Reproducible Research Final Project

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Synopsis

This report estabilished for comparison between all events in USA that causes human and Economic resources damages. The simulation resaults shows high health and Econonmic damage rate in events like Tornado, Flash Floods and TSTM winds.

Data

This project involves exploring the U.S. National Oceanic and Atmospheric Administration's (NOAA) storm database than could be downloaded from here: https://d396qusza40orc.cloudfront.net/repdata%2Fdata%2FStormData.csv.bz2

Here you will find how some of the variables are constructed/defined

National Weather Service Storm Data Documentation

https://d396qusza40orc.cloudfront.net/repdata%2Fpeer2_doc%2Fpd01016005curr.pdf

National Climatic Data Center Storm Events

https://d396qusza40orc.cloudfront.net/repdata%2Fpeer2_doc%2FNCDC%20Storm%20Events-FAQ%20Page.pdf

Simulation Results

With respect to population health data base could be separated via specific Events, also the Date variable could be repaired to be used in future analysis as bellow:

```
set.seed(123)
newd<-gsub(" ","",as.character(StormData$BGN_DATE))
newd<-gsub("0:00:00","",newd)
newd<-as.Date(newd,format='%m/%d/%Y')
StormData$BGN_DATE<-(factor(newd))
colnames(StormData)<-gsub("EVTYPE","Type.of.Events",as.character(colnames(StormData)))
DataSample<-tbl_df(StormData)
By_EVTYPE<-group_by(DataSample,Type.of.Events)
```

There are a lot of events that causes critical health effects thata we refer to top 20 Events as bellow:

% latex table generated in R 3.2.0 by xtable 1.7-3 package % Mon May 25 15:48:05 2015

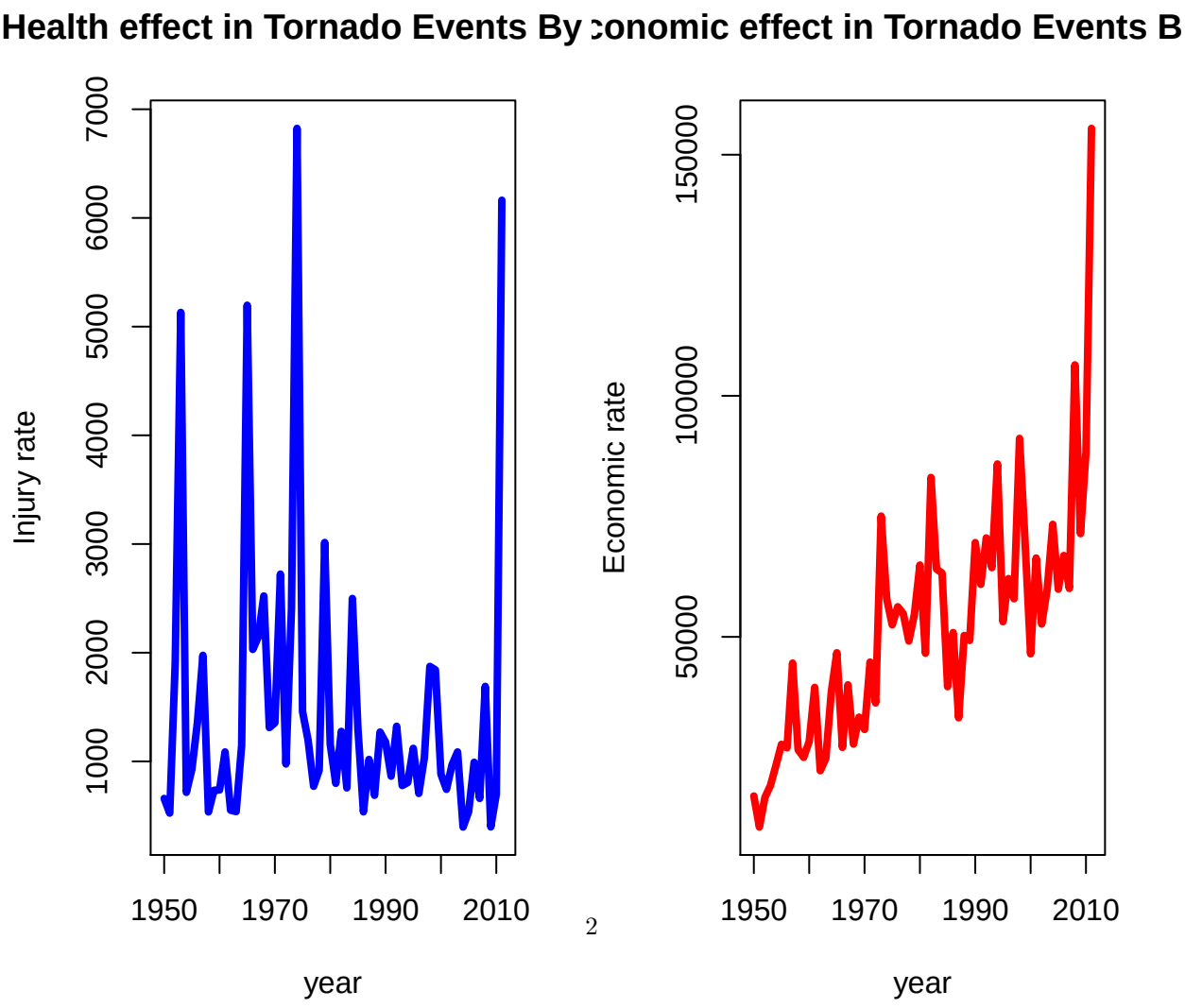
The Economic effects of Events sorted via PROPDMG in NOAA lists of variables that shows high impact of Tornado on Economic indexes.

% latex table generated in R 3.2.0 by xtable 1.7-3 package % Mon May 25 15:48:06 2015

Highest impact on Economic and people health demonstrated by Events like Tornado and TSTM winds:

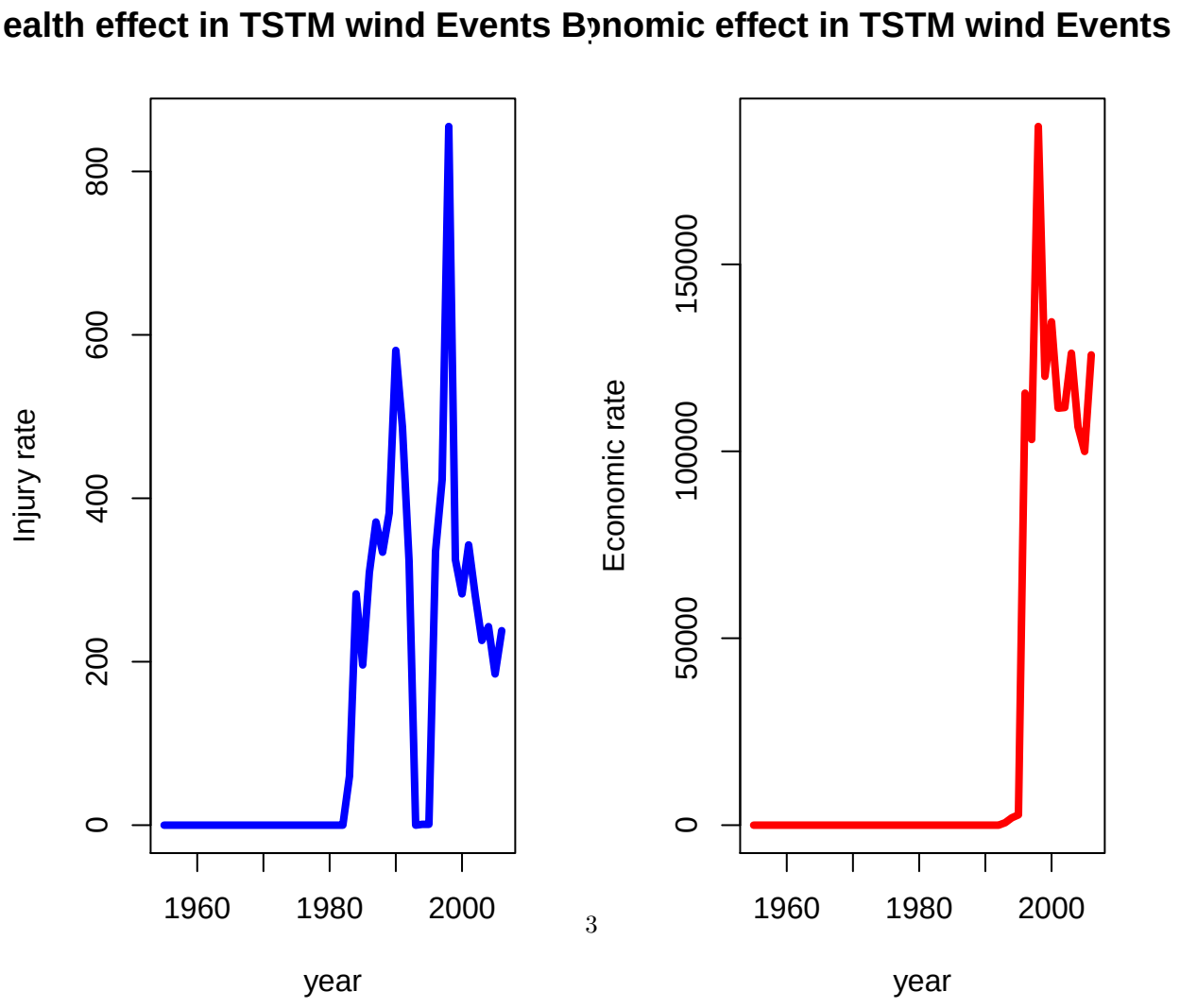
	Type.of.Events	Total.Economic.Injureis
1	TORNADO	91346
2	TSTM WIND	6957
3	FLOOD	6789
4	EXCESSIVE HEAT	6525
5	LIGHTNING	5230
6	HEAT	2100
7	ICE STORM	1975
8	FLASH FLOOD	1777
9	THUNDERSTORM WIND	1488
10	HAIL	1361
11	WINTER STORM	1321
12	HURRICANE/TYPHOON	1275
13	HIGH WIND	1137
14	HEAVY SNOW	1021
15	WILDFIRE	911
16	THUNDERSTORM WINDS	908
17	BLIZZARD	805
18	FOG	734
19	WILD/FOREST FIRE	545
20	others	6323

Table 1: Top 20 Most injuries by events



	Type.of.Events	Total.Economic.Damage
1	TORNADO	3212258.16
2	FLASH FLOOD	1420124.59
3	TSTM WIND	1335965.61
4	FLOOD	899938.48
5	THUNDERSTORM WIND	876844.17
6	HAIL	688693.38
7	LIGHTNING	603351.78
8	THUNDERSTORM WINDS	446293.18
9	HIGH WIND	324731.56
10	WINTER STORM	132720.59
11	HEAVY SNOW	122251.99
12	WILDFIRE	84459.34
13	ICE STORM	66000.67
14	STRONG WIND	62993.81
15	HIGH WINDS	55625
16	HEAVY RAIN	50842.14
17	TROPICAL STORM	48423.68
18	WILD/FOREST FIRE	39344.95
19	FLASH FLOODING	28497.15
20	others	385139.78

Table 2: Top 20 Economic Damaged events



Finally all events could be interpreted as one figure that shows the relationship between Economic Injury effects by type of events: