ETHNIC DIVERSITY AND TRUST

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Using data from U.S. states, I investigate the relationship between ethnic diversity and trust. I find a negative relationship between ethnic polarization and trust and a U-shaped relationship between ethnic fractionalization and trust. According to my estimations, (a) going from an ethnic polarization index (PI) of 0 to an ethnic PI of 1 decreases trust by almost 12% points; and (b) trust is minimized when the ethnic fractionalization index is equal to 0.34. (JEL D74, J15, Z13)

I. INTRODUCTION

As Putnam (2007) argues, immigration has grown significantly across the rich countries of the world in the last few decades and it continues to grow. While the share of immigrants in the United States population, for example, increased by half, it tripled in Italy since 1990. Although diversity and immigration are not identical, growing immigration has increased ethnic diversity in rich countries. Because immigrants typically have higher fertility rates, ethnic diversity is likely to increase even more in the years ahead (Putnam 2007, p. 140). As most countries such as the United States get ethnically more and more diverse, the relationship between ethnic diversity and social capital, especially trust,[1] becomes increasingly important.

Several studies such as by Knack and Keefer (1997) and Zak and Knack (2001) show the importance of trust for economic growth. As Knack (1999) argues, high-trust societies achieve higher economic growth due to lower transaction costs. Because trust protects property and contractual rights, it is not necessary to divert resources from production to protection. According to Knack and Keefer (1997), innovation hardly takes place in low-trust societies. Entrepreneurs, rather than devoting more time innovating new products, have to devote more time monitoring their employees. Trust not only affects economic variables such as growth but also affects political variables such as corruption. Uslaner (2008) finds that trust leads to higher institutional quality, particularly to lower political corruption. As both Rothstein (2003) and Uslaner (2004) argue, people who trust each other are likely to think that most people play by the rules in both "person-to-person" contacts and in their contacts with government institutions. That is, they are less likely to corrupt these institutions. If trust is that important for higher economic growth and lower political corruption, identifying the factors affecting trust and identifying if ethnic diversity is one of them is perhaps even more important.

There are two competing hypotheses explaining the relationship between ethnic diversity and trust: conflict hypothesis and contact hypothesis. According to the conflict hypothesis, diversity causes trust to decrease. People have a tendency to associate with, socialize with, and be more comfortable with people who appear similar to themselves (Delhey and Newton 2005). A great example of such behavior was observed during the filming of "The Planet of the Apes." All actors who appeared as apes were put in make-up and dressed on the set and had lunch catered to them in specially designed and staffed eating areas. None of the actors in make-up was permitted off the set during the working day. Actors who played chimpanzees, gorillas, and orangutans socialized with their own kinds

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1. Throughout this study trust is defined as trust in people who are different from one's self, that is, the generalized trust.

ABBREVIATIONS

FI: Fractionalization Index

GLS: Generalized Least Squares

PI: Polarization Index

SUR: Seemingly Unrelated Regression

WVS: World Values Survey

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during breaks in production. Kim Hunter who was playing Dr. Zira, a chimp, for example, always ate with her fellow chimps and rarely spoke with her close friend Maurice Evans who was playing an orangutan, Dr. Zaius (Hofstede 2001). Conflict hypothesis simply states that 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. According to contact hypothesis, as people have more contact with people who belong to other ethnic groups, they trust them more (Putnam 2007). Uslaner (2006), for example, argues that diversity causes trust to 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. Using cross-country data, Uslaner (2006) finds that in countries where people who belong to minority groups lack contact with the others, trust is lower.

Measurement of diversity is, of course, vital. The common measure used in the literature is the fractionalization index (FI). FI, which gives us the probability that two randomly selected individuals in a country belong to two different ethnic or religious groups, is calculated as follows:

$$(1) \qquad \text{FI}_i = 1 - \sum_{j=1}^{J} n_{ij}^2$$

where n_{ij} is the population share of group j in country i. FI_i increases with the number of groups and reaches a maximum if every individual in a country belongs to a different ethnic group.[2] Both Delhey and Newton (2005) and Alesina and La Ferrara (2002) use the FI as

their measure of diversity and find a linear and negative relationship between ethnic fractionalization and trust. Using data from World Values Survey (WVS) for 60 countries from 1990s, Delhey and Newton (2005) find that going from an ethnic FI of 0 (each individual belongs to the same ethnic group in the society) to an ethnic FI of 1 (each individual belongs to a different ethnic group in the society) causes the share of trusting people in a country to decrease more than 20% points. Alesina and La Ferrara (2002) use U.S. data from General Social Survey (GSS) for almost 7,500 individuals from the mid-1970s to mid-1990s. They find that an increase in ethnic fractionalization by one standard deviation causes the probability of trusting others to decrease by almost 3% points. On the other hand, as Montalvo and Reynal-Querol (2005a, 2005b) argue, ethnic fractionalization does not necessarily increase conflict across ethnic groups in a society and hence does not necessarily lower trust. We are less likely to have conflict in societies with only one ethnic group and in societies with many different ethnic groups. In other words, we should see a U-shaped relationship between ethnic fractionalization and trust which should yield a trust minimizing level of fractionalization. None of the aforementioned studies investigate such a relationship between ethnic fractionalization and trust. Montalvo and Reynal-Querol (2005a, 2005b), instead, use the polarization index (PI) as an alternative, to measure the likelihood of conflict. PI measures the distance of any distribution of ethnic groups from the situation that leads to maximum conflict. It is calculated as

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

and reaches a maximum when there are two ethnic groups of equal size in a country, holding the distance between groups constant.[3] As Alesina et al. (2003) argue, the degree of polarization increases as the distance between groups

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2. FI is the most commonly used index in the literature investigating the effects of ethnic diversity on several economic variables. Using cross-country data, both Easterly and Levine (1997) and Alesina et al. (2003) find that ethnic fractionalization decreases economic growth. Easterly and Levine (1997) find that ethnic fractionalization alone accounts for almost 28 of the growth differential between countries of Africa and East Asia. Alesina et al. (2003) find that up to 2% points of the difference in annual growth rates between South Korea and Uganda is explained by different

degrees of ethnic fractionalization. Alesina, Baqir, and Easterly (1999), using data from U.S. cities, metropolitan statistical areas, and counties, find a negative relationship between ethnic fractionalization and investment in productive public goods. Dincer (2008) finds a U-shaped relationship between ethnic fractionalization and corruption using cross-state data from the United States.

3. In a society with three ethnic groups distributed with 45%, 45%, and 10%, the polarization index is higher than with the 33.3%, 33.3%, and 33.3% or with 90%, 10%, and 0%. See Montalvo and Reynal-Querol (2005a, 2005b) for a detailed discussion.

FIGURE 1

Polarization and Fractionalization
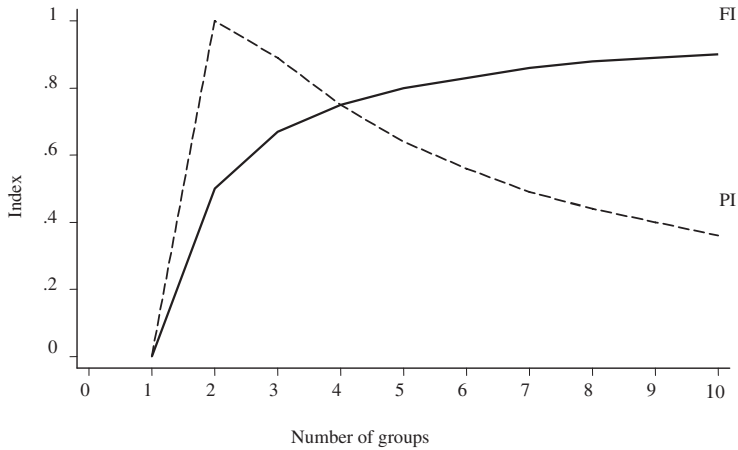
increases. Nevertheless, when it comes to ethnic groups, calculating the distance between different ethnic groups is a very difficult task. Following Montalvo and Reynal-Querol (2005a, 2005b), I assume that the distance between any two ethnic groups is equal. Because distances are assumed to be equal among all groups, the degree of polarization only depends on the size of the groups. Figure 1, taken from Montalvo and Reynal-Querol (2005a, 2005b), shows FI and PI as functions of the number of groups (here assumed of equal size).

In my study, I use both the polarization and the fractionalization indices and investigate the effects of ethnic diversity on trust using data from U.S. states. 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 actual trust differs more across countries than across states. Holm and Danielson (2005), for example, show that it differs considerably between Sweden and Tanzania.[4] Second, U.S. states are much more similar than different countries in other dimensions that are difficult to measure. To my knowledge, the study by Alesina and La Ferrara (2002) is the only study using U.S data. Nevertheless, there are significant differences between their study and

my study. First of all, as mentioned above, they use individual-level data from GSS. Trust, in their study, is a dummy variable which takes the value of 1 if the individual is trusting and 0 otherwise. I, on the other hand, use state-level data from the 1980s and 1990s and measure trust as a continuous variable, the share of trusting people in each state. Alesina and La Ferrara (2002) investigate the causal relationship between the probability of an individual trusting the others and ethnic fractionalization of the city in which the individual lives. On the other hand, similar to Delhey and Newton (2005), they only investigate a possible linear relationship between the two. In my study, I first investigate a possible U-shaped relationship between ethnic fractionalization and trust, then a possible linear and negative relationship between ethnic polarization and trust.

Controlling for various economic and demographic variables, I do find a negative linear relationship between ethnic polarization and trust. According to my seemingly unrelated regression (SUR) estimates, going from an ethnic PI of 0 (only one group in the society) to an ethnic PI of 1 (two groups of equal size in the society), would decrease the share of trusting people in a state by almost 12% points. This is quite significant given the average share of trusting people of 0.42. When I use the FI as my measure of diversity, I find a U-shaped relationship between ethnic diversity and trust. In other words, I find a trust minimizing level of fractionalization. According to my estimations,

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4. The standard deviation of the cross-country trust measure that Knack and Keefer (1997) use, for example, is equal to 0.140, which is in fact larger than the cross-state trust measure that we use in our study which is equal to 0.125.

the share of trusting people in a state would be minimized when the ethnic FI is equal to 0.34. This has important policy implications. Alesina and La Ferrara (2002), based on the their findings of a linear and negative relationship between ethnic fractionalization and trust, conclude that moving from a more diverse to a less diverse society makes an individual more trusting. I, on the other hand, find that once the society reaches a certain level of fractionalization, an increase in diversity makes people more trusting.

The study is organized as follows. In Section II, I present my data on trust, ethnic diversity, and on the control variables I use in my analysis. In Section III, I present and discuss my empirical model and estimation results regarding relationships between ethnic diversity and trust. In the concluding Section IV, I consider the implications of my empirical findings.

II. DATA

In cross-country studies, trust is measured using data from WVSs. It is calculated in each country as the share of respondents who agree that "most people can be trusted" rather than the alternative that "you can't be too careful in dealing with people" (Knack 1999, 16). My measure of trust is from Uslaner and Brown (2005) for two periods, the 1980s and the 1990s.[5] Uslaner and Brown (2005) calculate the shares of trusting people in U.S. states using data from several other surveys in addition to the GSS.[6] The data are available for 40 states for the 1980s and 44 states for the 1990s. While calculating trust they did not include the states in which the sample size used in the surveys was smaller than 50. 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?"[7] Based on the averages across the two periods, the share of

the trusting people in the South is the lowest. In Mississippi, for example, it is below 0.20. Midwest, on the other hand, has the highest trust. The share of trusting people in North Dakota is above 0.65.

As Bobo and Hutchings (1996) argue, due to ongoing immigration from Asia, South America, and Central America, and the earlier internal migration of African Americans, most, if not all, of the states in the United States today are significantly multiethnic conglomerations. Indeed, ethnicity is a defining characteristic in U.S. history (Hero 1998). The data I use to calculate the ethnic polarization and fractionalization indices are from the Social Science Data Analysis Network for the two years 1980 and 1990, and for six ethnic groups: Hispanics, Whites, Blacks, American Indian and Eskimos, Asians, and Others.[8] 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. Nevertheless, following Hero (1998), I assume that there are enough similarities within groups and enough differences across groups to support our arguments. The average values of PI and FI for 1980 and 1990 across the states in our sample are 0.49 and 0.28, respectively. Taking the PI first, among the four census regions, the South is the most ethnically polarized: PI is maximal and equal to 0.90 in Mississippi. The least ethnically polarized region is the Northeast: PI = 0.06 in New Hampshire. Turning to the FI, the South, again, is the most ethnically fractionalized region while the Midwest is the least: FI = 0.47 in Mississippi, one of the most ethnically fractionalized states and FI = 0.07 in Iowa, one of the least ethnically fractionalized states.

To minimize omitted variable bias, I include a set of control variables in my regressions. First, following Uslaner and Brown (2005) and Knack

5. The trust estimates of Uslaner and Brown (2005) are widely used not only in political science literature but also in economics literature such as Dincer and Uslaner (2010) and Dincer (2010).

6. American National Election Study, Pew Civic Engagement Survey, the Washington Post Trust in Government Survey, and the New York Times Millennium Survey.

7. Uslaner and Brown (2005) aggregate the survey data to calculate the shares of trusting people across states. Note that none of the surveys used is 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 GSS to calculate measures of social capital across states. See Uslaner and Brown (2005) for a discussion of the data.

8. 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 SSDAN estimates of non-Hispanic Whites, Blacks, American Indian and Eskimos, Asians, and Others in our analysis. As a robustness check, we calculate ethnic PI and ethnic FI using data from the U.S. Census Bureau for five ethnic groups: Whites, Blacks, American Indian and Eskimos, Asians, and Others. However, because there is a very high correlation between Hispanics and Others, the correlation between the indices that we calculate using data from SSDAN and from the Census Bureau is very close to 1.

and Keefer (1997), I control for income inequality. As Uslaner and Brown (2005) argue, trust in others is dependent upon equal distribution of income. When income inequality is high, people at the top and the bottom do not see each other as facing a shared fate and hence have fewer reasons to trust each other. My inequality measure is the Gini index (*Gini*). Second, I control for the average growth rate of median income (*Income*). Trust also depends on how optimistic people are about their future and how optimistic they are controlling their own fate. If poverty is high people have fewer reasons to be optimistic. Third, I control for the share of female-headed families (*Female Head*). Rodgers (1999) finds that the poverty rate for female-headed families is almost three times the poverty rate for male-headed families and six times the poverty rate for married-couple families. Fourth, following Knack and Keefer (1997), I control for education (*College*). As Alesina and La Ferrara (2002) argue, a successful professional experience is likely to make people more trusting. I measure education as the share of the population age 25 and above with a college degree or higher. Fifth, I control for age: the share of people who are 18 and younger (*Young*), and the share of people who are 65 and older (*Old*). Alesina and La Ferrara (2002) find that trust in others increases with age at a decreasing rate. Finally, I control for urbanization (*Urban*). Delhey and Newton (2005) find that rural societies are not as trusting as urban societies. My measure of urbanization is the share of the people who live in urban areas. All the data for control variables are from the Census Bureau for the years 1980 and 1990, except the growth rates of median income which are calculated as period averages over 1980s and 1990s. The summary statistics of the variables used in the study are presented in Table 1.

III. EMPIRICAL MODEL AND RESULTS

With respect to ethnic polarization and trust, my empirical model takes the form

$$(3) \quad \text{Trust}_{s,t1} = \text{Intercept}_{t1}$$
$$+ \beta_1 \text{PI}_{s,t1} + \beta_2 X_{s,t1} + \varepsilon_{s,t1}$$

$$(4) \quad \text{Trust}_{s,t2} = \text{Intercept}_{t2}$$
$$+ \beta_1 \text{PI}_{s,t2} + \beta_2 X_{s,t2} + \varepsilon_{s,t2}$$

where $\text{Trust}_{s,t}$ represents the share of trusting people in state s during period t. $\text{PI}_{s,t}$ represents the ethnic PI, and $X_{s,t}$ represents the

TABLE 1
Summary Statistics

	Mean	Standard Deviation	Minimum	Maximum
Trust	0.417	0.125	0.105	0.716
Gini	0.441	0.023	0.387	0.499
PI	0.492	0.230	0.064	0.912
FI	0.279	0.141	0.032	0.593
College	0.217	0.047	0.123	0.332
Urban	0.725	0.135	0.461	0.944
Female head	0.115	0.021	0.070	0.170
Young	0.258	0.021	0.221	0.364
Old	0.127	0.018	0.085	0.183
Income	0.003	0.004	−0.008	0.012

set of control variables that affect trust (*Gini, Income, College, Young, Old, Urban*). I estimate my model using SUR. SUR is a flexible form of random effects estimation and is widely used in cross-country growth regressions because it allows for the error terms to be correlated across periods (Alesina et al. 2003; Alesina and La Ferrara 2005). I first formulate a separate regression for each period, and then constrain the coefficients to be equal across periods and estimate the resulting system by generalized least squares (GLS). If the error terms are not correlated, there is no payoff to GLS estimation; GLS is then simply equation-by-equation ordinary least squares. The greater the correlation of the error terms, the greater the efficiency gain accruing to GLS (Greene 2003).[9]

The results of the SUR estimation for the effects of ethnic polarization on trust are given in the first column of Table 2. The estimated coefficient of PI is both negative and significant at the 5% level, indicating a strong negative relationship between ethnic diversity and trust. As the results presented in Table 2 suggest, going from an ethnic PI of 0 (only one group), to an ethnic PI of 1 (two equal groups), decreases the share of trusting people in a state by almost 12% points. Up to 10% points of the difference in trust between New Hampshire and Mississippi is explained by the different degrees of ethnic polarization in those states.

As mentioned earlier, the PI reaches a maximum when there are two ethnic groups of equal

9. According to the Breusch–Pagan test, the error terms are significantly correlated. The *p* value is 0.05. In other words, SUR estimation is in fact more efficient. The results of RE estimation are, nevertheless, very similar to those of the SUR estimations reported here. The signs of the estimated coefficients are the same and the magnitudes are not significantly different.

TABLE 2
SUR Estimation: Ethnic Polarization,
Fractionalization, and Trust

	Trust	Trust
Intercept for the 1980s	0.264	−0.050
	(.531)	(.482)
Intercept for the 1990s	0.201	−0.117
	(.544)	(.494)
PI	−0.119	
	(.061)**	
FI		−1.087
		(.253)***
FI^2		1.613
		(.404)***
College	1.109	1.109
	(.321)***	(.287)***
Urban	1.447	2.368
	(.732)**	(.696)***
Urban^2	−0.009	−0.016
	(.005)**	(.005)***
Female head	−1.191	−1.558
	(.624)**	(.532)***
Young	0.854	0.733
	(.592)*	(.539)*
Old	0.956	1.249
	(.744)*	(.675)**
Gini	−1.602	−1.361
	(.660)***	(.611)***
Income	−0.035	−0.031
	(.021)**	(.019)*
Observations	40, 40	40, 40
R-squared	0.78, 0.69	0.80, 0.76

Standard errors in parentheses. All tests are one-tailed
except constants.
  *$p < .10$; **$p < .05$; ***$p < .01$.

size in a society while the FI increases with
the number of groups in a country. Figure 1,
which is taken from Montalvo and Reynal-
Querol (2005a), shows how polarization and
fractionalization vary as functions of the number
of groups (assumed of equal size). If the number
of groups within states is very few, then we are
operating in the left-most section of Figure 1,
where polarization and fractionalization are both
increasing in the number of groups. If the num-
ber of groups is very high, on the other hand,
we are operating in the right-most section. It is
not surprising, then, to observe that the relation-
ship between fractionalization and trust and the
relationship between polarization and trust are
rather different.

As Montalvo and Reynal-Querol (2005a)
argue, ethnic fractionalization does not necessar-
ily increase conflict across groups in a society.

The relationship between fractionalization and
conflict is not monotonic. We are less likely to
have conflict in societies with only one ethnic
group, and in societies with many different eth-
nic groups. Increases in fractionalization, after
some point, can be expected to decrease the
effect of the relevant groups on conflict. If this
is indeed the case, we should see a U-shaped
relationship between ethnic fractionalization and
trust which should yield a trust minimizing level
of fractionalization.

To capture the presence of a U-shaped rela-
tionship between ethnic fractionalization and
trust, I use the following adaptation of my
empirical model:

$$(5) \quad \text{Trust}_{s,t1} = \text{Intercept}_{t1} + \beta_1 \text{FI}_{s,t1}$$
$$+ \beta_2 \text{FI}^2_{s,t1} + \beta_3 X_{s,t1} + \varepsilon_{s,t1}$$

$$(6) \quad \text{Trust}_{s,t2} = \text{Intercept}_{t2} + \beta_1 \text{FI}_{s,t1}$$
$$+ \beta_2 \text{FI}^2_{s,t2} + \beta_3 X_{s,t2} + \varepsilon_{s,t2}$$

The results of the SUR estimation for the
effects of ethnic fractionalization on trust are
given in the second column of Table 2.[10] The
estimated coefficient of FI is negative and signif-
icant at the 1% level. The estimated coefficient
of FI^2 is positive and significant at the 1% level
as well. This does indeed indicate a U-shaped
relationship between the ethnic FI and trust. All
else constant, the share of trusting people in a
state is minimized when FI = 0.34 which falls
well within the range of observed values of FI
(0.03; 0.59).

The results concerning the effects of control
variables on income inequality are mostly con-
sistent with earlier studies. All of 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 10% point increase in *Gini*
causes Trust to decrease by almost 15% points.
There is a positive relationship between *College*
and Trust. A 10% point increase in the share
of college graduates is associated with more
than 10% point increase in the share of trusting
people. I find an inverse U-shaped relationship

10. I estimated the same regression equation using eth-
nic FI in its linear form only as well. Nevertheless, the
estimated coefficient of ethnic FI was never significant at any
conventional significance level. Regarding the control vari-
ables, the signs of the estimated coefficients did not change
at all, and the magnitudes of the estimated coefficients were
very close.

FIGURE 2

Kernel Regression: Ethnic Fractionalization and Trust
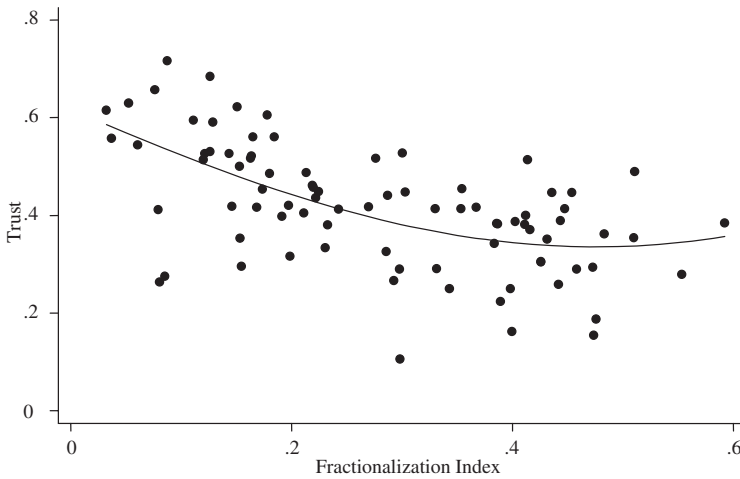
between urbanization and Trust. There is a positive relationship between both age variables and trust. A 10% point increase in either the share of young or the share of old people is associated with almost a 10% increase in Trust. As mentioned earlier, the only control variable which has the unexpected sign is the growth rate of median income. According to the results of the SUR estimation, a 10% point increase in growth rate over a decade causes the share of trusting people to decrease by almost 3% points. This is possible if increase in income is not distributed across all ethnic groups equally which in turn results in an increase in potential conflict and a decrease in trust in the society.[11]

IV.   ROBUSTNESS OF THE RESULTS

The first and main robustness issue is the possible endogeneity of ethnic diversity. If I were using diversity data from the end of the two periods, major shifts in the share of ethnic groups in a state could have led to an endogeneity bias in my regressions. However, my ethnic diversity data are from 1980 and 1990, that is, the beginning of the two periods. Besides, because ethnic group shares are sufficiently stable over a few decades in a state, it is indeed safe to take ethnic fractionalization

11. I would like to thank the editor in chief for his suggestion on why there could be a negative relationship between the growth rate of median income and trust.

and polarization indices as exogenous. The correlation coefficients of the polarization and fractionalization indices between the two periods are above .95.

The second robustness issue is the presence of outlying observations. To ensure that these are not driving the results, especially the U-shaped relationship between ethnic fractionalization and trust, I estimate the models using kernel regression as well. Figures 2 and 3 present the results for the kernel regressions of Trust on PI and FI, respectively.[12] Kernel regressions, too, confirm the linear and negative relationship between ethnic polarization and trust, and the U-shaped relationship between ethnic fractionalization and trust.

V.   CONCLUSION

The main channel through which ethnic diversity is hypothesized to affect trust is social conflict. There are two indices frequently used in the literature to measure ethnic diversity, the FI and the PI. Which index measures the likelihood of conflict better? As Montalvo and Reynal-Querol (2005a) argue, the relationship between

12. Kernel regression is a nonparametric data-driven regression technique to determine the shape of the relationship between dependent and independent variables, in this case between Trust and PI and FI. An Epanechnikov kernel with a half bandwidth of 25% was used. The results are not particularly sensitive to this choice: a Gaussian kernel, for example, yielded very similar results.

FIGURE 3

Kernel Regression: Ethnic Polarization and Trust
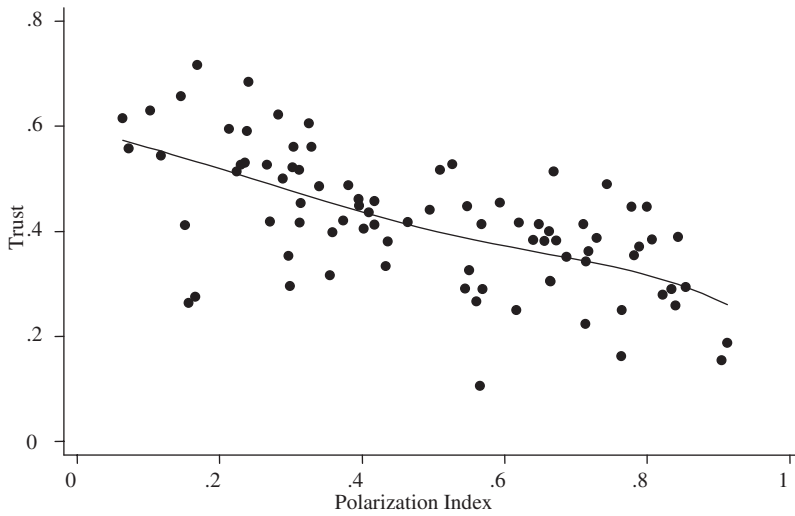
ethnic diversity and social conflict is not an easy one. In all of the studies investigating the relationship between ethnic diversity and trust, diversity is measured using the FI.[13] As mentioned before, the FI increases with the number of ethnic groups in a society and reaches a maximum if every individual belongs to a different ethnic group. All of the studies using the FI assume a positive and linear relationship between the number of groups in a society and the likelihood of social conflict. On the other hand, the relationship between fractionalization and the likelihood of social conflict is, according to Montavo and Reynal-Querol (2005a, 2005b), more likely to be nonlinear. Conflict is less likely in societies in which fractionalization is minimal or maximal. In other words, the relationship between fractionalization and conflict and hence the relationship between fractionalization and trust is likely to be U-shaped. None of the aforementioned studies attempt to investigate this relationship. Using data from U.S. states, I find a U-shaped relationship between ethnic fractionalization and trust. According to the results of the SUR estimation, the share of

trusting people in a state is minimized when the FI is equal to 0.34.

Horowitz (2000) argues that social conflict is more likely in societies in which there are two large ethnic groups. PI is close to 1, the maximum, in societies like this. In other words, if there is a linear relationship between a measure of ethnic diversity and social conflict, and hence a measure of ethnic diversity and trust, that measure is the PI, not the FI.[14] I, in fact, find a linear and negative relationship between ethnic polarization and the share of trusting people in a state. According to the results of the SUR estimation, going from an ethnic PI of 0 (only one group) to an ethnic PI of 1 (two equal groups), decreases the share of trusting people in a state by almost 12% points.

According to Putnam (2007), there is a trade-off between ethnic diversity and trust, at least in the short-run. Alesina and La Ferrara (2002) argue that the short-run benefits of policies promoting less diversity come at the price of long-run costs. I think reaching the conclusion that there is a trade-off between ethnic diversity and trust is nothing but seeing the glass half empty. The trade-off between ethnic diversity and trust exists only in polarized societies. In a highly polarized society with a few ethnic groups, yes, trust is low. But in a diverse society which

13. The only study using both PI and FI is by Uslaner (2006). Using cross-country data, Uslaner (2006) finds a somewhat stronger relationship between ethnic polarization and trust than the one between ethnic fractionalization and trust. The R^2 of both regressions, on the other hand, are quite low.

14. See Montalvo and Reynal-Querol (2005a, 2005b) for an excellent discussion of these two indices.

is composed of many different ethnic groups, this trade-off does not exist. In other words, we do not need to promote less diversity to increase trust in the short-run. A society with many different ethnic groups is highly fractionalized, and according to the results presented in this study, there is a U-shaped relationship between ethnic fractionalization and trust. There is a negative relationship between ethnic fractionalization and trust, but we have this relationship only at low levels of fractionalization. Once the society reaches a certain level of fractionalization, 0.35 in the case of U.S. states, as the number of ethnic groups increases, trust actually increases. The challenge is, then, how to increase ethnic diversity in a society. According to Putnam (2007), tolerance for diversity is but a first step. An African American individual or an Asian American individual, for example, is likely to feel more comfortable to move to a state in which people are more tolerant to other ethnic groups. Diversity education is quite important to increase tolerance. Astin (1993) finds that students who engage in diversity activities such as attending ethnic workshops or enrolling in ethnic studies courses in college are more likely to be committed to understand people different from themselves and hence are more likely to be tolerant. Ethnically diverse colleges are generally the ones offering such activities to their students. Students in ethnically diverse colleges not only have more opportunities to engage in diversity activities but also have more opportunities via student organizations, study groups, and so on, to have contact with the students who belong to other ethnic groups. The U.S. Supreme Court's majority ruling in *Gruter v. Bolinger* emphasizes the benefits of ethnic diversity in colleges as well. University of Michigan Law School rejected Barbara Gruter's application in 1996. Gruter, a White female from Michigan, sued the University of Michigan on the grounds that the university's consideration of ethnicity in its admissions decisions violates the Equal Protection Clause of the Fourteenth Amendment and Title VI of the Civil Rights Act of 1964. She argued that she was rejected because the university gave applicants belonging to the ethnic groups such as African Americans a higher chance of admission than Whites and Asian Americans. The Supreme Court held that the Equal Protection Clause does not prohibit the Law School's narrowly tailored use of ethnicity in admissions decisions to further a compelling interest in obtaining the educational benefits that flow from an ethnically diverse university. This is actually related with the findings of Stolle et al. (2008) that people who have diverse neighbors and talk to them on a regular basis are significantly more trusting than those who have diverse neighbors and do not talk to them. People from different ethnic groups are already in contact with each other in churches, for example. It is possible to increase this contact via community centers providing various activities such as classes not only for school age children but also for all ages (Putnam 2007, p. 164). In the creation of diverse neighborhoods, reducing inequality plays a crucial role. While the percentage of Whites and Asians living in poverty is around 10%, more than 20% of the Blacks and Hispanics live in poverty. It is not possible to create diverse neighborhoods with such significant differences in incomes across different ethnic groups. Wu, Perloff, and Golan (2006), for example, find that welfare and transfer programs such as Earned Income Tax Credit or Aid to Families with Dependent Children/Temporary Aid to Needy Families have significant effects on equalizing incomes.

It is not easy to create a diverse society in which there is no conflict. Nevertheless it is possible to increase the tolerance for diversity in any society. We need economic programs giving people the chance to live together and the social programs giving them the chance to have contact with each other. With higher tolerance for diversity, higher trust in the society is certainly in our reach.

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