

# FOREIGN DIRECT INVESTMENT ANALYTICS

## PROBLEM STATEMENT

Investment is a game of understanding historic data of investment objects under different events but it is still a game of chances to minimize the risk we apply analytics to find the equilibrium investment.

To understand the Foreign direct investment in India for the last 17 years from 2000-01 to 2016-17. This dataset contains sector and financial year-wise data of FDI in India Sector-wise investment analysis Year-wise investment analysi

```
In [1]: # Importing python libraries
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
% matplotlib inline
```

UsageError: Line magic function `%` not found.

```
In [2]: file_path = r"C:\Users\nived\Downloads\FDI data (1).csv"
data = pd.read_csv(file_path)
```

```
In [5]: data
```

Out[5]:

	Sector	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2
0	METALLURGICAL INDUSTRIES	22.69	14.14	36.61	8.11	200.38	149.13	169.94	1175.75	959.94	419.88	109
1	MINING	1.32	6.52	10.06	23.48	9.92	7.40	6.62	444.36	34.16	174.40	7
2	POWER	89.42	757.44	59.11	27.09	43.37	72.69	157.15	988.68	907.66	1271.79	127
3	NON-CONVENTIONAL ENERGY	0.00	0.00	1.70	4.14	1.27	1.35	2.44	58.82	125.88	622.52	21
4	COAL PRODUCTION	0.00	0.00	0.00	0.04	0.00	9.14	1.30	14.08	0.22	0.00	
...	...	...	...	...	...	...	...	...	...	...	...	
58	PRINTING OF BOOKS (INCLUDING LITHO PRINTING IN...	0.00	0.00	6.30	0.00	0.06	9.90	20.04	35.54	31.61	70.51	3
59	COIR	0.00	0.00	0.00	0.00	0.47	0.59	0.04	0.01	0.00	0.25	
60	CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES	0.00	0.00	0.00	0.00	0.00	0.93	64.06	182.92	172.70	324.56	67
61	CONSTRUCTION DEVELOPMENT: Townships, housing, ...	24.33	51.75	36.10	47.04	152.06	228.71	1392.95	3887.33	4657.51	5466.13	166
62	MISCELLANEOUS INDUSTRIES	832.07	221.37	218.76	235.48	121.83	164.76	304.87	528.42	1549.70	1147.56	147

63 rows × 18 columns

```
In [7]: data.describe()
```

```
Out[7]:
```

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	
count	63.000000	63.000000	63.000000	63.000000	63.000000	63.000000	63.000000	63.000000	6
mean	37.757302	63.931587	42.925714	34.727778	51.090317	87.932540	198.281905	390.085714	49
std	112.227860	157.878737	86.606439	67.653735	101.934873	206.436967	686.783115	1026.249935	113
min	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	
25%	0.000000	0.000000	0.200000	0.215000	0.715000	1.230000	4.160000	9.950000	1
50%	4.030000	5.070000	11.010000	6.370000	9.090000	22.620000	25.820000	58.820000	8
75%	23.510000	44.830000	36.555000	38.660000	43.205000	63.855000	108.325000	279.270000	38
max	832.070000	873.230000	419.960000	368.320000	527.900000	1359.970000	4713.780000	6986.170000	618

```
In [10]: data.dtypes
```

```
Out[10]:
```

Sector	object
2000-01	float64
2001-02	float64
2002-03	float64
2003-04	float64
2004-05	float64
2005-06	float64
2006-07	float64
2007-08	float64
2008-09	float64
2009-10	float64
2010-11	float64
2011-12	float64
2012-13	float64
2013-14	float64
2014-15	float64
2015-16	float64
2016-17	float64

dtype: object

```
In [11]: data.info()
```

```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 63 entries, 0 to 62
Data columns (total 18 columns):
#   Column      Non-Null Count  Dtype
---  -
0   Sector      63 non-null    object
1   2000-01     63 non-null    float64
2   2001-02     63 non-null    float64
3   2002-03     63 non-null    float64
4   2003-04     63 non-null    float64
5   2004-05     63 non-null    float64
6   2005-06     63 non-null    float64
7   2006-07     63 non-null    float64
8   2007-08     63 non-null    float64
9   2008-09     63 non-null    float64
10  2009-10     63 non-null    float64
11  2010-11     63 non-null    float64
12  2011-12     63 non-null    float64
13  2012-13     63 non-null    float64
14  2013-14     63 non-null    float64
15  2014-15     63 non-null    float64
16  2015-16     63 non-null    float64
17  2016-17     63 non-null    float64
dtypes: float64(17), object(1)
memory usage: 9.0+ KB

```

```
In [12]: data.head(15)
```

Out[12]:

	Sector	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
0	METALLURGICAL INDUSTRIES	22.69	14.14	36.61	8.11	200.38	149.13	169.94	1175.75	959.94	419.88
1	MINING	1.32	6.52	10.06	23.48	9.92	7.40	6.62	444.36	34.16	174.40
2	POWER	89.42	757.44	59.11	27.09	43.37	72.69	157.15	988.68	907.66	1271.79
3	NON-CONVENTIONAL ENERGY	0.00	0.00	1.70	4.14	1.27	1.35	2.44	58.82	125.88	622.52
4	COAL PRODUCTION	0.00	0.00	0.00	0.04	0.00	9.14	1.30	14.08	0.22	0.00
5	PETROLEUM & NATURAL GAS	9.35	211.07	56.78	80.64	102.78	12.09	87.71	1405.04	349.29	265.53
6	BOILERS AND STEAM GENERATING PLANTS	0.00	0.00	0.00	0.04	0.54	0.00	3.31	1.51	0.00	3.96
7	PRIME MOVER (OTHER THAN ELECTRICAL GENERATORS)	0.00	0.00	0.00	0.00	2.66	0.74	25.57	40.53	74.88	39.50
8	ELECTRICAL EQUIPMENTS	79.76	65.76	34.71	73.20	97.40	39.50	76.85	653.74	417.35	728.27
9	COMPUTER SOFTWARE & HARDWARE	228.39	419.39	314.24	368.32	527.90	1359.97	2613.33	1382.25	1543.34	871.86
10	ELECTRONICS	8.34	12.47	295.88	82.31	88.10	40.91	42.14	136.03	147.51	52.14
11	TELECOMMUNICATIONS	177.69	873.23	191.60	86.49	118.33	617.98	476.51	1260.70	2548.63	2539.26
12	INFORMATION & BROADCASTING (INCLUDING PRINT ME...	81.50	4.54	36.50	13.72	9.85	55.93	75.70	288.49	735.04	490.83
13	AUTOMOBILE INDUSTRY	195.33	235.76	419.96	119.09	121.97	139.93	260.72	656.10	1150.03	1236.29
14	AIR TRANSPORT (INCLUDING AIR FREIGHT)	0.00	0.00	3.80	0.94	4.11	10.27	62.29	99.08	61.37	23.71

In [13]: data.tail(15)

Out[13]:

	Sector	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
48	CONSULTANCY SERVICES	4.25	66.22	25.70	46.20	252.42	47.40	114.68	233.32	256.59	341.31
49	SERVICES SECTOR (Fin.,Banking,Insurance,Non Fi...	71.38	187.95	296.34	271.15	456.15	548.61	4713.78	6986.17	6183.49	4174.53
50	HOSPITAL & DIAGNOSTIC CENTRES	0.00	6.93	29.13	24.08	26.19	32.53	38.14	241.76	239.71	135.57
51	EDUCATION	0.00	0.00	0.00	0.19	1.97	3.16	41.81	43.59	214.52	63.35
52	HOTEL & TOURISM	13.20	32.12	33.75	49.36	37.01	71.78	195.66	421.47	463.92	753.02
53	TRADING	11.49	43.27	38.13	31.12	14.22	28.93	114.65	345.02	643.64	737.95
54	RETAIL TRADING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.09	13.73
55	AGRICULTURE SERVICES	17.52	14.06	11.01	0.59	3.83	9.08	12.53	58.13	5.35	1222.22
56	DIAMOND,GOLD ORNAMENTS	18.83	0.36	1.30	1.96	8.58	15.52	61.97	59.15	83.50	31.08
57	TEA AND COFFEE (PROCESSING & WAREHOUSING COFFE...	20.23	0.14	0.00	0.32	0.01	1.43	6.20	18.94	37.08	8.15
58	PRINTING OF BOOKS (INCLUDING LITHO PRINTING IN...	0.00	0.00	6.30	0.00	0.06	9.90	20.04	35.54	31.61	70.51
59	COIR	0.00	0.00	0.00	0.00	0.47	0.59	0.04	0.01	0.00	0.25
60	CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES	0.00	0.00	0.00	0.00	0.00	0.93	64.06	182.92	172.70	324.56
61	CONSTRUCTION DEVELOPMENT: Townships, housing, ...	24.33	51.75	36.10	47.04	152.06	228.71	1392.95	3887.33	4657.51	5466.13
62	MISCELLANEOUS INDUSTRIES	832.07	221.37	218.76	235.48	121.83	164.76	304.87	528.42	1549.70	1147.56

In [15]:

```
data.isnull().sum()
```

Out[15]:

Sector02000-0102001-0202002-0302003-0402004-0502005-0602006-0702007-0802008-0902009-1002010-1102011-1202012-1302013-1402014-1502015-1602016-170dtype: int64

In [24]:

```
annual_fdi = (data.loc[0 : ].sum(axis = 0))
annual_fdi
```

```
Out[24]:
```

Sector	METALLURGICAL	INDUSTRIES	MINING	POWER	NON-CONVENT...
2000-01					49635.647175
2001-02					91603.207666
2002-03					63324.143479
2003-04					46194.319596
2004-05					64975.852746
2005-06					108569.843078
2006-07					255776.59335
2007-08					398334.69617
2008-09					664049.702164
2009-10					581416.569128
2010-11					443851.292088
2011-12					806487.743026
2012-13					663594.753024
2013-14					889415.8603
2014-15					1156211.775348
2015-16					1714570.794577
2016-17					1955819.482623

dtype: object

```
In [16]: #amount in US Dollars
data.style.set_caption("Amount in USD Millions").format(precision=2)
```

		Sector	Amount in USD Millions)							
			2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
0		METALLURGICAL INDUSTRIES	22.69	14.14	36.61	8.11	200.38	149.13	169.94	1175.75
1		MINING	1.32	6.52	10.06	23.48	9.92	7.40	6.62	444.36
2		POWER	89.42	757.44	59.11	27.09	43.37	72.69	157.15	988.68
3		NON-CONVENTIONAL ENERGY	0.00	0.00	1.70	4.14	1.27	1.35	2.44	58.82
4		COAL PRODUCTION	0.00	0.00	0.00	0.04	0.00	9.14	1.30	14.08
5		PETROLEUM & NATURAL GAS	9.35	211.07	56.78	80.64	102.78	12.09	87.71	1405.04
6		BOILERS AND STEAM GENERATING PLANTS	0.00	0.00	0.00	0.04	0.54	0.00	3.31	1.51
7		PRIME MOVER (OTHER THAN ELECTRICAL GENERATORS)	0.00	0.00	0.00	0.00	2.66	0.74	25.57	40.53
8		ELECTRICAL EQUIPMENTS	79.76	65.76	34.71	73.20	97.40	39.50	76.85	653.74
9		COMPUTER SOFTWARE & HARDWARE	228.39	419.39	314.24	368.32	527.90	1359.97	2613.33	1382.25
10		ELECTRONICS	8.34	12.47	295.88	82.31	88.10	40.91	42.14	136.03
11		TELECOMMUNICATIONS	177.69	873.23	191.60	86.49	118.33	617.98	476.51	1260.70
12		INFORMATION & BROADCASTING (INCLUDING PRINT MEDIA)	81.50	4.54	36.50	13.72	9.85	55.93	75.70	288.49
13		AUTOMOBILE INDUSTRY	195.33	235.76	419.96	119.09	121.97	139.93	260.72	656.10
14		AIR TRANSPORT (INCLUDING AIR FREIGHT)	0.00	0.00	3.80	0.94	4.11	10.27	62.29	99.08
15		SEA TRANSPORT	2.41	19.81	29.32	21.95	36.95	53.63	72.52	128.36
16		PORTS	0.00	15.48	2.03	116.36	13.04	0.50	0.00	918.18
17		RAILWAY RELATED COMPONENTS	0.00	0.00	0.56	2.95	10.75	22.62	25.82	12.41
18		INDUSTRIAL MACHINERY	5.48	32.04	19.40	3.18	8.89	42.80	25.96	119.57
19		MACHINE TOOLS	1.42	4.31	14.17	54.51	11.04	23.00	37.28	56.87
20		AGRICULTURAL MACHINERY	3.64	1.04	13.48	47.54	0.00	92.71	25.19	6.72
21		EARTH-MOVING MACHINERY	0.00	0.11	13.77	0.01	0.10	50.87	0.99	67.94
22		MISCELLANEOUS MECHANICAL & ENGINEERING INDUSTRIES	44.50	61.40	45.07	22.73	12.83	51.22	84.44	211.15
23		COMMERCIAL, OFFICE & HOUSEHOLD EQUIPMENTS	12.20	4.87	2.33	10.41	14.13	25.54	5.42	9.83
24		MEDICAL AND SURGICAL APPLIANCES	5.42	42.35	21.63	1.97	5.35	1.52	13.43	13.17
25		INDUSTRIAL INSTRUMENTS	1.01	5.07	1.31	0.30	1.08	0.38	0.00	2.23
26		SCIENTIFIC INSTRUMENTS	8.07	2.33	0.19	0.02	0.03	0.10	0.07	0.00
27		MATHEMATICAL,SURVEYING AND DRAWING INSTRUMENTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27
28		FERTILIZERS	0.00	0.00	16.38	21.58	13.46	4.24	5.01	1.95
29		CHEMICALS (OTHER THAN FERTILIZERS)	111.14	87.23	128.12	20.24	69.39	387.72	138.85	233.70
30		PHOTOGRAPHIC RAW FILM AND PAPER	0.00	0.00	0.60	0.24	6.16	0.00	2.81	54.86
31		DYE-STUFFS	1.05	0.18	0.00	0.43	1.18	0.00	0.00	5.51
32		DRUGS & PHARMACEUTICALS	35.94	77.94	40.07	108.91	293.36	172.44	224.20	340.35
33		TEXTILES (INCLUDING DYED,PRINTED)	2.06	5.28	54.18	9.34	43.04	94.33	126.90	185.40

Loading [MathJax]/extensions/Safe.js

	Sector	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
34	PAPER AND PULP (INCLUDING PAPER PRODUCTS)	60.04	16.70	7.36	7.15	2.70	27.38	5.08	31.24
35	SUGAR	0.00	0.00	3.97	0.00	2.94	3.00	9.85	10.07
36	FERMENTATION INDUSTRIES	16.02	11.04	8.07	1.70	139.00	169.83	27.58	270.05
37	FOOD PROCESSING INDUSTRIES	45.75	219.39	36.88	109.22	43.98	41.74	102.00	70.17
38	VEGETABLE OILS AND VANASPATHI	0.00	0.00	0.00	1.69	9.09	12.31	16.22	1.53
39	SOAPS, COSMETICS & TOILET PREPARATIONS	0.00	0.00	0.00	0.00	0.89	87.42	6.04	6.38
40	RUBBER GOODS	0.10	46.39	16.42	6.37	40.06	34.09	18.75	15.12
41	LEATHER,LEATHER GOODS AND PICKERS	9.75	0.20	0.01	7.55	0.44	1.11	8.26	7.46
42	GLUE AND GELATIN	0.00	0.94	5.22	0.00	0.00	0.00	0.00	2.28
43	GLASS	33.87	8.37	44.98	5.24	8.36	0.81	1.43	11.04
44	CERAMICS	4.03	0.78	0.21	1.47	26.79	5.67	122.23	115.11
45	CEMENT AND GYPSUM PRODUCTS	67.72	139.90	21.08	9.58	0.16	452.08	242.47	16.89
46	TIMBER PRODUCTS	0.00	0.05	0.04	0.11	0.07	0.33	0.00	0.39
47	DEFENCE INDUSTRIES	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00
48	CONSULTANCY SERVICES	4.25	66.22	25.70	46.20	252.42	47.40	114.68	233.32
49	SERVICES SECTOR (Fin.,Banking,Insurance,Non Fin/Business,Outsourcing,R&D,Courier,Tech. Testing and Analysis, Other)	71.38	187.95	296.34	271.15	456.15	548.61	4713.78	6986.17
50	HOSPITAL & DIAGNOSTIC CENTRES	0.00	6.93	29.13	24.08	26.19	32.53	38.14	241.76
51	EDUCATION	0.00	0.00	0.00	0.19	1.97	3.16	41.81	43.59
52	HOTEL & TOURISM	13.20	32.12	33.75	49.36	37.01	71.78	195.66	421.47
53	TRADING	11.49	43.27	38.13	31.12	14.22	28.93	114.65	345.02
54	RETAIL TRADING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27
55	AGRICULTURE SERVICES	17.52	14.06	11.01	0.59	3.83	9.08	12.53	58.13
56	DIAMOND,GOLD ORNAMENTS	18.83	0.36	1.30	1.96	8.58	15.52	61.97	59.15
57	TEA AND COFFEE (PROCESSING & WAREHOUSING COFFEE & RUBBER)	20.23	0.14	0.00	0.32	0.01	1.43	6.20	18.94
58	PRINTING OF BOOKS (INCLUDING LITHO PRINTING INDUSTRY)	0.00	0.00	6.30	0.00	0.06	9.90	20.04	35.54
59	COIR	0.00	0.00	0.00	0.00	0.47	0.59	0.04	0.01
60	CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES	0.00	0.00	0.00	0.00	0.00	0.93	64.06	182.92
61	CONSTRUCTION DEVELOPMENT: Townships, housing, built-up infrastructure and construction-development projects	24.33	51.75	36.10	47.04	152.06	228.71	1392.95	3887.33
62	MISCELLANEOUS INDUSTRIES	832.07	221.37	218.76	235.48	121.83	164.76	304.87	528.42

In [28]:

data.columns



```
Out[28]: Index(['Sector', '2000-01', '2001-02', '2002-03', '2003-04', '2004-05',  
              '2005-06', '2006-07', '2007-08', '2008-09', '2009-10', '2010-11',  
              '2011-12', '2012-13', '2013-14', '2014-15', '2015-16', '2016-17'],  
              dtype='object')
```

```
In [31]: for i in data['Sector']:  
         print(i)
```

METALLURGICAL INDUSTRIES  
MINING  
POWER  
NON-CONVENTIONAL ENERGY  
COAL PRODUCTION  
PETROLEUM & NATURAL GAS  
BOILERS AND STEAM GENERATING PLANTS  
PRIME MOVER (OTHER THAN ELECTRICAL GENERATORS)  
ELECTRICAL EQUIPMENTS  
COMPUTER SOFTWARE & HARDWARE  
ELECTRONICS  
TELECOMMUNICATIONS  
INFORMATION & BROADCASTING (INCLUDING PRINT MEDIA)  
AUTOMOBILE INDUSTRY  
AIR TRANSPORT (INCLUDING AIR FREIGHT)  
SEA TRANSPORT  
PORTS  
RAILWAY RELATED COMPONENTS  
INDUSTRIAL MACHINERY  
MACHINE TOOLS  
AGRICULTURAL MACHINERY  
EARTH-MOVING MACHINERY  
MISCELLANEOUS MECHANICAL & ENGINEERING INDUSTRIES  
COMMERCIAL, OFFICE & HOUSEHOLD EQUIPMENTS  
MEDICAL AND SURGICAL APPLIANCES  
INDUSTRIAL INSTRUMENTS  
SCIENTIFIC INSTRUMENTS  
MATHEMATICAL, SURVEYING AND DRAWING INSTRUMENTS  
FERTILIZERS  
CHEMICALS (OTHER THAN FERTILIZERS)  
PHOTOGRAPHIC RAW FILM AND PAPER  
DYE-STUFFS  
DRUGS & PHARMACEUTICALS  
TEXTILES (INCLUDING DYED, PRINTED)  
PAPER AND PULP (INCLUDING PAPER PRODUCTS)  
SUGAR  
FERMENTATION INDUSTRIES  
FOOD PROCESSING INDUSTRIES  
VEGETABLE OILS AND VANASPATHI  
SOAPS, COSMETICS & TOILET PREPARATIONS  
RUBBER GOODS  
LEATHER, LEATHER GOODS AND PICKERS  
GLUE AND GELATIN  
GLASS  
CERAMICS  
CEMENT AND GYPSUM PRODUCTS  
TIMBER PRODUCTS  
DEFENCE INDUSTRIES  
CONSULTANCY SERVICES  
SERVICES SECTOR (Fin., Banking, Insurance, Non Fin/Business, Outsourcing, R&D, Courier, Tech. Testing and Analysis, Other)  
HOSPITAL & DIAGNOSTIC CENTRES  
EDUCATION  
HOTEL & TOURISM  
TRADING  
RETAIL TRADING  
AGRICULTURE SERVICES  
DIAMOND, GOLD ORNAMENTS  
TEA AND COFFEE (PROCESSING & WAREHOUSING COFFEE & RUBBER)  
PRINTING OF BOOKS (INCLUDING LITHO PRINTING INDUSTRY)  
COIR  
CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES  
CONSTRUCTION DEVELOPMENT: Townships, housing, built-up infrastructure and construction-development projects

MISCELLANEOUS INDUSTRIES  
Annual\_total

```
In [17]: Yrs = ['2000-01', '2001-02', '2002-03', '2003-04', '2004-05', '2005-06', '2006-07', '2007-08', '2009-10', '2010-11', '2011-12', '2012-13', '2013-14', '2014-15', '2015-16', '2016-17']
Sect= ['Sector']
```

```
In [18]: # Exchange rate 2000-2017
ExchangeRt_Avg = [45.68, 47.69, 48.39, 45.95, 44.93, 44.27, 45.25, 40.26, 45.99, 47.44, 45.56, 47.96, 60.50, 61.14, 65.47, 67.07]
```

```
In [19]: spdUSD = data.copy()
```

```
In [22]: # here df is FDI_spd column taken as year rates as exchange rate
def Convers_Usdinr(df, colm, rts):
    for ele in colm:
        df[ele] = df[ele] * rts[colm.index(ele)]/10
    return df

spdINR = Convers_Usdinr(data, Yrs, ExchangeRt_Avg)
spdINR
```

```
Out[22]:
```

	Sector	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	
0	METALLURGICAL INDUSTRIES	473.463699	321.591125	857.256868	171.234743	4045.080879	2922.698804	347
1	MINING	27.543944	148.286714	235.564165	495.757307	200.255526	145.027635	13
2	POWER	1865.893518	17226.731356	1384.115090	571.978937	875.512315	1424.602535	321
3	NON-CONVENTIONAL ENERGY	0.000000	0.000000	39.807066	87.412064	25.637552	26.457744	4
4	COAL PRODUCTION	0.000000	0.000000	0.000000	0.844561	0.000000	179.128727	2
...	...	...	...	...	...	...	...	...
58	PRINTING OF BOOKS (INCLUDING LITHO PRINTING IN...	0.000000	0.000000	147.520302	0.000000	1.211223	194.023457	41
59	COIR	0.000000	0.000000	0.000000	0.000000	9.487913	11.563014	
60	CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES	0.000000	0.000000	0.000000	0.000000	0.000000	18.226446	131
61	CONSTRUCTION DEVELOPMENT: Townships, housing, ...	507.684962	1176.968932	845.314748	993.203736	3069.642671	4482.333826	2852
62	MISCELLANEOUS INDUSTRIES	17362.491832	5034.697825	5122.466878	4971.930607	2459.388180	3229.020686	624

63 rows × 18 columns

```
In [3]: #amount in Indian Rupees
spdINR.style.set_caption("FDI Amount in INR Crores").format(precision=2)
spdINR
```

melt() is used to analyse and visualize the data better.

```
In [32]: melt = pd.melt(spdUSD, id_vars = Sect, value_vars = Yrs, var_name='Year', value_name='FDI')
melt
```

Out[32]:

	Sector	Year	FDI(USD Million)
0	METALLURGICAL INDUSTRIES	2000-01	22.69
1	MINING	2000-01	1.32
2	POWER	2000-01	89.42
3	NON-CONVENTIONAL ENERGY	2000-01	0.00
4	COAL PRODUCTION	2000-01	0.00
...	...	...	...
1066	PRINTING OF BOOKS (INCLUDING LITHO PRINTING IN...	2016-17	53.17
1067	COIR	2016-17	0.00
1068	CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES	2016-17	1860.73
1069	CONSTRUCTION DEVELOPMENT: Townships, housing, ...	2016-17	105.14
1070	MISCELLANEOUS INDUSTRIES	2016-17	296.40

1071 rows × 3 columns

```
In [33]: melt=round(melt,2)
melt
```

Out[33]:

	Sector	Year	FDI(USD Million)
0	METALLURGICAL INDUSTRIES	2000-01	22.69
1	MINING	2000-01	1.32
2	POWER	2000-01	89.42
3	NON-CONVENTIONAL ENERGY	2000-01	0.00
4	COAL PRODUCTION	2000-01	0.00
...	...	...	...
1066	PRINTING OF BOOKS (INCLUDING LITHO PRINTING IN...	2016-17	53.17
1067	COIR	2016-17	0.00
1068	CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES	2016-17	1860.73
1069	CONSTRUCTION DEVELOPMENT: Townships, housing, ...	2016-17	105.14
1070	MISCELLANEOUS INDUSTRIES	2016-17	296.40

1071 rows × 3 columns

```
In [34]: melt_01 = pd.melt(spdINR, id_vars = Sect, value_vars = Yrs, var_name='Year', value_name='FDI')
melt_01
```

Out[34]:

		Sector	Year	FDI(INR Crores)
0		METALLURGICAL INDUSTRIES	2000-01	473.463699
1		MINING	2000-01	27.543944
2		POWER	2000-01	1865.893518
3		NON-CONVENTIONAL ENERGY	2000-01	0.000000
4		COAL PRODUCTION	2000-01	0.000000
...		...	...	...
1066	PRINTING OF BOOKS (INCLUDING LITHO PRINTING IN...		2016-17	2391.791251
1067		COIR	2016-17	0.000000
1068	CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES		2016-17	83702.797350
1069	CONSTRUCTION DEVELOPMENT: Townships, housing, ...		2016-17	4729.601884
1070		MISCELLANEOUS INDUSTRIES	2016-17	13333.212844

1071 rows × 3 columns

```
In [35]: # Rounding off upto two decimal point
melt_01=round(melt_01,2)
melt_01
```

Out[35]:

		Sector	Year	FDI(INR Crores)
0		METALLURGICAL INDUSTRIES	2000-01	473.46
1		MINING	2000-01	27.54
2		POWER	2000-01	1865.89
3		NON-CONVENTIONAL ENERGY	2000-01	0.00
4		COAL PRODUCTION	2000-01	0.00
...		...	...	...
1066	PRINTING OF BOOKS (INCLUDING LITHO PRINTING IN...		2016-17	2391.79
1067		COIR	2016-17	0.00
1068	CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES		2016-17	83702.80
1069	CONSTRUCTION DEVELOPMENT: Townships, housing, ...		2016-17	4729.60
1070		MISCELLANEOUS INDUSTRIES	2016-17	13333.21

1071 rows × 3 columns

```
In [36]: # Merging the FDI(USD Million) column of melt Dataframe into melt_01 Dataframe
Fdi_Merge= melt_01.merge(melt,how='left')
Fdi_Merge
```

Out[36]:

		Sector	Year	FDI(INR Crores)	FDI(USD Million)
0		METALLURGICAL INDUSTRIES	2000-01	473.46	22.69
1		MINING	2000-01	27.54	1.32
2		POWER	2000-01	1865.89	89.42
3		NON-CONVENTIONAL ENERGY	2000-01	0.00	0.00
4		COAL PRODUCTION	2000-01	0.00	0.00
...		...	...	...	...
1066	PRINTING OF BOOKS (INCLUDING LITHO PRINTING IN...		2016-17	2391.79	53.17
1067		COIR	2016-17	0.00	0.00
1068	CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES		2016-17	83702.80	1860.73
1069	CONSTRUCTION DEVELOPMENT: Townships, housing, ...		2016-17	4729.60	105.14
1070		MISCELLANEOUS INDUSTRIES	2016-17	13333.21	296.40

1071 rows × 4 columns

In [37]:

```
#Sorting the Sector and Year columns
Fdi_Sort = Fdi_Merge.sort_values(['Sector', 'Year'], ignore_index=True)
Fdi_Sort
```

Out[37]:

		Sector	Year	FDI(INR Crores)	FDI(USD Million)
0		AGRICULTURAL MACHINERY	2000-01	75.95	3.64
1		AGRICULTURAL MACHINERY	2001-02	23.65	1.04
2		AGRICULTURAL MACHINERY	2002-03	315.65	13.48
3		AGRICULTURAL MACHINERY	2003-04	1003.76	47.54
4		AGRICULTURAL MACHINERY	2004-05	0.00	0.00
...		...	...	...	...
1066	VEGETABLE OILS AND VANASPATI		2012-13	3207.65	108.39
1067	VEGETABLE OILS AND VANASPATI		2013-14	788.78	21.55
1068	VEGETABLE OILS AND VANASPATI		2014-15	5545.10	148.34
1069	VEGETABLE OILS AND VANASPATI		2015-16	1466.78	34.22
1070	VEGETABLE OILS AND VANASPATI		2016-17	4878.50	108.45

1071 rows × 4 columns

Finding the Statistics of th column Sector

In [38]:

```
print("\nStatistics for Sectors\n", '-'*65, sep='')
print(pd.DataFrame(Fdi_Sort.groupby('Sector').describe().loc[:, :]).transpose())
```

# Statistics for Sectors

Sector		AGRICULTURAL MACHINERY	AGRICULTURE SERVICES \
FDI(INR Crores)	count	17.000000	17.000000
	mean	752.709412	2910.799412
	std	952.593470	6518.844494
	min	0.000000	12.460000
	25%	63.610000	256.560000
	50%	315.650000	911.240000
	75%	1003.760000	3331.190000
	max	2823.530000	27506.720000
FDI(USD Million)	count	17.000000	17.000000
	mean	26.423529	112.985294
	std	32.712807	289.004756
	min	0.000000	0.590000
	25%	2.770000	11.010000
	50%	13.480000	43.900000
	75%	47.540000	76.430000
	max	95.410000	1222.220000

Sector		AIR TRANSPORT (INCLUDING AIR FREIGHT) \
FDI(INR Crores)	count	17.000000
	mean	1931.391176
	std	3674.467371
	min	0.000000
	25%	88.980000
	50%	716.910000
	75%	1681.880000
	max	15484.330000
FDI(USD Million)	count	17.000000
	mean	59.672941
	std	87.551007
	min	0.000000
	25%	4.110000
	50%	31.220000
	75%	74.560000
	max	361.250000

Sector		AUTOMOBILE INDUSTRY \
FDI(INR Crores)	count	17.000000
	mean	30993.879412
	std	34479.890536
	min	2462.210000
	25%	5338.400000
	50%	21194.860000
	75%	45493.650000
	max	108307.610000
FDI(USD Million)	count	17.000000
	mean	980.818824
	std	826.274049
	min	119.090000
	25%	235.760000
	50%	922.990000
	75%	1517.280000
	max	2725.640000

Sector		BOILERS AND STEAM GENERATING PLANTS \
FDI(INR Crores)	count	17.000000
	mean	432.354706
	std	960.343455
	min	0.000000
	25%	0.000000
	50%	13.080000
	75%	89.120000

		max	3339.470000
FDI(USD Million)	count		17.000000
	mean		11.479412
	std		22.610923
	min		0.000000
	25%		0.000000
	50%		0.630000
	75%		3.960000
	max		77.910000

Sector		CEMENT AND GYPSUM PRODUCTS	CERAMICS	\
FDI(INR Crores)	count	17.000000	17.000000	
	mean	9941.861765	1165.997059	
	std	22657.487023	1618.929403	
	min	3.230000	4.920000	
	25%	493.610000	111.120000	
	50%	3181.800000	249.090000	
	75%	8860.010000	1865.780000	
	max	95820.100000	5493.670000	
FDI(USD Million)	count	17.000000	17.000000	
	mean	308.190000	44.712941	
	std	519.880859	61.892458	
	min	0.160000	0.210000	
	25%	19.690000	4.330000	
	50%	139.900000	12.000000	
	75%	267.900000	51.210000	
	max	2130.100000	198.430000	

Sector		CHEMICALS (OTHER THAN FERTILIZERS)	COAL PRODUCTION	\
FDI(INR Crores)	count	17.000000	17.000000	
	mean	22273.253529	32.223529	
	std	27989.700860	70.262180	
	min	427.350000	0.000000	
	25%	2843.040000	0.000000	
	50%	8235.680000	0.000000	
	75%	28797.380000	4.650000	
	max	92787.890000	228.220000	
FDI(USD Million)	count	17.000000	17.000000	
	mean	781.946471	1.631765	
	std	1051.388076	3.929237	
	min	20.240000	0.000000	
	25%	128.120000	0.000000	
	50%	365.940000	0.000000	
	75%	786.760000	0.220000	
	max	4040.710000	14.080000	

Sector		COIR	...	SEA TRANSPORT	\
FDI(INR Crores)	count	17.000000	...	17.000000	
	mean	6.907059	...	5310.566471	
	std	12.757785	...	8699.623110	
	min	0.000000	...	50.290000	
	25%	0.000000	...	745.910000	
	50%	0.820000	...	1484.890000	
	75%	9.490000	...	6237.730000	
	max	50.840000	...	33065.830000	
FDI(USD Million)	count	17.000000	...	17.000000	
	mean	0.238824	...	159.562941	
	std	0.365699	...	197.774282	
	min	0.000000	...	2.410000	
	25%	0.000000	...	29.320000	
	50%	0.040000	...	64.620000	
	75%	0.470000	...	284.850000	
	max	1.360000	...	735.060000	



Sector	SERVICES SECTOR (Fin., Banking, Insurance, Non Fin/Business, Outsourcing, R&D, Courier, Tech. Testing and Analysis, Other) \	
FDI(INR Crores)	count	17.000000
	mean	102210.699412
	std	107320.264707
	min	1489.460000
	25%	9208.320000
	50%	93950.040000
	75%	130785.770000
	max	390642.890000
FDI(USD Million)	count	17.000000
	mean	3498.617059
	std	2831.889810
	min	71.380000
	25%	456.150000
	50%	4174.530000
	75%	5215.980000
	max	8684.070000

Sector	SOAPS, COSMETICS & TOILET PREPARATIONS SUGAR \	
FDI(INR Crores)	count	17.000000
	mean	2234.894118
	std	2706.413237
	min	0.000000
	25%	17.970000
	50%	553.190000
	75%	4165.500000
	max	8283.740000
FDI(USD Million)	count	17.000000
	mean	70.818235
	std	78.330885
	min	0.000000
	25%	0.890000
	50%	24.580000
	75%	108.440000
	max	222.080000

Sector	TEA AND COFFEE (PROCESSING & WAREHOUSING COFFEE & RUBBER) \	
FDI(INR Crores)	count	17.000000
	mean	143.809412
	std	203.418523
	min	0.000000
	25%	7.990000
	50%	64.760000
	75%	183.420000
	max	784.270000
FDI(USD Million)	count	17.000000
	mean	6.542353
	std	10.001876
	min	0.000000
	25%	0.320000
	50%	1.600000
	75%	6.200000
	max	37.080000

Sector	TELECOMMUNICATIONS TEXTILES (INCLUDING DYED, PRINTED) \	
FDI(INR Crores)	count	17.000000
	mean	43419.320000
	std	60444.845518
	min	1826.150000
	25%	8992.610000
	50%	20434.280000
	75%	53905.570000
	max	250276.190000

27842.750000

FDI(USD Million)	count	17.000000	17.000000
	mean	1408.588824	145.377059
	std	1412.295111	141.758814
	min	86.490000	2.060000
	25%	303.870000	54.180000
	50%	1260.700000	129.650000
	75%	1997.240000	185.400000
	max	5563.690000	618.950000

Sector		TIMBER PRODUCTS	TRADING \
FDI(INR Crores)	count	17.000000	17.000000
	mean	310.583529	30078.021176
	std	570.967429	48094.462413
	min	0.000000	239.760000
	25%	1.410000	892.850000
	50%	32.800000	10337.880000
	75%	335.310000	21242.290000
	max	2279.040000	164822.750000
FDI(USD Million)	count	17.000000	17.000000
	mean	9.275294	835.934118
	std	14.763112	1118.499035
	min	0.000000	11.490000
	25%	0.070000	38.130000
	50%	1.580000	498.040000
	75%	10.230000	737.950000
	max	53.170000	3845.320000

Sector		VEGETABLE OILS AND VANASPATI
FDI(INR Crores)	count	17.000000
	mean	1287.005294
	std	1707.049361
	min	0.000000
	25%	35.680000
	50%	788.780000
	75%	1493.070000
	max	5545.100000
FDI(USD Million)	count	17.000000
	mean	41.029412
	std	45.645703
	min	0.000000
	25%	1.690000
	50%	21.550000
	75%	65.020000
	max	148.340000

[16 rows x 63 columns]

```
In [39]: #Grouping by the Sector column to find Total FDI Inflow per Sector from 2000-01 to 2016-
FDI_Sectws = Fdi_Sort.groupby('Sector').sum()
FDI_Sectws.sort_values(by='FDI(USD Million)',ascending=False)
```

C:\Users\nived\AppData\Local\Temp\ipykernel\_10180\3305241111.py:2: FutureWarning: The default value of numeric\_only in DataFrameGroupBy.sum is deprecated. In a future version, numeric\_only will default to False. Either specify numeric\_only or select only columns which should be valid for the function.

```
FDI_Sectws = Fdi_Sort.groupby('Sector').sum()
```

Out[39]:

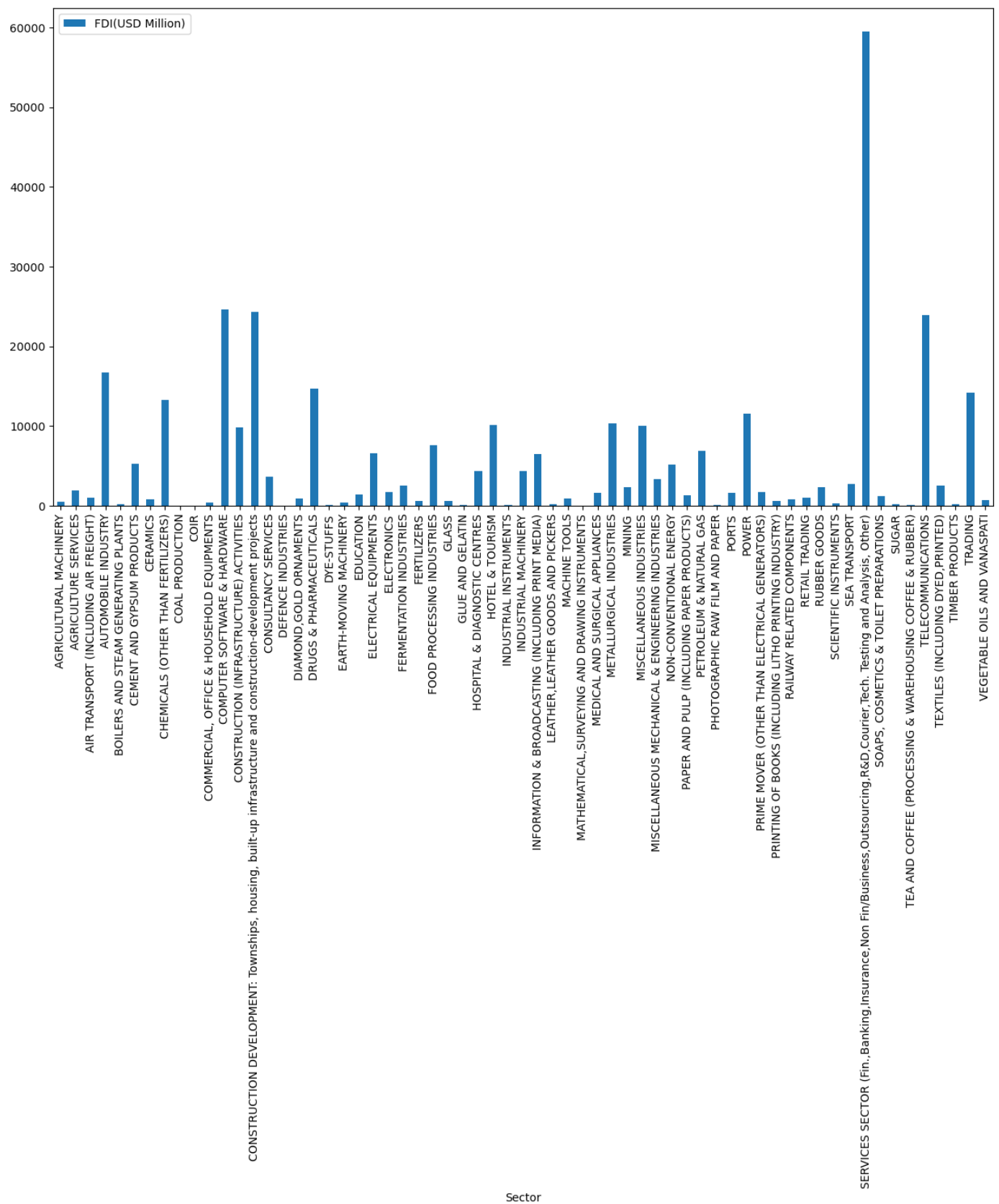
	FDI(INR Crores)	FDI(USD Million)
Sector		
SERVICES SECTOR (Fin.,Banking,Insurance,Non Fin/Business,Outsourcing,R&D,Courier,Tech. Testing and Analysis, Other)	1737581.89	59476.49
COMPUTER SOFTWARE & HARDWARE	788182.54	24669.49
CONSTRUCTION DEVELOPMENT: Townships, housing, built-up infrastructure and construction-development projects	553390.43	24293.09
TELECOMMUNICATIONS	738128.44	23946.01
AUTOMOBILE INDUSTRY	526895.95	16673.92
...	...	...
PHOTOGRAPHIC RAW FILM AND PAPER	1157.28	67.28
COAL PRODUCTION	547.80	27.74
MATHEMATICAL,SURVEYING AND DRAWING INSTRUMENTS	219.16	7.98
DEFENCE INDUSTRIES	134.48	5.12
COIR	117.42	4.06

63 rows × 2 columns

Bar graph representing the Amount in USD

```
In [50]: FDI_Sectws.plot(kind='bar',y='FDI(USD Million)',figsize = (15,8))
```

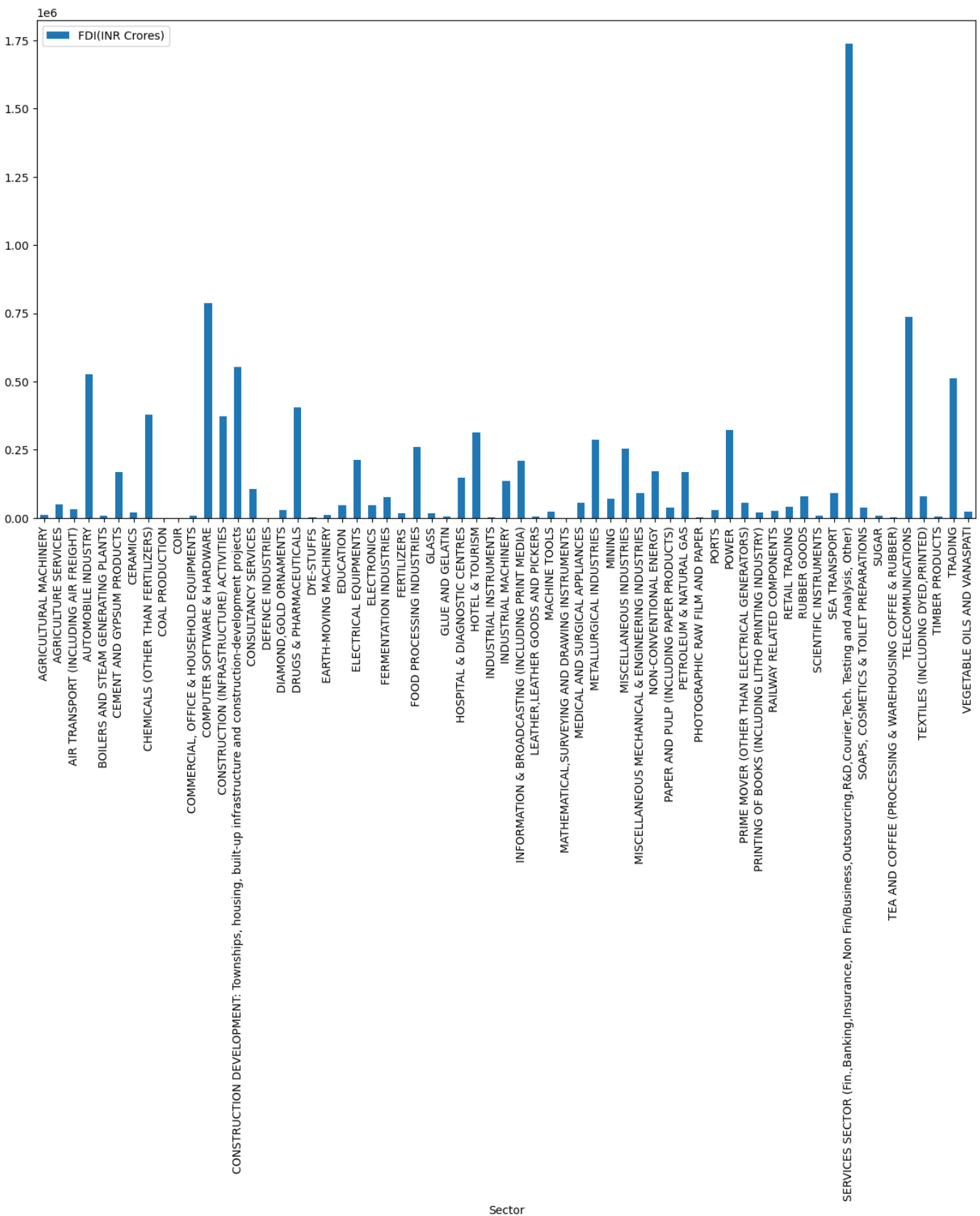
```
Out[50]: <Axes: xlabel='Sector'>
```



Bar graph representing the Amount in INR

```
In [51]: FDI_Sectws.plot(kind='bar',y='FDI(INR Crores)',figsize = (15,8))
```

```
Out[51]: <Axes: xlabel='Sector'>
```



```
In [53]: #Creating Dataframe
melt_02 = melt_01[['Year', 'FDI(INR Crores)']]
melt_02 = round(melt_02.groupby('Year').sum(), 2)
melt_02
```

Out [53]: FDI(INR Crores)

Year	
2000-01	49635.63
2001-02	91603.20
2002-03	63324.16
2003-04	46194.31
2004-05	64975.83
2005-06	108569.82
2006-07	255776.57
2007-08	398334.73
2008-09	664049.70
2009-10	581416.64
2010-11	443851.29
2011-12	806487.79
2012-13	663594.80
2013-14	889415.83
2014-15	1156211.81
2015-16	1714570.77
2016-17	1955819.45

Percentage increase of FDI in contrast to previous years

```
In [54]: melt_02['% growth over previous year'] = round(melt_02.pct_change()*100,2)
melt_02.fillna('-')
```

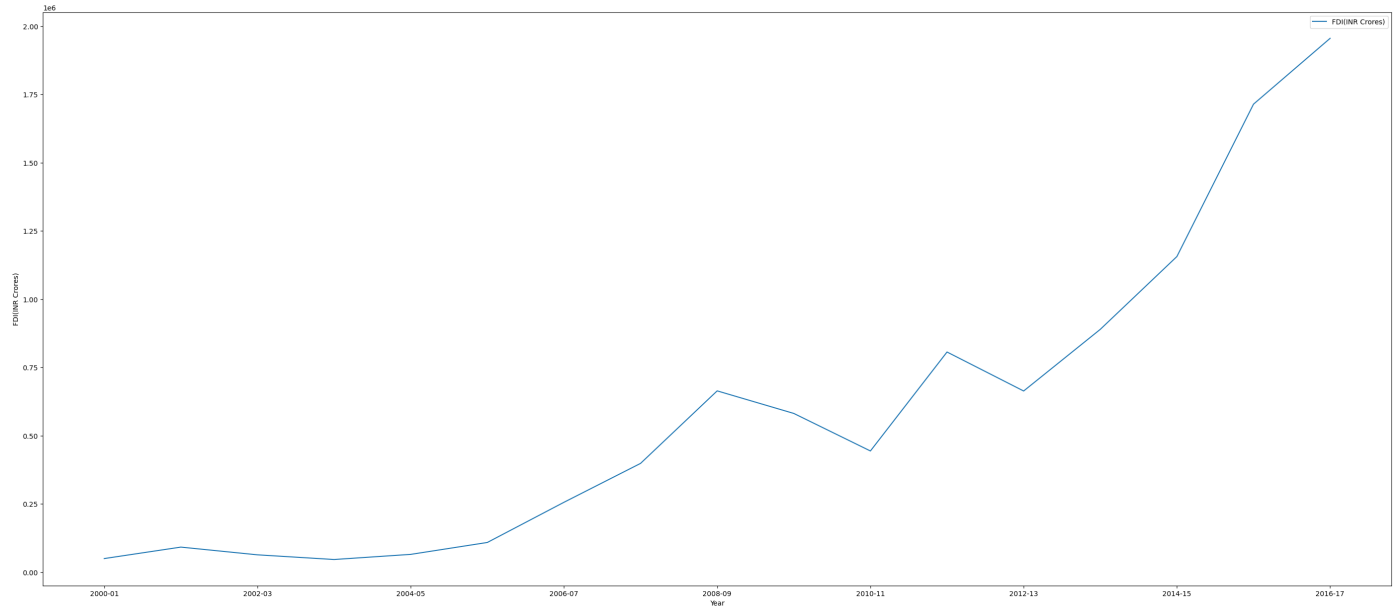
Out [54]:

	FDI(INR Crores)	% growth over previous year
Year		
2000-01	49635.63	-
2001-02	91603.20	84.55
2002-03	63324.16	-30.87
2003-04	46194.31	-27.05
2004-05	64975.83	40.66
2005-06	108569.82	67.09
2006-07	255776.57	135.59
2007-08	398334.73	55.74
2008-09	664049.70	66.71
2009-10	581416.64	-12.44
2010-11	443851.29	-23.66
2011-12	806487.79	81.7
2012-13	663594.80	-17.72
2013-14	889415.83	34.03
2014-15	1156211.81	30.0
2015-16	1714570.77	48.29
2016-17	1955819.45	14.07

From the above data, we could report that over a time period between 2000-2017 there have been some significant increase and also some significant decrease happened in the FDI inflows to the country. We can say that the year 2002-04 has the lowest inflows compared to the year 2001-02. The year 2006-07 has more inflows than the previous years between 2000-06. In 2014-2015, it increased its inflows after the downfall. The last two years, 2015-17 the inflows increased enormously compared to the previous years from 2000-14.

Line graph representing the INR in crores

```
In [57]: melt_02.plot.line(y='FDI(INR Crores)',figsize=(35,15))
plt.ylabel('FDI(INR Crores)')
plt.show()
```



Identifying the highest FDI

```
In [59]: Sect_HighFdi = FDI_Sectws.nlargest(10,['FDI(INR Crores)'])
Fdiin_Tot = round(melt_01['FDI(INR Crores)'].sum(),2)
Sum = Sect_HighFdi['FDI(INR Crores)'].sum()
Sect_HighFdi['In %age'] = round((Sect_HighFdi['FDI(INR Crores)']/Sum*100,2)
Sect_HighFdi['%age to Total Inflows'] = round((Sect_HighFdi['FDI(INR Crores)']/Fdiin_Tot)
Sect_HighFdi
```

Out[59]:

	FDI(INR Crores)	FDI(USD Million)	In %age	%age to Total Inflows
Sector				
<b>SERVICES SECTOR (Fin.,Banking,Insurance,Non Fin/Business,Outsourcing,R&amp;D,Courier,Tech. Testing and Analysis, Other)</b>	1737581.89	59476.49	27.42	17.46
<b>COMPUTER SOFTWARE &amp; HARDWARE</b>	788182.54	24669.49	12.44	7.92
<b>TELECOMMUNICATIONS</b>	738128.44	23946.01	11.65	7.42
<b>CONSTRUCTION DEVELOPMENT: Townships, housing, built-up infrastructure and construction-development projects</b>	553390.43	24293.09	8.73	5.56
<b>AUTOMOBILE INDUSTRY</b>	526895.95	16673.92	8.31	5.29
<b>TRADING</b>	511326.36	14210.88	8.07	5.14
<b>DRUGS &amp; PHARMACEUTICALS</b>	405316.92	14706.90	6.40	4.07
<b>CHEMICALS (OTHER THAN FERTILIZERS)</b>	378645.31	13293.09	5.98	3.80
<b>CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES</b>	373878.91	9817.47	5.90	3.76
<b>POWER</b>	323363.59	11589.13	5.10	3.25

Identifyin the lowest FDI

```
In [61]: Sect_LowFdi = FDI_Sectws.nsmallest(10,['FDI(INR Crores)'])
Sum = Sect_LowFdi['FDI(INR Crores)'].sum()
Sect_LowFdi['In %age'] = round((Sect_LowFdi['FDI(INR Crores)']/Sum*100,2)
Sect_LowFdi['%age to Total Inflows'] = round((Sect_LowFdi['FDI(INR Crores)']/Fdiin_Tot)*
Sect_LowFdi
```

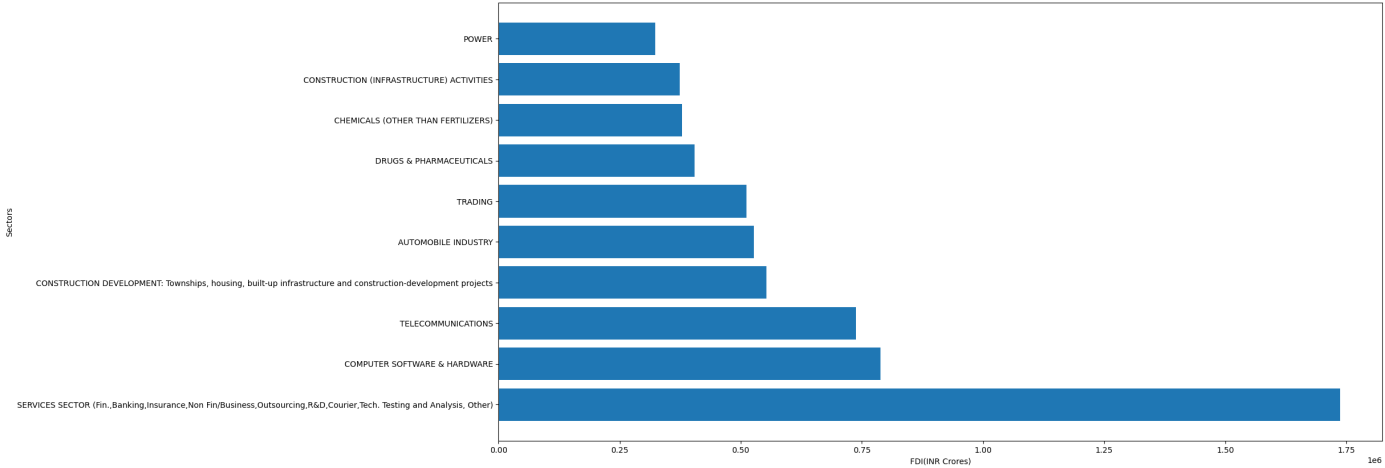


Out[61]:

Sector	FDI(INR Crores)	FDI(USD Million)	In %age	%age to Total Inflows
COIR	117.42	4.06	0.59	0.001
DEFENCE INDUSTRIES	134.48	5.12	0.68	0.001
MATHEMATICAL,SURVEYING AND DRAWING INSTRUMENTS	219.16	7.98	1.11	0.002
COAL PRODUCTION	547.80	27.74	2.77	0.006
PHOTOGRAPHIC RAW FILM AND PAPER	1157.28	67.28	5.86	0.012
INDUSTRIAL INSTRUMENTS	1822.66	76.12	9.23	0.018
TEA AND COFFEE (PROCESSING & WAREHOUSING COFFEE & RUBBER)	2444.76	111.22	12.38	0.025
DYE-STUFFS	3063.70	88.40	15.51	0.031
LEATHER,LEATHER GOODS AND PICKERS	4978.50	167.20	25.20	0.050
GLUE AND GELATIN	5268.61	128.39	26.67	0.053

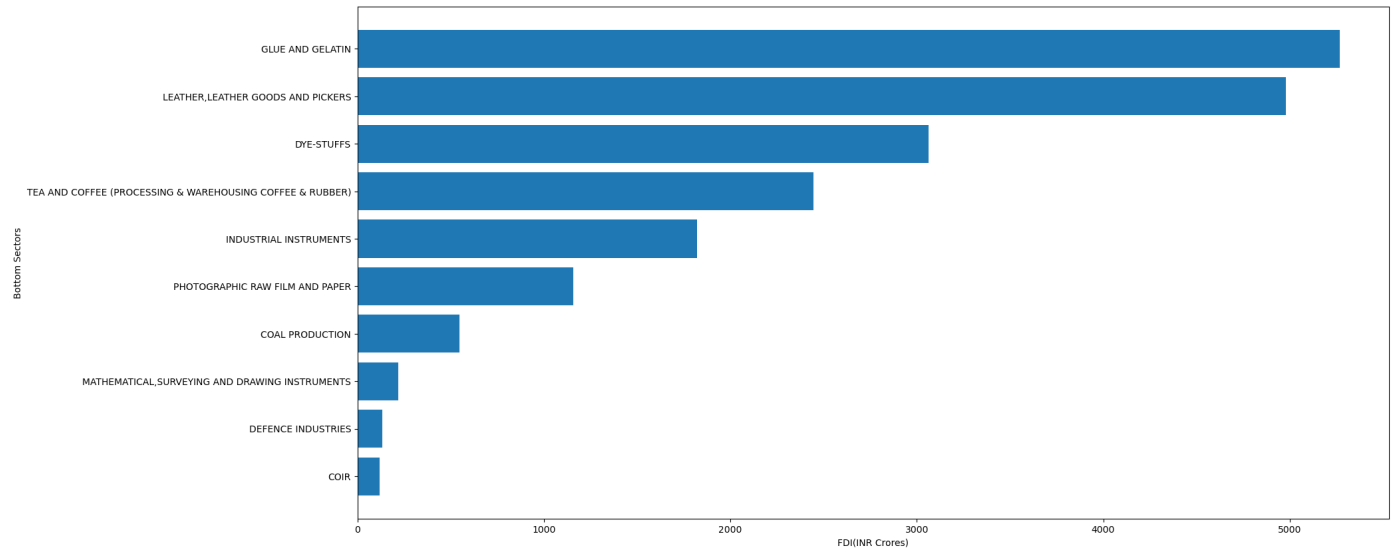
Bar graph for highest FDI

```
In [73]: plt.figure(figsize=(20,10))
plt.barh(Sect_HighFdi.index,Sect_HighFdi['FDI(INR Crores)'])
plt.xlabel('FDI(INR Crores)')
plt.ylabel('Sectors')
plt.show()
```



Bar graph for lowest FDI

```
In [74]: plt.figure(figsize=(20,10))
plt.barh(Sect_LowFdi.index,Sect_LowFdi['FDI(INR Crores)'])
plt.xlabel('FDI(INR Crores)')
plt.ylabel('Bottom Sectors')
plt.show()
```



```
In [76]: Fdi = FDI_Sectws.copy()
Fdi
```

Out[76]:

	FDI(INR Crores)	FDI(USD Million)
Sector		
AGRICULTURAL MACHINERY	12796.06	449.20
AGRICULTURE SERVICES	49483.59	1920.75
AIR TRANSPORT (INCLUDING AIR FREIGHT)	32833.65	1014.44
AUTOMOBILE INDUSTRY	526895.95	16673.92
BOILERS AND STEAM GENERATING PLANTS	7350.03	195.15
...	...	...
TELECOMMUNICATIONS	738128.44	23946.01
TEXTILES (INCLUDING DYED,PRINTED)	78564.90	2471.41
TIMBER PRODUCTS	5279.92	157.68
TRADING	511326.36	14210.88
VEGETABLE OILS AND VANASPATI	21879.09	697.50

63 rows × 2 columns

```
In [77]: #Creating a new column named 2000-17 to find total inflows
Fdi['Year'] = '2000-17'
```

```
In [79]: Fdi = Fdi[['Year','FDI(INR Crores)', 'FDI(USD Million)']]
Fdi['% of Total Inflows'] = (Fdi['FDI(INR Crores)']/ Fdi['FDI(INR Crores)'].sum())*100
```

C:\Users\nived\AppData\Local\Temp\ipykernel\_10180\4087497977.py:2: SettingWithCopyWarning:  
A value is trying to be set on a copy of a slice from a DataFrame.  
Try using .loc[row\_indexer,col\_indexer] = value instead

See the caveats in the documentation: [https://pandas.pydata.org/pandas-docs/stable/user\\_guide/indexing.html#returning-a-view-versus-a-copy](https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

```
Fdi['% of Total Inflows'] = (Fdi['FDI(INR Crores)']/ Fdi['FDI(INR Crores)'].sum())*100
```

```
In [80]: Fdi_se = Fdi.sort_values('FDI(INR Crores)',ascending=False)
Fdi_re= Fdi_se.style.set_caption("SECTOR-WISE FDI INFLOWS").format(precision=3)
Fdi_re
```

SECTOR-WISE FDI INFLOWS

	Year	FDI(INR Crores)	FDI(USD Million)	% of Total Inflows
Sector				
SERVICES SECTOR (Fin.,Banking,Insurance,Non Fin/Business,Outsourcing,R&D,Courier,Tech. Testing and Analysis, Other)	2000-17	1737581.890	59476.490	17.456
COMPUTER SOFTWARE & HARDWARE	2000-17	788182.540	24669.490	7.918
TELECOMMUNICATIONS	2000-17	738128.440	23946.010	7.416
CONSTRUCTION DEVELOPMENT: Townships, housing, built-up infrastructure and construction-development projects	2000-17	553390.430	24293.090	5.560
AUTOMOBILE INDUSTRY	2000-17	526895.950	16673.920	5.293
TRADING	2000-17	511326.360	14210.880	5.137
DRUGS & PHARMACEUTICALS	2000-17	405316.920	14706.900	4.072
CHEMICALS (OTHER THAN FERTILIZERS)	2000-17	378645.310	13293.090	3.804
CONSTRUCTION (INFRASTRUCTURE) ACTIVITIES	2000-17	373878.910	9817.470	3.756
POWER	2000-17	323363.590	11589.130	3.249
HOTEL & TOURISM	2000-17	313412.580	10143.460	3.149
METALLURGICAL INDUSTRIES	2000-17	286835.200	10330.540	2.882
FOOD PROCESSING INDUSTRIES	2000-17	261664.030	7542.920	2.629
MISCELLANEOUS INDUSTRIES	2000-17	255482.710	10043.450	2.567
ELECTRICAL EQUIPMENTS	2000-17	213460.780	6567.410	2.145
INFORMATION & BROADCASTING (INCLUDING PRINT MEDIA)	2000-17	209801.000	6493.710	2.108
NON-CONVENTIONAL ENERGY	2000-17	172153.930	5181.490	1.730
PETROLEUM & NATURAL GAS	2000-17	169768.070	6856.160	1.706
CEMENT AND GYPSUM PRODUCTS	2000-17	169011.650	5239.230	1.698
HOSPITAL & DIAGNOSTIC CENTRES	2000-17	147102.470	4339.490	1.478
INDUSTRIAL MACHINERY	2000-17	137198.000	4393.880	1.378
CONSULTANCY SERVICES	2000-17	106524.120	3617.730	1.070
MISCELLANEOUS MECHANICAL & ENGINEERING INDUSTRIES	2000-17	91624.890	3313.330	0.920
SEA TRANSPORT	2000-	90279.630	2712.570	0.907

	Year	FDI(INR Crores)	FDI(USD Million)	% of Total Inflows
Sector				
	17			
TEXTILES (INCLUDING DYED,PRINTED)	2000-17	78564.900	2471.410	0.789
RUBBER GOODS	2000-17	78396.190	2347.020	0.788
FERMENTATION INDUSTRIES	2000-17	75340.530	2487.810	0.757
MINING	2000-17	70751.810	2271.830	0.711
PRIME MOVER (OTHER THAN ELECTRICAL GENERATORS)	2000-17	55981.830	1738.160	0.562
MEDICAL AND SURGICAL APPLIANCES	2000-17	54800.070	1576.840	0.551
AGRICULTURE SERVICES	2000-17	49483.590	1920.750	0.497
ELECTRONICS	2000-17	47083.050	1719.980	0.473
EDUCATION	2000-17	45576.070	1416.200	0.458
RETAIL TRADING	2000-17	40510.950	988.570	0.407
SOAPS, COSMETICS & TOILET PREPARATIONS	2000-17	37993.200	1203.910	0.382
PAPER AND PULP (INCLUDING PAPER PRODUCTS)	2000-17	36799.860	1291.440	0.370
AIR TRANSPORT (INCLUDING AIR FREIGHT)	2000-17	32833.650	1014.440	0.330
PORTS	2000-17	30223.600	1637.280	0.304
DIAMOND,GOLD ORNAMENTS	2000-17	28555.410	895.950	0.287
RAILWAY RELATED COMPONENTS	2000-17	26574.440	798.550	0.267
MACHINE TOOLS	2000-17	23877.710	861.830	0.240
VEGETABLE OILS AND VANASPATI	2000-17	21879.090	697.500	0.220
PRINTING OF BOOKS (INCLUDING LITHO PRINTING INDUSTRY)	2000-17	20391.080	634.660	0.205
CERAMICS	2000-17	19821.950	760.120	0.199
FERTILIZERS	2000-17	16842.540	565.690	0.169
GLASS	2000-17	16665.520	551.450	0.167
AGRICULTURAL MACHINERY	2000-17	12796.060	449.200	0.129
EARTH-MOVING MACHINERY	2000-17	12331.110	389.390	0.124

	Year	FDI(INR Crores)	FDI(USD Million)	% of Total Inflows
Sector				
COMMERCIAL, OFFICE & HOUSEHOLD EQUIPMENTS	2000-17	9577.140	353.470	0.096
SCIENTIFIC INSTRUMENTS	2000-17	9210.710	254.930	0.093
SUGAR	2000-17	7556.550	204.430	0.076
BOILERS AND STEAM GENERATING PLANTS	2000-17	7350.030	195.150	0.074
TIMBER PRODUCTS	2000-17	5279.920	157.680	0.053
GLUE AND GELATIN	2000-17	5268.610	128.390	0.053
LEATHER,LEATHER GOODS AND PICKERS	2000-17	4978.500	167.200	0.050
DYE-STUFFS	2000-17	3063.700	88.400	0.031
TEA AND COFFEE (PROCESSING & WAREHOUSING COFFEE & RUBBER)	2000-17	2444.760	111.220	0.025
INDUSTRIAL INSTRUMENTS	2000-17	1822.660	76.120	0.018
PHOTOGRAPHIC RAW FILM AND PAPER	2000-17	1157.280	67.280	0.012
COAL PRODUCTION	2000-17	547.800	27.740	0.006
MATHEMATICAL,SURVEYING AND DRAWING INSTRUMENTS	2000-17	219.160	7.980	0.002
DEFENCE INDUSTRIES	2000-17	134.480	5.120	0.001
COIR	2000-17	117.420	4.060	0.001

```
In [91]: Fdi_Merge.to_excel(r"C:\Users\nived\Downloads\FDI data.xlsx")
```

```
In [92]: Fdi_re.to_excel(r"C:\Users\nived\Downloads\FDI data2.xlsx")
```

```
In [ ]:
```

```
In [ ]:
```