How Does External Conflict Impact Social Trust? Evidence from the 9/11 Attacks as a Natural Experiment

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Abstract

Social trust has enchanted social scientists due to its importance for both cooperation within societies and economic performance. This paper provides a novel empirical study of whether external conflict affects trust. The possible ways that conflict could be related to trust are theoretically validated by two hypotheses on social group behavior. To identify the effect of external conflict on within-society trust, I interpret US General Social Survey (GSS) trust data within a natural experiment with the terror attacks of 9/11 observed as the external conflict. Difference-in-Differences estimations are in favor of the hypothesis that positive trust attitudes within a group are independent from external conflict.

Keywords: Social Trust, External Conflict, Terrorism, Natural Experiment
JEL codes: C10, O10, Z10

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1 Introduction

Trust within societies, known also as interpersonal or social trust, has been recently in the focus of attention of both political elites and social scientists. For example, Arrow (1974) emphasizes the role of trust as a social lubricant to cooperation and economic exchange. From a general social science perspective, Putnam (1993) advocates that trust is a fundamental building block of social capital and thus it is interlinked to development. More specifically, Stiglitz (2000) and Millo and Pasini (2010) argue that social capital, and implicitly trust, alleviate moral hazard and incentive problems. The empirical economics literature goes further than the theories by providing evidence which amongst others correlates trust to investment and transaction costs (Zak and Knack 2002), large organizations performance (La Porta et al. 1997), and ultimately suggests a causal effect of trust on economic growth (Algan and Cahuc 2010).

Motivated by the above findings, this paper contributes to a branch of the economics literature interested in the factors that help determine trust.[1] To my best knowledge, that literature has not yet investigated whether situations of conflict – either internal or external, could be playing a role in the process of trust creation, variation and destruction. My current objective is to assess empirically whether the occurrence of an external conflict could impact the level of internal society trust. Though such a goal pioneers to the empirical economics literature, it could be validated by two well-established theories on inter-group attitudes in case of conflict from the social psychology literature.

According to a hypothesis from functional theory, external conflict associated with attitudes of contempt, hatred, and hostility toward out-groups would be directly correlated to positive sentiments within in-groups (Sumner 1901, Brewer 1999):

> The relation of comradeship and peace in the we-group and that of hostility and war towards others-groups are correlative to each other. The exigencies of war with outsiders are what make peace inside... Loyalty to the group, sacrifice for it, hatred and contempt for outsiders, brotherhood within, warlikeness without – all grow together, common products of the same situation.

Tajfel (1982) draws attention to the similarity of Sumner′s functional theory view to the ones expressed by Freud and early frustration-aggression theorists. That theory is further developed by Sherif and Sherif (1953) and Sherif (1966) which distinguish between in-groups being formed from positive interdependence in pursuit of common goals while the intergroup relation being characterized by negative interdependence and competition (Brewer 1999).

The alternative hypothesis argues that external conflict and negative attitudes toward out-groups are independent of identification and positive attitudes within the in-group. Allport (1954) explains that speculation re-considering inter-group relations as follows:

> Although we could not perceive our own in-groups excepting as they contrast to out-groups, still the in-groups are psychologically primary.... Hostility toward out-groups helps strengthen our sense of belonging, but it is not required... The familiar is preferred. What is alien is regarded as somehow inferior, less "good," but there is not necessarily hostility against it... Thus, while a certain amount of predilection is inevitable in all in-group memberships, the reciprocal attitude toward out-groups may range widely.

Unlike functional theory, Allport′s (1954) view has found substantial support in the empirical literature. For example, Rabbie and de Brey (1971), Rabbie and Wilkens (1971), Rabbie and Huygen (1974), Rabbie et al. (1974) find that intergroup competition does not create greater in-group attraction than simple co-action or cooperation between the groups. Similarly, in a study

[1] Alesina and La Ferrara (2002), for example, study the relationship of trust with income inequality, ethnic and racial heterogeneity. Similarly, Zak and Knack (2001) estimate trust correlations with formal/informal institutions, wealth and population heterogeneity whereas Aghion et al. (2010) examine the impact of market regulation on trust.

on ethnocentrism among 30 ethnic groups in East Africa, Brewer and Campbell (1976) find that the correlation between degree of positive in-group perceptions and social distance toward out-groups is .00 across the 30 groups. Struch and Schwartz (1989) study in-group attitudes in the presence of an external threat which in their case is the incursion of ultraorthodox Jews into two north Jerusalem neighborhoods. In a questionnaire, 156 Israeli adults report perceptions of their own religious group and of the ultraorthodox Jewish out-group and express negativism toward the ultraorthodox (opposing institutions that serve their needs, supporting acts harmful to them, and opposing interaction with them). Based on that survey data, the authors find a negligible correlation of 0.07 between in-group favoritism and aggression.

In relation to this paper′s objective, the functional theory view would back up the possibility of external conflict reinforcing internal trust and cohesion while Allport′s view would bolster the speculation that cohesion and trust inside are independent of conflict with the outside.

As it proceeds, the paper will study the impact of external conflict on social trust by considering terror attacks as a specific example of conflict. Terrorism is not only a very tangible form of conflict (academically speaking), but also a relevant and topical problem for the contemporary world. Amongst terror attacks, the notorious 9/11 in the US seems to be one of the most disastrous real life cases of external conflict that involves terror. Together with data availability on trust in the US, the event of 9/11 makes an appropriate empirical case for the current study.

The rest of the paper is organized as follows: Section 2 describes the data on trust and its determinants. Section 3 presents the experimental design. Section 4 is about the estimation framework. Section 5 reports the empirical results: analysis and robustness checks, while Section 6 concludes.

2 Data and Trust Determinants

The main database this empirical work is based on is the US General Social Survey (GSS). The GSS is one of the widely available data sources for both trust and its determinants. In comparison to the World Values Survey and the European Social Survey, the GSS provides data on interpersonal trust for the longest time span as well as for the largest number of respondents. It contains detailed statistics on demographic characteristics and attitudes of residents of the United States collected from an interview of a randomly-selected sample of adults (18+). The data subsamples for my estimations come from the latest GSS dataset (Release 3, Mar. 2010) which in total includes 106,086 observations for a cross-section of individuals (annual number of respondents: min 1504 & max 4510) surveyed nearly every year over the period 1972-2008. Trust is conventionally measured with the answer to the GSS question "Generally speaking would you say that most people can be trusted/you can't be too careful in dealing with people?". Despite some critiques on the trust question as a proxy of trustworthiness rather than trust (Glaeser et al. 2000), most researchers find it a reliable and valid predictor (Newton 2001, Uslaner 2002). Moreover, the Difference-in-Differences estimator in this paper brings the individual answers to the trust question to an aggregated level of average social trust, thus approximating aggregate social capital, which is presumably beneficial, and avoiding the problematic relationship between individual trust (or social capital) and productivity of trust.[2] The degree of trust, reported by each respondent, alters with the answers: "can trust," "cannot trust" and "depends". Since, the GSS records respondents′ region of interview and region at age 16, the smallest geographic unit at which the individual data on trust could be aggregated is regions. Table 1 reports frequency of trust by US region for the period 1972-2008.

[2]Glaeser et al. (2000) argue that individual trust, if not repaid, could be counterproductive. Hence, using aggregate trust as a measure of aggregate social capital makes more sense than using individual trust as a measure of individual social capital. The underlying assumption is that trust or social capital should be beneficial.

Table 1: Frequency of trust in the US, by regions

Region of interview	Can trust	Cannot trust	Depends
Middle Atlantic	38.5%	56.0%	5.5%
Pacific	41.1%	53.6%	5.2%
West North Central	49.2%	47.8%	3%
New England	45.4%	48.5%	6.1%
South Atlantic	32.4%	63.6%	4.0%
East North Central	41.2%	55.0%	3.8%
East South Central	28.2%	68.8%	3.1%
West South Central	30.5%	64.4%	5.1%
Mountain	45.1%	50.0%	4.8%
Total	38.3%	57.2%	4.5%

Both respondents′ own characteristics and the features of their socio-economic environment could affect their trust. For example, Alesina and La Ferrara (2002) and Zak and Knack (2001) find that at the individual level trust increases with education and income. In Alesina and La Ferrara (2002) trust also increases with age, though at a declining rate, and it is higher for part time workers. However, trust decreases for blacks and females, i.e. groups that have been historically discriminated against; it is lower for those who experienced trauma in past years and those who are divorced or separated. Interestingly, trust is not influenced by religion. Alesina and La Ferrara (2002) use data on education, income, age, work status, gender, race and religion from the GSS dataset for 1974-1994 while my estimations are based on the updated GSS for 1972-2008.

As for the influence on trust of the socio-economic environment, previous research finds that income inequality (Zak and Knack 2001, Alesina and La Ferrara 2002), racial heterogeneity (Alesina and La Ferrara 2002), crime (Alesina and La Ferrara 2002) and wealth measured by GDP per capita (Zak and Knack 2001) are all important macro-level determinants. Using US time series data which is commonly available at the state level, I obtain measures for all these control variables at the region level. GDP per capita and crime rate are obtained through simple aggregation with the available GDP annual time series by state from the U.S. Bureau of Economic Analysis and annual population statistics per state from the Federal Bureau of Investigation Uniform Crime reports. The latter source also provides annual crime data per state which I aggregate to get the yearly crime rate at the regional level. To measure racial heterogeneity, similarly to Alesina and LaFerrara (2002), I calculate a standard index for racial diversity:

Racial Diversity Index = 1 - $\sum_{i=1}^{N} p_i^2$

where the index increases with race heterogeneity, p = proportion of individuals in a race category, N = number of categories. The Population Division of the U.S. Census Bureau collects annual statistics in ten-year datasets on race distribution across US states. Since the detailed race categories are not consistent across each of the datasets, variation limits to three race categories: White, Black and Other races total. As with the previous variables, I aggregate that state level data and calculate the racial diversity index for each region. Finally, to obtain regional income inequality, I use the Gini coefficient for total annual individual income from the March Current Population Survey (CPS). The regional Gini index is simply a population-weighted sum of the state level Gini. In the extremes, Gini coefficient equal to zero means total equality, and equal to one stands for maximal inequality. The Gini index for the US is above 40 while the maximum values of the regional Gini that I approximate are a bit smaller than 40 (See Table A14). My calculation is consistent with the prediction that Gini of a small population will be smaller than the Gini of a larger population (Deltas, 2003).

3 Experimental Design

The disastrous manifestation of 9/11 together with the data availability on trust for the US allows me to pursue the rigorous method of a natural experiment in order to identify the impact of external conflict on social trust. We can observe Al-Qaeda terrorists as an out-group and the occurrence of the attacks – equivalent to the occurrence of the real external conflict – as the out-group′s treatment intervention. The natural experiment set up – thus defined, could be best approached by the Difference-in-Differences empirical framework which would incorporate both regional and time variation in the occurrence of the terror attacks. By making use of the terror attack in a natural experiment, this paper relates to Montalvo (2011) which analyzes the electoral impact of the terrorist attacks of March 11, 2004 in Madrid.

It is the common case that under a natural experiment, assignment into treatment and comparison groups is not random. The treatment group in my design consists of respondents from Middle Atlantic region since the most affected population was in New York where the twin towers were bombarded. Due to data limitations that were mentioned in Section 2, I cannot assign into treatment only New York City residents. However, the extension of the treatment group beyond New York City to the entire Middle Atlantic region is not necessarily a weakness of the approach. Even though civilians in New York were the ones who received treatment in the form of the real attacks by the out-group, it is quite likely that people from other cities in the Middle Atlantic region also perceived strongly the terror threat and changed their attitudes due to treatment. Plenty of reasons could be brought up in support of such conjecture. It could be that people from other Middle Atlantic cities have post-treatment behavior similar to that of New York City civilians because of feeling of belonging to the greater community, empathy towards their New York City fellows, politicization, higher threat perception due to the whole region′s politico-economic strategic role for the US or loss of relatives at the time of the attacks, etc.

An argument similar to the definition of the treatment group goes for the choice of the comparison group. Candidates for it are eight of the total nine US geographic divisions: New England, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain and Pacific region. Falling back on the conjecture that post-treatment effect could be expected not only for people in New York City, we should acknowledge that the comparison groups would not be insulated from treatment. In other words, the terror attacks, even though mainly concentrated in New York City might have created threat perceptions and fear amongst people across all US regions. The reasons for that are similar to the ones mentioned for the Middle Atlantic population: empathy, feeling of belonging to the US nation, politicization, etc.

However, relying on the following assumption we can still distinguish between regions that are less insulated from treatment and others that are more insulated. We could view humans as capable to rationally perceive the strategic target of the out-group. Based on their past experience and observations throughout the world, they would perceive that terrorists would target at those areas where the majority of population, innovative activity and critical infrastructure are concentrated. Consequently, rational threat perceptions would be highest in the most populated and metropolitan US regions and lowest in rural and least inhabited regions. The latter regions are of special interest to us. Among the eight region candidates, West North Central and Mountain stand out as the least populated and least metropolitan regions (See Fig. A.4, Fig. A.5 & Fig. A.6). Under the assumption made, these regions would be the ones where perceptions of threat and fear after 9/11 would be lowest. As such, the intuition is that they would provide best post-treatment comparison, i.e. comparison that is least contaminated with indirect treatment.

Having pre-selected the comparison groups analytically, we need to check if they are also appropriate in terms of some econometric requirements. Within the experimental setting pro-

posed, the main identifying assumption to evaluate the treatment effect is that the average outcome of the treated group would have changed in the same way as the average outcome of the comparison group in the absence of treatment. That is, estimates would be valid if the trend of the average level of trust in the comparison group is common to the trend of the average level of trust in the treatment group. The common trend assumption is not testable but with sufficient observations available we can get an idea of its plausibility.

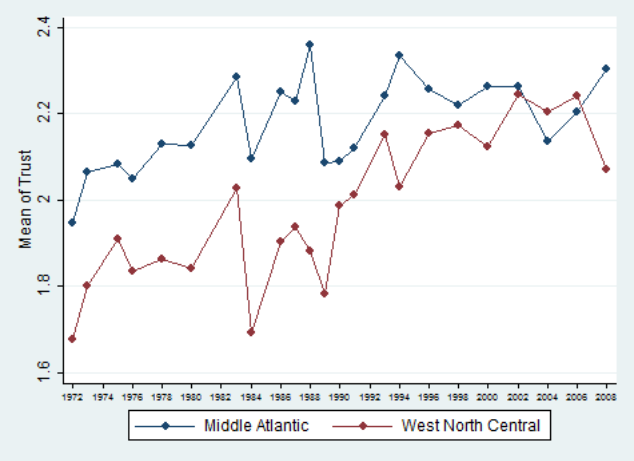

Figure 1: Trends of the average level of trust per year for Middle Atlantic vs. West North Central. General Social Survey

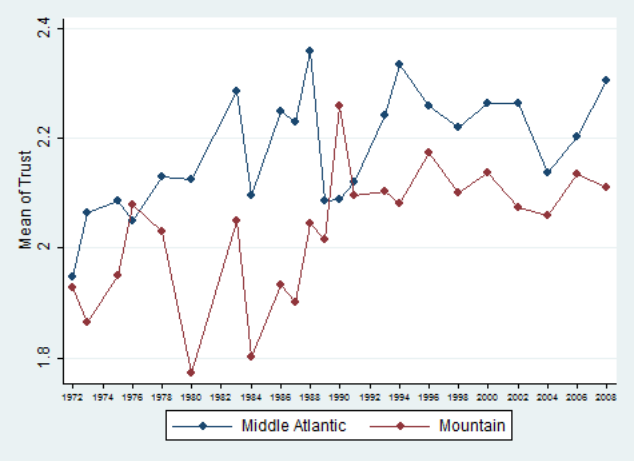

Figure 2: Trends of the average level of trust per year for Middle Atlantic vs. Mountain. General Social Survey

Figure 1 and Figure 2 present the underlying trends in TRUST for the treatment group - Middle Atlantic, and the candidate comparison groups - West North Central and Mountain. The average level of trust per year is calculated using the trust categories as follows: 1="can trust", 2="depends", 3="cannot trust". According to the figures trust in Middle Atlantic is on average lower than trust in both West North Central and Mountain. According to Figure 1, West North Central shows a very parallel trend in average trust to that in the Middle Atlantic from 1972 to 1993. From 1993 to the year of treatment – 2001, the trends in Middle Atlantic and West North Central seem inversely related. The reverse is true for the other comparison group candidate. According to Figure 2, from 1972 to 1994 the trends in trust of Mountain and Middle Atlantic are not parallel at all but from 1994 to 2006 they become very similar.

To sum up, the visual evidence in Figure 1 and Figure 2 implies that neither of the candidate comparison groups fulfills fully the common trend assumption. The possible ways to proceed from here are to consider (a) Mountain as a comparison group since it fulfills the common trend assumption in the just before treatment period; (b) West North Central as a comparison group since it shows a longer time span with a common trend in trust to Middle Atlantic than Mountain region; (c) the two regions West North Central and Mountain jointly as a single comparison group (Figure 3). With option (a) we lose lots of pre-treatment information for the period 1972-1994, with option (b) the immediate pre-treatment period, from 1993-2001, violates the common trend assumption, with option (c) we have two regions to compose the comparison group with while the treatment group is a single region.

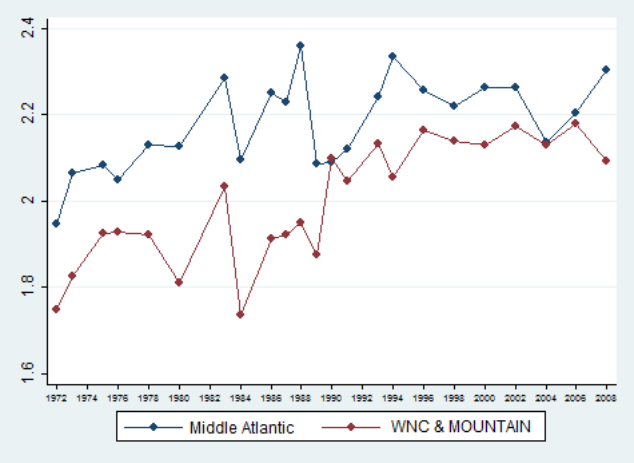

Figure 3: Trend of the average level of trust per year for Middle Atlantic vs. West North Central and Mountain. General Social Survey.
Note: Ref. to Fig. 1, Fig. 2 & Fig. 3: In the original GSS dataset 1="can trust", 2="cannot trust", 3="depends", which have been re-categorized to 1="can trust", 2="depends", 3="cannot trust" so that the average level of trust is measured appropriately. Respondents are assigned into regions by their region of interview.

We could think that the partial violation of the common trend assumption in options (a) and (b) would be alleviated by the inclusion of region specific time trends. Such trends would allow treatment and comparison groups to follow different trends in a limited but potentially revealing way (Angrist and Pischke, 2009). Still, even controlling for region specific time trends we cannot be sure that we identify treatment effect or some deviation in the trend. Option (c) overcomes this technical problem by providing evidence for a common trend over the whole pre-treatment period with the notable exception of the year 1990. The disadvantage of composing the comparison group of two regions could be alleviated by the inclusion of time varying regional controls. Moreover, it might be arbitrary to exclude one and consider the other region as a

single comparison group because both regions fulfill the analytical pre-selection criteria, i.e. low population density and low metropolitan area coverage. In Section 5, I report main results based on estimations with Mountain and West North Central forming together the comparison group. In the robustness check analysis, I also conduct estimations with only Mountain as a comparison group using its common trend in average trust to Middle Atlantic after 1994.

4 Estimation Framework

Ideally, I would like to form the treatment and comparison groups according to the respondents current region of residence. However, the GSS dataset reports for each individual only the region of residence at age 16 and the region of interview. The main results in Section 6 are based on assigning individuals into treatment and comparison groups according to their region of interview. However, since in the complete US sample nearly 74% of respondents have the same region of interview as their region of residence at age 16, in Section 6, I conduct robustness checks by assigning respondents into treatment and non-treatment according to their region of residence at age 16.

To identify the effect of external conflict on internal trust attitudes, I estimate the following Difference-in-Differences regression equation:

$$TRUST_{irt} = \beta_0 + \beta_1 \times D_r + \beta_2 \times D_t + \beta_3(D_r \times D_t) + X'_{irt} \times \beta_4 + \beta_5 \times TREND_r$$

$$+\beta_6 \times TREND_r^2 + \beta_7 \times TREND + \beta_8 \times TREND^2 + \epsilon_{irt}$$

where $TRUST_{irt}$ is the answer of respondent i from region r at time t to the US General Social Survey (GSS) trust question "Generally speaking would you say that most people can be trusted/you can't be too careful in dealing with people?". In view of clearer interpretation I exclude the few observations with the answer "depends" to remain only with the observations "can trust" and "cannot trust". Then, I construct $TRUST_{irt}$ as an indicator variable equal to one if the respondent answers that people "can be trust" and zero if he considers that people "cannot be trusted". D_r is a dummy equal to one for respondents in Middle Atlantic and zero for respondents in West North Central and Mountain. D_t is a time dummy that switches on for observations after 2001. $D_r \times D_t$ is the treatment dummy, which is an interaction term between the dummies for time and region. Hence, $D_r \times D_t$ equals one for respondents interviewed after 2001 in the treatment group – Middle Atlantic, and zero for respondents in the comparison group – West North Central and Mountain. X'_{irt} includes individual level characteristics (e.g., education, race, gender, religion) as well as time-varying regional variables (e.g., annual GDP per capita, Gini index) that have been correlated to trust in previous literature. $TREND_r$ is a region specific linear time trend, i.e. $TREND_r = TREND \times D_r$. Since the pre-treatment data establish a clear trend that can be extrapolated into the post-treatment period (See Figure 3), difference-in-differences estimation with region-specific trends is likely to be more robust (Angrist and Pischke, 2009). Under the estimation framework described, β_7 and β_8 are the coefficients respectively for the linear and non-linear trends for the comparison group while $\beta_5 + \beta_7$ and $\beta_6 + \beta_8$ produce the coefficients for the linear and non-linear trends in the treatment group.

Let $r = 1$ for the treatment region Middle Atlantic, and $r = 0$ for the comparison regions West North Central and Mountain. Let $t = 0$ stand for the pre-treatment period ($year < 2001$) and $t = 1$ for the post-treatment period ($year > 2001$). Finally, let introduce the mean of $TRUST_{irt}$ in region r at time t as $\overline{TRUST}_{rt}$. Then, the Difference-in-Differences parameters can be expressed as:

$\beta_0 = \overline{TRUST}_{00}$

$\beta_1 = \overline{TRUST}_{10} - \overline{TRUST}_{00}$
$\beta_2 = \overline{TRUST}_{01} - \overline{TRUST}_{00}$
$\beta_3 = (\overline{TRUST}_{11} - \overline{TRUST}_{01}) - (\overline{TRUST}_{10} - \overline{TRUST}_{00})$

β_0 is a baseline average; β_1 represents the difference between the treatment and comparison groups in the pre-treatment period; β_2 represents the difference in the change in means over time in the comparison group and β_3 represents the difference, if any, in the change in means over time between treatment and comparison group. The important assumption here is that this difference is due to treatment, and hence β_3 is the parameter that captures the treatment effect. To remind, the treatment effect is the impact, if any, of the external conflict that is presented by the out-group 9/11 attack, on internal US trust attitudes. Positive and statistically significant β_3 would give evidence for the functional theory hypothesis. Whereas, statistically insignificant β_3 would support Allport′s view and imply that internal social trust is not correlated with external conflict.

5 Results

5.1 Empirical Analysis

Considering that in the GSS sample the minimum age of respondents is 18 years and more importantly, acknowledging the high intra-state and intra-region mobility in the US, we can deduce that region of interview should be more updated measure of respondents′ current location than region of residence at age 16. Hence, I report main results (See Table 2 & Table 3) from estimations with treatment and comparison groups aggregated at respondents′ region of interview and robustness checks from estimations with region of residence at age 16.

The empirical analysis starts with a model that includes only individual level controls (1) and ends with the full model estimation (7). Model (1) does not control for respondents′ socio-economic environment, models (2) to (5) include the macro variables one by one while models (6) and (7) control for all of the relevant regional variables – in (6) without and in (7) with region specific time trends. Through all model specifications, the treatment effect, Post 9/11, is statistically insignificant. In the interpretation of that result, we consider McCloskey and Ziliak′s (1996) main point that an effect can be statistically insignificant and yet significant for science and policy. Particularly, our finding for Post 9/11 suggests that external conflict represented by the attacks did not have any influence on internal US trust. This result clearly favors the non-functional prediction that external conflict would not be correlated with higher trust and cohesion.

With regard to the regional controls, models (2) to (5) inform about the effects of GDP per capita, Gini, Crime and Race Diversity which due to collinearity (See Tables A.11, A.12 & A.13) are not correctly estimated in models (6) and (7). Similar to Zak and Knack (2001), I find that the expected effect of income per capita is ambiguous. In model (2), respondent′s family income (Ln Real F. Income) has positive impact on trust while at the regional level, trust is negatively influenced by GDP per capita. Family financial success might make one feel lucky and fortunate in life, and consequently form one′s positive outlook on "most people" in society. Whereas, the negative correlation of trust with region GDP per capita might be due to high socio-economic heterogeneity in rich regions. The established negative association of trust with both income inequality and racial diversity, as in Alesina and La Ferrara (2002), justifies the previous interpretation.

In terms of policy implications, following the macro variables in our estimation framework we can distinguish between some external and internal policy issues: the former related to civilians′ security and represented by the treatment effect – Post 9/11, and the latter related to the wealth, income inequality, crime, and race diversity within their group. The results in

models (1) to (5) suggest that internal trust may not be positively correlated to external conflict but would be positively associated with the socio-economic homogeneity inside the group.

The individual level effects are also quite consistent with the findings in Alesina and La Ferrara (2002). Trust is increasing in age, education and higher real family income. Married respondents trust more than divorced or separate. Also, those who have more children seem to trust more. There are multiple interpretations to these findings. For example, the age effect might be due to greater social integration as people get older. More educated people might trust others more either because they associate with other more educated and trustworthy people or because education raises social skills and status and thus increases the ability to punish or reward others (Glaeser et al. 2000). As discussed before, family financial success could be related to a personal luck perception or a view that life is not that unfair. Marriage versus divorce or separation contributes to trust probably due to the lack of relationship trauma experience[3] while higher number of children could be linked to stable marriage as well as to more altruistic parents. A strong result – valid across all model specifications, is that Black respondents trust less than White. As Alesina and La Ferrara (2002) interpret, that result might be attributed to past race discrimination, and likewise – the lower trust for females (models (1) and (5)) could be explained by historical gender discrimination. It is worth noting that the coefficients capturing gender and race discrimination are similar in size to the ones in Alesina and La Ferrara (2002): we find an effect for trusting less if the respondent is female equal to -0.027 (vs. -0.028 in Alesina and La Ferrara (2002) and for trusting less if the respondent is black equal to -0.2007 (vs. -0.241 in Alesina and La Ferrara (2002)). The evidence that trust is higher for Protestants relative to Catholics is in line with the findings in La Porta et al.(1997) on lower trust in countries with predominant hierarchical religions such as Catholicism.[4]

Before proceeding to the robustness check analysis, we need to be cautious about the validity of the main results particularly because in 1990 we observe an abrupt structural break in the trends of average trust (See Figure 3). Technically, the region specific time trends could alleviate that problem but to ensure that the methodology is rigorous, I repeat the estimations with a dummy for 1990 – Post 1990, included. There are also some factual reasons for the Post 1990 control: for example, the end of the Cold War and the start of the Iraq War. Both events are external conflicts though differently from terror attacks, they affect in the same way US people from different regions and do not pose the same risk and threat to civilian population as terror attacks do. Hence, interpreting an effect on trust by the two wars as an effect of external conflict is problematic. Nevertheless, our interest remains in the treatment variable, Post 9/11, which is again statistically insignificant through all model specifications even after accounting for the structural break in 1990 (See Table 3). We also observe weak evidence for a significant fall in trust after 1990 which, however, is hard to attribute to any particular event or socio-economic factor. Particularly, the negative correlation of Post 1990 and trust appears in models (1), (3) & (5) which are the specifications: first – with only individual level controls and the next two – with the addition of income inequality in (3) and crime in (5). Since the significant effect of Post 1990 switches off with the inclusion of GDP per capita, it could be that the dummy for 1990 captures some sharp difference in wealth between the treatment and comparision group regions that occured in 1990. However, with lack of data evidence we can rule out such an explanation (See Figure A7, trends of GDPpc). There is also no evidence for structural breaks in 1990 with the evolution of income inequality, race heterogeneity and crime (See Figure 7) which implies that the dummy for 1990 captures an effect that is not correlated to the macro control variables but is also not crucial for the treatment effect (Post 9/11).

[3]Alesina and La Ferrara (2002) find a negative correlation between trust and a recent history of traumatic experiences.

[4]Putnam (1993) argues that the Catholic Church, by imposing a hierarchical structure on the society, often in symbiosis with the state, has discouraged the formation of trust: "Vertical bonds of authority are more characteristic of the Italian Church than horizontal bonds of fellowship"(p. 107).

Table 2: MAIN RESULTS: Diff-in-Diffs Estimation for Middle Atlantic with comparison group: West North Central and Mountain regions.

TRUST=1 "can trust"	(1)	(2)	(3)	(4)	(5)	(6)	(7)
REGION DUMMY	-0.0280	-0.0187	-0.0662***	0.1761***	-0.0054	0.0705	0.0676
	(0.0203)	(0.0202)	(0.0210)	(0.0362)	(0.0263)	(0.1697)	(0.3425)
TIME DUMMY	-0.0270	0.1107***	0.1196*	0.0865	-0.0007	0.1354	0.1947**
	(0.0381)	(0.0423)	(0.0719)	(0.0714)	(0.0428)	(0.0831)	(0.0991)
POST 9/11	**-0.0481**	**-0.0188**	**-0.0388**	**-0.0114**	**-0.0448**	**-0.0531**	**-0.1432**
	(0.0449)	(0.0451)	(0.0816)	(0.0821)	(0.0450)	(0.0886)	(0.1167)
AGE	0.0049	0.0069**	0.0065*	0.0047	0.0050	0.0050	0.0051
	(0.0034)	(0.0034)	(0.0037)	(0.0039)	(0.0034)	(0.0039)	(0.0039)
AGE^2	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MARRIED	0.0524**	0.0364*	0.0374*	0.0375	0.0512**	0.0378	0.0366
	(0.0205)	(0.0205)	(0.0220)	(0.0231)	(0.0205)	(0.0230)	(0.0230)
FEMALE	-0.0270*	-0.0182	-0.0153	-0.0197	-0.0273*	-0.0180	-0.0185
	(0.0160)	(0.0159)	(0.0168)	(0.0176)	(0.0160)	(0.0177)	(0.0176)
BLACK	-0.2007***	-0.1952***	-0.1928***	-0.1838***	-0.2008***	-0.1834***	-0.1815***
	(0.0240)	(0.0239)	(0.0257)	(0.0267)	(0.0240)	(0.0267)	(0.0268)
EDUCATION	0.0389***	0.0426***	0.0417***	0.0426***	0.0390***	0.0429***	0.0431***
	(0.0028)	(0.0028)	(0.0029)	(0.0031)	(0.0028)	(0.0030)	(0.0031)
LN REAL F. INCOME	0.0350***	0.0313***	0.0317***	0.0349***	0.0350***	0.0348***	0.0348***
	(0.0097)	(0.0097)	(0.0105)	(0.0110)	(0.0097)	(0.0110)	(0.0110)
CATHOLIC	-0.0567***	-0.0531***	-0.0478***	-0.0456***	-0.0558***	-0.0451**	-0.0440**
	(0.0160)	(0.0159)	(0.0169)	(0.0176)	(0.0160)	(0.0176)	(0.0176)
CHILDREN	0.0177***	0.0154***	0.0165***	0.0150***	0.0178***	0.0146***	0.0141***
	(0.0049)	(0.0049)	(0.0051)	(0.0054)	(0.0049)	(0.0054)	(0.0054)
EMPLOYED	0.0155	0.0286	0.0290	0.0241	0.0163	0.0245	0.0245
	(0.0181)	(0.0181)	(0.0192)	(0.0201)	(0.0181)	(0.0201)	(0.0201)
GDPPC (000s US $)		-0.0064***				-0.0089	0.0251
		(0.0008)				(0.0058)	(0.0188)
GINI			-1.8737***			1.5684	1.8309
			(0.2846)			(1.3846)	(1.6719)
RACE DIVERSITY				-1.6409***		-0.4742	0.8427
				(0.2303)		(1.2011)	(3.7088)
CRIME RATE					0.0162	-0.0001	0.0760*
					(0.0122)	(0.0227)	(0.0424)
TRENDr							-0.0001*
							(0.0000)
$TRENDr^2$							0.0000
							(0.0000)
TREND							-0.0001**
							(0.0000)
$TREND^2$							-0.0000
							(0.0000)
CONSTANT	-0.3692***	-0.3334***	0.1992	-0.2064	-0.4699***	-0.7612	-1.5511*
	(0.1140)	(0.1141)	(0.1520)	(0.1305)	(0.1360)	(0.5333)	(0.8625)
R^2	0.1030	0.1156	0.1138	0.1177	0.1034	0.1185	0.1208
N	4042	4042	3579	3259	4042	3259	3259

OLS estimates. Robust standard errors in parentheses. * p<.10, ** p<.05, *** p<.01
Respondents assigned into treatment and comparison groups according to region of interview.

Table 3: MAIN RESULTS. Diff-in-Diffs Estimation with a Post-1990 control.

TRUST=1 "can trust"	(1)	(2)	(3)	(4)	(5)	(6)	(7)
POST 9/11	-0.0459	-0.0230	-0.0557	-0.0239	-0.0484	-0.0556	-0.1495
	(0.0449)	(0.0453)	(0.0819)	(0.0829)	(0.0450)	(0.0887)	(0.1175)
POST 1990	-0.1142***	-0.0259	-0.0701***	-0.0320	-0.1205***	-0.0285	-0.0238
	(0.0170)	(0.0291)	(0.0259)	(0.0291)	(0.0182)	(0.0366)	(0.0506)
Constant	-0.3824***	-0.3422***	-0.0856	-0.2437*	-0.3031**	-0.5773	-1.4645*
	(0.1139)	(0.1145)	(0.1851)	(0.1351)	(0.1385)	(0.5867)	(0.8853)
N	4042	4042	3579	3259	4042	3259	3259
R^2	0.11	0.12	0.12	0.12	0.11	0.12	0.12

OLS estimates. Robust standard errors in parentheses. * p<.10, ** p<.05, *** p<.01
Respondents assigned into treatment and comparison groups according to region of interview.
NOTE: (1) includes controls for age, age^2, marital status, gender, race, education, ln real family income, religion, children, work status; (2), (3), (4) & (5) add to (1) controls for GDPpc, Gini, race diversity & crime respectively; (6) adds to (1) together the controls for GDPpc, Gini, race diversity and crime; (7) adds region specific time trends to (6)

5.2 Robustness Checks

Table 4 presents robustness check estimations based on treatment and comparison groups formed by respondents region of residence at age 16. One purely technical reason for considering that type of robustness check is that 74% of respondents have the same region of interview as region of residence at age 16. More important reason, however, is the possibility that respondents could feel certain attachment to their region of residence at age 16. Then, we would expect that even those for whom the current region of residence is not the same as the region of residence at age 16 might react as a treated group. Nevertheless, results do not change substantially when the treatment assignment variable is region of residence at age 16. The treatment effect is on overall statistically insignificant though in models (2) and (4) it is positive at 10% level of statistical significance. We could interpret this result as very weak evidence in favor of the functional view that external conflict would correlate positively with internal social trust. However, further robustness checks will make that interpretation less plausible. The results in Table 4 confirm the effects of all individual level controls discussed before. The regional time varying effects are also consistent with those in Table 2 except for the negative correlation of trust with crime which is now statistically significant – at 5% in (5) and at 1% level in (6). This result adds to the little evidence in the empirical literature that living in a place with honest people would lead to greater trust.[5]

Table 5 reports the corresponding estimations at the "region of residence at age 16" level that control for the structural change in trust in 1990. Results are not much different from the ones in Table 3. The treatment effect, Post 9/11, is robustly statistically insignificant. Whereas, the dummy for 1990, Post 1990, shows a more robust negative and highly statistically significant effect (at 1% level). Comparing the estimations based on region of interview versus the estimations with region of residence at age 16, we should note that even though the sample size increases with the latter (an increase from min 3259, max 4042 in Tables 2 & 3 to min 4090, max 5003 in Tables 4 & 5), the explanatory power of the former is 1 percentage point higher (min R^2=0.10, max R^2=0.11 in Tables 2 & 3 vs. min R^2=0.09, max R^2=0.10 in Tables 4 & 5). This adds statistical support to the choice of region of interview as a proxy for respondents$'$ location.

[5]Uslaner (2008) finds little evidence that states with higher levels of crime and corruption are associated with low-trusting ethnic groups.

Table 4: ROBUSTNESS CHECK. Diff-in-Diffs Estimation for Middle Atlantic with comparison group: West North Central and Mountain regions.

TRUST=1 "can trust"	(1)	(2)	(3)	(4)	(5)	(6)	(7)
REGION DUMMY	-0.0459***	-0.0046	0.0084	0.2008***	-0.0319*	-0.0220	-0.5235
	(0.0154)	(0.0162)	(0.0190)	(0.0350)	(0.0164)	(0.1464)	(0.6971)
TIME DUMMY	-0.0664**	0.0453	-0.0430	0.0440	-0.0738***	0.0235	0.0647
	(0.0266)	(0.0304)	(0.0491)	(0.0301)	(0.0268)	(0.0537)	(0.0583)
POST 9/11	**0.0158**	**0.0751***	**0.0880**	**0.0675***	**-0.0034**	**0.0577**	**0.0197**
	(0.0378)	(0.0386)	(0.0699)	(0.0385)	(0.0387)	(0.0733)	(0.0906)
AGE	0.0117***	0.0130***	0.0121***	0.0127***	0.0115***	0.0127***	0.0124***
	(0.0031)	(0.0031)	(0.0033)	(0.0032)	(0.0031)	(0.0034)	(0.0034)
AGE^2	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***	-0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MARRIED	0.0570***	0.0426**	0.0591***	0.0389*	0.0575***	0.0434**	0.0409*
	(0.0195)	(0.0195)	(0.0212)	(0.0203)	(0.0195)	(0.0221)	(0.0221)
FEMALE	-0.0221	-0.0156	-0.0262*	-0.0159	-0.0214	-0.0197	-0.0200
	(0.0145)	(0.0144)	(0.0154)	(0.0150)	(0.0145)	(0.0160)	(0.0160)
BLACK	-0.2197***	-0.2173***	-0.2256***	-0.2024***	-0.2227***	-0.2039***	-0.2036***
	(0.0278)	(0.0279)	(0.0298)	(0.0289)	(0.0278)	(0.0311)	(0.0313)
EDUCATION	0.0316***	0.0360***	0.0315***	0.0369***	0.0319***	0.0363***	0.0366***
	(0.0027)	(0.0027)	(0.0029)	(0.0028)	(0.0027)	(0.0030)	(0.0030)
LN REAL F. INCOME	0.0459***	0.0408***	0.0428***	0.0409***	0.0449***	0.0392***	0.0395***
	(0.0099)	(0.0099)	(0.0107)	(0.0103)	(0.0099)	(0.0112)	(0.0111)
CATHOLIC	-0.0456***	-0.0448***	-0.0414***	-0.0417***	-0.0460***	-0.0388**	-0.0377**
	(0.0150)	(0.0149)	(0.0159)	(0.0155)	(0.0150)	(0.0166)	(0.0166)
CHILDREN	0.0191***	0.0174***	0.0218***	0.0169***	0.0194***	0.0193***	0.0193***
	(0.0044)	(0.0044)	(0.0046)	(0.0045)	(0.0044)	(0.0048)	(0.0048)
EMPLOYED	0.0037	0.0145	0.0067	0.0124	0.0033	0.0138	0.0142
	(0.0166)	(0.0166)	(0.0175)	(0.0173)	(0.0166)	(0.0183)	(0.0183)
GDPPC(000s US $)		-0.0063***				-0.0095*	-0.0025
		(0.0008)				(0.0053)	(0.0082)
GINI			-0.7050***			1.0488***	1.3199
			(0.1444)			(0.3986)	(0.8597)
RACE DIVERSITY				-1.8263***		-0.0858	-0.6926
				(0.2292)		(1.2024)	(3.0278)
CRIME RATE					-0.0146**	-0.0384***	-0.0002
					(0.0061)	(0.0112)	(0.0251)
TRENDr							0.0000
							(0.0001)
$TRENDr^2$							0.0000
							(0.0000)
TREND							-0.0000
							(0.0001)
$TREND^2$							-0.0000
							(0.0000)
CONSTANT	-0.4813***	-0.4526***	-0.2722**	-0.3072***	-0.4152***	-0.5001***	-0.1543
	(0.1084)	(0.1083)	(0.1212)	(0.1152)	(0.1117)	(0.1914)	(0.5792)
R^2	0.0829	0.0935	0.0862	0.0939	0.0840	0.0958	0.0980
N	5003	5003	4452	4641	5003	4090	4090

OLS estimates. Robust standard errors in parentheses. * p<.10, ** p<.05, *** p<.01
Respondents assigned into treatment and comparison groups according to region of residence at age 16.

Table 5: ROBUSTNESS CHECK. Diff-in-Diffs Estimation with a Post-1990 control

TRUST=1 "can trust"	(1)	(2)	(3)	(4)	(5)	(6)	(7)
POST 9/11	0.0142	0.0437	0.0785	0.0447	-0.0090	0.0394	-0.0223
	(0.0377)	(0.0395)	(0.0695)	(0.0392)	(0.0385)	(0.0734)	(0.0919)
Post 1990	-0.1277***	-0.0835***	-0.1107***	-0.0743***	-0.1305***	-0.0893***	-0.0921**
	(0.0158)	(0.0239)	(0.0170)	(0.0250)	(0.0158)	(0.0292)	(0.0368)
Constant	-0.4929***	-0.4749***	-0.3753***	-0.3907***	-0.4137***	-0.3675*	0.4783
	(0.1082)	(0.1085)	(0.1220)	(0.1184)	(0.1113)	(0.1957)	(0.6327)
N	5003	5003	4452	4641	5003	4090	4090
R^2	0.09	0.10	0.09	0.10	0.10	0.10	0.10

OLS estimates. Robust standard errors in parentheses. * p<.10, ** p<.05, *** p<.01
Respondents assigned into treatment and comparison groups according to region of residence at age 16
NOTE: (1) includes controls for age, age^2, marital status, gender, race, education, ln real family income, religion, children, work status; (2), (3), (4) & (5) add to (1) controls for GDPpc, Gini, race diversity & crime respectively; (6) adds to (1) together the controls for GDPpc, Gini, race diversity and crime; (7) adds region specific time trends to (6)

In the next robustness check exercise, I compose the comparison group of Mountain region and include the observations after 1994 – when the common trend assumption between Mountain and Middle Atlantic holds (See Table 6). That modifies the main identification strategy by introducing a single region as comparison group and by reducing the length of the pre-treatment period. Still, the pre-treatment period is not too short to lead to bias in the results – in fact, it is equal in length to the post-treatment period (7 years). In Table 6, the sample size has declined to around 1000 observations (min 1087, max 1550) but the statistic R^2 has not been impacted. Most importantly, Post 9/11 shows a robust statistically insignificant effect within that type of modified estimation framework, as well. With fewer observations, however, none of the regional time varying effects, i.e. GDPpc, Gini, race diversity and crime, has significant correlation with trust. We also get a notion of which of the individual effects endure the decrease of the sample size and stay statistically significant: race, education, income and religion would be most important for individuals trust. Age, marital status and number of children probably have secondary effects on trust which could be captured in Table 2.

So far, we have seen that by exploiting both regional and time variation in the occurence of the 9/11 attacks, the identification strategy has uncovered robust results to various model specifications, a structural break control and other modifications in comparison group and pre-treatment period. The evidence convincingly favors the non-functional view that external conflict and internal trust attitudes do not have a significant positive correlation. However, the robustness of the results remains liable to the data limitations mentioned in Section 2. Since the GSS does not report respondents$'$ state and city of residence, I could form the treatment and comparison groups only according to respondents$'$ region of interview and region of residence at age 16. Further desired robustness checks involve variations of the treatment and comparison groups at both city and state level. Estimations at the region level encompass population that possibly shares similar terror threat and risk perceptions to those of New York civilians. It might be that the city level is too narrow to capture the behavioral effects due to indirect treatment. Still, estimations at the state level could be a rigorous control to the region level estimations.

Table 6: ROBUSTNESS CHECK: Diff-in-Diffs Estimation. Middle Atlantic with comparison group: Mountain, 1994-2008

TRUST=1 "can trust"	(1)	(2)	(3)	(4)	(5)	(6)	(7)
REGION DUMMY	-0.0423	-0.0298	-0.0532	-0.1979	-0.0375	0.0559	0.6862
	(0.0388)	(0.0412)	(0.0394)	(0.2936)	(0.0653)	(0.9040)	(3.5719)
TIME DUMMY	0.0410	0.0763	0.1047	0.1070	0.0445	0.1003	0.3498*
	(0.0474)	(0.0623)	(0.0783)	(0.0781)	(0.0606)	(0.1114)	(0.1943)
POST 9/11	**-0.0393**	**-0.0349**	**-0.0758**	**-0.0884**	**-0.0398**	**-0.0735**	**-0.2826**
	(0.0555)	(0.0558)	(0.0875)	(0.0911)	(0.0557)	(0.1081)	(0.2010)
AGE	0.0032	0.0032	0.0012	0.0011	0.0032	0.0013	0.0013
	(0.0059)	(0.0059)	(0.0074)	(0.0074)	(0.0059)	(0.0074)	(0.0074)
AGE^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
MARRIED	0.0047	0.0042	-0.0134	-0.0134	0.0046	-0.0128	-0.0155
	(0.0306)	(0.0306)	(0.0364)	(0.0365)	(0.0307)	(0.0365)	(0.0364)
FEMALE	-0.0371	-0.0357	-0.0272	-0.0270	-0.0370	-0.0281	-0.0270
	(0.0252)	(0.0253)	(0.0298)	(0.0298)	(0.0252)	(0.0298)	(0.0300)
BLACK	-0.1324***	-0.1330***	-0.0813*	-0.0817*	-0.1325***	-0.0804*	-0.0771
	(0.0397)	(0.0396)	(0.0480)	(0.0480)	(0.0397)	(0.0481)	(0.0483)
EDUCATION	0.0378***	0.0378***	0.0370***	0.0369***	0.0378***	0.0370***	0.0373***
	(0.0046)	(0.0046)	(0.0052)	(0.0052)	(0.0046)	(0.0052)	(0.0053)
LN REAL INCOME	0.0315**	0.0320**	0.0317*	0.0319*	0.0315**	0.0313*	0.0312*
	(0.0150)	(0.0149)	(0.0183)	(0.0183)	(0.0150)	(0.0182)	(0.0183)
CATHOLIC	-0.0674***	-0.0671***	-0.0560*	-0.0560*	-0.0673***	-0.0554*	-0.0529*
	(0.0259)	(0.0259)	(0.0306)	(0.0306)	(0.0259)	(0.0307)	(0.0309)
CHILDREN	0.0070	0.0070	0.0047	0.0047	0.0070	0.0046	0.0049
	(0.0087)	(0.0087)	(0.0104)	(0.0104)	(0.0087)	(0.0105)	(0.0105)
EMPLOYED	0.0335	0.0340	0.0417	0.0419	0.0335	0.0422	0.0398
	(0.0313)	(0.0314)	(0.0379)	(0.0379)	(0.0314)	(0.0379)	(0.0380)
GDPPC(000s US $)		-0.0028				0.0079	0.1075
		(0.0033)				(0.0304)	(0.0800)
GINI			0.5058			1.1667	-7.8321
			(0.8280)			(2.4773)	(8.8599)
RACE DIVERSITY				0.9408		0.0225	-2.8739
				(1.8811)		(5.8878)	(8.6028)
CRIME RATE					0.0026	0.0818	0.1739
					(0.0294)	(0.1514)	(0.2284)
TRENDr							-0.0001
							(0.0010)
$TRENDr^2$							0.0000
							(0.0000)
TREND							0.0010
							(0.0008)
$TREND^2$							-0.0000
							(0.0000)
CONSTANT	-0.3919**	-0.3175	-0.5893	-0.5560	-0.4066	-1.5237	-5.6974
	(0.1947)	(0.2146)	(0.3949)	(0.3917)	(0.2523)	(1.6179)	(3.9806)
N	1550	1550	1087	1087	1550	1087	1087
R^2	0.10	0.10	0.10	0.10	0.10	0.10	0.10

OLS estimates. Robust standard errors in parentheses. * p<.10, ** p<.05, *** p<.01
Respondents assigned into treatment and comparison groups according to region of interview

The final robustness check relies on a simplified empirical framework using the Before-After estimator. The simplification comes from identifying the effect of 9/11 on social trust not for sub-samples in terror endangered US regions but for the whole US sample. Such approach ignores completely the location of the attacks and the variation in risk perceptions – both of which are central to the main identification strategy of this paper. By expanding the regional samples to the country level, we would again allow for the possibility of indirect behavioral post-treatment effects beyond New York City, which now would occur only over the time dimension. To the author′s view, the omission of the attacks′ location, that is essentially represented by regional variation within the Difference-in-Differences, makes by comparison the Before-After estimation less reliable. However, obtaining the Before-After estimator could provide a good check to both the Diff-in-Diffs estimator already obtained and to the identification strategy adopted. The following regression equation describes the Before-After framework:

$$TRUST_{it} = \beta_0 + \beta_1 \times D_t + X'_{it} \times \beta_2 + \beta_3 \times TREND + \beta_4 \times TREND^2 + \epsilon_{it}$$

where $TRUST_{it}$ is the GSS answer of US respondent i at time t, equal to one if the respondent answers that people can be trusted and zero if cannot trust. D_t is a time dummy for 9/11 equal to one for respondents interviewed after 2001 and zero for respondents interviewed before the attacks. Hence, β_1 is the Before-After estimator that captures the treatment effect of 9/11, i.e. $\beta_1 = \overline{TRUST}_{t>2001} - \overline{TRUST}_{t<2001}$. As before, X'_{it} includes individual level characteristics (e.g., education, race, gender, religion) as well as time-varying variables - now, pertaining to the US. However, in this framework, I include annual GDP growth rate as a time-varying macro variable instead of GDP per capita since at the country level GDP growth rate would be relevant for proxying any recessionary or expansionary economic activity. As shown by Figure 7, there is not much time fluctuation in regional GDPpc, income inequality and race diversity. The variation of these variables at the aggregated US level should be similar. Moreover, since they are not representative of macroeconomic fluctuations, as GDP growth rate is, I do not want to overcontrol by including them. $TREND$ and $TREND^2$ represent possible linear and non-linear time trends in the outcome variable trust.

Table 7 reports results from the Before-After estimation based on the whole US GSS sample. After recategorization of some variables from the original GSS dataset, the number of observations in the estimation is more than two times bigger than in Table 2 (See Table 7, 16522 obs. in (2) & (4), 17537 obs. in (1) & (3)). The treatment effect, β_1, given by the Dummy 9/11, is as before statistically insignificant in all model specifications. This is a strong result, since with the modification of the identification strategy through the reliance only on time variation, the main result has not changed. Supplementing to the analysis is the consistency in both size and sign of the individual level estimators for gender, race and education in Tables 2 & 7. The significant effects for age, marital status, family income and number of children are consisntent only in sign. The new finding in Table 7 is the decreasing effect of the positive relationship between age and trust, given by statisically significant and negative Age^2. Such a relationship between age and trust has been found previously with GSS data by both Glaeser and Sacerdote (2002) and Alesina and La Ferrara (2002). Without cross-region comparison, the Before-After approach does not identify the significant correlation between religion and trust found by the Difference-in-Differences estimation in Table 2.[6] It is worth noting that the Before-After robustness check not only confirms the insignificant treatment effect, Post 9/11, but also contributes with a new finding on the possibility of a positive correlation between country level GDP growth rate and trust. In particular, for the US that relationship is highly statistically significant (at 1% & 5% level) and is presented by a coefficient of size around 0.005-0.006. That is, growth seems to be slightly positively correlated with higher individidual trust.

[6] Alesina and La Ferrara (2002), using US GSS data, do not find a statistically significant correlation between trust and religion. However, La Porta et al. (1997) find a negative correlation between hierrarchical religions, such as Catholicism, Islam and Eastern Orthodox Christianity.

Table 7: ROBUSTNESS CHECK. Before-After Estimation for the US

TRUST=1 "can trust"	(1)	(2)	(3)	(4)
DUMMY 9/11	0.0174	0.0332	-0.0182	-0.0024
	(0.0218)	(0.0223)	(0.0245)	(0.0248)
AGE	0.0106***	0.0103***	0.0107***	0.0104***
	(0.0016)	(0.0016)	(0.0016)	(0.0016)
AGE^2	-0.0001***	-0.0001***	-0.0001***	-0.0001***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
MARRIED	0.0267***	0.0246**	0.0268***	0.0245**
	(0.0095)	(0.0097)	(0.0095)	(0.0097)
FEMALE	-0.0220***	-0.0213***	-0.0220***	-0.0212***
	(0.0075)	(0.0076)	(0.0075)	(0.0076)
BLACK	-0.2207***	-0.2208***	-0.2212***	-0.2217***
	(0.0099)	(0.0102)	(0.0099)	(0.0102)
EDUCATION	0.0394***	0.0401***	0.0395***	0.0402***
	(0.0013)	(0.0014)	(0.0013)	(0.0014)
LN REAL F. INCOME	0.0502***	0.0506***	0.0505***	0.0510***
	(0.0049)	(0.0050)	(0.0049)	(0.0050)
CHILDREN	0.0086***	0.0077***	0.0085***	0.0075***
	(0.0022)	(0.0023)	(0.0022)	(0.0023)
CATHOLIC	-0.0098	-0.0100	-0.0094	-0.0096
	(0.0082)	(0.0085)	(0.0082)	(0.0085)
EMPLOYED	0.0101	0.0043	0.0097	0.0038
	(0.0086)	(0.0088)	(0.0086)	(0.0088)
TREND	-0.0000***	-0.0000	-0.0000***	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$TREND^2$	0.0000	-0.0000	0.0000**	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
US GDP GROWTH RATE		0.0060***		0.0048**
		(0.0023)		(0.0023)
DUMMY 1990			-0.0497***	-0.0528***
			(0.0151)	(0.0154)
CONSTANT	-0.5851***	-0.6842***	-0.5959***	-0.6834***
	(0.0514)	(0.0605)	(0.0516)	(0.0605)
N	17537	16522	17537	16522
R^2	0.13	0.13	0.13	0.13

OLS estimates. Robust standard errors in parentheses. * p<.10, ** p<.05, *** p<.01

6 Concluding Remarks

This empirical work investigates the impact of external conflict on social trust by observing the 9/11 terror attacks in the US as a natural experiment. The main identification strategy: within the Difference-in-Differences estimation framework, exploits both regional and time variation in the occurrence of the attacks. The experiment′s treatment group is the region including New York City - Middle Atlantic, while the comparison group consists of Mountain and West North Central regions. Analytical considerations on least contaminated with treatment regions as well as technical requirements for a common trend in average annual trust, determine the choice of comparison group. Assignment into treatment and comparison groups at the region level makes it possible to account for behavioral effects beyond direct treatment. The identification strategy unifies those behavioral effects with an assumption about agents′ ability to rationally forecast the strategic target of terrorists. Importantly, the difference-in-differences estimations control for both individual and macro-level determinants of trust.

The treatment effect of 9/11 on social trust is statistically insignificant throughout various Difference-in-Differences model specifications and remains robust to modifications of the comparison group and pre-treatment period, replacement of the aggregating variable for the treatment and comparison group formation as well as under a simplified Before-After 9/11 estimation for the whole US. This is a strong result in favor of the non-functional view that trust within society could be independent from external conflict, and in particular – evidence for the lack of impact of 9/11 on social trust in the US. In other words, the experimental evidence from the US implies that the occurrence of a common external enemy and the share of a threat posed by the enemy, are not necessarily correlated to more internal cohesion and higher social trust. At first glance, we might have expected that such a disastrous event as 9/11 would have created strong positive sentiments of patriotism, empathy and feelings of belonging and attachment to the US nation while at the same time attitudes of distrust in terrorists. Then, social trust both as a proxy of aggregate social capital and as a measure of cooperation within society would have been influenced. The lack of evidence for such impact of 9/11 might result from the expansion of the treatment group to the region level if the behavioral effects due to indirect treatment were negligible. However, allowing and accounting for such behavioral effects is a realistic approach which has yielded same results for the treatment effect under the Diff-in-Diff framework (regional variation included) and under the Before-After estimation for the whole US. The implication of the main result from the US case is that social trust could be not as volatile as to be affected by external conflict. It is possible, however, that the 9/11 attacks are a very particular example of external conflict and if so we should be cautious about generalizations.

With everything considered, trust could be liable to change when it relates to several macro-level variables at the region or country level. Secondary results underline the importance for individual level trust of the socio-economic environment – represented by wealth, income inequality, race heterogeneity and crime at the region level and GDP growth rate at the country level. A decrease in income heterogeneity and crime or an increase in GDP growth rate might be justified policy attempts to increase individual level trust. However, future research would need to establish whether increasing individual level trust is linked to an increase in aggregate social trust and eventually which of the two should be the target pursued by policy-makers. With this paper, we have shed light to the possible lack of volatility of aggregated level trust, i.e. social trust, conditional upon such a drastic example of external conflict as the 9/11 attacks. In the worst case, if that finding were also to hold for various exogenous policy shocks, then it would be that individual-level trust remains the malleable policy variable when it comes to trust.

Appendix

A

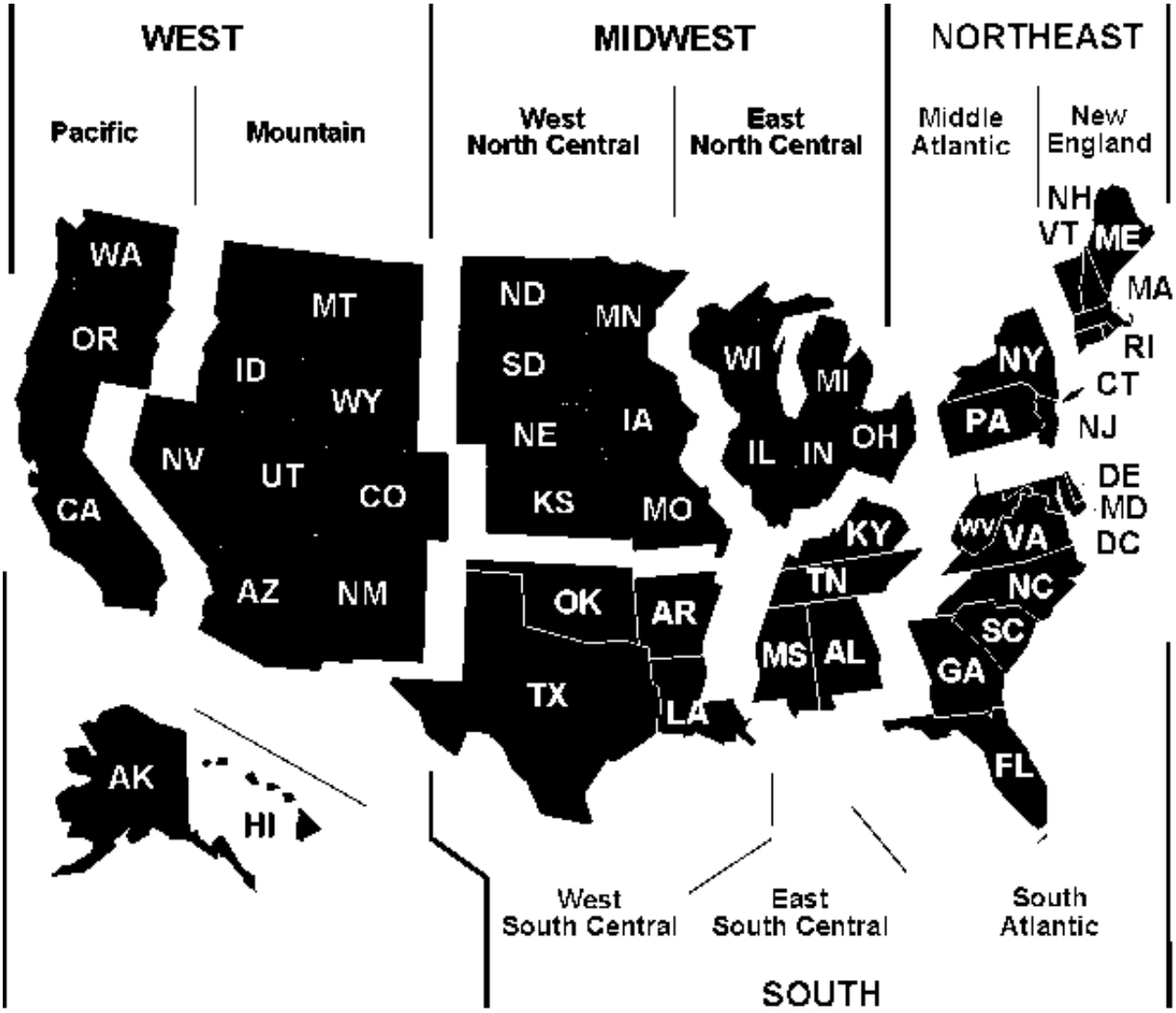

Figure A.4: US regional map

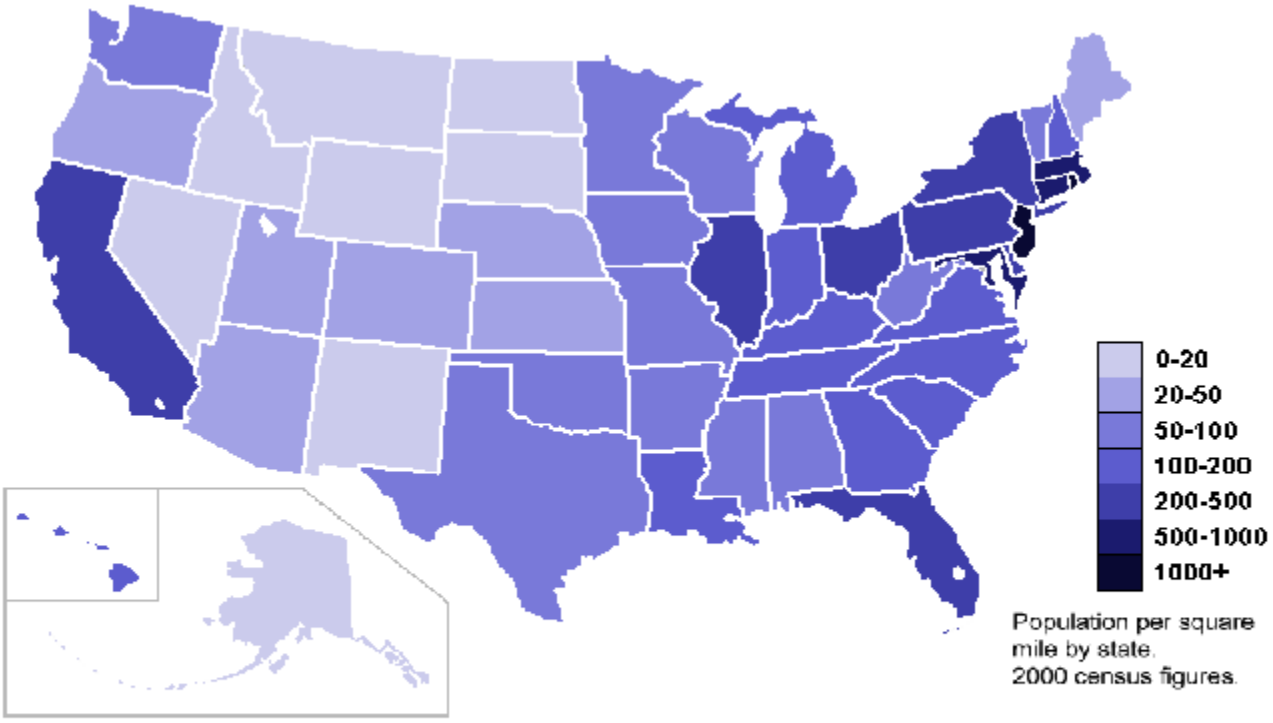

Figure A.5: Population density across US states

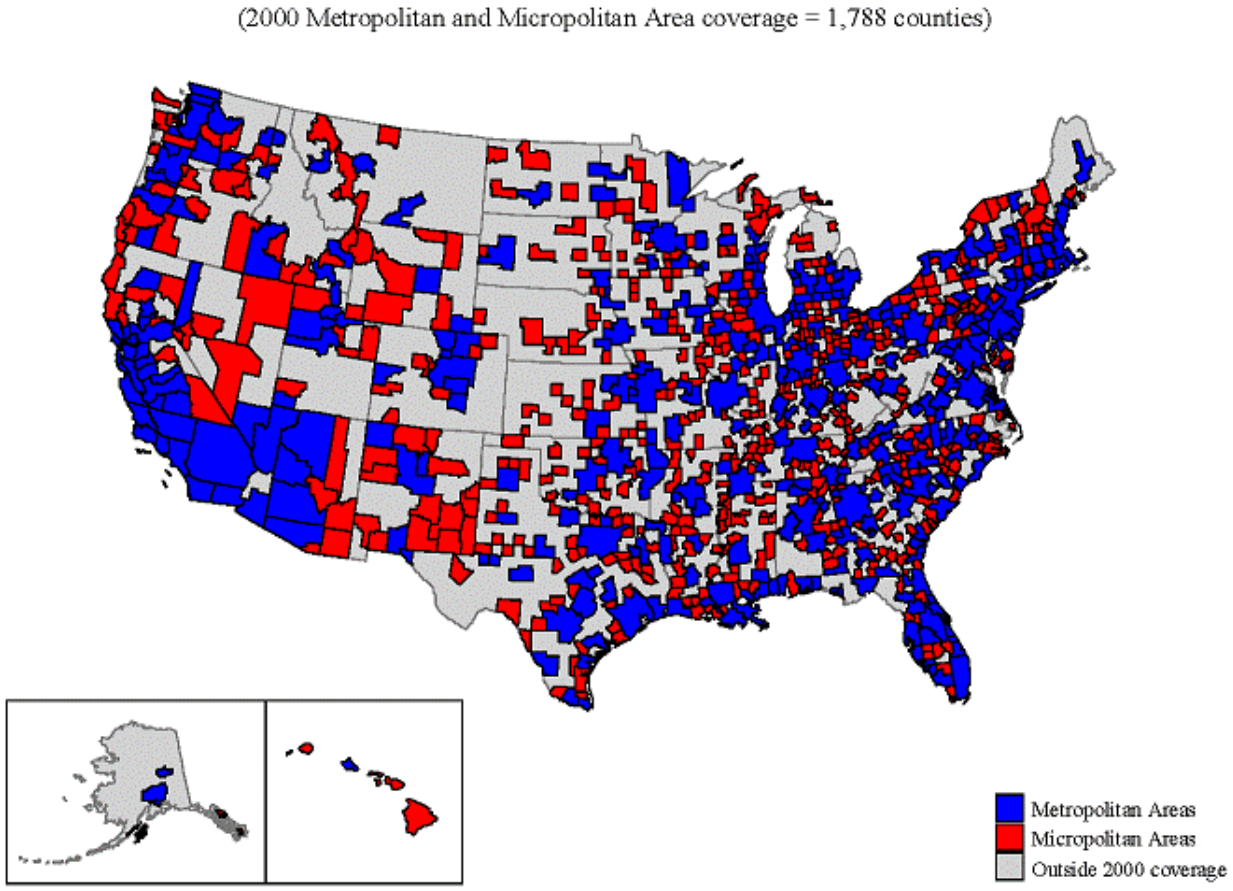

Figure A.6: Metropolitan areas across US states

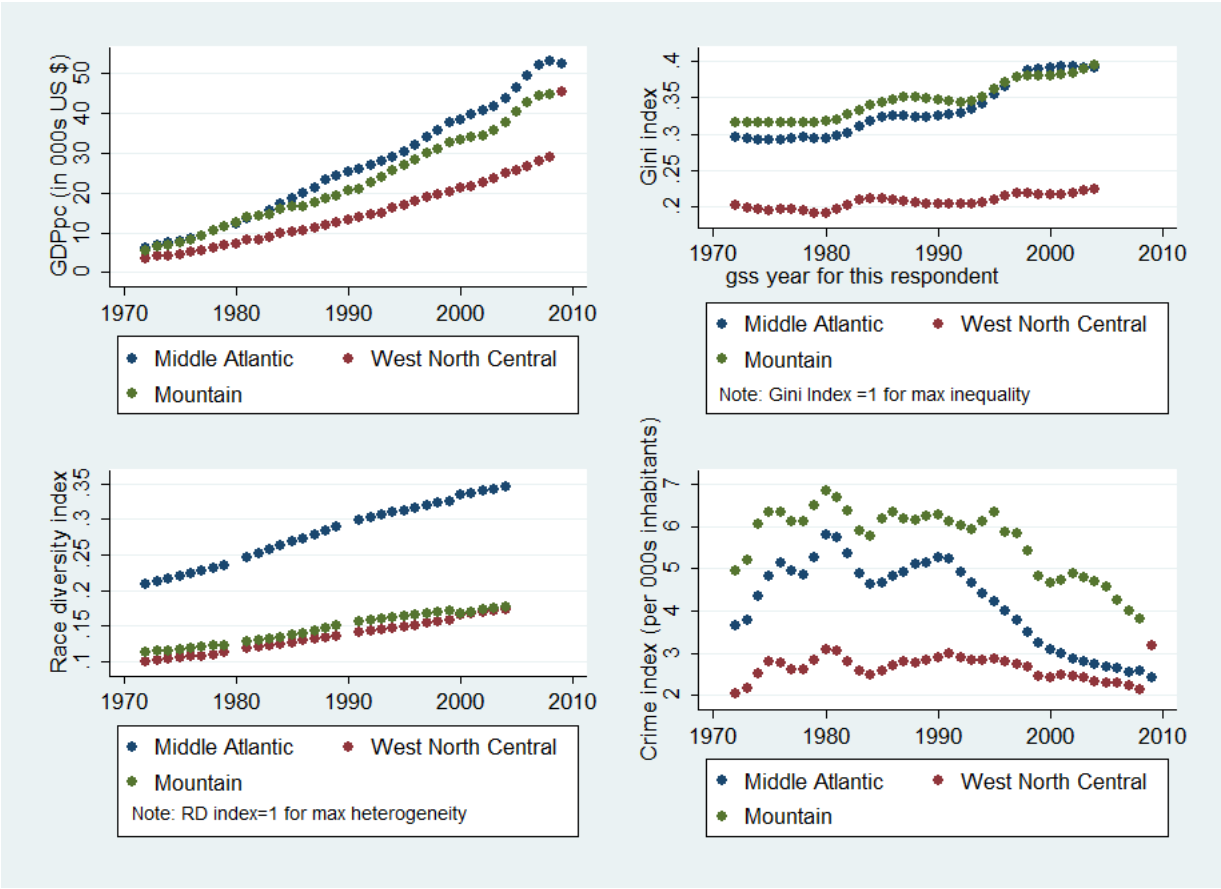

Figure A.7: Trends of GDPpc, Gini, Racial Diversity and Crime for the treatment and comparison group regions

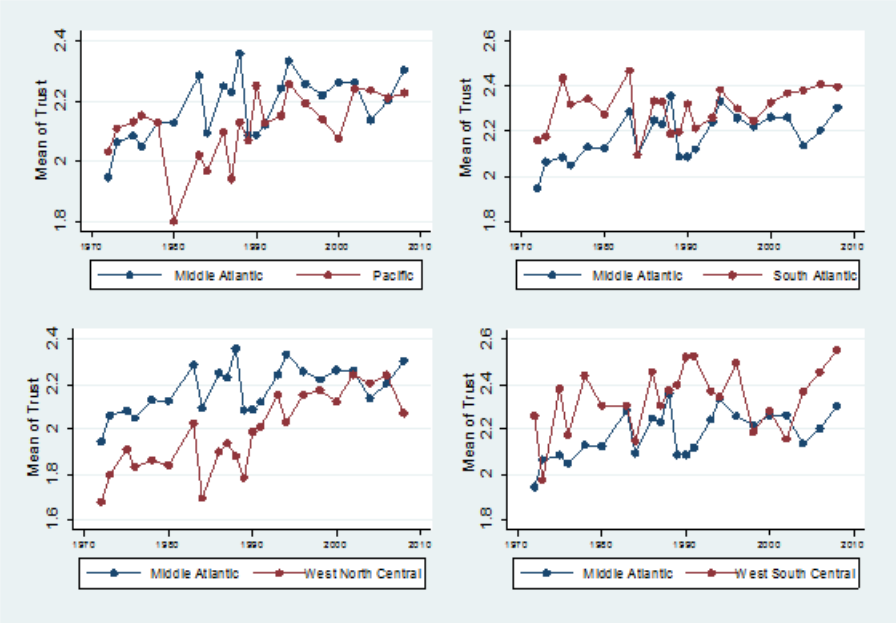

Figure A.8: Trends of Average Annual Trust: Middle Atlantic Versus Other US regions

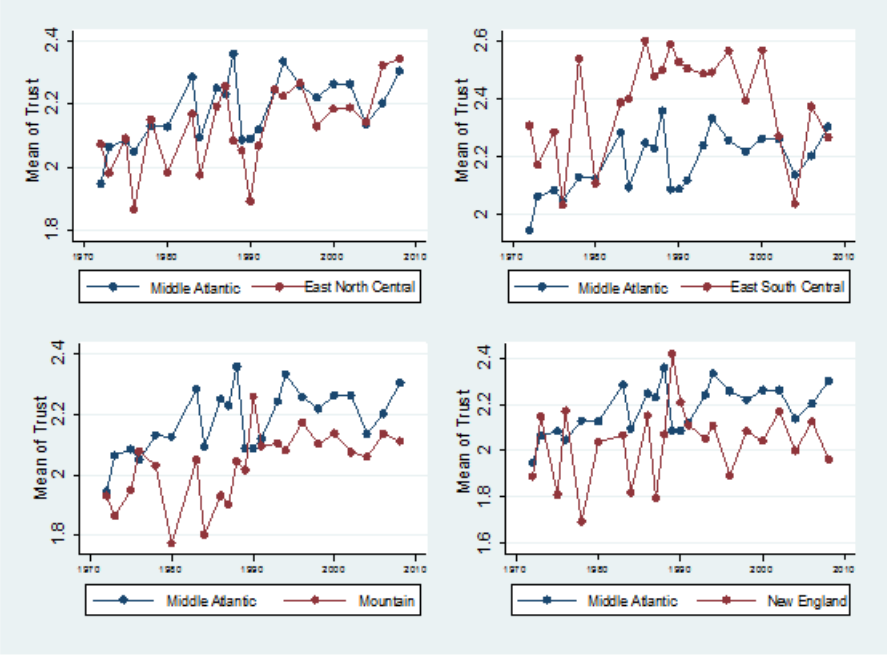

Figure A.9: Trends of Average Annual Trust: Middle Atlantic Versus Other US regions

Table A.8: Individual Controls (1): Middle Atlantic

Variable	Obs./Share
Trust	5226
=0 if cannot trust	56.0%
=1 if can trust	38.5%
Other (depends)	5.5%
Marital Status	7947
=0 if divorced or separated	53.62%
=1 if married	13.83%
Other (widowed, single)	32.55%
Gender	7951
=0 if male	42.84%
=1 if female	57.16%
Race	7951
=0 if white	80.30%
=1 if black	15.18%
Other	4.52%
Religion	7909
=0 if protestant	41.43%
=1 if catholic	39.63%
Other	18.94%
Work status	7948
=0 if not working	58.74%
=1 if working fulltime or part time (employed)	39.03%
Other	2.23%

Table A.9: Individual Controls (2): Middle Atlantic

Variable	Obs./Share	Mean	Std. Dev.	Min	Max
Age	7907	45.6149	17.12982	18	89
Education, highest year completed	7914	12.76005	3.116738	0	20
Real family income	6858	34520.57	30074.82	267.75	162607
Children number	7927	1.855305	1.701294	0	8

Table A.10: Individual Controls (1): West North Central

Variable	Obs./Share
Trust	2627
=0 if cannot trust	47.77%
=1 if can trust	49.22%
Other (depends)	3.01%
Marital Status	3975
=0 if divorced or separated	13.79%
=1 if married	55.55%
Other (widowed, single)	30.66%
Gender	3977
=0 if male	45.39%
=1 if female	54.61%
Race	3977
=0 if white	89.46%
=1 if black	8.35%
Other	2.19%
Religion	3960
=0 if protestant	66.99%
=1 if catholic	21.49%
Other	11.52%
Work status	3977
=0 if not working	61.10%
=1 if working fulltime or part time (employed)	37.74%
Other	1.16%

Table A.11: Individual Controls (2): West North Central

Variable	Obs./Share	Mean	Std. Dev.	Min	Max
Age	3967	46.36904	18.38532	18	89
Education, highest year competed	3969	12.84228	2.986751	0	20
Real family income	3643	28997.47	26058.31	284.25	162607
Children number	3962	2.011358	1.8686	0	8

Table A.12: Individual Controls (1): Mountain

Variable	Obs./Share
Trust	2091
=0 if cannot trust	50.02%
=1 if can trust	45.15%
Other (depends)	4.83%
Marital Status	3130
=0 if divorced or separated	15.62%
=1 if married	54.79%
Other (widowed or single)	29.59%
Gender	3131
=0 if male	44.14%
=1 if female	55.86%
Race	3131
=0 if white	90.45%
=1 if black	2.17%
Other	7.38%
Religion	3119
=0 if protestant	56.27%
=1 if catholic	22.03%
Other	21.70%
Work status	3131
=0 if not working	37.18%
=1 if working fulltime or part time (employed)	60.84%
Other	1.98%

Table A.13: Individual Controls (2): Mountain

Variable	Obs./Share	Mean	Std. Dev.	Min	Max
Age	3121	44.53348	17.20913	18 89	
Education, highest year completed	3126	13.41075	2.836933	0	20
Real family income	2950	29869.26	27270.48	267.75	162607
Children number	3123	1.934678	1.821351	0	8

Table A.14: Regional Time-Varying Controls

Variable	Obs.	Mean	Std. Dev.	Min	Max
Middle Atlantic					
GDPpc (000s US $)	38	26.54579	14.48125	6.319844	53.01083
Gini Index (individual income)	33	.3326424	.0371086	.2919156	.3923918
Racial Heterogeneity Index	35	.2902691	.0500952	.2089863	.3695052
Crime Index Rate (per 100 inhabitants)	38	4.167007	.039818	2.416378	5.785643
West North Central					
GDPpc (000s US $)	38	15.10784	9.01872	3.457842	45.4492
Gini Index (individual income)	33	.2072887	.0092334	.1921849	.2243704
Racial Diversity Index	35	.1420006	.0304062	.0999869	.2045876
Crime Index Rate (per 100 inhabitants)	38	2.639028	.2768863	2.045084	3.184226
Mountain					
GDPpc(000s US $)	37	22.52211	11.65551	5.64095	44.49857
Gini Index (individual income)	33	.3465557	.0259933	.315031	.3940025
Racial Diversity Index	35	.1526167	.0290585	.1118848	.2163156
Crime Index Rate(per 100 inhabitants)	37	5.655857	.7996093	3.818627	6.831264

Table A.15: Correlation matrix: Regional time-varying controls: Middle Atlantic

Variable	GDPpc(000s $)	Gini index	Race diversity	Crime rate
GDPpc (000s $)	1.00	0.97	0.99	-0.76
(p value)	(1.00)	(0.00)	(0.00)	(0.00)
(N)	7674.00	6896.00	6472.00	7674.00
Gini index	0.97	1.00	0.92	-0.77
(p value)	(0.00)	(1.00)	(0.00)	(0.00)
(N)	6896.00	6995.00	6564.00	6896.00
Race diversity	0.99	0.92	1.00	-0.57
(p value)	(0.00)	(0.00)	(1.00)	(0.00)
(N)	6472.00	6564.00	6564.00	6472.00
Crime rate	-0.76	-0.77	-0.57	1.00
(p value)	(0.00)	(0.00)	(0.00)	(1.00)
(N)	7674.00	6896.00	6472.00	7674.00

Table A.16: Correlation matrix: Regional time-varying controls: West North Central

Variable	GDPpc(000s $)	Gini index	Race diversity	Crime rate
GDPpc (000s $)	1.00	0.87	1.00	-0.31
(p value)	(1.00)	(0.00)	(0.00)	(0.00)
(N)	3908.00	3518.00	3288.00	3908.00
Gini index	0.87	1.00	0.77	-0.33
(p value)	(0.00)	(1.00)	(0.00)	(0.00)
(N)	3518.00	3617.00	3380.00	3518.00
Race diversity	1.00	0.77	1.00	0.04
(p value)	(0.00)	(0.00)	(1.00)	(0.08)
(N)	3288.00	3380.00	3380.00	3288.00
Crime rate	-0.31	-0.33	0.04	1.00
(p value)	(0.00)	(0.00)	(0.08)	(1.00)
(N)	3908.00	3518.00	3288.00	3908.00

Table A.17: Correlation matrix: Regional time-varying controls: Mountain

Variable	GDPpc(000s $)	Gini index	Race diversity	Crime rate
GDPpc (000s $)	1.00	0.87	0.78	-0.72
(p value)	(1.00)	(0.00)	(0.00)	(0.00)
(N)	3152.00	2637.00	2990.00	3152.00
Gini index	0.87	1.00	0.60	-0.23
(p value)	(0.00)	(1.00)	(0.00)	(0.00)
(N)	2637.00	2637.00	2476.00	2637.00
Race diversity	0.78	0.60	1.00	-0.56
(p value)	(0.00)	(0.00)	(0.00)	(0.00)
(N)	2990.00	2476.00	2990.00	2990.00
Crime rate	-0.72	-0.23	-0.56	1.00
(p value)	(0.00)	(0.00)	(0.00)	(0.00)
(N)	3152.00	2637.00	2990.00	3152.00

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