Fiscal Decentralization and Trust

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Abstract
Using data from U.S. states and various measures of decentralization, I investigate the relationship between fiscal decentralization and trust. I find that a one standard deviation increase in either revenue decentralization or expenditure decentralization causes the share of trusting people in a state to increase by almost 4 percentage points. A one standard deviation increase in the number of governments, however, causes trust to increase by almost 2.5 percentage points. The results are robust to endogeneity.

Keywords
fiscal decentralization, trust

1. Introduction

Since Putnam's (1993) influential study, there is growing interest in how trust affects economic growth. According to Knack (1999), high-trust societies achieve higher economic growth due to lower transaction costs. Since social trust protects property and contractual rights, it is not necessary to divert resources from production to protection. A perfect example of how

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trust lowers transaction costs is given by Coleman (1988), regarding the wholesale diamond markets in New York City. In the process of negotiating a sale, a merchant hands over to another merchant a bag of diamonds for the latter to examine, without any formal protection, no matter how much the diamonds are worth. As Coleman (1988) argues, diamonds changing hands in such a way is crucial for this market to operate efficiently. Using data across U.S. states, Dincer and Uslaner (forthcoming) find a positive relationship between trust and economic growth. Both Knack and Keefer (1997) and Zak and Knack (2001), using data across countries, find a positive relationship between trust and economic growth. Perhaps as important as the consequences of trust are the causes of trust. Several empirical studies such as Knack and Keefer (1997), based on cross-country data, identified education, income inequality, and ethnic diversity as the major factors affecting trust. The purpose of this study is to investigate the relationship between fiscal decentralization and trust.

How does fiscal decentralization affect trust in a society? Several studies find that fiscal decentralization causes governmental corruption to decrease and quality of government to increase, both of which, in turn, cause not only trust in government to increase but also trust in general in the society to increase.[1] Fiscal decentralization affects governmental corruption and the quality of government via a variety of different channels. First, as Tabellini (2000) argues, it is easier to hold politicians directly accountable for their performances if the government is decentralized. Central governments are responsible for solving several problems affecting several localities. Local governments, however, are responsible for solving problems specific to their locality, which makes monitoring easier. Since it is easier to monitor local government officials, it is easier for people to evaluate whether they are corrupt and whether they are performing badly, and it is easier to directly penalize them with the removal from the office. Increase in accountability increases the incentives for the local government officials to not to engage in corruption and to perform well. Monitoring the local government officials is also easier due to yardstick competition. If the government is decentralized, people evaluate the performance of the government officials in their locality using the yardstick of performance of the government officials in the neighboring localities. This increases the incentives for the local government officials to not engage in corruption and to perform well relative to the neighboring government officials (Dincer, Ellis, and Waddell, forthcoming). Second, decentralization creates competition among local governments to attract capital and labor from one another, especially if the government is financed by taxing these factors of

production. Competition among local governments due to factor mobility again increases the incentives for the local government officials to not engage in corruption and to perform well (Arikan 2004; Bardhan and Mookherjee 2006). A well-performing government that is not corrupt is simply more trustworthy. Finally, as De Mello (2004) argues, local governments are also better informed about local needs and they are more committed to local causes, both of which also increase government trustworthiness. According to Levi (1998), Levi and Stoker (2000), Rothstein (2000, 2005), and Rothstein and Eek (2009), an increase in government trustworthiness causes trust in the society to increase. Rothstein and Eek (2009) argue that people when forming their beliefs about the other people in the society make inferences from the performance of the government officials. According to Rothstein and Eek (2009), corruption affects trust via two interrelated channels:

> If government officials in a society are known to be corrupt, people will believe that they cannot be trusted. They will therefore think that most other people cannot be trusted.
> If government officials in a society are known to be corrupt, people will believe that other people engage in corruption as well. They will therefore think that most other people cannot be trusted.

People simply form their beliefs based on the following way of thinking: "if it proves that I cannot trust the local policemen and judges, then whom in the society can I trust?" (Rothstein and Eek 2009, 90). According to Levi (1998), Levi and Stoker (2000), Herreros (2004), and Rothstein (2005), perhaps more important than trust in government in general is trust in judiciary. Within government, the judiciary is the one catching and punishing the people who engage in treacherous acts. If people believe that judiciary performs well, they will also think that others are of the same belief. Hence, most people refrain from treacherous acts simply because they believe they will be caught and punished. As a result, trust in the society will increase (Rothstein 2005, 112). Several empirical studies find persuasive evidence supporting the aforementioned arguments. Using survey data, Rothstein (2005), for example, finds that trust in judiciary in Sweden positively affects trust in the society. Brehm and Rahn (1997) find a similar positive effect of trust in government for the United States. Again, using survey data, Yamagishi and Yamagishi (1994) find that Americans are more trusting than Japanese. The difference, in their opinion, is partly due to lower trust in government among the Japanese.

Although there are a few studies investigating the relationship between
fiscal decentralization and corruption (Fismand and Gatti 2002a, 2002b;
Arikan 2004) and between fiscal decentralization and different measures
of social capital such as civic cooperation, and associational activity, and
trust in government (De Mello 2004), to my knowledge, there is only one
study on how fiscal decentralization affects trust. Widmalm (2008) finds
a positive relationship between fiscal decentralization and trust in India.
In this study, I investigate how fiscal decentralization affects trust using
data from U.S. states. I find a positive and statistically significant relation-
ship between fiscal decentralization and trust.

The study is organized as follows. In section 2, I present the data. In sec-
tion 3, I discuss the empirical methodology along with the results. In the
concluding section 4, I consider the implications of the results.

2. Data

In cross-country studies, trust is measured using data from the World Value
Surveys (WVS). Trust is calculated in each country as the share of respon-
dents who agree that "most people can be trusted" rather than the alterna-
tive that "you can't be too careful in dealing with people" (Knack 1999,
16). WVS cover approximately 1,000 respondents in a small group of coun-
tries. The first wave of surveys is administered during the 1980s in mostly
high-income countries, while the second wave is in the 1990s in both mid-
dle- and high-income countries. The share of respondents who agree that
most people can be trusted varies from 10 percent in Turkey to close to
50 percent in Canada. Our measure of trust is from Uslaner and Brown
(2005). They calculate the shares of trusting people in forty-three contigu-
ous states and in Alaska in the 1990s using data from several other surveys
in addition to the General Social Survey (GSS).[2] The standard question
asked to measure trust is the same: "generally speaking, do you believe that
most people can be trusted, or can you not be too careful in dealing with
people?"[3] Using data from U.S. states is quite advantageous for a variety
of reasons. First, it is more likely that the relationship between the answers
to survey trust questions and the actual trust differs across countries than
across states. Holm and Danielson (2005), for example, show that it differs
considerably between Sweden and Tanzania. Second, there are significant
unobservable institutional differences across countries. U.S. states are much
more similar than different countries regarding institutions and in other
dimensions that are difficult to measure. The share of trusting people
(Trust) varies significantly across states. It is 10 percent in Arkansas, the

Table 1. Pairwise Correlations

	Trust	Revenue decentralization	Expenditure decentralization	No. of govts
Trust	1.00			
Revenue decentralization	0.16	1.00		
Expenditure decentralization	0.13	0.88	1.00	
No. of govts	0.15	0.32	0.46	1.00

lowest, and in New Hampshire, it is above 60 percent, the highest. People who live in midwestern states are, on average, more trusting. The average Trust in the Midwest is around 45 percent, while it is below 30 percent in the South.

Fiscal decentralization is often defined as the devolution of the policy making to lower level governments. I use three different measures of fiscal decentralization. The first two measures are from Akai and Sakata (2002): the share of local government revenue to total government revenue (Revenue Decentralization) and the share of local government expenditure to total government expenditure (Expenditure Decentralization). The last measure is the number of local governments in a state (No. of Govts) from Arikan (2004). The data are from the Census Bureau and averaged out over the 1990s. Again, the most decentralized states are the Midwestern states. The average Revenue Decentralization in the Midwest is equal to 39 percent, Expenditure Decentralization is equal to 46 percent, and the average No. of Govts is above 3,000. Southern states are significantly less decentralized. In Arkansas, for example, Revenue Decentralization and Expenditure Decentralization are around 30 percent and 40 percent, respectively, while the No. of Govts is below 1,500. In Illinois, however, both Revenue Decentralization and Expenditure Decentralization are about 50 percent, and the No. of Govts is above 6,500. Correlation coefficients between Trust and the decentralization measures are given in table 1.

I also include a set of control variables to minimize the omitted variable bias. First, following Uslaner and Brown (2005) and Knack and Keefer (1997), I control for income inequality. As Uslaner and Brown (2005) argue, trust in other people rests on a foundation of equality. In unequal societies, people at the top and the bottom do not see each other as part of the same society and hence are less likely to trust each other. My inequality measure is the Gini index (Gini). Second, I control for the growth rate of

Table 2. Summary Statistics

	Observations	Mean	SD	Minimum	Maximum
Revenue decentralization	44	0.38	0.07	0.20	0.54
Expenditure decentralization	44	0.44	0.06	0.31	0.55
No. of govts	44	1,825.50	1,530.00	123.00	6,766.00
Trust	44	0.38	0.12	0.11	0.63
Gini	44	0.43	0.02	0.39	0.48
College	44	0.19	0.04	0.12	0.27
PI	44	0.50	0.23	0.07	0.91
Income	44	0.09	0.05	−0.05	0.18
Family	44	3.14	0.12	2.95	3.67

Note: PI = polarization index.

median income (Income). Third, following De Mello (2004) and Knack and Keefer (1997), I control for education (College). I measure education as the share of the population age twenty-five and above, with a college degree or higher. As De Mello (2004) argues, educated societies with high income are likely to have high social capital and trust. Fourth, following Knack and Keefer (1997), I control for ethnic diversity. According to the conflict hypothesis, the more people live in a society with people who belong to another ethnic group, the more they trust their own and the less they trust the other (Putnam 2007). Quite a few empirical studies find evidence supporting the conflict hypothesis. Using cross-country data, Delhey and Newton (2005), for example, find a negative relationship between ethnic diversity and trust as do Alesina and La Ferrara (2002) using U.S. data. To measure ethnic diversity, I use the polarization index (PI) of Montalvo and Reynal-Querol (2005). It is calculated as

$$\text{PI}_i = 1 - \sum_{j=1}^{J} \left(\frac{0.5 - n_{ij}}{0.5} \right)^2 n_{ij}$$

where n_{ij} is the population share of group j in state i. PI measures the distance of any distribution of ethnic groups from the situation that leads to maximum conflict. It reaches a maximum when there are two ethnic groups of equal size in a state. Finally, I control for the average family size (Family). Rupasingha, Goetz, and Freshwater (2006) argue that having children leads families to engage in more social activities that, in turn, increase contact with each other. Uslaner (2006) argues that diversity causes trust to

Table 3. Decentralization and Control Variables

Variable name	Variable definition	Hypothesized sign of the coefficient
Revenue decentralization	Local government revenue divided by total (local and state) government revenue	+
Expenditure decentralization	Local government expenditure divided by total (local and state) government expenditure	+
No. of govts	Number of governments	+
Gini	Gini index of income inequality	−
College	Share of the population age twenty-five and above with a college degree or higher	+
PI	Ethnic polarization index	−
Income	Growth rate of median income	+
Family	Average family size	+

Note: PI = polarization index.

decrease only if there is lack of contact between people who belong to different ethnic groups. Using U.S. and Canadian data, Stolle et al. (2008) find that people who are regularly in contact with the other people are less affected by their ethnicity than people who lack contact. The definitions of the decentralization as well as the control variables and the hypothesized coefficients together with their summary statistics are given in table 2 and table 3.

The data I use to calculate the ethnic polarization index are from the Social Science Data Analysis Network (SSDAN) for 1990 and for six ethnic groups: Hispanics, whites, blacks, American Indian and Eskimos, Asians, and Others.[4] The composition of the individual ethnic groups is quite intricate. The ethnic group referred to as Hispanics, for example, is quite diverse in itself due to different nationalities such as Mexican Americans, Cuban Americans, and Puerto Ricans, and so on. Nevertheless, following Hero (1998), I assume that there are enough similarities within groups and enough differences across groups to support the aforementioned arguments. The data for all other control variables are from the Census Bureau for the year 1990, except the growth rate of median income, which is calculated over a decade between 1990 and 1999.

3. Results

The results of the ordinary least squares (OLS) estimation are given in table 4. I estimate three different regressions, one for each decentralization

Table 4. Fiscal Decentralization and Trust: Ordinary Least Squares (OLS) Estimation

	1	2	3
Revenue decentralization	0.49 (0.17)***		
Expenditure decentralization		0.58 (0.21)***	
No. of govts ($\times 10^{-3}$)			0.01 (0.00)***
Gini	−1.47 (0.47)***	−1.29 (0.53)***	−1.35 (0.56)**
College	1.00 (0.32)***	1.01 (0.32)***	1.38 (0.32)***
PI	−0.27 (0.05)***	−0.29 (0.06)***	−0.22 (0.06)***
Income	0.19 (0.23)	0.11 (0.25)	0.43 (0.22)**
Family	0.16 (0.09)**	0.17 (0.09)**	0.11 (0.08)*
Constant	0.25 (0.36)	0.08 (0.38)	0.40 (0.39)
R^2	0.72	0.72	0.69
Jarque-Bera	0.96	1.85	0.24
N	44.00	44.00	44.00

Note: Robust standard errors in parentheses. All tests one tailed except constants. PI = polarization index.
*$p < .10$; **$p < .05$; ***$p < .01$.

measure. The estimated coefficients of all three fiscal decentralization measures are positive and statistically significant.[5] According to the results of the OLS estimation, a one standard deviation increase in revenue decentralization causes the share of trusting people to increase almost 3.5 percentage points, almost the same effect of a one standard deviation decrease in *Gini*. Similarly, a one standard deviation increase in expenditure decentralization causes the share of trusting people in a state to increase by almost 4 percentage points, almost the same effect of a one standard deviation increase in *College*. Finally, a one standard deviation increase in the number of governments causes *Trust* to increase by almost 2.5 percentage points, almost the same effect of a one standard deviation increase in the growth rate of median income. The partial regression plots between *Trust* and all three fiscal decentralization measures are given in figures 1-3.

The results concerning the effects of control variables on *Trust* are mostly consistent with earlier studies. All the estimated coefficients are statistically significant and have the expected signs except the growth rate of median income. The estimated coefficient of *Gini* is negative. A one standard deviation increase in *Gini* causes *Trust* to decrease by almost 3 percentage points.

There is a positive relationship between *College* and *Trust*. A one standard deviation increase in the share of college graduates is associated with a
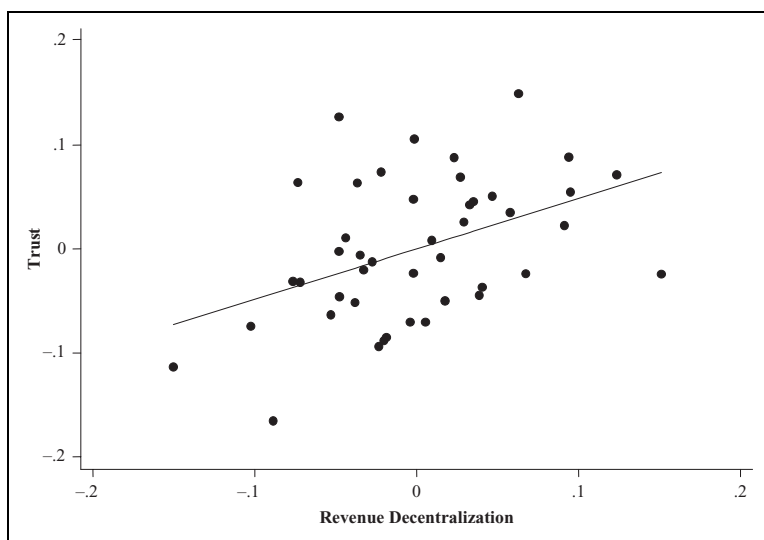
Figure 1. Partial Regression Plot: Trust and Revenue Decentralization

4 percentage point increase in the share of trusting people. An increase in ethnic polarization causes Trust to decrease. Going from an ethnic polariza-tion index of 0 (the minimum), to an ethnic polarization index of 1 (the maximum), decreases Trust by more than 25 percentage points. Although there is a positive relationship between the growth rate of median income and the share of trusting people, it is not always statistically significant. Finally, there is a positive relationship between family size and Trust. A one standard deviation increase in average family size by 1 causes the share of trusting people to increase by almost 2 percentage points. Fiscal decentralization together with the control variables explains more than 70 percent of the variation in Trust.

4. Robustness of the Results

The main robustness issue is reverse causality between fiscal decentraliza-tion and trust. Several studies such as Dincer and Uslaner (forthcoming), Zak and Knack (2001), and Knack and Keefer (1997) find trust that affects growth rate of income, while Panizza (1999) and Wallis and Oates (1988) find that per capita income affects fiscal decentralization. Hence, it is likely
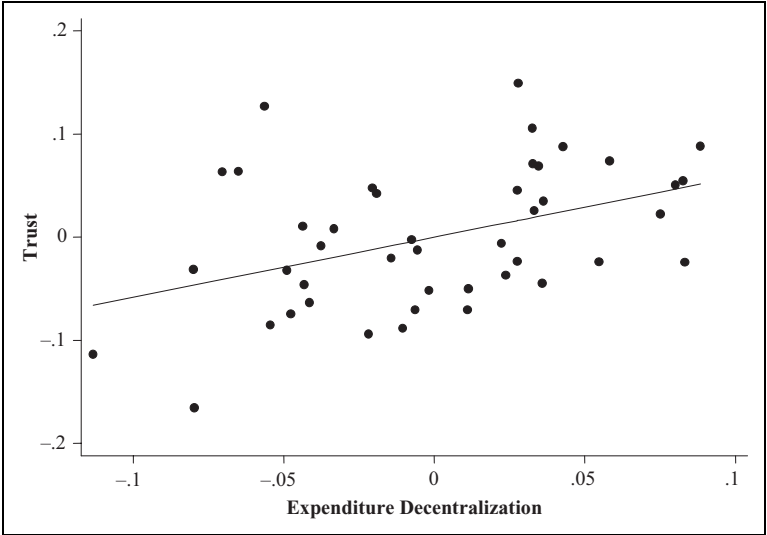
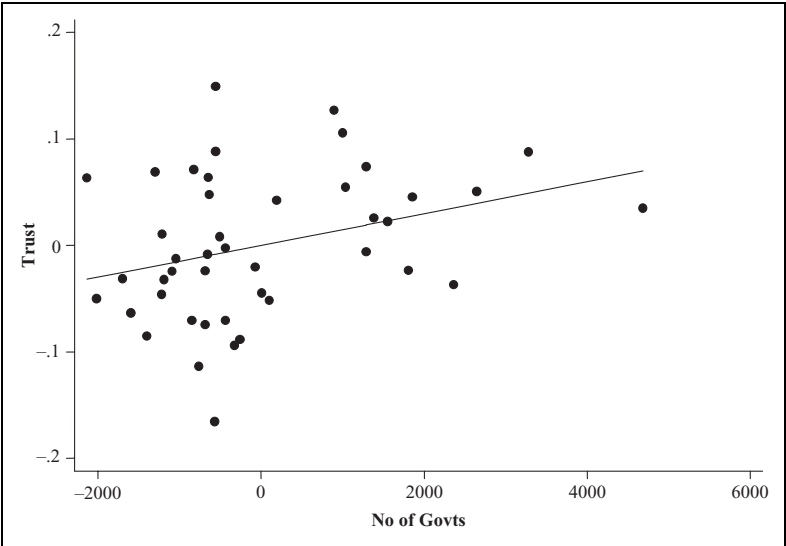**Figure 2.** Partial Regression Plot: Trust and Expenditure Decentralization

Figure 3. Partial Regression Plot: Trust and Number of Governments

Table 5. Fiscal Decentralization and Trust: Instrumental Variables (IV) Estimation Instruments—Land Area, Population

	1	2	3
Revenue decentralization	0.73 (0.22)***		
Expenditure decentralization		0.61 (0.19)***	
No. of govts			0.02 (0.01)***
Gini	−1.69 (0.56)***	−1.31 (0.50)***	−1.43 (0.52)***
College	0.78 (0.37)**	0.98 (0.31)***	1.37 (0.29)***
PI	−0.28 (0.04)***	−0.29 (0.05)***	−0.22 (0.05)***
Income	0.06 (0.23)	0.08 (0.22)	0.42 (0.19)**
Family	0.17 (0.08)**	0.17 (0.08)**	0.09 (0.08)*
Constant	0.27 (0.34)	0.07 (0.34)	0.45 (0.38)
Hansen J	0.08	0.61	1.02
1st Stage F	9.44	12.70	16.34
N	44.00	44.00	44.00

Note: Robust standard errors in parentheses. All tests one tailed except constants. PI = polarization index.
*$p < .10$; **$p < .05$; ***$p < .01$.

that the causality runs from trust to fiscal decentralization. Instrumental variables (IV) estimation helps address this problem. The choice of the instrument is extremely important. A good instrument is a variable that is supposed to be uncorrelated with the error term but correlated with the endogenous variable. De Mello (2004) uses ethnic diversity together with initial values of decentralization as instruments. According to the results of the OLS estimation given in table 4, ethnic diversity is correlated with Trust. In other words, ethnic diversity is not a valid instrument. Several studies such as Wallis and Oates (1988) and Panizza (1999) argue that size of a state affects fiscal decentralization. I use population and land area of a state (in square kilometers) as my instruments. According to the first Stage F and the Hansen J statistics given in table 5, they are valid instruments. The results of the IV estimation are given in table 5. The estimated coefficients of fiscal decentralization variables are again positive and highly significant.

5. Conclusion

Fiscal decentralization attracts a great deal of attention as more and more countries devolve the policy making from national to subnational

governments. Many believe in the benefits of decentralization in the provision of public goods. According to De Mello (2004) and Widmalm (2008), however, fiscal decentralization also affects social capital by bringing the government closer to the people. In this study, I investigate the relationship between fiscal decentralization and trust using data from U.S. states. I find a positive relationship between various measures of fiscal decentralization and the share of trusting people in a state. Although not conclusive, the results, I believe, are telling and sufficiently persuasive to support fiscal decentralization as a policy to increase social capital and trust not only in developing countries but also in developed countries such as the United States.

Notes

1. See Fisman and Gatti (2002a, 200b), Arikan (2004), De Mello (2004), and Dincer, Ellis, and Waddell (forthcoming).
2. American National Election Study, Pew Civic Engagement Survey, the Washington Post Trust in Government Survey, and the New York Times Millennium Survey.
3. Uslaner and Brown (2005) aggregate the survey data to calculate the shares of trusting people across states. Note that none of the surveys used are designed to produce measures across states. Nevertheless, as Brace et al. (2002) show, aggregating survey data does produce reliable measures. Putnam (2000), for example, aggregates data from General Social Survey (GSS) to calculate measures of social capital across states. See Uslaner and Brown (2005) for a discussion of the data.
4. On census questionnaires, Hispanic ethnicity is listed as a separate category. An individual of Hispanic ethnicity is defined as anyone who identifies with that ethnic group. In other words, it is possible to be a black and Hispanic or white and Hispanic. We use Social Science Data Analysis Network (SSDAN) estimates of non-Hispanic whites, blacks, American Indian and Eskimos, Asians, and Others in our analysis.
5. According to Jarque-Bera statistics given in table 3, I do not reject the normality of the residuals in any of the regressions.

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Bio

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