, which is widely used as a social capital measure in previous social capital studies, for instance, Rupasingha et al. (2006), is an important aspect of social capital. Second, the panel dataset in this study is relatively short – this study has only three decades as time periods – as it is not possible to develop annual data for social capital by using the survey responses from the GSS. Hence, there are not a lot of observations in the dataset. Having more observations may produce more accurate estimates. Third, endogeneity between economic freedom and social capital, mentioned in Berggren and Jordahl (2006), is not handled in this study. Causal link between these two variables has not been explored yet, so endogeneity may arise in the relationship between economic freedom and social capital. To handle the endogeneity issue, valid instruments are required; but finding valid instruments to control endogeneity between economic freedom and social capital is not quite easy since theoretically the factors that affect economic freedom can also affect social capital as both of these variables are multi-dimensional concepts.

Berggren and Jordahl (2006) use geographical factors such as latitude, and colonial heritage of a country such as colonial dummies – UK colony and Spanish colony - , fraction of a country's population that speaks English as a native language and fraction of a country's

population that speak European language such as English, French, German, Portuguese, or Spanish. It is important, however, to notice the difference between this study and the study of Berggren and Jordahl (2006). As this study uses a panel data of U.S. contiguous states, instruments used in cross-countries study of Berggren and Jordahl (2006) will not be valid since variances in culture and characteristics among U.S. states are less than countries across world. Moreover, as mentioned previously, history and characteristics of a society may affect not just social capital but also economic freedom. Therefore, using colonial origins of U.S. states may affect both economic freedom and social capital, and that may lead the use of colonial origins not to be valid. System Generalized Method of Moments (System GMM) dynamic estimation as used in Jackson et al. (2014) would be a solution to handle endogeneity, but this study would not be able to apply this method because of the short-panel dataset.

Despite having drawbacks, this study contributes to the literature on economic freedom and social capital. The findings of this study suggests that state and local governments' economic policies impact more on individuals' decisions to engage in social activities than the federal government. When state and local governments make positive changes in economic freedom such as fewer regulations and fewer government spending, there will be an increase in social capital. However, it would not be a case when involvements of the federal government are accounted. A society might have both economic freedom and social capital but the existence of social capital may not be affected solely by economic freedom. Even though this study examines the effect of economic institution and policies on social capital, effects of other institutions or policies such as political institutions on social capital still remain to be asked. This study observes that economic freedom has no effect on voter turnout, and that suggests that political liberty matters more on individuals' decisions to engage in political affairs than economic

freedom. In addition, civil liberty would be influential for religious participation than economic freedom. It is also important to note that other factors such as culture, history and characteristics of a society may affect more on social capital rather than economic freedom.

This study concludes that societies would not be worse off by having both economic freedom and social capital since both can reduce transaction costs and facilitate production. Even though measuring social capital can be difficult because of existing data issues and various definitions of social capital, further research on measuring social capital and investigating possible links between institutions and social capital should not be ignored. Moreover, research on the causal links between institutions (including economic freedom) and social capital is also required in the literature of social capital.

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