Violent Conflicts and the Economic Performance of Manufacturing Sector: Indian Regional State Level Analysis

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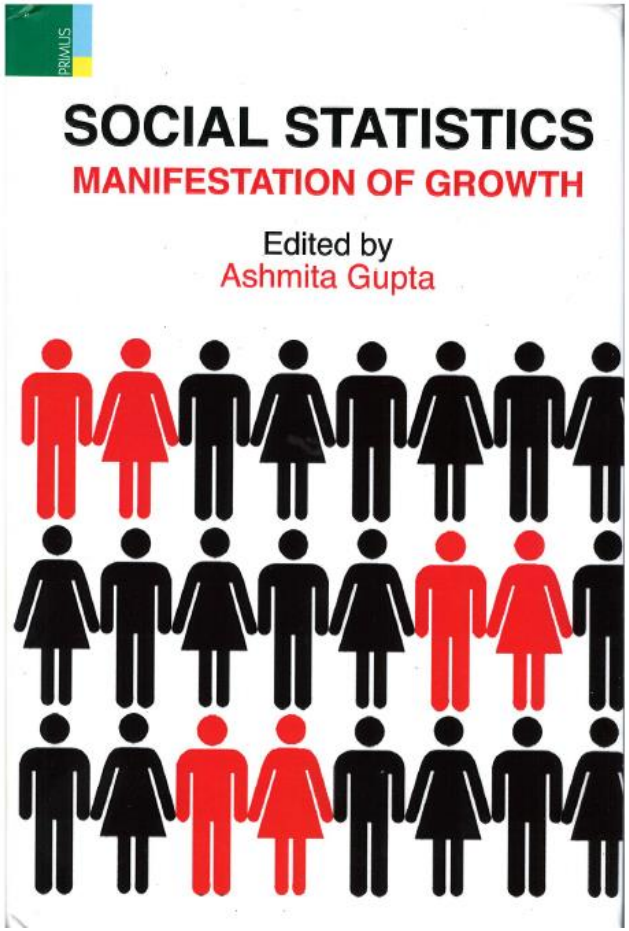
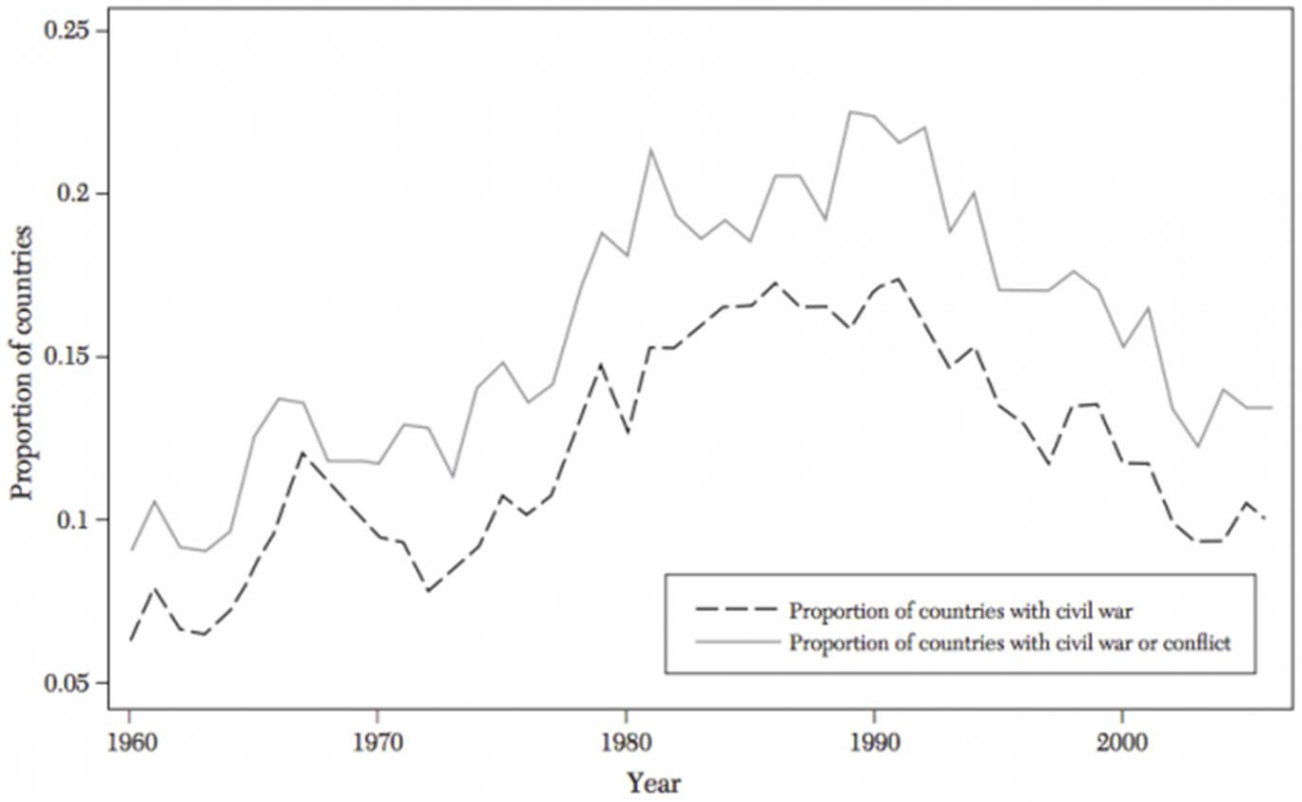


Objective of the Study

- We investigate the effects of internal violent conflicts on the economy.
- We examine differentiated effects of different types of internal violent conflicts (e.g., ethnic, religious etc.) on three economic performance variables (GVA per worker, capital/labor ratio, TFP). Moreover, we take three different measures of the intensity of violent conflicts (number, deaths, participants)

Internal Violent Conflicts

- Interstate wars are on the decline after WW II, while civil wars has increased.



(source: Blattman and Miguel 2010)

Internal Violent Conflicts

- Civil wars is defined to be internal conflict in which dissidents challenge the authority of government and involves more than 1000 deaths in a year.
- There is a variety of internal violent conflicts such as civil wars, riots, terrorist attacks, demonstrations, protests, pogrom, genocide, lynching, feuds, gang assaults and so on.

Violent Conflicts

- Violent conflicts can be classified by motivation, participants, target, strategy, organization, location, duration, nesting relationship and so on.
- We focus on participants and targets, as well as nesting relationship in this paper.

Previous Studies

- In contrast to the vast literature on the causes of violent conflicts, there is relatively scarce literature on the consequences of violent conflicts.
- Within the scarce literature those on the economic consequence was even smaller around 2013, when we started the research.

Previous Studies

- Especially the effects of lower level violent conflicts than civil wars on the economic performance have not extensively been studied so far.
- Although they are smaller in size or fatalities, if they occur more frequently and recurrently, their cumulative effects on economy could be large.

Skaperdas (2008)

- "… civil wars are not completely distinct from all other types of internal (or external) conflict. Rather, there is a continuum of conflict intensities ... The middle and lower ends of the spectrum have been understudied, and severely so when compared to the study of civil wars."

Previous Studies

There recently emerged a great number of studies on the economic effects of internal violence, which include:

- Daniele and Marani (2011) show that, based on the provincial level data in Italy on criminal offences related to mafia organizations, higher extent of criminal offences deter foreign investors.
- Ashby and Ramos (2013), using the state level data on murders in Mexico and foreign direct investment from 116 countries, show that organized crime deters foreign investment in financial services, commerce and agriculture, but not in other sectors. In oil and mining sectors higher crime rate is correlated with higher investment.

Previous Studies

- Rodriguez and Sanchez (2012) find that in Colombia armed conflicts induce children aged 6 to 17 years old to drop out of school and enter labor market too early.
- Shemyakina (2011) show that, during the period from 1992 to 1998 armed conflict in Tajikistan, girls were less likely to complete their mandatory schooling, and their enrollment rate was lower. But there were no significant effects on boys.
- Gustavo and others (2015) found that, in Mexico, increase in violence have negative effects on labor participation and unemployment rate at a municipality level. It was also found that municipalities that observed dramatic spikes in violence in Mexico between 2006 and 2010 significantly reduced their energy consumption.

Previous Studies

- Bozzoli and others (2012) show that in Colombia, where violent conflict was intense between government and rebellion, and drug-related crime groups, many people were forced to move to other places. In regions, where those displaced people flow into, hourly income in self-employed sector sharply declined.
- Enamorado and others (2014) show that in Mexico drug-related crime reduces the economic growth rates of municipalities of Mexico. However, they show that non-drug related crimes are not found to have any effect on the economic growth rate during the same period.

Previous Studies

- Villoro and Teruel (2004) estimate losses of up to 0.6% of the Mexican GDP due to homicides.
- Roso (2018) shows that, when violence increases by one %, aggregate production falls by 0.39% in Colombia. Based on this estimation results, Colombia should have experienced the increase of its aggregate production by 19.6% during the period between 1995 to 2010, because there was 48% decline in the homicide rate.

Previous Studies

- Camacho et al. (2012) find that guerrilla and paramilitary attacks in a municipality increases the probability of plant exit in Colombia. According to their estimation, a one-standard deviation increase in the number of guerrilla and paramilitary attacks in a municipality increases the probability of plant exit by 5.5 percentage points. Especially, young manufacturing firms tend to exit more because of the violent attacks.

Five Effects of Violent Conflicts

- Collier (1999) lists five effects of civil wars: destruction, disruption, diversion, dissaving, and portfolio substitution.
- The effects also apply to violent conflicts of a smaller scale to a different extent.

Vulnerability to Conflicts

- Collier (1999) also classified economic activities into war-invulnerable (arable subsistence agriculture), war-vulnerable (construction, transport, distribution, finance and manufacturing), and unclassified groups.
- Since the effects of internal violent conflicts are expected to be small, we focus on the economic performance of manufacturing sector at regional state level in India.

Hypothesis One

- Among measures of violent conflicts, the number of deaths affects the economic performance of manufacturing sector, while the number of participants and the number of violent conflicts may not.

Hypothesis Two

- Violent conflicts reduce capital-labor ratio, while they may or may not affect total factor productivity as well as gross value added per worker.

Hypothesis Three

- The negative impacts of ethnic and religious violent conflicts are more salient than those of political or economic violent conflicts.

The salience of ethnicity/religion

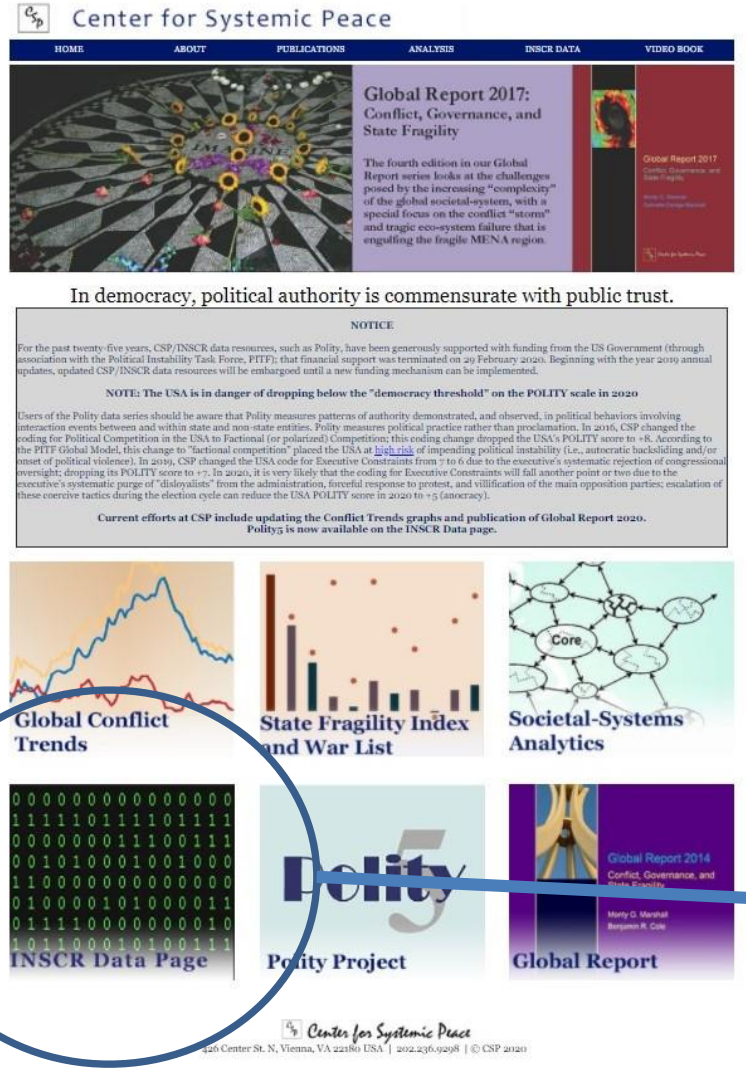
- The success of ethnic parties (Chandra 2004)
- The role of ethnic cleavage in sustaining clientelism (Kitschelt and Wilkinson 2007)
- The vehemence of violence between ethnic/religious groups. (Wilkinson 2004)

Hypothesis Four

- The negative impact of violent conflicts nested in a larger conflict is larger than those that independently occur.

India Sub-National Problem Set

- The dataset constructed by Marshall, Sardesi and Marshall (2005) of Center for Systemic Peace.
- They compiled the dataset from the Keesings Record of World Events (Keesings Online) and the period from 1960 to 2004 is covered.



User's Manual PDF	**Polity5 Annual Time-Series, 1946-2018**	**and Transitions, 1800-2018**, annual, cross-national, time-series and polity-case formats coding democratic and autocratic "patterns of authority" and regime changes in all independent countries with total population greater than 500,000 in 2018 (167 countries in 2018) (SPSS and Excel data; PDF codebook) Click here for changes made for 2018 annual data update (Excel file). Polity's refined data covers mainly the period, 1946-2018; data for years 1800-1945 are Polity IV values.	SPSS Series	Excel Series
	Polity5d Polity-Case Format, 1800-2018		SPSS Case	Excel Case
Codebook PDF	**Coups d'Etat, 1946-2018**	**Center for Systemic Peace, Coups d'Etat, 1946-2018**, event list includes successful, attempted, plotted, and alleged coup events reported in Keesings Record of World Events (Keesings Online) and other sources; successful coups are cross-referenced to the Polity IV data series to distinguish "adverse regime changes" from "autocratic coups"; also listed in the codebook are cases of leadership change that are not considered coups (e.g., assassinations, ouster by foreign forces, victory by rebel forces, forced resignation) (Excel coup list and Excel time-series; PDF codebook).	Excel Coups List	Excel Series
State Fragility Index and Matrix				
State Fragility Matrix 2018 PDF	**State Fragility Index and Matrix, 2018**	**State Fragility Index and Matrix 2018.** This document provides the State Fragility Indices and the eight component indicators for the most recent year available for 167 countries with populations greater than 500,000 in 2018. It also includes detailed technical notes describing each of the indicators and indices in the matrix and the information sources used. The year 2016 State Fragility Matrix is featured in Global Report 2017. A copy of Global Report 2017 is available below on the left and at the top of this page.		
Global Report 2017 PDF	**State Fragility Index and Matrix, Time-Series Data, 1995-2018**	**State Fragility Index and Matrix, 1995-2018**, provides annual state fragility, effectiveness, and legitimacy indices and the eight component indicators for the world's 167 countries with populations greater than 500,000 in 2018 (SPSS and Excel data files). Technical information on the sources and construction of the indices and indicators is provided with the State Fragility Matrix 2018 (above) and in Global Report 2017 (link on left).	SPSS Series	
			Excel Series	
Conflict in India Datasets				
Codebook PDF	***Crime in India*: Riots, Murders and Dacoity,**	**Government of India, Ministry of Home Affairs, National Crime Records Bureau, Crime in India annual series, 1954-2006**, compiles country, state, and district (beginning in 1971) figures on annual numbers of riots, murders, and dacoity events (also, cases [illegible] annual state numbers of civil and armed police and area and population figures (SPSS and Excel data; PDF codebook).	SPSS Series	
			Excel Series	
Codebook PDF	**India Sub-National Problem Set, 1960-2004**	**Center for Systemic Peace, India Sub-National Problem Set, 1960-2004**, compiles events data drawn from representative news accounts of violent conflicts in India to identify and delineate spatial, temporal, and intensity parameters of societal conflict processes (Excel data; PDF codebook).	Excel Events List	

Center for Systemic Peace
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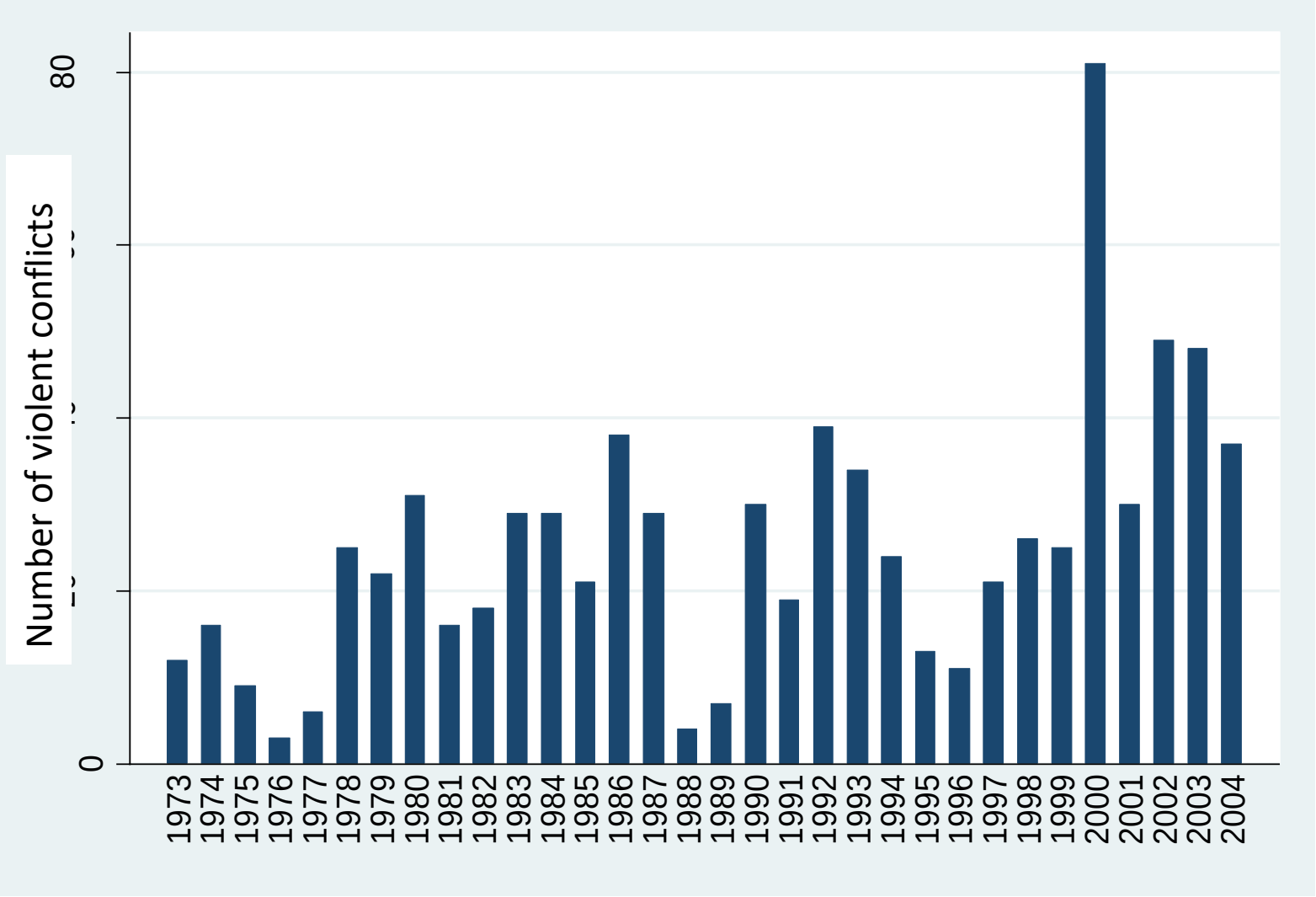
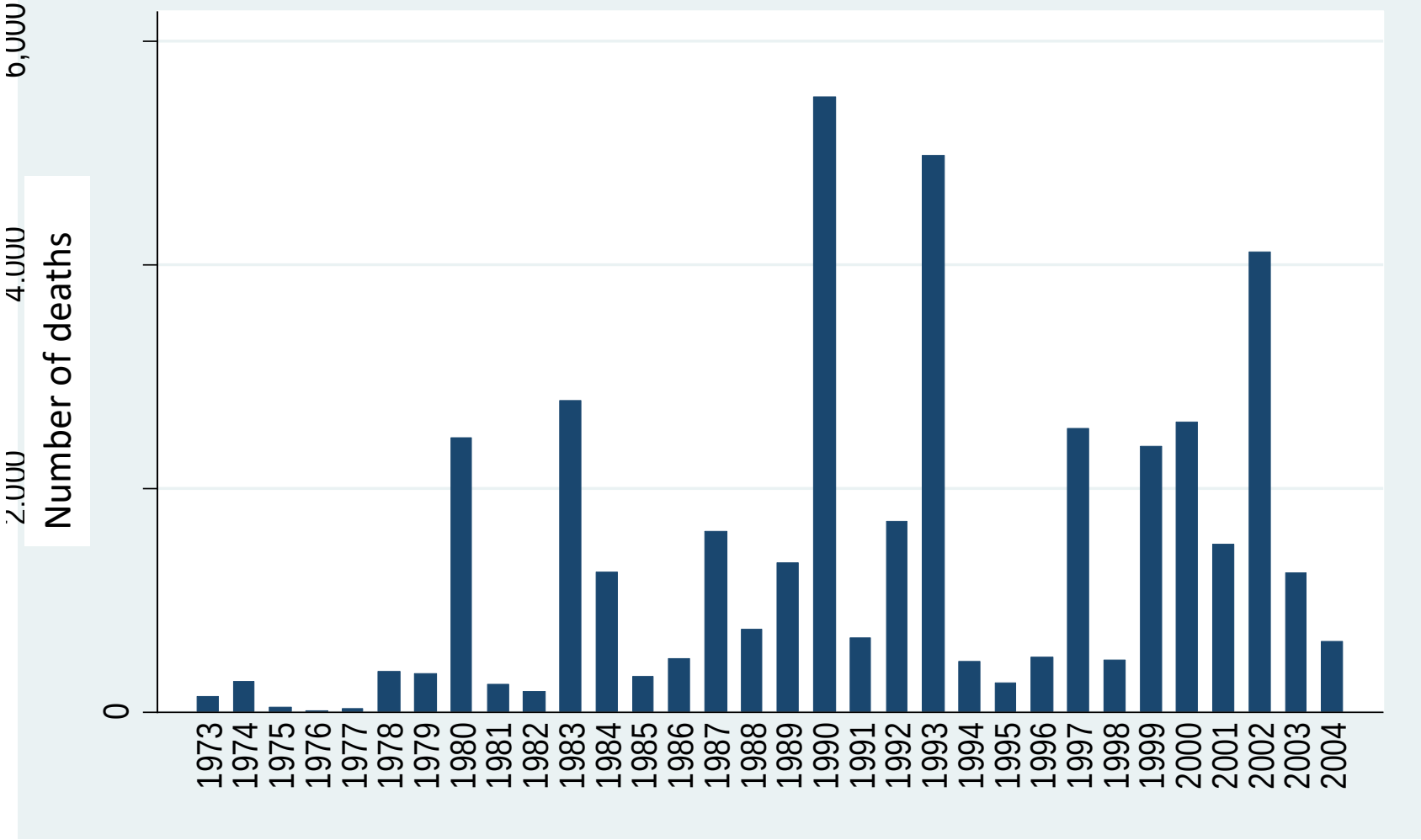
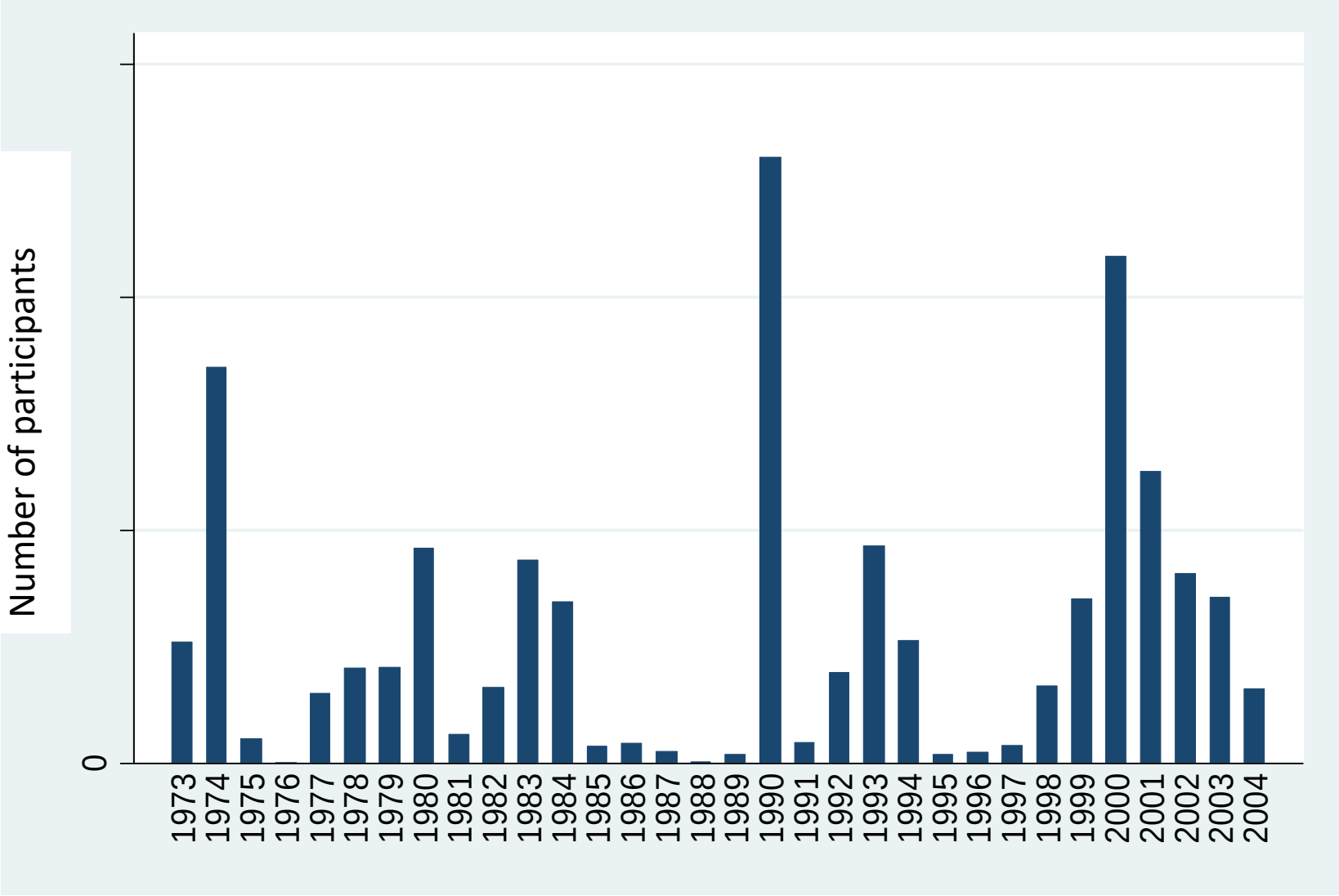
Total Number of Violent Conflicts



Total Number of Deaths in Violent Conflicts



Total Number of Participants in Violent Conflicts



Estimation Model

- Our basic estimation model is as follows:

$$Z_{it} = \alpha + \theta_t + \theta_i + X_{it}\beta + Y_{it}\gamma + \varepsilon_{it}$$

Z_{it} : the natural log of the economic performance variable of the manufacturing sector of state *i* in year *t*,

X_{it} : the variable that captures the intensity of violent conflicts in year t and state i (log),

Y_{it} : the vector of control variables that may influence the economic performance of the manufacturing sector (log).

The state dummy θ_i and year dummy θ_t are included in the estimation.

Our sample period is from 1973 to 2004.

Economic Performance Variables

- Manufacturing Sectors of 22 States
  - Gross Value Added per Worker
  - Capital Labor Ratio
  - Total Factor Productivity

They are related through: $ln\frac{Y}{L} = lnA + \alpha ln\frac{K}{L}$.

Data is based on Annual Surveys of Industries.

Violent Conflict Variables

- We construct three kinds of violent conflict variables:

1. the number of violent conflicts per population in state i in year t.
2. the number of deaths in violent conflicts per population of state i in year t.
3. the number of participants per population in violent conflicts of state i in year t.

- We take the sum of each variable for the current year and the last year as our explanatory variables.
- We replace zero observation by 0.01 before transforming observation data into natural log.

Construction of variables

The following explanation is based on the codebook of the dataset, available at

https://www.systemicpeace.org/inscrdata.html

- Exclude all the conflict case corresponding to mega or meta conflicts (CTAG1=0,1,2)
- If CTAG1 is tagged only to a meta conflict, the conflict is defined to be nested in a meta conflict.
- If CTAG2 is tagged to a mega conflict, the conflict is defined to be nested in a mega conflict.

CSP Data looks like this.

Event Location State	Begin Year	End Year	Conflict Number	Conflict Tag Number - Level1	Conflict tag Number - Level2	Nested dummy	Nested in Mega	nested in Meta	Conflict Type	Direct Involvement by Federal Government Authoritis	Direct Involvement by State/Local Government Authoritis	Begin Day	Begin Month	Begin Year	End Day	End Month	End Year	Conflict Actor #1	Conflict Actor #2	Conflict Actor #3	Conflict Target Group #1	Conflict Target Group #2	Ethnic dummy	religious dummy	Political party dummy	Caste dummy	Economic dummy
LSTATE	BYEAR	EYEAR	CNUM	CTAG1	CTAG2	NESTED	ESTMEGA	ESTMETA	CTYPE	FGOVT	SGOVT	BDAY	BMONTH	BYEAR	EDAY	EMONTH	EYEAR	ACTOR1	ACTOR2	ACTOR3	TARGET1	TARGET2	ETHNIC	RELIGIOUS	PARTY	CASTE	ECONOMIC
PJ	1992	1992	1152	438		1	0	1	25	0	0	19	2	1992	26	2	1992	5	0	0	22	45	1	1	1	0	0
PJ	1992	1992	1153	438		1	0	1	25	0	0	99	3	1992	99	3	1992	5	0	0	22	0	1	1	0	0	0
BH	1992	1992	1154	184		1	0	1	21	0	1	6	4	1992	6	4	1992	75	68	0	0	0	0	0	0	0	1
AS	1992	1992	1155	412	522	1	1	0	25	0	1	11	4	1992	11	4	1992	12	0	0	75	0	1	0	0	0	0
PJ	1992	1992	1156	438		1	0	1	25	0	0	3	4	1992	4	4	1992	5	0	0	22	0	1	1	0	0	0
JK	1992	1992	1157	523		1	0	1	21	1	0	4	4	1992	8	4	1992	71	17	0	0	0	1	0	0	0	0
99	1992	1992	1158	55	526	1	1	0	21	0	0	19	7	1992	20	7	1992	1	2	0	0	0	0	1	0	0	0
MP	1992	1992	1159	10		0	0	0	23	0	1	1	7	1992	1	7	1992	75	0	0	66	0	0	0	0	0	1
GU	1992	1992	1160	55		1	0	1	24	0	0	4	7	1992	4	7	1992	1	2	0	0	0	0	1	0	0	0
CH	1992	1992	1161	438		1	0	1	22	0	1	30	7	1992	30	7	1992	75	0	0	5	0	0	1	0	0	0
88	1992	1992	1162	438		1	0	1	25	0	1	99	8	1992	99	8	1992	5	0	0	75	22	1	1	0	0	0
JK	1992	1992	1163	523		1	0	1	21	1	0	15	8	1992	17	8	1992	71	17	0	0	0	1	0	0	0	0
NG	1992	1992	1164	45		1	0	1	22	0	0	23	9	1992	23	9	1992	99	0	0	47	0	0	0	1	0	0
BH	1992	1992	1165	55		1	0	1	21	0	0	99	10	1992	99	10	1992	1	2	0	0	0	0	1	0	0	0
MG	1992	1992	1166	10		0	0	0	22	0	0	99	10	1992	99	10	1992	23	0	0	13	27	1	0	0	0	0
AS	1992	1992	1167	529		1	0	1	25	0	0	13	10	1992	13	10	1992	14	0	0	99	0	1	0	0	0	0
PJ	1992	1992	1168	438		1	0	1	22	0	1	15	10	1992	15	10	1992	75	0	0	5	0	0	1	0	0	0
TR	1992	1992	1169	519		1	0	1	21	0	1	12	10	1992	12	10	1992	75	26	0	0	0	1	0	0	0	0
AS	1992	1992	1170	529		1	0	1	25	0	0	21	11	1992	21	11	1992	14	0	0	12	0	1	0	0	0	0
WB	1992	1992	1171	10		0	0	0	23	0	1	2	11	1992	2	11	1992	75	0	0	42	0	0	0	1	0	0
WB	1992	1992	1172	10		0	0	0	24	0	0	6	11	1992	6	11	1992	45	43	0	0	0	0	0	1	0	0
99	1992	1992	1173	55	526	1	1	0	24	1	1	7	12	1992	11	12	1992	1	2	75	0	0	0	1	0	0	0
99	1993	1993	1174	55	526	1	1	0	24	1	1	5	1	1993	11	1	1993	1	2	0	0	0	0	1	0	0	0
JK	1993	1993	1175	523		1	0	1	22	1	0	6	1	1993	6	1	1993	72	0	0	17	0	1	0	0	0	0
JK	1993	1993	1176	523		1	0	1	22	1	0	13	2	1993	13	2	1993	72	0	0	17	0	1	0	0	0	0
JK	1993	1993	1178	523		1	0	1	22	1	1	31	3	1993	99	4	1993	17	72	0	17	75	1	0	0	0	0
MN	1993	1993	1179	55		1	0	1	24	0	0	99	5	1993	99	5	1993	1	2	0	0	0	0	1	0	0	0
BH	1993	1993	1180	10		0	0	0	24	0	1	19	5	1993	19	5	1993	45	47	75	0	0	0	0	1	0	0
JK	1993	1993	1181	523		1	0	1	22	1	0	25	7	1993	25	7	1993	72	0	0	17	0	1	0	0	0	0
WB	1993	1993	1182	10		0	0	0	23	0	1	21	7	1993	21	7	1993	75	45	0	0	0	0	0	1	0	0
TN	1993	1993	1183	55		1	0	1	25	0	0	8	8	1993	8	8	1993	2	0	0	47	0	0	1	1	0	0
JK	1993	1993	1184	523		1	0	1	24	1	0	1	8	1993	3	8	1993	72	17	0	0	0	1	0	0	0	0
JK	1993	1993	1185	523		1	0	1	25	0	0	14	8	1993	14	8	1993	17	0	0	1	0	1	1	0	0	0
NG	1993	1993	1186	45	529	1	1	0	21	0	0	6	8	1993	99	9	1993	21	23	0	0	0	1	0	0	0	0
99	1993	1993	1187	438		1	0	1	25	0	0	11	9	1993	12	9	1993	5	0	0	45	0	0	1	1	0	0
TN	1993	1993	1188	10		0	0	0	23	0	1	27	9	1993	27	9	1993	75	66	0	0	0	0	0	0	0	1
JK	1993	1993	1189	523		1	0	1	21	1	0	16	9	1993	21	9	1993	72	17	0	0	0	1	0	0	0	0
JK	1993	1993	1190	523		1	0	1	23	1	0	22	10	1993	22	10	1993	72	17	0	0	0	1	0	0	0	0
JK	1993	1993	1191	523		1	0	1	21	1	0	22	10	1993	22	10	1993	72	0	0	17	0	1	0	0	0	0

Mega-conflicts and "Nested" Meta-conflicts:

0045 Naga Separatism (1952-present)
    0529 Nagas vs. Kukis (1993-1994)
0055 Hindu-Muslim violence (historical-present)
    0526 Ayodyha Movement (1989-1993)
0128 Mizo Separatism (1966-86)
0184 Naxalite Movement (1967-present)
0221 Telengana Separatism (1969-73)
0412 Assamese vs. Bengali Immigrants (1979-present)
    0469 "Anti-Foreigner" Massacres (1983)
    0522 ULFA Terrorism (1990-present)
0438 Sikh Separatism (1981-97)
    0527 Operation Blue Star (1984)
    0528 Anti-Sikh Riots
0523 Kashmiri Separatism (1990-present)
0524 Manipuri Separatism (1975-1982)

Discrete Meta-conflicts:

0013 Anti-government Food Riots (1958-59)
0020 Vidarbha Movement (1960-61)
0024 Punjabi Statehood (1960-66)
0028 Assamese Language Riots (1960-61 and 1972)
0098 Hindi Language Riots (1965-68)
0105 Anti-government Food Riots (1964-66)
0135 Mysore-Maharashtra Border Dispute (1966-70)
0309 Anti-government Food Riots (1973-74)
0342 The Emergency (1975-77)
0360 Inter-caste Riots/Atrocities (1977-present)
0375 Anand Marg Movement (1977-82)
0519 Tripuras vs. Bengali Immigrants (1979-present)
0521 Gurkha Movement (1986-87)
0526 Anti-Christian Terrorism (1998-present)
0529 Bodo Separatism (1989-98)

Construction of variables

- If LSTATE = 88(more than one state) or 99(unknown), first we refer to description column. If we find information on states, then we use it. Otherwise, we check other information sources, and if we find further information, we use it.
- The information on how we assigned states in each conflict case is available from authors.

Construction of variables

- If a conflict occurs more than one state, we count the occurrence as one in every state, and assign average number of deaths and participants evenly to those several states.
- If we could not assign state location, we delete the conflict information. Concretely, conflict numbers (CNUM) 343, 351, 364, 1098, 1116, 1130, 1141 were deleted.

Construction of variables

- In the dataset, the information with respect to actors and targets are available, which are indicated by codes in Appendix A of the codebook.
- If actor or target columns include group numbers (0-9), the conflict is considered to be religious conflict. Similarly, (11-27)-> ethnic, (41-49)->political, (60-64)->caste, (65-68)-> economic.

Appendix A – Actors/Targets

Confessional Groups (0-9)
1 Hindus
2 Muslims (general)
3 Sunni Muslims
4 Shia Muslims
5 Sikhs
6 Jains
7 Christians
8 Other religious minorities (specify in DESC; e.g., Khojas, Parsis)

Ethno-identity groups (10-39) **(other categories may be added as necessary)**
11 Anglo-Indians
12 Assamese
13 Bengalis
14 Bodos
15 Gujeratis
16 Kannadas (Karnataka)
17 Kashmiris
18 Maharashtrians
19 Manipuris
20 Mizos
21 Nagas
22 Punjabis (Hindu)
23 Scheduled Tribes/Adivasis
24 Tamils
25 Telgus
26 Tripuras
27 Gurkhas

Political groups (40-59) **(other categories may be added as necessary)**
41 Bahujan Samaj Party (BSP)
42 Bharatiya Janata Party (BJP; also, Jan Sangh)
43 Communist Party of India (CPI)
44 Communist Party of India (Marxist) (CPM)
45 Indian National Congress Party (Congress)
46 Samajwadi Party (SP; also, Samata Party)
47 Other small national political parties (e.g. breakaway Congress parties, Janata Dal, National Front, Janata Party)
48 Student groups
49 Regionally-based political parties (e.g., DMK, Shiv Sena, AIADMK, Akali Dal, Trinamool Congress, Telgu Desam, Biju Janata Dal)

Econo-Caste groups (60-79) **(other categories may be added as necessary)**
60 Brahmins
61 Other upper-caste groups
62 Rajputs
63 Other backward-caste groups (OBCs)
64 Scheduled castes/dalits
65 Communists
66 Industrial Workers
67 Landless Laborers
68 Naxalites

Government Authorities (80-98) **(other categories may be added as necessary)**
71 Federal Armed Forces (General Government Authorities)
72 Federal Internal Security Forces/Border Guards
73 Federal Government Authorities (other than armed forces or police)
75 State or Local Police
76 State or Local Government Authorities (other than armed forces or police)
77 Panchayat Authorities (village-level)
81 Pro-Government Militias
91 Foreign Armed Forces
92 Foreign Militias
99 Unknown; unspecified

Control Variables

- We control for physical infrastructure (electricity generated per population and surfaced road length per population), and human capital (incidence of labor disputes per worker and literacy rate).

IV Two-Stage Estimation

- To address endogeneity problem (and omitted variables), we conduct an instrumental variable two-stage estimation.
- We use log policemen per population and Muslim/Hindu population ratio as instrumental variables.

Descriptive Statistics

Table 1a. Descriptive statistics of variables for the period 1973-2004.

Variable	No. of Observations	Mean	S.D.	Min	Max
gross value added per worker	687	1.244	0.988	-0.141	7.162
capital labor ratio	646	6.269	5.209	0.112	35.587
log total factor productivity	646	0.158	0.158	-0.273	1.112
energy generated per population	808	0.18191	0.184551	0	0.9655396
surfaced road length per population	808	1.713732	1.148603	0.1055409	9.02535
disputes per worker	665	0.000498	0.0011182	4.81E-07	0.0120664
literacy rate	896	52.219	15.454	14.142	91.775
policemen per population	807	2.660	2.594	0.381	16.412
Muslim Hindu population ratio	812	0.212403	0.402920	0.012995	2.260383

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Number of violent conflicts per pop	808	0.17436	0.72042	0	9.24215
Number of ethnic violent conflicts per pop	808	0.15295	0.70776	0	9.24215
Number of religious violent conflicts per pop	808	0.01661	0.09619	0	1.50210
Number of political violent conflicts per pop	808	0.01509	0.16290	0	4.34783
Number of economic violent conflicts per pop	808	0.00536	0.10109	0	2.85714
Number of caste violent conflicts per pop	808	0.00086	0.00512	0	0.08127
Number of discrete violent conflicts per pop	808	0.02133	0.17809	0	4.34783
Number of nested violent conflicts per pop	808	0.15302	0.69935	0	9.24215
Number of violent conflicts nested in mega conflict per pop	808	0.13255	0.68648	0	9.24215
Number of violent conflicts nested in meta conflict per pop	808	0.02048	0.15240	0	2.98762
Number of deaths in violent conflicts per pop	808	5.77559	43.61880	0	983.52720
Number of deaths in ethnic violent conflicts per pop	808	4.78033	42.16939	0	983.52720
Number of deaths in religious violent conflicts per pop	808	0.86384	8.10588	0	192.84410
Number of deaths in political violent conflicts per pop	808	0.13541	1.65964	0	44.44444
Number of deaths in economic violent conflicts per pop	808	0.07029	0.87557	0	22.85714
Number of deaths in caste violent conflicts per pop	808	0.01969	0.16262	0	2.70431
Number of deaths in discrete violent conflicts per pop	808	0.19057	1.36745	0	27.05628
Number of deaths in nested violent conflicts per pop	808	5.58502	43.59103	0	983.52720
Number of deaths in violent conflicts nested in mega conflict per pop	808	3.86406	26.47740	0	504.85680
Number of deaths in violent conflicts nested in meta conflict per pop	808	1.72096	34.81963	0	983.52720
Number of participants in violent conflicts per pop	808	1160.84800	6956.60200	0	93447.32000
Number of participants in ethnic violent conflicts per pop	808	975.36000	6589.60600	0	93447.32000
Number of participants in religious violent conflicts per pop	808	80.24413	488.00270	0	6030.99600
Number of participants in political violent conflicts per pop	808	96.80153	747.87550	0	10227.27000
Number of participants in economic violent conflicts per pop	808	6.33155	81.56972	0	1711.91400
Number of participants in caste violent conflicts per pop	808	7.82921	146.63120	0	4022.75500
Number of participants in discrete violent conflicts per pop	808	168.38840	1607.96100	0	39099.53000
Number of participants in nested violent conflicts per pop	808	992.45930	6789.50900	0	93447.32000
Number of participants in violent conflicts nested in mega conflict per pop	808	898.88600	6719.77800	0	93447.32000
Number of participants in violent conflicts nested in meta conflict per pop	808	93.57336	1053.57000	0	24467.05000

Correlation between Variables

Table 2. Unconditional correlations among variables

	ln gross value added per worker	ln capital labor ratio	ln total factor productivty	ln energy generated per population	ln surfaced road length per population	ln industrial disputes per worker	ln literacy rate	ln sum of the number of violent conflicts per population for the last two years	ln sum of the number of deaths in violent conflicts per population for the last two years	ln sum of the number of participants in violent conflictsper population for the last two years	ln number of policemen per population	Muslim Hindu ratio
ln gross value added per worker	1.000											
ln capital labor ratio	0.784	1.000										
ln total factor productivty	-0.201	-0.292	1.000									
ln energy generated per population	0.494	0.357	-0.434	1.000								
ln surfaced road length per population	0.278	0.221	0.069	0.432	1.000							
ln industrial disputes per worker	-0.395	-0.363	0.102	-0.337	-0.142	1.000						
ln literacy rate	0.474	0.292	-0.034	0.236	0.439	-0.205	1.000					
ln sum of the number of violent conflicts per population for the last two years	-0.210	-0.135	0.224	-0.275	-0.047	-0.006	-0.017	1.000				
ln sum of the number of deaths in violent conflicts per population for the last two years	-0.118	-0.077	0.053	-0.195	-0.117	-0.018	-0.028	0.931	1.000			
ln sum of the number of participants in violent conflicts per population for the last two years	-0.129	-0.122	-0.017	-0.150	-0.141	0.022	-0.052	0.907	0.922	1.000		
ln number of policemen per population	-0.286	-0.110	0.569	-0.330	0.261	-0.075	0.078	0.408	0.257	0.119	1.000	
Muslim Hindu ratio	-0.201	-0.117	0.040	-0.125	-0.143	-0.362	-0.113	0.302	0.240	0.212	0.373	1.000

Relation of the number of violent conflicts to economic performance of manufacturing sector: two-stage least squares estimation results (First Stage Estimation Results)

Table 4. Relation of the number of violent conflicts to economic performance of manufacturing sector: two-stage least squares estimation results

Panel A: First Stage

Dependent Variable:	ln the sum of the number of violent conflicts per person for the last two years		ln the sum of the number of violent conflicts per person for the last two years		ln the sum of the number of violent conflicts per person for the last two years	
Muslim/Hindu population ratio	9.067	(2.803) ***	9.016	(2.875) ***	9.016	(2.875) ***
ln policemen per population	1.261	(0.575) **	1.363	(0.653) **	1.363	(0.653) **
ln energy generated per population	0.043	(0.173)	0.066	(0.189)	0.066	(0.189)
ln surfaced road length per population	0.809	(0.430) *	0.837	(0.456) *	0.837	(0.456) *
ln disputes per worker	0.014	(0.084)	0.015	(0.089)	0.015	(0.089)
ln literacy rate	1.406	(1.311)	1.355	(1.334)	1.355	(1.334)
R^2	0.181		0.1701		0.1701	
F Statistics (p-value)	4.63	(0.0000)	3.79	(0.0000)	3.79	(0.0000)
F test of excluded instruments						
F(x,y) (p-value)	8.85	(0.0002)	8.9	(0.0002)	8.9	(0.0002)
Underidentification test						
rk LM statistic (p-value)	15.351	(0.0005)	15.62	(0.0004)	15.62	(0.0004)
Weak identification test						
rk Wald F statistic	8.85		8.901		8.9	
Stock-Yogo weak ID test critical vlalue	11.59	15%	11.59	15%	11.59	15%
	8.75	20%	8.75	20%	8.75	20%

Relation of the number of violent conflicts to economic performance of manufacturing sector: two-stage least squares estimation results

Panel B: Second Stage									
	(1)			(2)			(3)		
	ln gross value added per worker			ln capital labor ratio			ln total factor productivity		
ln the sum of the number of violent conflicts per person for the last three years	−0.086	(0.037)	**	−0.261	(0.059)	***	0.010	(0.007)	
ln energy generated per population	0.093	(0.046)	**	−0.104	(0.042)	**	0.036	(0.015)	**
ln surfaced road length per population	0.056	(0.071)		0.259	(0.136)	*	−0.069	(0.020)	***
ln disputes per worker	0.001	(0.016)		0.041	(0.025)		−0.012	(0.007)	*
ln literacy rate	0.449	(0.188)	**	0.036	(0.360)		0.003	(0.050)	
R^2	0.682			0.1125			0.281		
F Statistics (p-value)	0.6816	(0.000)		15.82	(0.000)		8.12	(0.000)	
Overidetification test									
chi-sq(2) test statistic (p-value)	0.452	(0.5014)		0.874	(0.3499)		0.552	(0.4575)	
Endogeneity test (p-value)									
chi-sq(2) test statistic (p-value)	5.619	(0.0178)		49.927	(0.0000)		0.674	(0.4115)	
No. of obs.	635			596			596		

Notes: *** indicates 1% significance level, ** 5%, and * 10%.
Numbers in parentheses are standard errors, unless otherwise indicated.

Relation of the number of deaths in violent conflicts to economic performance of manufacturing sector: two-stage least squares estimation results

Panel B: Second Stage

	(1) ln gross value added per worker		(2) ln capital labor ratio		(3) ln total factor productivity	
ln the sum of the number of deaths in violent conflicts per person for the last two years	−0.050	(0.020) **	−0.141	(0.031) ***	0.006	(0.004)
ln energy generated per population	0.091	(0.045) **	−0.118	(0.036) ***	0.037	(0.015) **
ln surfaced road length per population	0.029	(0.066)	0.177	(0.112)	−0.066	(0.020) ***
ln disputes per worker	0.000	(0.016)	0.038	(0.023) *	−0.012	(0.007) *
ln literacy rate	0.483	(0.185) ***	0.143	(0.314)	−0.004	(0.052)
R^2	0.686		0.291		0.276	
F Statistics (p-value)	45.03	(0.000)	20.4	(0.000)	8.02	(0.000)
Overidetification test						
chi-sq(2) test statistic (p-value)	0.059	(0.8080)	3.367	(0.0665)	0.328	(0.5666)
Endogeneity test (p-value)						
chi-sq(2) test statistic (p-value)	6.109	(0.0135)	40.917	(0.0000)	0.956	(0.3282)
No. of obs.	635		596		596	

Relation of the number of participants in violent conflict to economic performance of manufacturing sector: two-stage least squares estimation results

Panel B: Second Stage

	(1) ln gross value added per worker		(2) ln capital labor ratio		(3) ln total factor productivity	
ln the sum of the number of particiapnts in violent conflicts per person for the last two years	−0.040	(0.018) **	−0.123	(0.033) ***	0.005	(0.003)
ln energy generated per population	0.090	(0.046) *	−0.125	(0.053) **	0.037	(0.015) **
ln surfaced road length per population	0.066	(0.077)	0.301	(0.165) *	−0.070	(0.020) ***
ln disputes per worker	0.002	(0.017)	0.044	(0.031)	−0.012	(0.007) *
ln literacy rate	0.416	(0.208) **	−0.031	(0.457)	0.006	(0.050)
R^2	0.634		−0.352		0.266	
F Statistics (p-value)	36.41	0	10.28	0	7.84	0
Overidetification test						
chi-sq(2) test statistic (p-value)	0.528	(0.4675)	0.396	(0.5293)	0.638	(0.4243)
Endogeneity test (p-value)						
chi-sq(2) test statistic (p-value)	5.841	(0.0157)	52.133	(0.0000)	0.876	(0.3493)
No. of obs.	635		596		596	

Summary
Estimation Results for Total Violent Conflicts

- Violent conflicts measured in terms of the number of incidence, deaths, and participants all significantly reduce the gross value added per worker and capital-labor ratio.
- In contrast, the intensity of violent conflicts measured by three variables does not produce any significant coefficients for total factor productivity.

Relation of the number of ethnic violent conflicts to economic performance of manufacturing sector: two-stage least squares estimation results

Panel B: Second Stage

	(1) ln gross value added per worker		(2) ln capital labor ratio		(3) ln total factor productivity	
ln the sum of the number of ethnic violent conflicts per person for the last two years	−0.067	(0.029) **	−0.230	(0.042) ***	0.007	0.0055966
ln energy generated per population	0.091	(0.047) *	−0.129	(0.041) ***	0.037	0.0147611 **
ln surfaced road length per population	−0.001	(0.061)	0.002	(0.089)	−0.060	0.0206533 ***
ln disputes per worker	−0.005	(0.016)	0.020	(0.022)	−0.011	0.0065516 *
ln literacy rate	0.5484571	(0.187) ***	0.4459558	(0.265) *	−0.0083553	0.0505626
R^2	0.720		0.4494		0.294	
F Statistics (p-value)	54.7	(0.000)	23.4	(0.000)	8.51	(0.000)
Overidetification test						
chi-sq(2) test statistic (p-value)	1.257	0.2621	0	(0.9951)	0.942	(0.3317)
Endogeneity test (p-value)						
chi-sq(2) test statistic (p-value)	4.745	(0.0294)	52.926	(0.0000)	0.18	(0.6712)
No. of obs.	635		596		596	

Relation of the number of deaths in ethnic violent conflicts to economic performance of manufacturing sector: two-stage least squares estimation results

Panel B: Second Stage									
	(1)			(2)			(3)		
	ln gross value added per worker			ln capital labor ratio			ln total factor productivity		
ln the sum of the number of deaths in ethnic violent conflicts per person for the last two years	−0.043	(0.019)	**	−0.145	(0.027)	***	0.005	(0.004)	
ln energy generated per population	0.090	(0.047)	*	−0.136	(0.040)	***	0.037	(0.015)	**
ln surfaced road length per population	−0.004	(0.062)		0.007	(0.091)		−0.060	(0.021)	***
ln disputes per worker	−0.005	(0.016)		0.023	(0.022)		−0.011	(0.007)	*
ln literacy rate	0.562	(0.190)	***	0.464	(0.265)	*	−0.010	(0.051)	
R^2	0.712			0.414			0.291		
F Statistics (p-value)	54.38	(0.000)		23.49	(0.000)		8.46	(0.000)	
Overidetification test									
chi-sq(2) test statistic (p-value)	1.019	(0.3128)		0.038	(0.8456)		0.876	(0.3492)	
Endogeneity test (p-value)									
chi-sq(2) test statistic (p-value)	5.332	(0.0209)		53.729	(0.0000)		0.295	(0.2950)	
No. of obs.	635			596			596		

Relation of the number of participants in ethnic violent conflicts to economic performance of manufacturing sector: two-stage least squares estimation results

Panel B: Second Stage									
	(1)			(2)			(3)		
	ln gross value added per worker			ln capital labor ratio			ln total factor productivity		
ln the sum of the number of participants in ethnic violent conflicts per person for the last two years	−0.029	(0.013)	**	−0.100	(0.020)	***	0.003	(0.002)	
ln energy generated per population	0.091	(0.047)	*	−0.142	(0.045)	***	0.037	(0.015)	**
ln surfaced road length per population	0.006	(0.062)		0.040	(0.097)		−0.061	(0.020)	***
ln disputes per worker	−0.005	(0.017)		0.022	(0.025)		−0.011	(0.007)	*
ln literacy rate	0.585	(0.200)	***	0.587	(0.291)	**	−0.011	(0.051)	
R^2	0.707			0.310			0.290		
F Statistics (p-value)	51.62	(0.000)		19.77	(0.000)		8.51	(0.000)	
Overidetification test									
chi-sq(2) test statistic (p-value)	1.414	(0.2344)		0.062	(0.8027)		1.042	(0.3073)	
Endogeneity test (p-value)									
chi-sq(2) test statistic (p-value)	4.797	(0.0285)		52.571	(0.0000)		0.355	(0.5513)	
No. of obs.	635			596			596		

Summary
Estimation Results for Ethnic Violent Conflicts

- Ethnic and religious violent conflicts have negative impact on gross value added per worker and capital labor ratio of manufacturing sector.
- Although it is tentative, we do not find the evidence that other types of violent conflicts affect the economic performance of manufacturing sector.

Relation of the number of violent conflicts nested in a larger conflict to economic performance of manufacturing sector: two-stage least squares estimation results

Panel B: Second Stage

	(1)		(2)		(3)	
	ln gross value added per worker		ln capital labor ratio		ln total factor productivity	
ln the sum of the number of violent conflicts nested in a larger conflict per person for the last three years	−0.065	(0.026) ***	−0.194	(0.038) ***	0.008	(0.005)
ln energy generated per population	0.087	(0.045) *	−0.126	(0.033) ***	0.037	(0.015) **
ln surfaced road length per population	0.034	(0.064)	0.177	(0.101) *	−0.066	(0.020) ***
ln disputes per worker	−0.003	(0.016)	0.026	(0.020)	−0.011	(0.007) *
ln literacy rate	0.561	(0.186) ***	0.404	(0.279)	−0.012	(0.053)
R^2	0.718		0.4292		0.281	
F Statistics (p-value)	49.54	(0.000)	22.82	(0.000)	8.22	(0.000)
Overidetification test						
chi-sq(2) test statistic (p-value)	0.312	(0.5766)	1.424	(0.2327)	0.53	(0.4668)
Endogeneity test (p-value)						
chi-sq(2) test statistic (p-value)	5.018	(0.0251)	47.439	(0.0000)	0.923	(0.3367)
No. of obs.	635		596		596	

Relation of the number of deaths in violent conflicts nested in a larger conflict to economic performance of manufacturing sector: two-stage least squares estimation results

Panel B: Second Stage									
	(1)			(2)			(3)		
	ln gross value added per worker			ln capital labor ratio			ln total factor productivity		
ln the sum of the number of deaths in violent conflicts nested in a larger conflict per person for the last two years	−0.041	(0.016)	***	−0.120	(0.024)	***	0.005	(0.003)	
ln energy generated per population	0.087	(0.045)	**	−0.131	(0.033)	***	0.038	(0.015)	**
ln surfaced road length per population	0.006	(0.062)		0.097	(0.096)		−0.063	(0.020)	***
ln disputes per worker	−0.002	(0.016)		0.030	(0.019)		−0.011	(0.007)	*
ln literacy rate	0.578	(0.187)	***	0.462	(0.273)	*	−0.015	(0.054)	
R^2	0.713			0.416			0.275		
F Statistics (p-value)	49.05	(0.000)		23.3	(0.000)		8.11	(0.000)	
Overidetification test									
chi-sq(2) test statistic (p-value)	0.212	(0.6451)		2.006	(0.1567)		0.481	(0.4879)	
Endogeneity test (p-value)									
chi-sq(2) test statistic (p-value)	5.349	(0.0207)		45.919	(0.0000)		1.296	(0.2550)	
No. of obs.	635			596			596		

Relation of the number of participants in violent conflicts nested in a larger conflict to economic performance of manufacturing sector: two-stage least squares estimation results

Panel B: Second Stage									
	(1)			(2)			(3)		
	ln gross value added per worker			ln capital labor ratio			ln total factor productivity		
ln the sum of the number of participants in violent conflicts nested in a larger conflict per person for the last two years	−0.027	(0.011)	**	−0.081	(0.016)	***	0.003	(0.002)	
ln energy generated per population	0.087	(0.045)	*	−0.135	(0.034)	***	0.038	(0.015)	**
ln surfaced road length per population	0.031	(0.064)		0.185	(0.104)	*	−0.066	(0.020)	***
ln disputes per worker	−0.003	(0.016)		0.027	(0.020)		−0.011	(0.007)	*
ln literacy rate	0.526	(0.184)	***	0.329	(0.283)		−0.008	(0.051)	
R^2	0.710			0.372			0.278		
F Statistics (p-value)	48.23	(0.000)		20.99	(0.000)		8.24	(0.000)	
Overidetification test									
chi-sq(2) test statistic (p-value)	0.486	(0.4858)		0.743	(0.3886)		0.63	(0.4273)	
Endogeneity test (p-value)									
chi-sq(2) test statistic (p-value)	5.245	(0.0220)		49.371	(0.0000)		1.07	(0.3010)	
No. of obs.	635			596			596		

Summary
Estimation Results for Violent Conflicts Nested in a Larger Conflict

- Violent conflicts nested in a larger conflict have been shown to affect negatively gross value added per worker and capital labor ratio of manufacturing sector, while discrete violent conflicts do not.
- Among nested violent conflicts, those nested in a mega conflict have larger negative impact than those nested in a meta conflict.

Conclusion

- Our estimation results found the evidence in support of our hypotheses.
- Violent conflicts measured by the number of incidents, the number of deaths, and the number of participants all reduce gross value added per worker and capital labor ratio of manufacturing sector, but not total factor productivity.

Conclusion

- Ethnic and religious violent conflicts exert negative impact on the economic performance of manufacturing sector, while the other three types of violent conflicts (i.e., political, economic, and caste) do not.
- Violent conflicts nested in a large violent conflict exerts statistically significant adversary effects but discrete violent conflicts do not.

Thank you for your attention.

Comments are highly welcome!

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