Project :

"An analytical overview of Indian Economy (using R and Python)"

Under the guidance of

Dr. Priya Ranjan Sinha Mahapatra

Associate Professor & HOD

Dept. of Computer Science & Engineering

University of Kalyani

Presented by :-

Jeet Das (**Roll no -** 90/MCA/160019)

- Features provided by this project :

  - (1) Basics of " Python " and " R " programming
  - (2) *" Data visualization "* using R and Python
  - (3) Basics of Economy (Spl. reference to *Indian Economy*)
  - (4) Prediction model using " *Linear regression "*
  - (5) Employment in different sectors in India
  - (6) Introduction to some mega projects in India

  and so on ……

✓ **Project Structure** :

- ✓ Section - A : Sector Growth
- ✓ Section – B : Employment Growth
- ✓ Section – C : Megaprojects in India
- ✓ Section – D : References

Section – A || Sector Growth :	
Block with title	**Programming language**
(A - 1) Introduction	----
(A - 2) GDP growth analysis	Python
(A - 3) Agriculture Sector (Primary sector)	Python
(A - 4) Industrial Sector (Secondary sector)	Python
(A - 5) Servicing Sector (Tertiary Sector)	----

(A – 1) Introduction :

❖ **Need of Economics :**

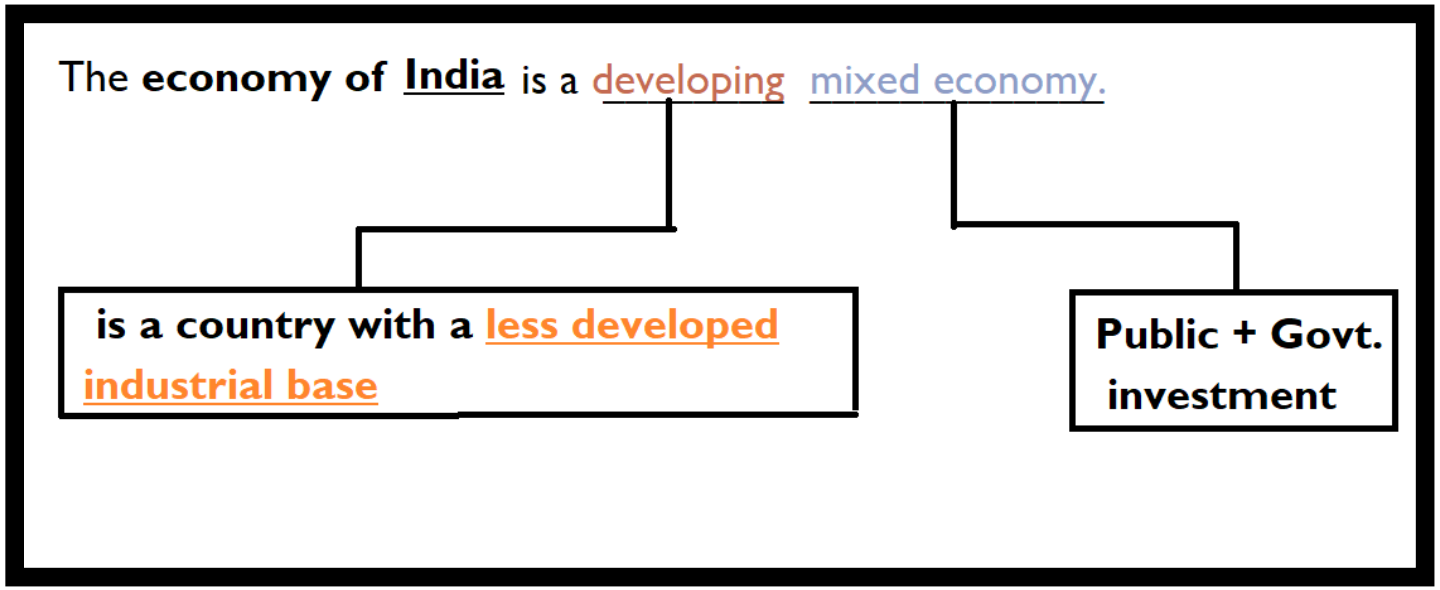
✓ Economics is the study of how societies use scarce resources to produce
valuable commodities and distribute them among different people.

✓ There are two key ideas in economics –
(i) that goods are scarce, and
(ii) that society must use its resources efficiently.

NB. Scarce resource = It is only available in small quantities

(A – 1) Introduction (continued) :

✓ Indian Economy :



✓ Type of sectors in Indian Economy :

- ❑ (1) Primary Sector
- ❑ (2) Secondary (or) Manufacturing (or) Industrial Sector
- ❑ (3) Tertiary Sector (or) Services Sector

(A - 2) GDP growth analysis :

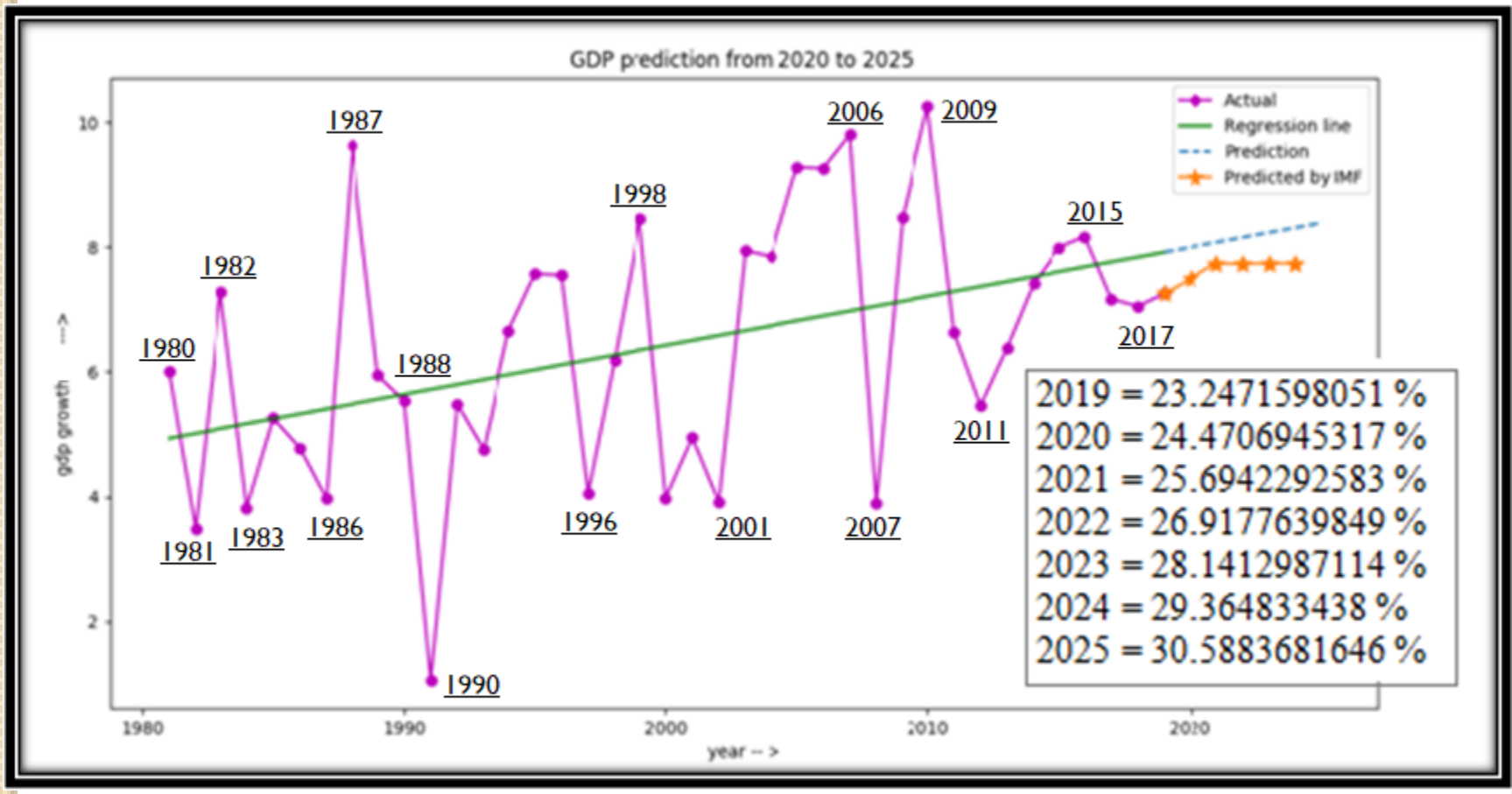
- ✓ (1) GDP = Gross Domestic Product

- 'gross' means same thing to economics and commerce as 'total' means to Mathematics .
- 'domestic' means all economic activities done inside the boundary of a nation/country and by its own capital.
- 'product' is used to define "goods and services" together ;

- ✓ (2) **Need of GDP** :
  - ❑ (2.1) It is a "quantitative" concept and its volume/size indicates the 'internal' strength of the economy.
  - ❑ (2.2) But it does not say anything about the 'qualitative' aspects of the produced goods and services.
  - ❑ (2.3)It is used by the IMF/WB in the comparative

(A - 2) GDP growth analysis (continued) :

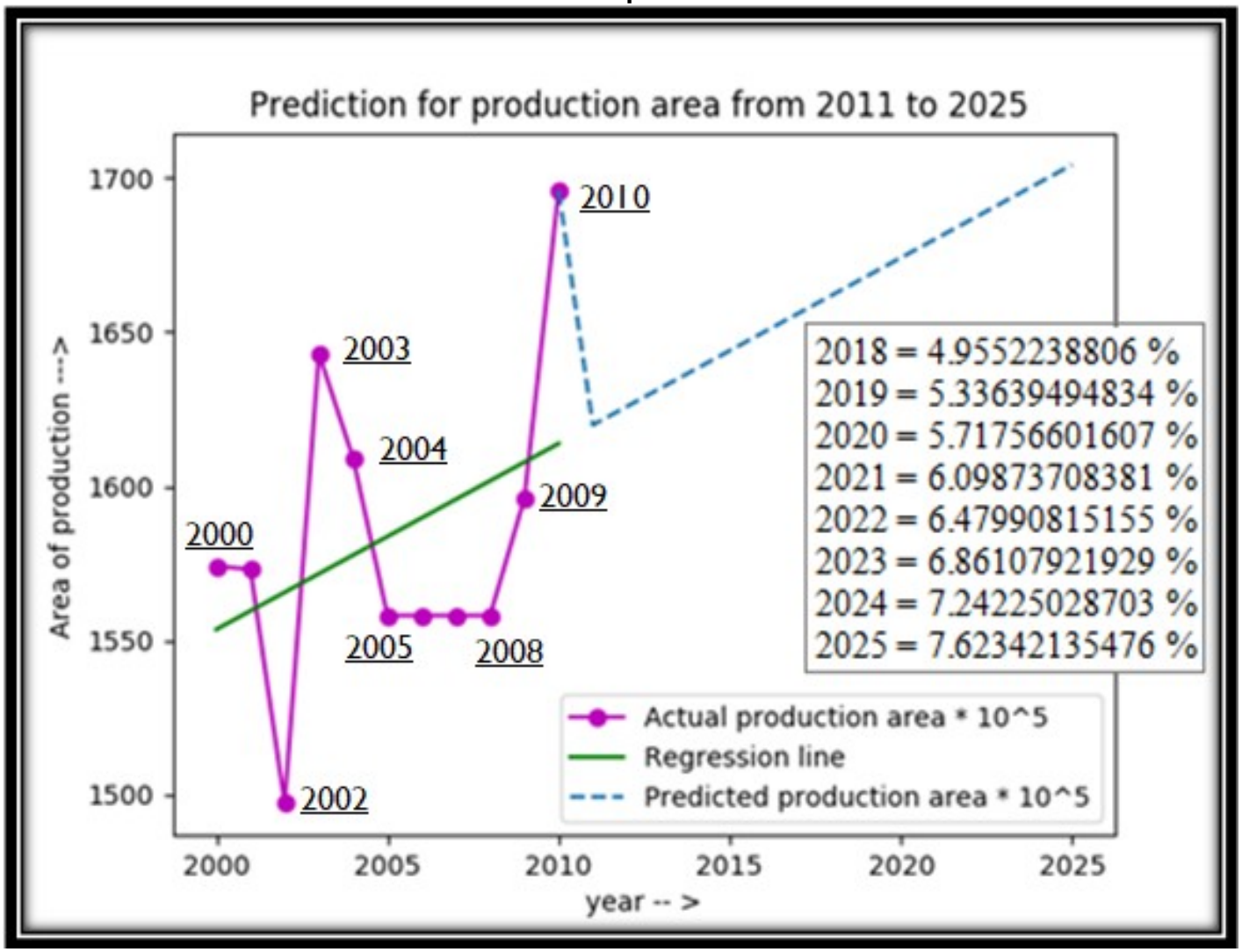
- ✓ **Indian GDP growth analysis (available data from IMF [International Monetary Fund]) as shown below with prediction r**



(A - 3) Agriculture Sector (Primary sector) :

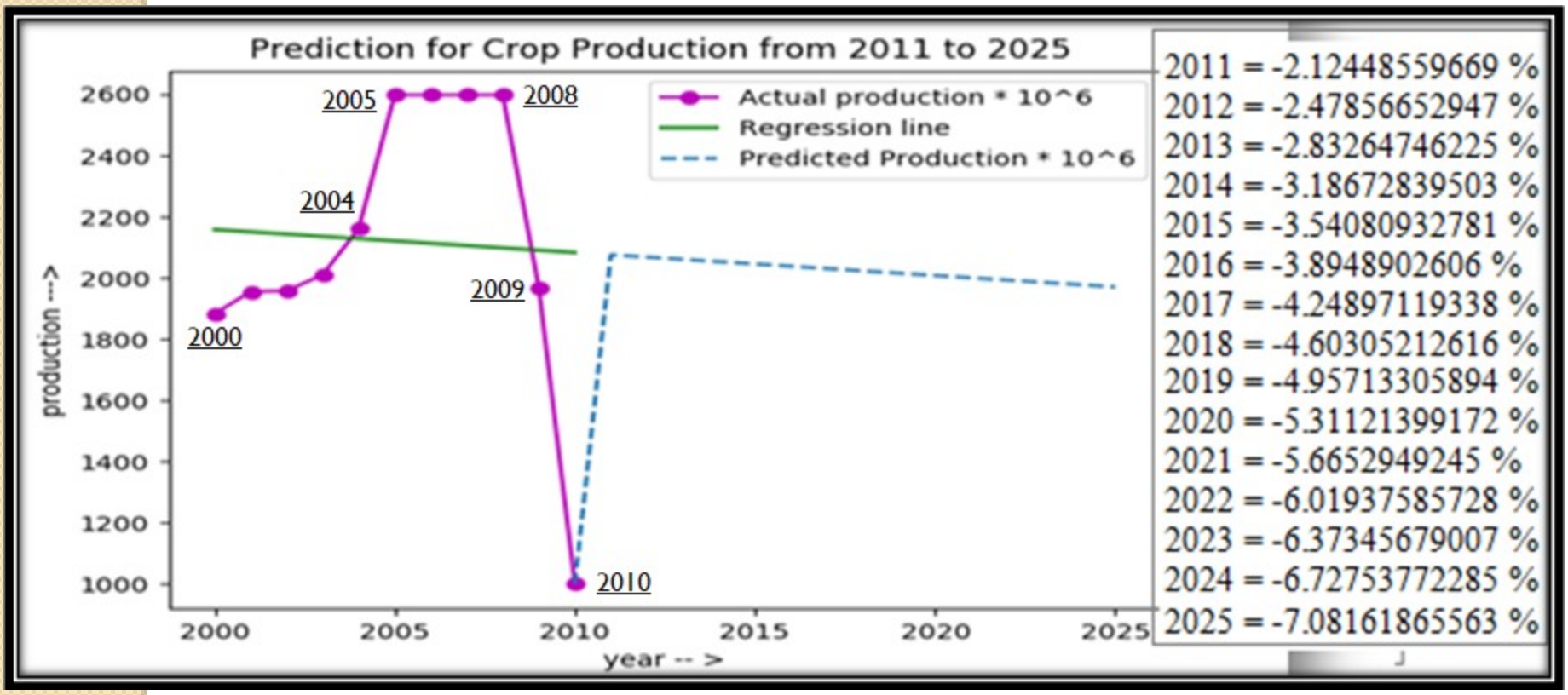
- There are two types of prediction model are as follows :

(A-3/1) Prediction for production area :



(A - 3) Agriculture Sector (Primary sector) (continued…….):

- ✓ (A-3/2) prediction for crop production :



(A- 4) Industrial Sector (Secondary Sector) analysis :

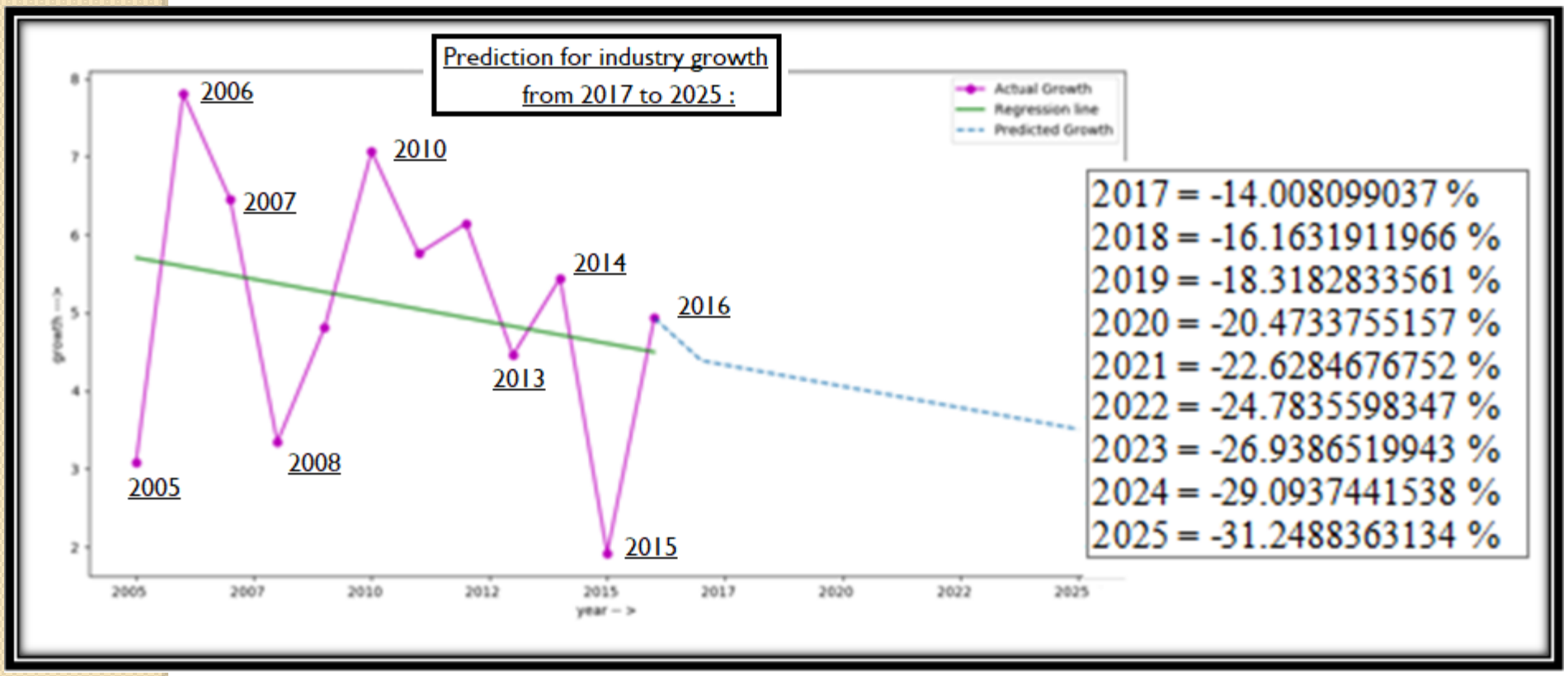
- **data analysis of eight core industry:**

It contains index, production and growth of Eight Core Industries. Eight Core Industries are –

- (1) Electricity ,
- (2) Steel,
- (3) Refinery products,
- (4) Crude oil,
- (5) Coal,
- (6) Cement,
- (7) Natural gas and
- (8) Fertilizers.

(A- 4) Industrial Sector (Secondary Sector) analysis :

continued ……



(A-5) Servicing Sector analysis (Tertiary Sector) :

The services sector has the largest share of India's GDP, accounting for 57% in 2 up from 15% in 1950.It is the seventh-largest services sector by nominal GDP, and third largest when purchasing power is taken into account.

There are different types of services sector are as follows :-

(1) Aviation :
- (1.1) Nationalization :
- (1.2) De-regulation :

(2) Banking and financial services
- (2.1) Organized sector,
- (2.2) Scheduled banks :
- (2.3) Unorganized sector

(3) Financial technology :
(4) Information technology :
(5) Insurance :
(6) Retail :
(7)Tourism :
(8) Media and Entertainment industry :
(9) Healthcare :
(10) Logistics :
(11) Printing :
(12) Telecommunications :

✓ Project structure :

Block with title	Programming language
Section – B || Employment Growth :	
(B - 1A) Introduction	-----
(B – 1) Employment in Bank (2001-2016)	R-programming
(B – 2) Employment in railway (2000-01 to 2014-15)	R-Programming
(B – 3) Employment in legal affairs (2008 to2016)	R-Programming
(B – 4) Employment growth per 1000	R-Programming
(B -- 5) Prediction model	Python
Section- C || Mega projects in India	
Section- D || References	

Section – B || Employment Growth:

(B - 1A) Introduction :

❑ (1) How does employment affect the economy?

- ✓ Employment and unemployment are the driving forces behind economic growth and stagnation.
- ✓ As a small business owner, you can affect your local economy by hiring additional workers as long as your hiring is in response to consumer reaction to your company's products and services.

❑ (2) Why employment is important to the economy?

- ✓ The **Importance** of **Employment** & Workplace in the Society.
- ✓ The stability of the **economy** rests on the ability to maintain a low unemployment rate and provide a safe, secure workplace.
- ✓ When a solid relationship exists between the individual and her working environment, society benefits overall as well.

(B – 1) Employment in Bank (2001-2016) :

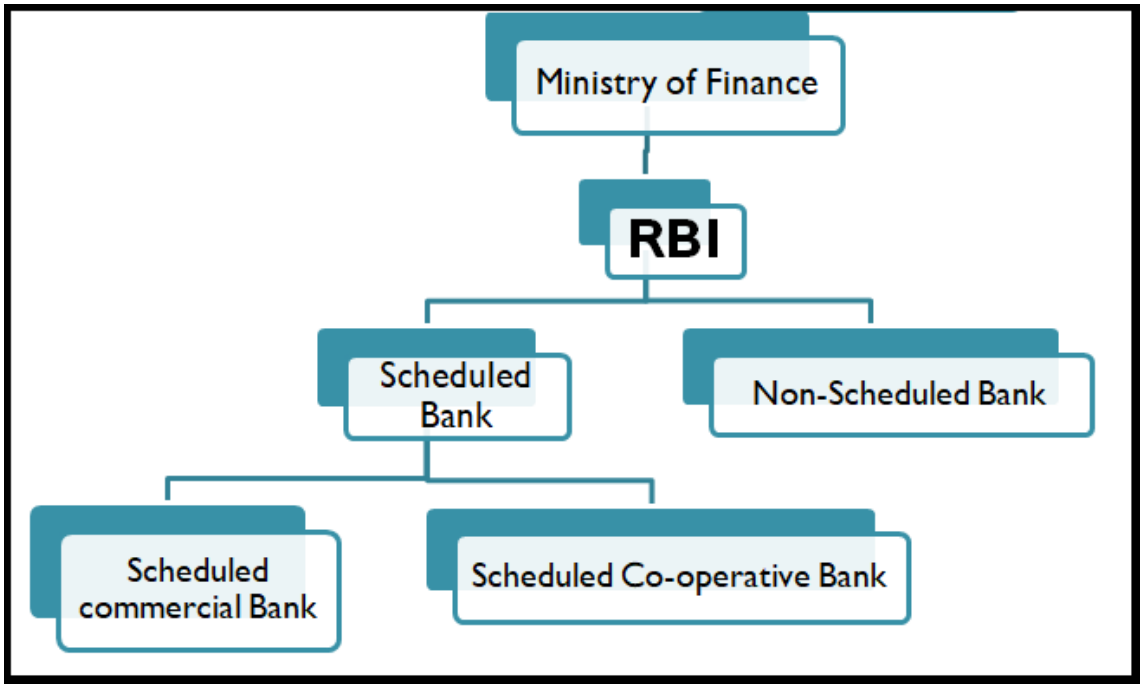


Fig : Different types of banks in India

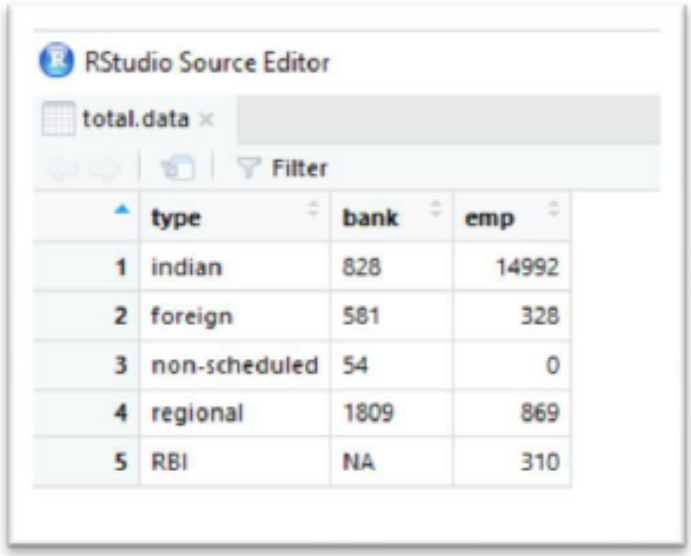
- **Scheduled Banks** :Scheduled Banks in India refer to those banks which have been included in the Second Schedule of Reserve Bank of India Act, 1934.

- **Non-Scheduled Banks** : Banks not under this Schedule are called **Non-Scheduled Banks**.

- Bank employment details(2001-2016) :

```
> bank <-c(sum111,sum222,sum333,sum444,"NA");
> type <- c("indian","foreign","non-scheduled","regional","RBI");
> emp  <- c(sum11,sum22,sum33,sum44,sum55);
> total.data <- data.frame(type,bank,emp);
> View(total.data)
> print(total.data);

           type bank   emp
1        indian  828 14992
2       foreign  581   328
3 non-scheduled   54     0
4      regional 1809   869
5           RBI   NA   310
```



	type	bank	emp
1	indian	828	14992
2	foreign	581	328
3	non-scheduled	54	0
4	regional	1809	869
5	RBI	NA	310

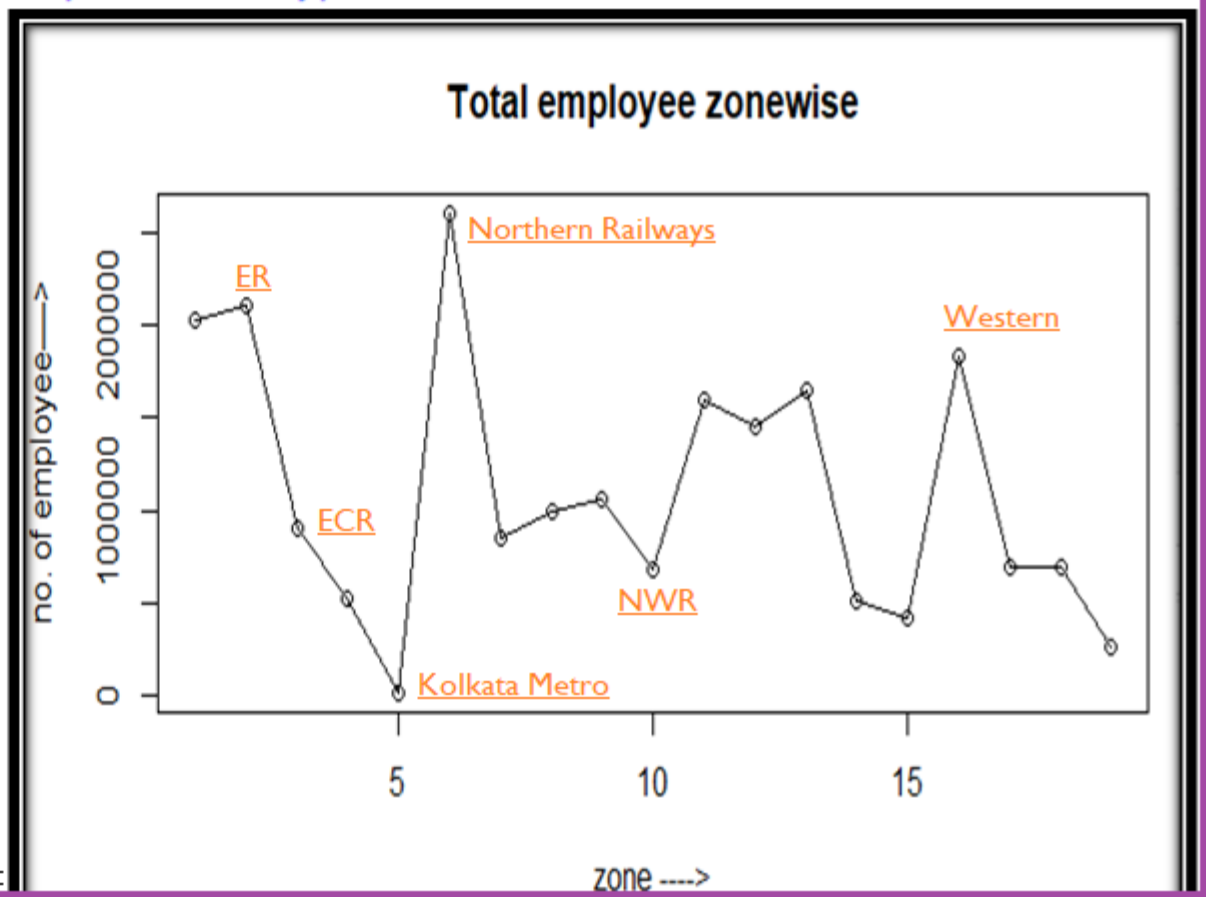
(B – 2) Employment in railways from 2000-01 to 2014-15 :

The data indicates about Employment in Railway Zones/Units/Board and Other Offices :-

- (1) Central,
- (2) Eastern,
- (3) East Central,
- (4) East Cost,
- (5) Metro Railway Kolkata,
- (6) Northern,
- (7) North Central,
- (8) North Eastern,
- (9) Northeast Frontier ,
- (10) North Western,
- (11) Southern,
- (12) South Central,
- (13) South Eastern,
- (14)Southeast Central,
- (15)South Western,
- (16)Western,
- (17)West Central,
- (18)Production Units,
- (19)Railway Board& Other Railway Offices of railways.

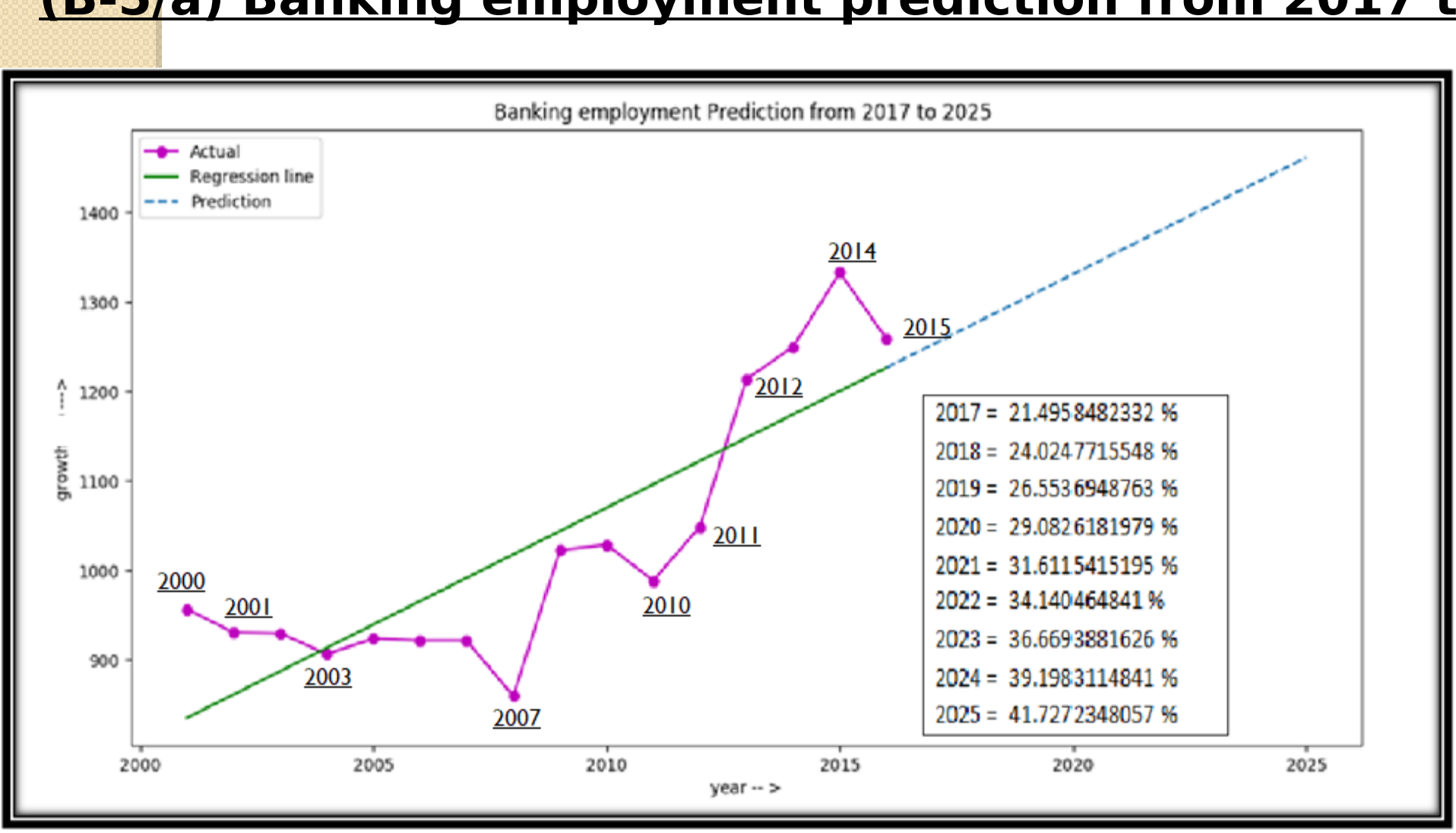
❑ Plot the total employment details zone wise :

```
> zonewise_sum.data <- data.frame(zone,zonewise_sum);
> print(zonewise_sum.data);
                  zone zonewise_sum
1              Central       2027600
2              Eastern       2106175
3         East central        897449
4            East coast        528216
5         Kolkata Metro         19383
6              Northern       2596665
7         north central        854347
8         north eastern        998527
9   northesat frontier       1064060
10        north western        680034
11              southern       1589389
12        south central       1444433
13        south eastern       1652174
14   southeast central        512069
15        south western        420620
16              western       1823847
17         west central        698680
18    production unit          692559
19   transport project         262134
```

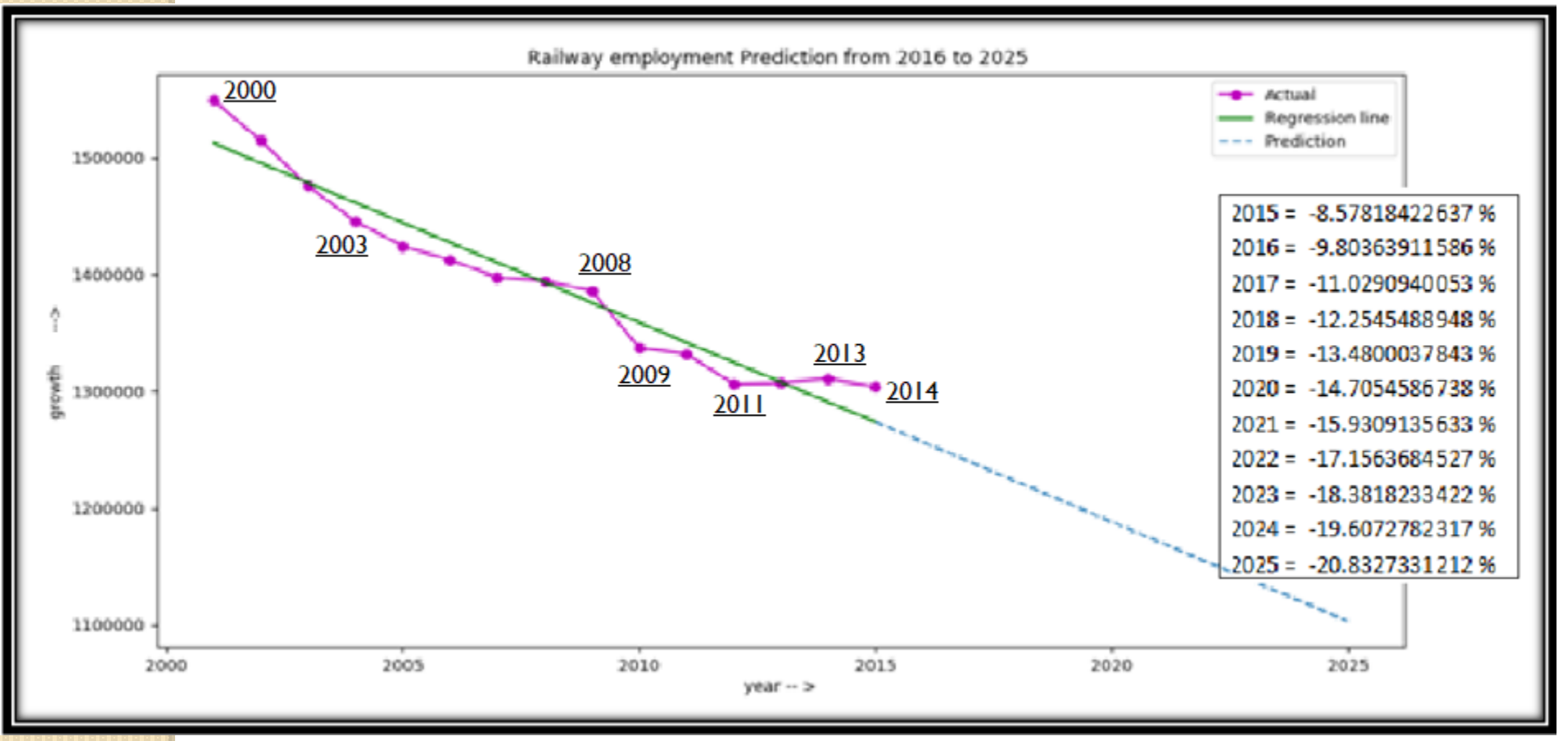


(B - 5) Prediction model used in banking , railway ar legal affairs sector & compare them :

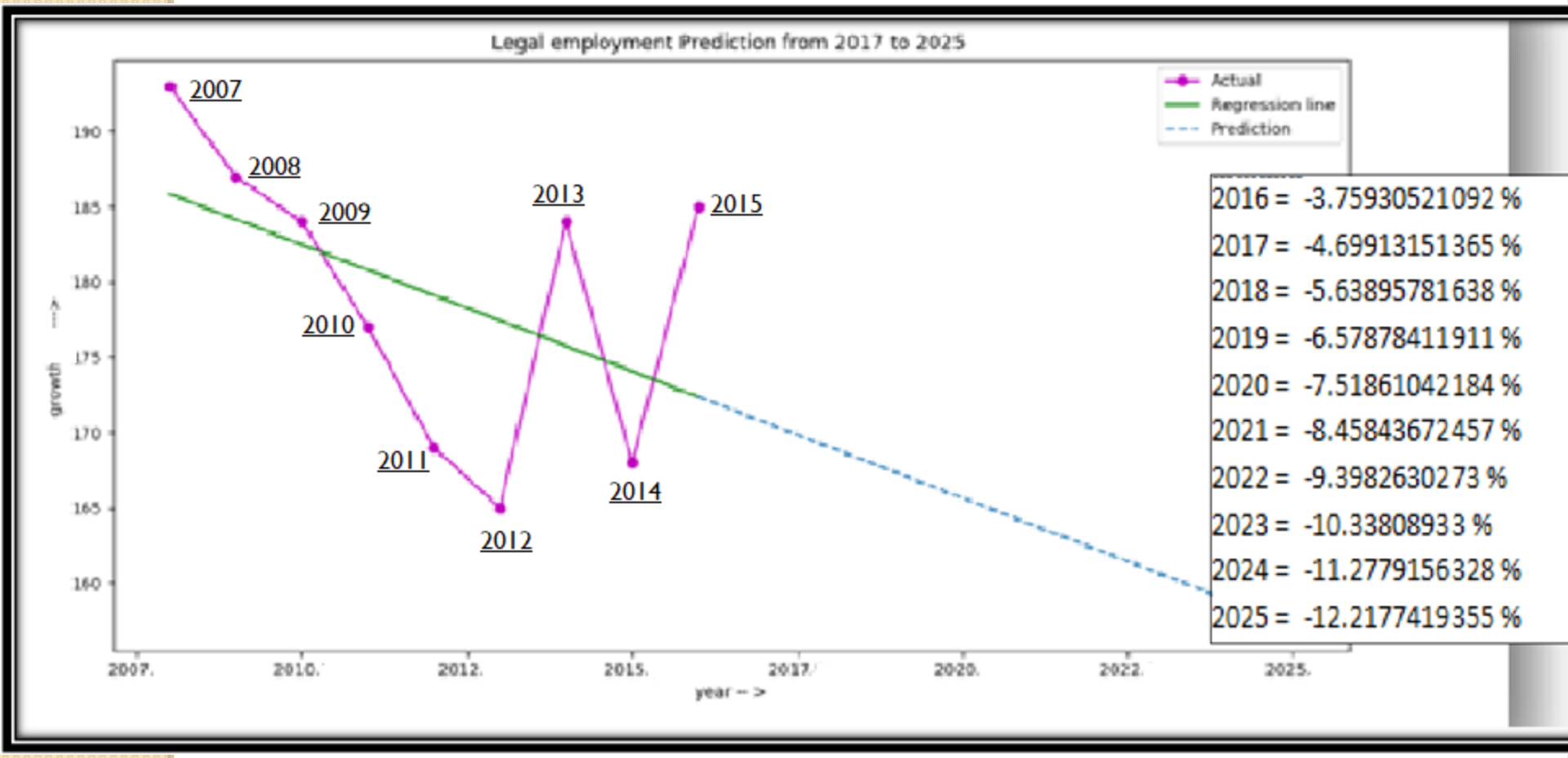
(B-5/a) Banking employment prediction from 2017 t



- Employment & prediction of Indian railways up to 2025 :



- Employment in Legal sector up to 2025 :



Section- C || Mega projects in India

"Megaprojects" are temporary projects characterized by:

(1) large investment commitment,
(2) vast complexity (especially in organizational terms
(3) long-lasting impact on the economy,
the environment, and society".

- The list of mega projects in India are as follows :

Projects	***Investor***	***Amount***
(1) Bharatmala	Govt. of India	₹ 5.35 lakh crore (US$77 billion)
(2) Delhi–Mumbai Industrial Corridor (DMIC) Project	The project has received a major boost from India and Japan.	initial size of ₹1,000 crore (US$144.7 million)
(3) Gujarat International Finance Tec-City (GIFT)	Govt. Of Gujrat	Rs 10,500 crore

Continued....

- The list of mega projects in India are as follows :
(continued....)

[04] Vrindavan Chandrodaya Mandir	Investment : ₹ 300 crore (US$43 million)
[05] World One	Investment : ₹ 150 million (US$2.2 million)
[06] Kalpasar Project	Investment : ₹ 90,000 crore (as of 2017)
[07] Viraat Ramayan Mandir	Investment : ₹ 500 crore (US$72 million)
[08] Namaste Tower	Investment : Not known
[09] Mumbai Trans Harbour Link	Investment : ₹ 14,262 crore (US$2.1 billion)
[10] Setu Bharatam	Investment : ₹ 102 billion (US$1.5 billion)
[11] SmartCity, Kochi	Investment : Not known
[12] Banihal Qazigund Road Tunnel	Investment : Not known
[13] Kacchi Dargah–Bidupur Bridge	Investment : Rs 3,600 crore
[14] Three Sixty West	Investment : Not known
[15] Chennai Bangalore Industrial Corridor	Investment : Not known

Section- D || References :

- *[1] Indian-Economy-For-Civil-Services-Examinations - Dr.Ramesh Singh, 7th Edition,McGRAW Hill Education WE series*
- *[2] R Cookbook, Paul Teetor, O'Reilly Media*
- *[3] Getting Started with RStudio,John Verzani, O'Reilly Media*
- *[4]Python Cookbook,3rd Edition, David Beazley and Brian K. Jones, O'Re*
- *[5] Python for Data Analysis,Wes McKinney, O'Reilly Media*
- *[6]* https://en.wikipedia.org/wiki/Economy_of_India
- *[7]* https://en.wikipedia.org/wiki/List_of_megaprojects_in_India

Thank you…….