Study of Terror Attacks in India from 1972 to 2019

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1. Problem Statement

1.1 What is Terrorism ?

A terrorist attack as the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation.

1.2 About Study

For this study we used Global Terrorism Database, our Purpose is to understand the information that we have on Terrorist attacks in India from 1972 to 2019. We are going to focus on date, weapons used, targets, type of attack. casualties happend. state/union territory where the attack happened.

We used various resources to gather information about database such as Global Terrorism Database codebook [2], to know more about features used to collect data as well as what type of attacks are classified as a terrorist attack. We also refered, Niti Ayog's Decoding The Global Terrorism Index [3] to understand about Database. For verification of State/UT names we refered The Constitution of India [4].

As our most focused on understanding of data we have used python as our language with Jupyter Notebook as interface. We used Matplotlib [5] & Seaborn [6] as our data visualization libraries. We also tried to construct an animation demonstrating the number of Terror Attacks per State/UT per Year on Indian Map, for this we took help from an article named, Create COVID-19 Map Animation with Python in 5 Minutes [7].

2. About Dataset

Name:

        Global Terrorism Database

Number of Records:

        201183 (rows)

Number of Features:

        135 (colunms)

Features used for this study:

- iyear:
  - This field contains the year in which the incident occurred.
- imonth:
  - This field contains the number of the month in which the incident occurred.
- iday:
  - This field contains the numeric day of the month on which the incident occurred.
- country_txt:
  - This field identifies the country or location where the incident occurred.
- Provstate:
  - This variable records the name (at the time of event) of the 1st order subnational administrative region in which the event occurs.
- attacktype1_txt:
  - This field captures the general method of attack and often reflects the broad class of tactics used.
- targtype1_txt:
  - The target/victim type field captures the general type of target/victim.
- weaptype1_txt:
  - This field records the general type of weapon used in the incident.
- Nwound:
  - This field records the number of confirmed non-fatal injuries to both perpetrators and victims.
- Nkill:
  - This field stores the number of total confirmed fatalities for the incident. The number includes all victims and attackers who died as a direct result of the incident.

Note:

- This data is True on the Time of Downloading Database at Saturday 05-June-2021 9:52am IST (Indian Standard Time).
- All information about 'Features used for this study' is taken from GTD Codebook [(click here to Download)](#)

3. Exploratory Data Analysis & Final Dataset

- We have too many(135) columns, we are not going to use each and every columns.
- After studying the GTD Codebook mentioned above, we choose some columns for our study, they are as follows
- Columns used for this study:
    - year,
    - month,
    - day,
    - country_txt (country name),
    - provstate (state names),
    - attacktype1_txt(Type of Attack),
    - targtype1_txt (type of target),
    - weaptype1_txt (type of weapon used),
    - nwound (injuries),
    - nkill (casualties)
- Our updated dataset now has **9 Features & 13477 Records**
- We have replaced State/UT names as mentioned in Constitution of India.

- We have,
    - State/UTs: 32 with 1 Unknown
    - Type_of_Attacks: 8 with 1 Unknown
    - Type_of_Targets: 19 with 1 Unknown & 1 Other
    - Type_of_Weapon: 8 with 1 Unknown & 1 Other

Note:

State & UT Name replacement & verification is done on the basis of, The Constitution of India, as on 9th December 2020, (FIRST SCHEDULE, I. The States, Page Number 179)
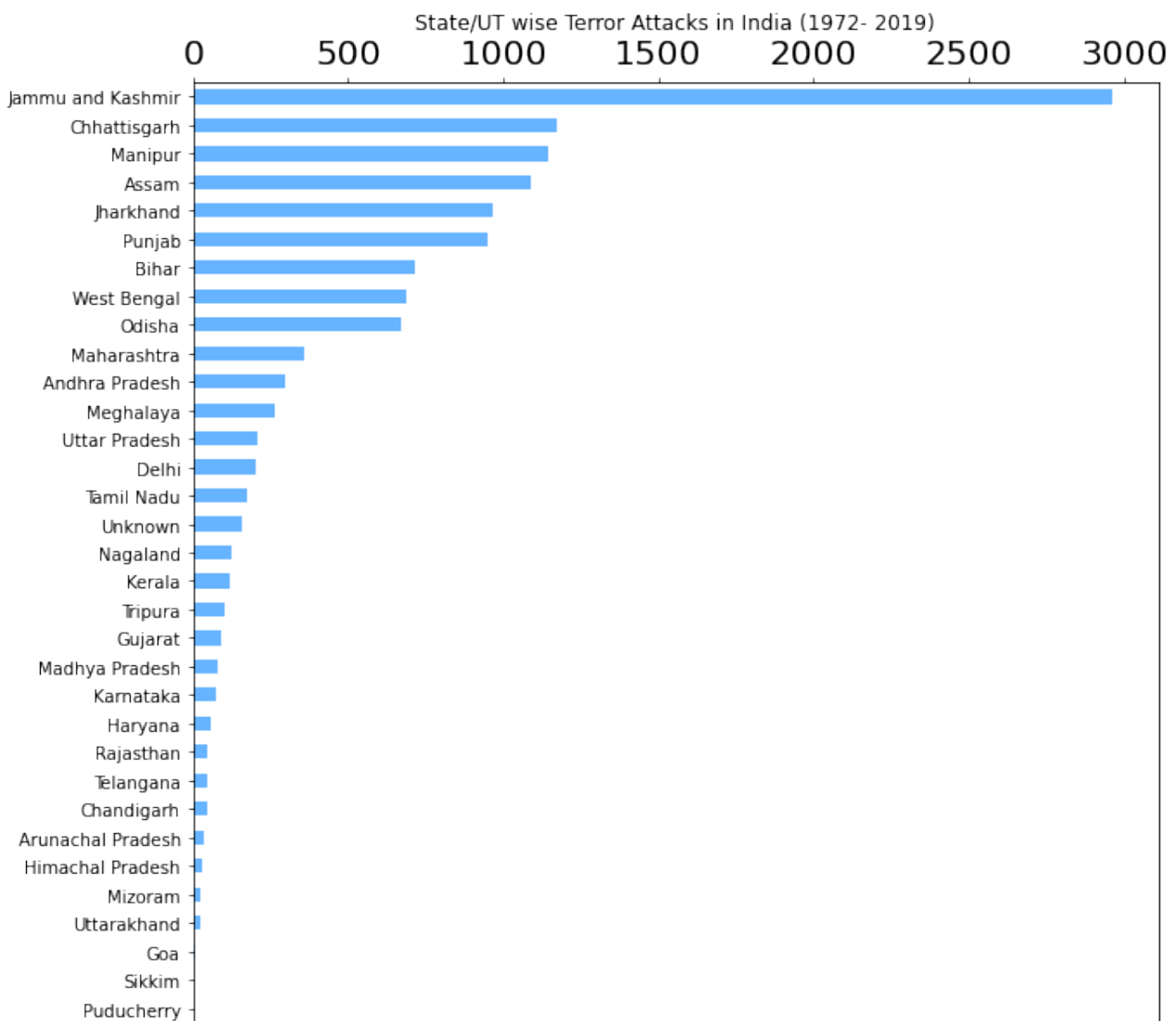Click Here to Download -> The Constitution of India

Note:

Jammu and Kashmir Reorganisation Act 2019, is in effect from 31st October 2019, According to,The Constitution of India, as on 9th December 2020,
(FIRST SCHEDULE, II. The Union Territories, Page Number 180)

All 22 Records from 1st November 2019 & onwards are assumed to be True from Global Terrorism Database
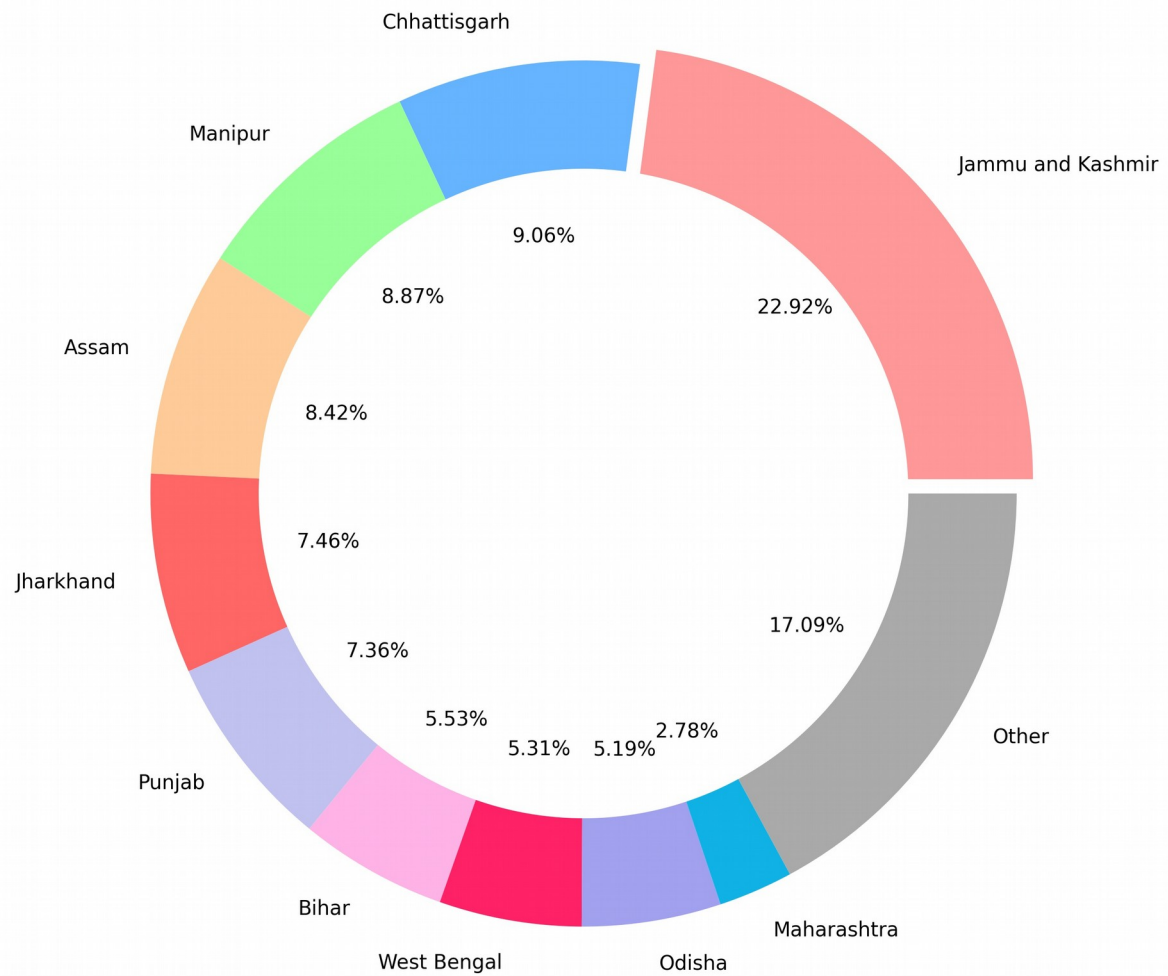Click Here to Download -> The Constitution of India

4. Observations

4.1 State/UT Terror Attacks in India from 1972 – 2019

State/UT wise Terror Attacks in India (1972- 2019)

State/UT	
Jammu and Kashmir	~3000
Chhattisgarh	~1200
Manipur	~1150
Assam	~1100
Jharkhand	~950
Punjab	~950
Bihar	~700
West Bengal	~680
Odisha	~650
Maharashtra	~350
Andhra Pradesh	~300
Meghalaya	~250
Uttar Pradesh	~200
Delhi	~200
Tamil Nadu	~170
Unknown	~150
Nagaland	~120
Kerala	~110
Tripura	~90
Gujarat	~80
Madhya Pradesh	~60
Karnataka	~60
Haryana	~40
Rajasthan	~30
Telangana	~30
Chandigarh	~30
Arunachal Pradesh	~20
Himachal Pradesh	~15
Mizoram	~10
Uttarakhand	~10
Goa	
Sikkim	
Puducherry	

Observation:
- Jammu and Kashmir faced most number (nearly 3000) of Terror Attacks.
- Top 5 most affected State/Uts in India by number of Terror Attcaks,
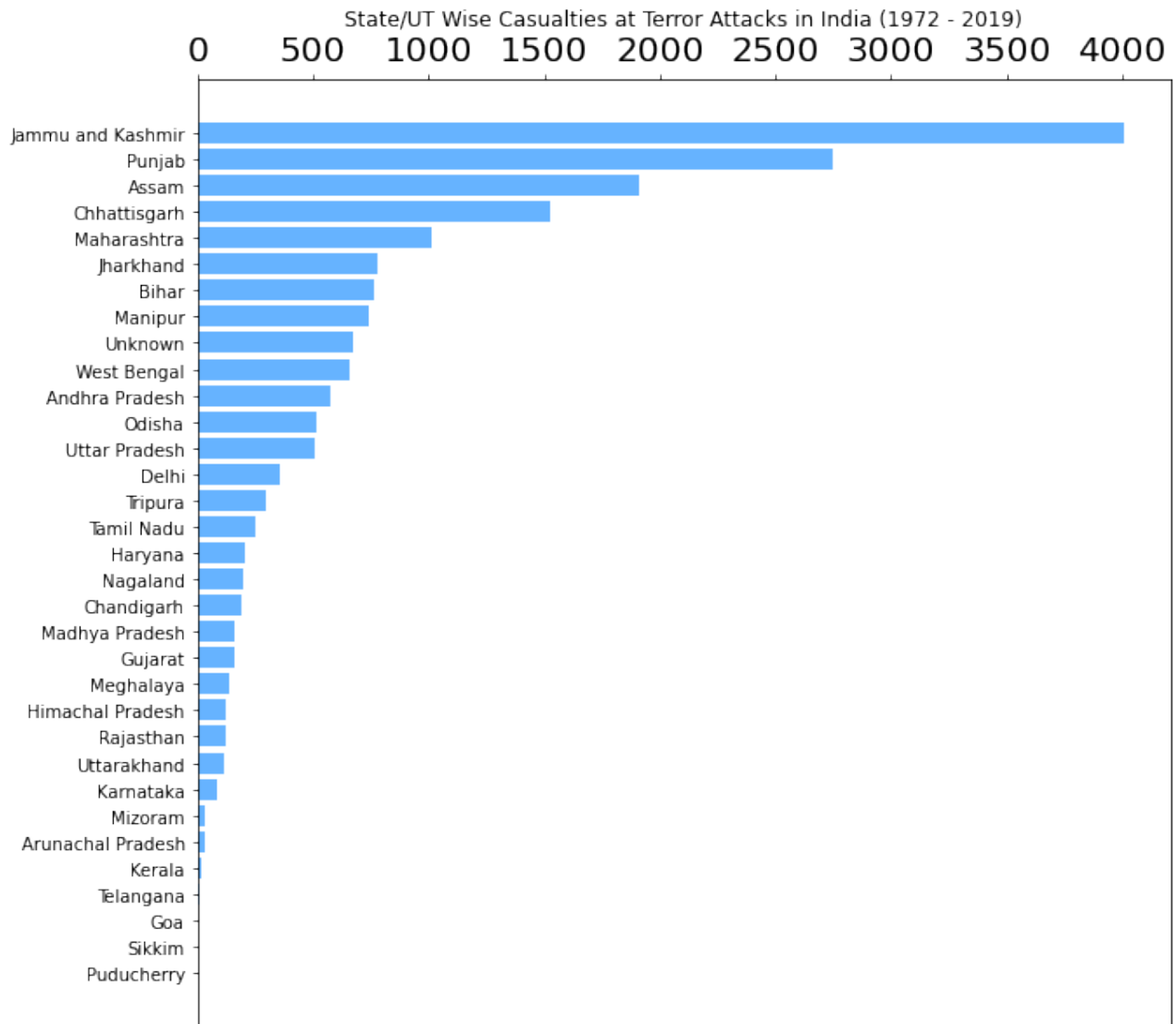 *Jammu and Kashmir, Chhattisgarh, Manipur, Assam, Jharkhand*

State/UT wise Terror Attacks in India (1972 - 2019)

Chhattisgarh — 9.06%
Manipur — 8.87%
Assam — 8.42%
Jharkhand — 7.46%
Punjab — 7.36%
Bihar — 5.53%
West Bengal — 5.31%
Odisha — 5.19%
Maharashtra — 2.78%
Other — 17.09%
Jammu and Kashmir — 22.92%

Observation:
- Top 4 States Jammu and Kashmir, Chhattisgarh, Manipur, Assam, have faced nearly 50% (22.92 + 9.06 + 8.87 + 8.42 = 49.27) Terror attacks happend in India.
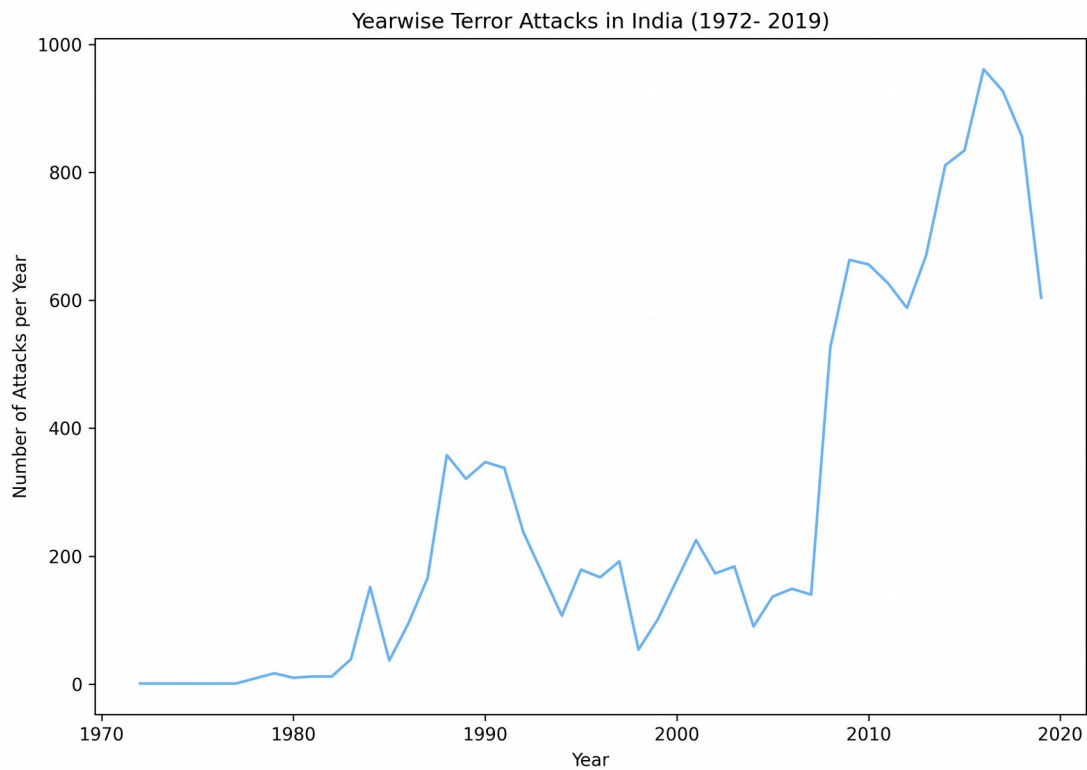
4.2 Which States/UTs had more Casualties over the Time

State/UT Wise Casualties at Terror Attacks in India (1972 - 2019)

Observation:
   • Jammu and Kashmir faced nearly 4000 casulaties from 1972 to 2019
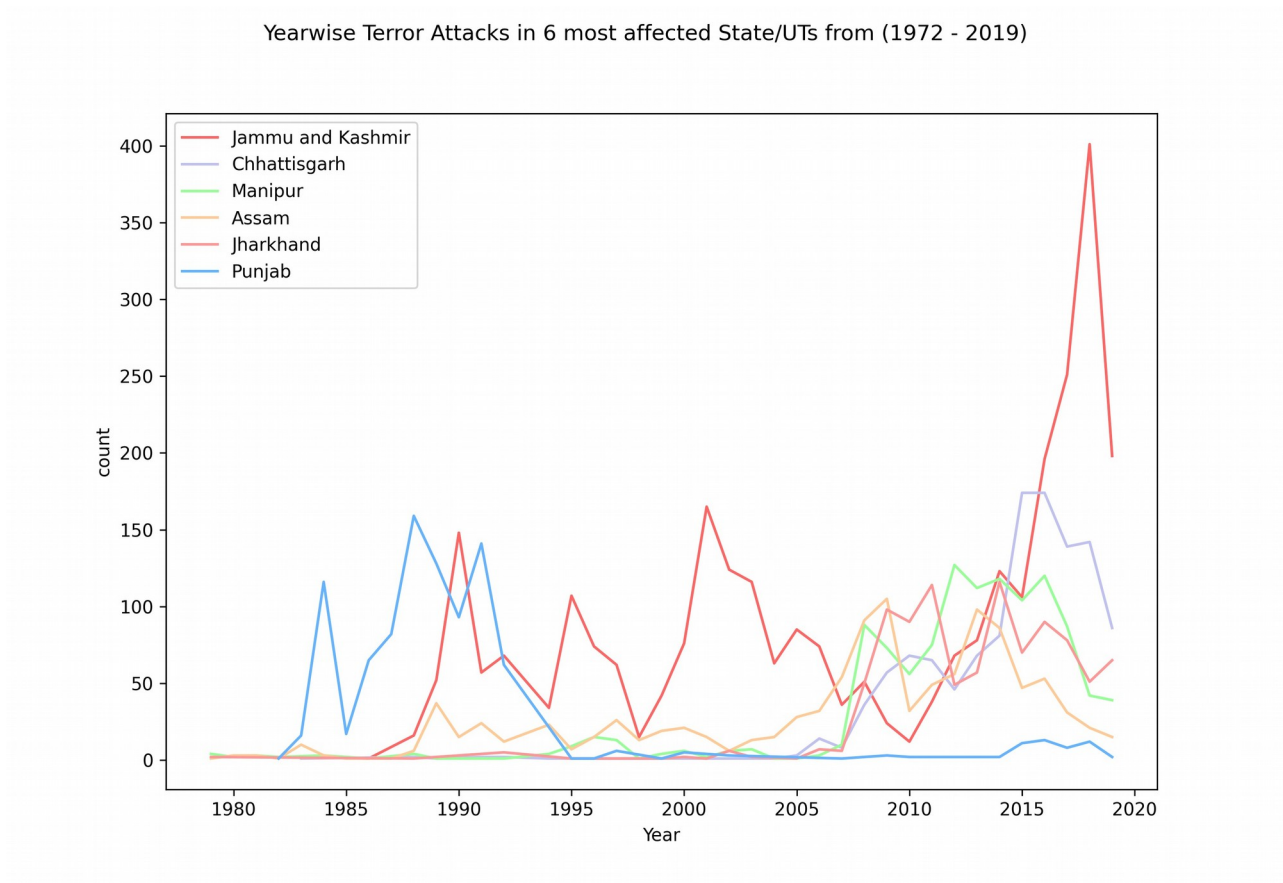
4.3 Yearwise Terror Attacks in India (1972- 2019)

Yearwise Terror Attacks in India (1972- 2019)

Observation:
- India has seen increase in terror attacks from 1985 with a drop after 1900.
- After 2008 India has witnessed 400 terror attacks within 2 years (from 2008 to 2010).
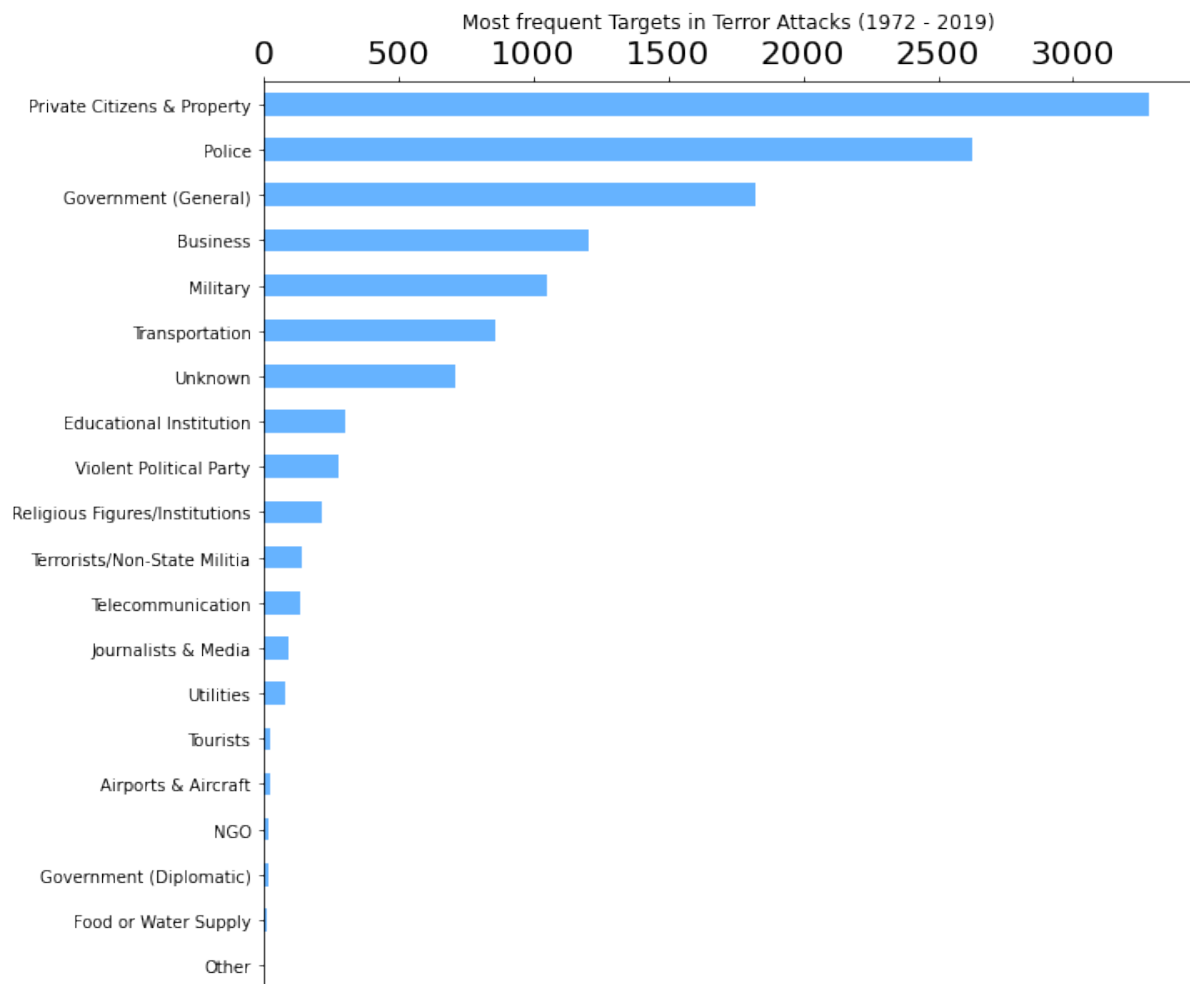- After nealy 2015 we can clearly see a major drop in Terror Attacks.

4.4 Yearwise Terror Attacks in Top 6 Most affected State/Uts

Yearwise Terror Attacks in 6 most affected State/UTs from (1972 - 2019)

Observation:
- Jammu and Kashmir has rise in Terror Attacks by 400 within 20 Years (from 2010 to 2020)
- Chhattisgarh, Manipur, Jharkhand also faced rise in number of Terror Attacks by year after 2005.
- Number of Terror attacks in Punjab are decreased by year 1995 till 2015, after 2015 numbers are slighly increased.
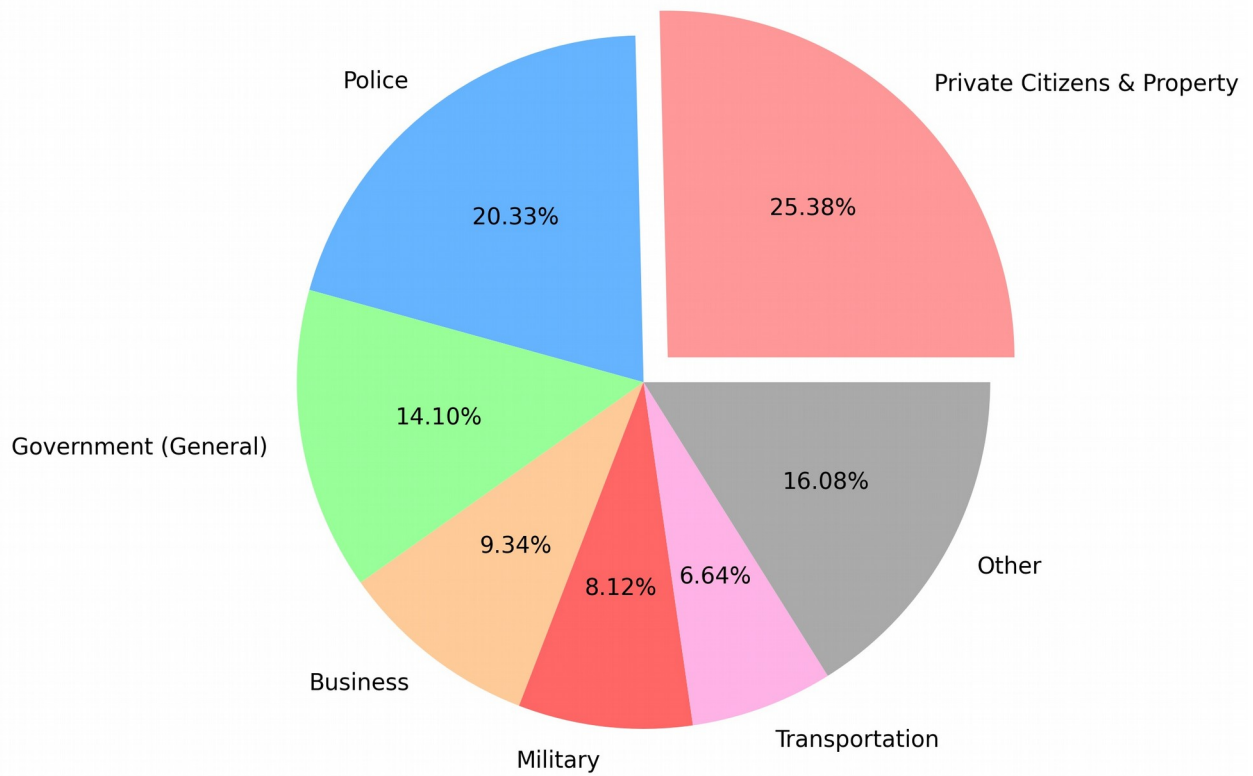- In Manipur, Assam & Jharkhand Number of Attacks were decresed after 2015.

4.5 Which are the Most frequent Targets in Terror Attacks (1972 – 2019)

Most frequent Targets in Terror Attacks (1972 - 2019)

Observation:
- Citizens & Private Property, Police, Government (General), Business were mostly targeted over the year.
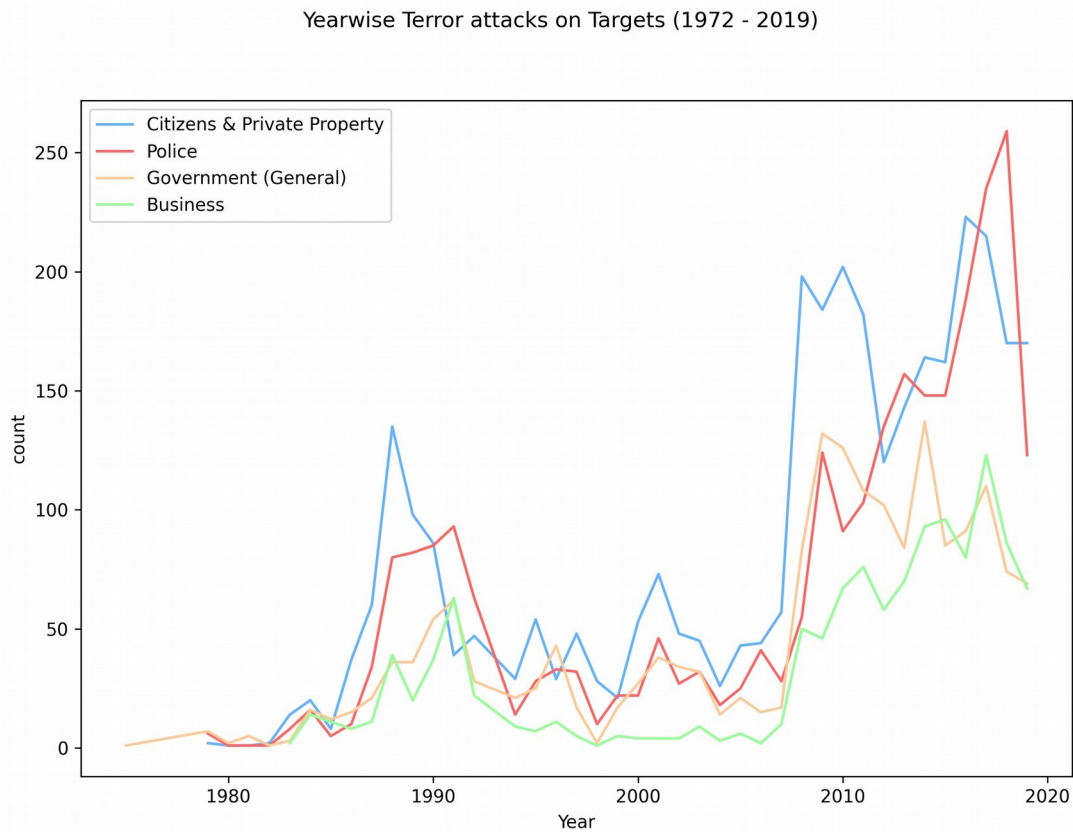
Most frequent Targets in Terror Attacks (1972 - 2019)

Observation:
- Citizens & Private Property, Police, Government (General) were targeted more than 50% of the time.
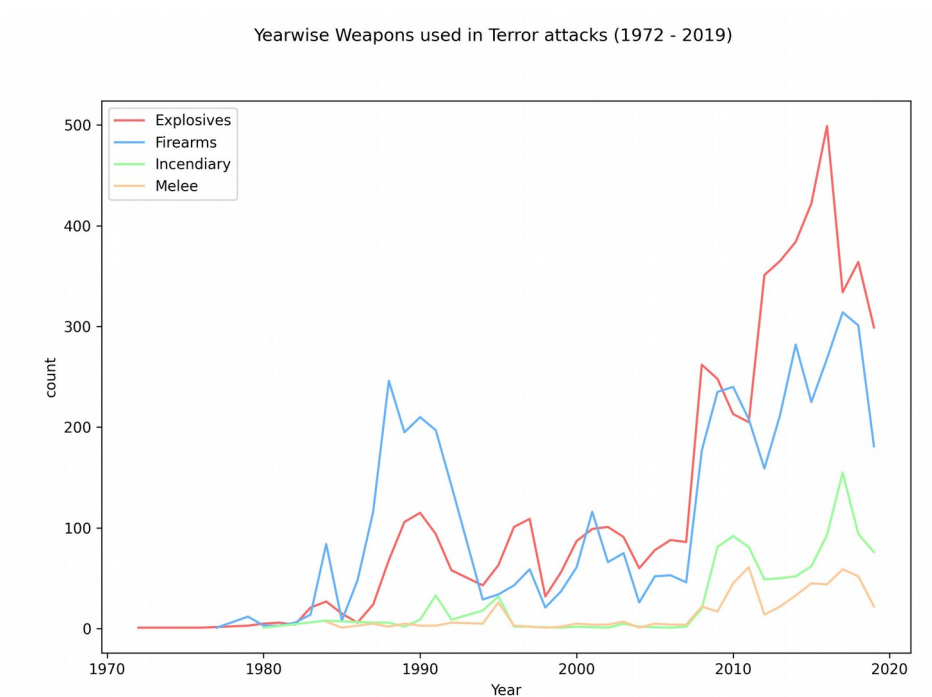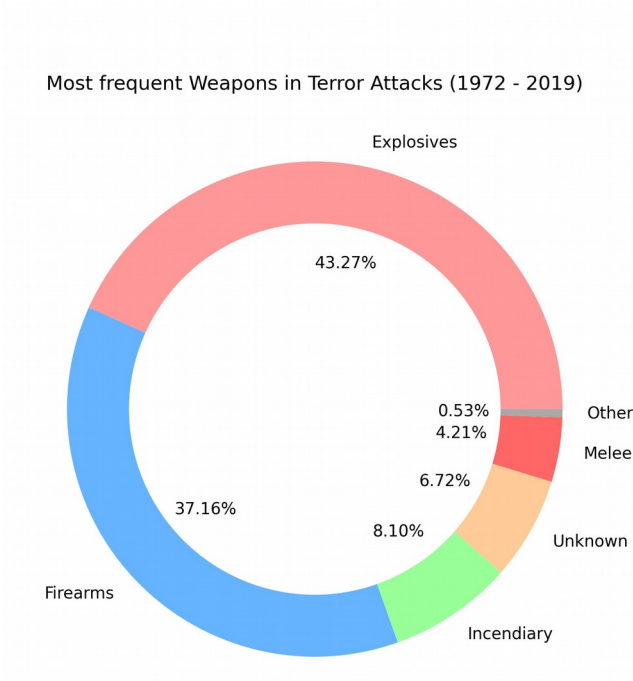
4.6 Yearwise Terror attacks on Targets (1972 – 2019)

Yearwise Terror attacks on Targets (1972 - 2019)

Observations:
- From 1985 to 1990 mostly Citizens & Private Property, Police were Targeted.
- After 2005 we can clearly see rise in number of attacks on every target, specifically Citizens & Private Property, Police.

4.7 Most frequent Weapons in Terror Attacks (1972 – 2019)

Most frequent Weapons in Terror Attacks (1972 - 2019)

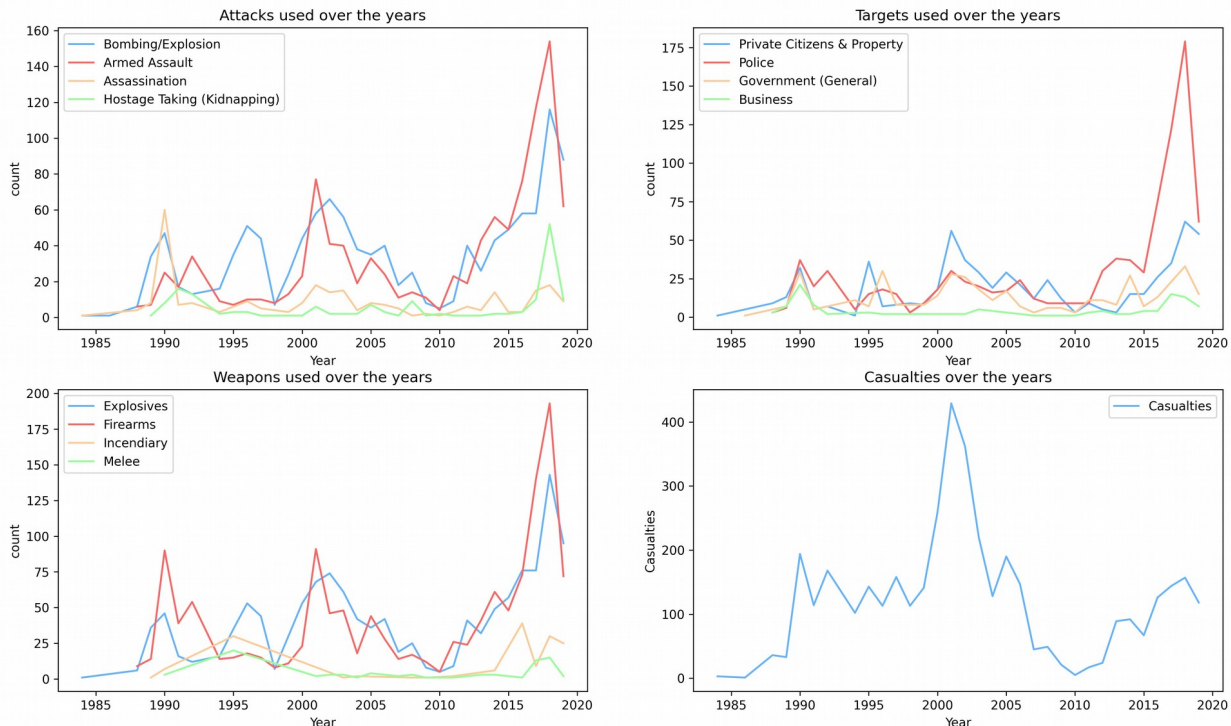Yearwise Weapons used in Terror attacks (1972 - 2019)

Observation:
- Explosives & Firearms were used more than 75% of the time.
- In the decade of 1985 to 1995 Firearms were mostly used for attacks than Explosives or any other weapon
- After 2010 use of Explosives were most common as a weapon for attack.
- Use of Melee, Incidiary was negligible in the decade of 1995 to 2005, which incresed after 2005.

4.8 Study of 4 most affected States
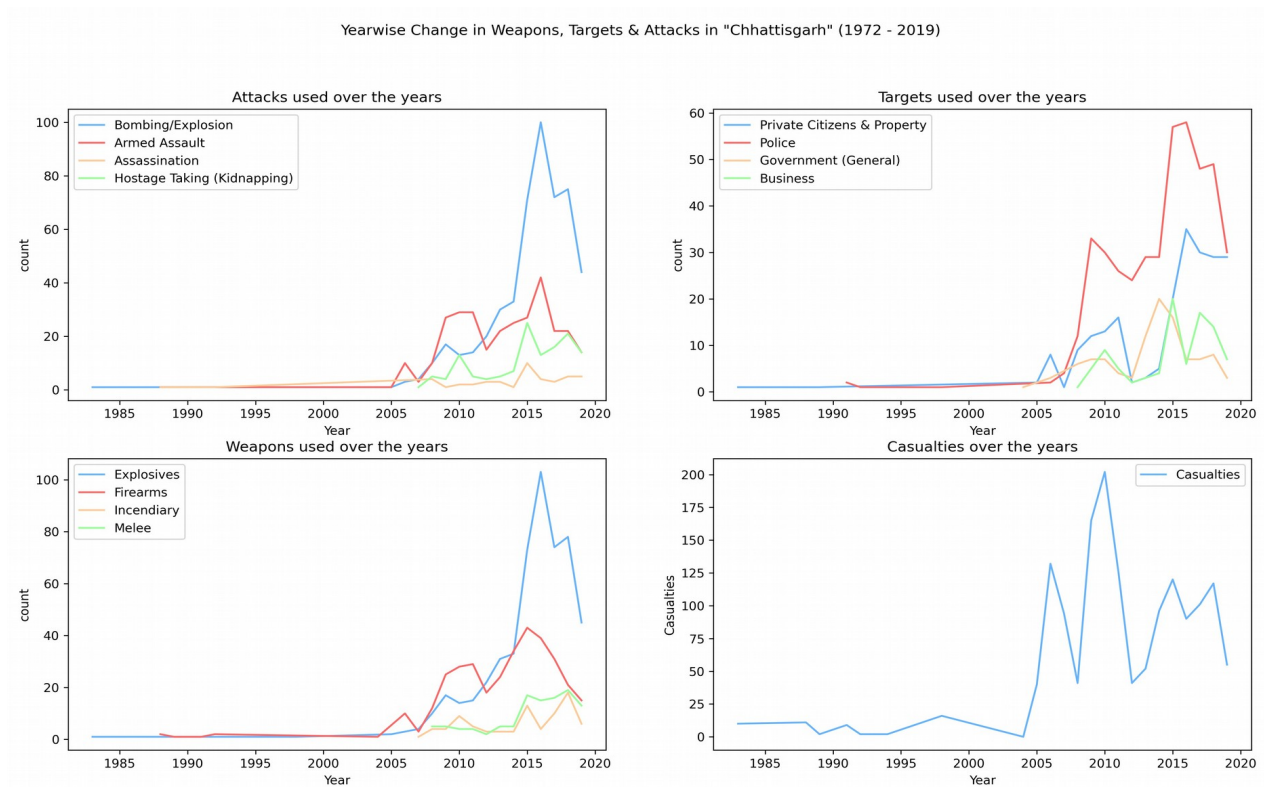
4.8.1 Jammu and Kashmir

Yearwise Change in Weapons, Targets & Attacks in "Jammu and Kashmir" (1972 - 2019)

Observations related to Jammu and Kashmir
- Type of Attacks
    ◦ There was rise in Assasinations in year 1990.
    ◦ Rise in Bombing/Explosions after 1995 till 2000.
    ◦ There was significant increase in Armed Assault, Bombing/Explosions after 2010.
    ◦ Hostage Taking (Kidnapping) was also increased after 2015 to 2019
- Type of Targets
    ◦ After 2015, Police were mostly targeted in Attacks.
    ◦ In 1995, between 2000 to 2005 Private property, Citizens were mostly targeted.
- Type of Weapons
    ◦ As there is a direct relationship between attack and weapon type, it can also be seen their graphs.
- Casualties
    ◦ Most number of casualties were happened between 2000 & 2005.
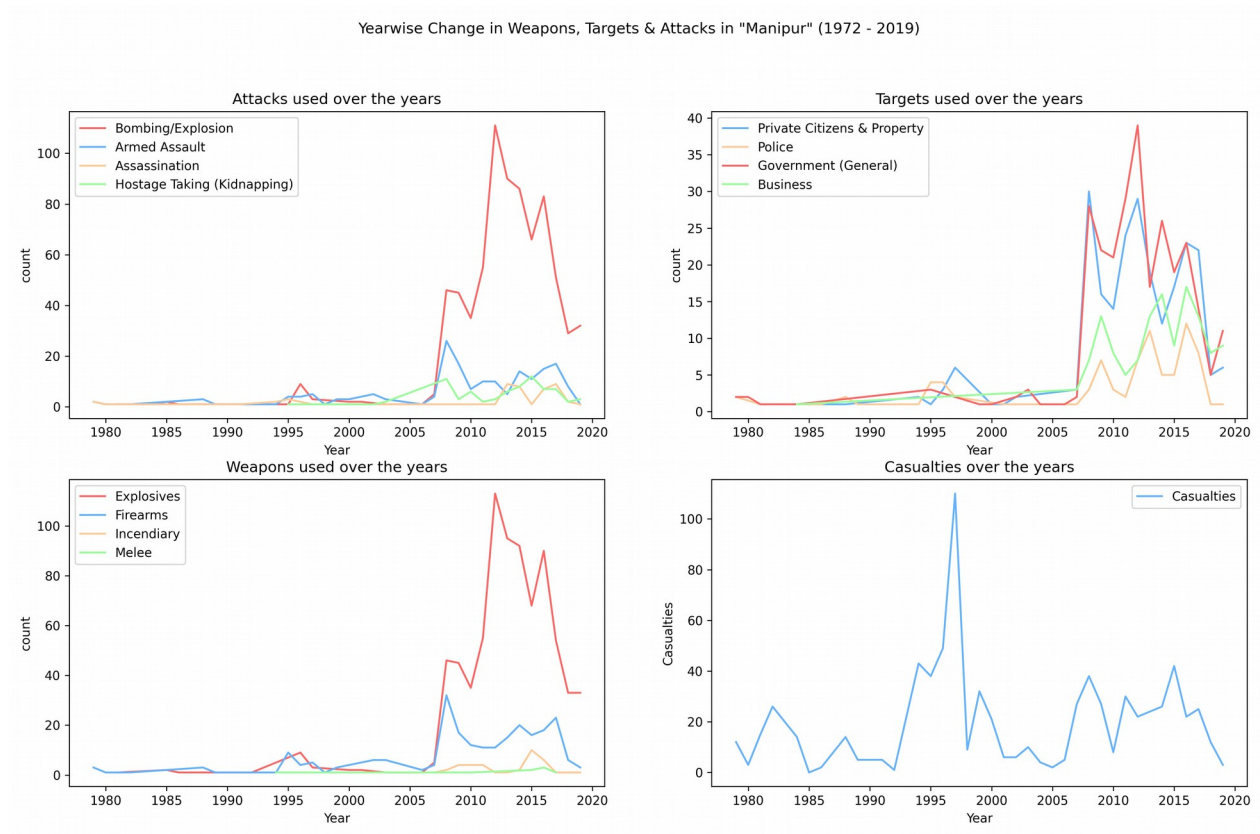   ◦ Although the number of attacks were increased after 2010, number of casualties were less than 2000 in a year.

4.8.2 Chhattisgarh

Yearwise Change in Weapons, Targets & Attacks in "Chhattisgarh" (1972 - 2019)

Observations related to Chhattisgarh
- Type of Attacks
  - Rise in attacks after 2005.
  - Bombing/Explosions are most commonly used.
- Type of Targets
  - Police were mostly targeted after 2005.
- Type of Weapons
  - As there is a direct relationship between attack and weapon type, it can also be seen their graphs.
- Casualties
  - Most number of casualties(200) were happened in year 2010.

4.8.3 Manipur

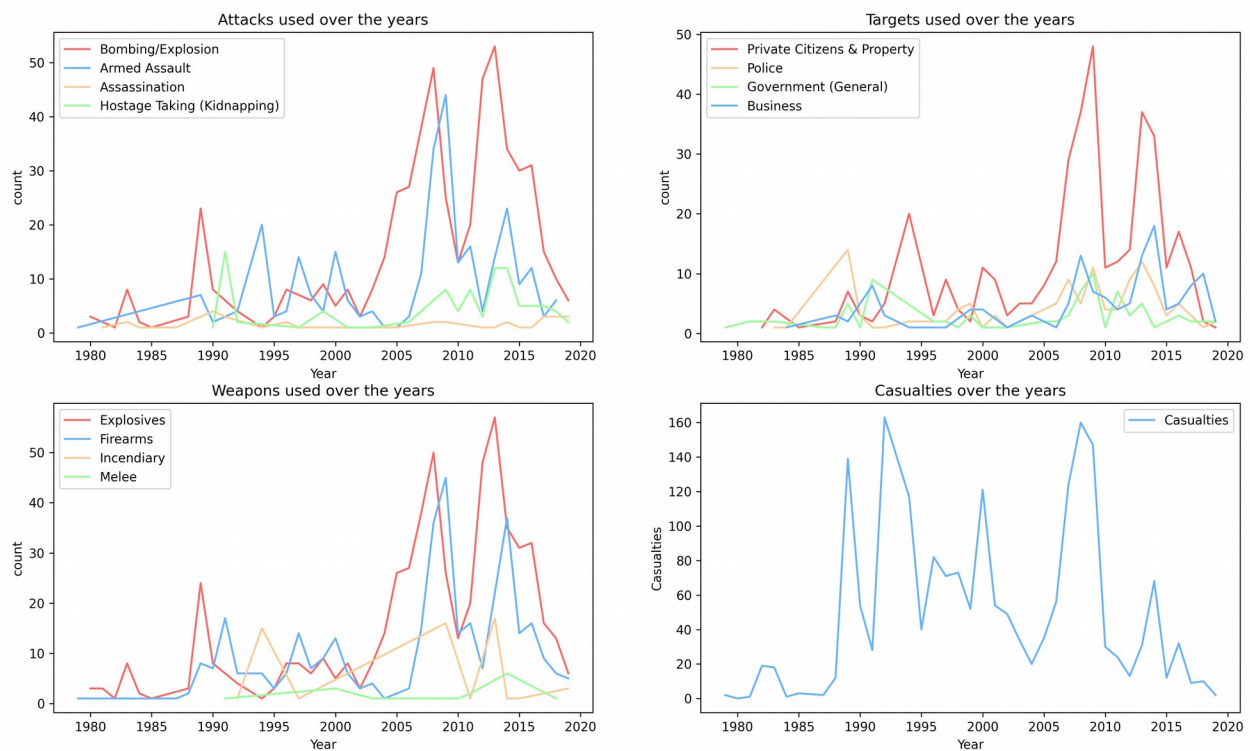Yearwise Change in Weapons, Targets & Attacks in "Manipur" (1972 - 2019)

Observations related to Manipur
- Type of Attacks
  - Bombing/Explosion is most common type of attack after 2005 in Manipur.
  - Steep rise in use of Bombing/Explosion can be seen after 2010.
- Type of Targets
  - Government (General) are most common targets in Manipur
  - In 1995 & 2000 Private Property & Citizens were mostly targeted.
- Type of Weapons
  - Use of Firearms and Explosives is increased after 2005.
- Casualties
  - Most number of Casualties were happened after 1995 & Before 2000.
  - Contradictory realtionship can be seen between casualties & attacks

4.8.4 Assam

Yearwise Change in Weapons, Targets & Attacks in "Assam" (1972 - 2019)

Observations related to Assam
- Type of Attacks
    - Major rise in Armes Assault between 2005 & 2010.
    - After 2000 significant increase in Bombing/Explosion.
- Type of Targets
    - Citizens & Private Property are major targets in Assam.
    - Police were the major targets between 1985 & 1990.
    - Significant increase in attacks on Business after 2005.
- Type of Weapons
    - Major increase in use of Explosions after 2000.
    - Increase in use of Firearms after 2005.
- Casualties
    - 4 major years where casualties exceeded over 100 per year.

Conclusion

- In this study we understood various factors related to Global Terrorism Database with respect to India.
- We draw valuable Observations from various Graphs, some of them are,
  - Top 5 most affected State/Uts in India by number of Terror Attcaks, *Jammu and Kashmir, Chhattisgarh, Manipur, Assam, Jharkhand.*
  - Top 4 States Jammu and Kashmir, Chhattisgarh, Manipur, Assam, have faced nearly 50% (22.92% + 9.06% + 8.87% + 8.42% = 49.27%) Terror attacks happend in India.
  - India has seen increase in terror attacks from 1985 with a drop after 1900.
  - After 2008 India has witnessed 400 terror attacks within 2 years (from 2008 to 2010).
  - After nealy 2015 we can clearly see a major drop in Terror Attacks.
  - Jammu and Kashmir has rise in Terror Attacks by 400 within 20 Years (from 2010 to 2020)
  - Chhattisgarh, Manipur, Jharkhand also faced rise in number of Terror Attacks by year after 2005.
  - Number of Terror attacks in Punjab are decreased by year 1995 till 2015, after 2015 numbers are slighly increased.
  - In Manipur, Assam & Jharkhand Number of Attacks were decresed after 2015.
  - Citizens & Private Property, Police, Government (General) were targeted more than 50% of the time.
  - After 2010 use of Explosives were most common as a weapon for attack.
- We can use this data in further analysis such as to find patterns in Terror Attacks if any, as if they are by any means related to any other phenomenons, like elections, migrants, political parties, some organisations, etc.
- By understanding the use of weapons in each attack we have to find out how this weapons of destructions are get into the hands of people inside India/States.

References

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