

The background features a complex network of blue lines and dots, resembling a molecular or data structure, overlaid on a light blue background. A large, irregular white shape is centered on the page, containing the title text. Several smaller white circles are scattered around the central shape.

Analysis of World Development Indicators

Introduction -World Development Indicators

The World Development Indicators database contains the most comprehensive set of data on countries in the international data infrastructure.

The World Development Indicators from the World Bank contain over a thousand annual indicators of economic development from hundreds of countries around the world.

It presents the most current and accurate global development data available, and includes national, regional and global estimates.

The World Development Indicators data has been downloaded from <https://datacatalog.worldbank.org/dataset/worlddevelopment-indicators>

Most data are not reported in annually unless for most important indicators for e.g. 'GDP per capita growth (annual %)' generally reported once every 2 years .

There are multiple GDP series available , for most non-specialist users, GDP per capita at current US dollar is good enough.

The countries data includes vital information regarding to population, Income and expenditure details, Currency, Region .

A detailed explanation of Indicators is maintained along with indicator codes and series code.

The series code gives the information related to periodicity , any limitations and exceptions, weblinks and license type.

This data set contains information about World Bank project lending since 1960 to 2021 year.

The data provides an open collection of 1,442 high-quality indicators and series code.

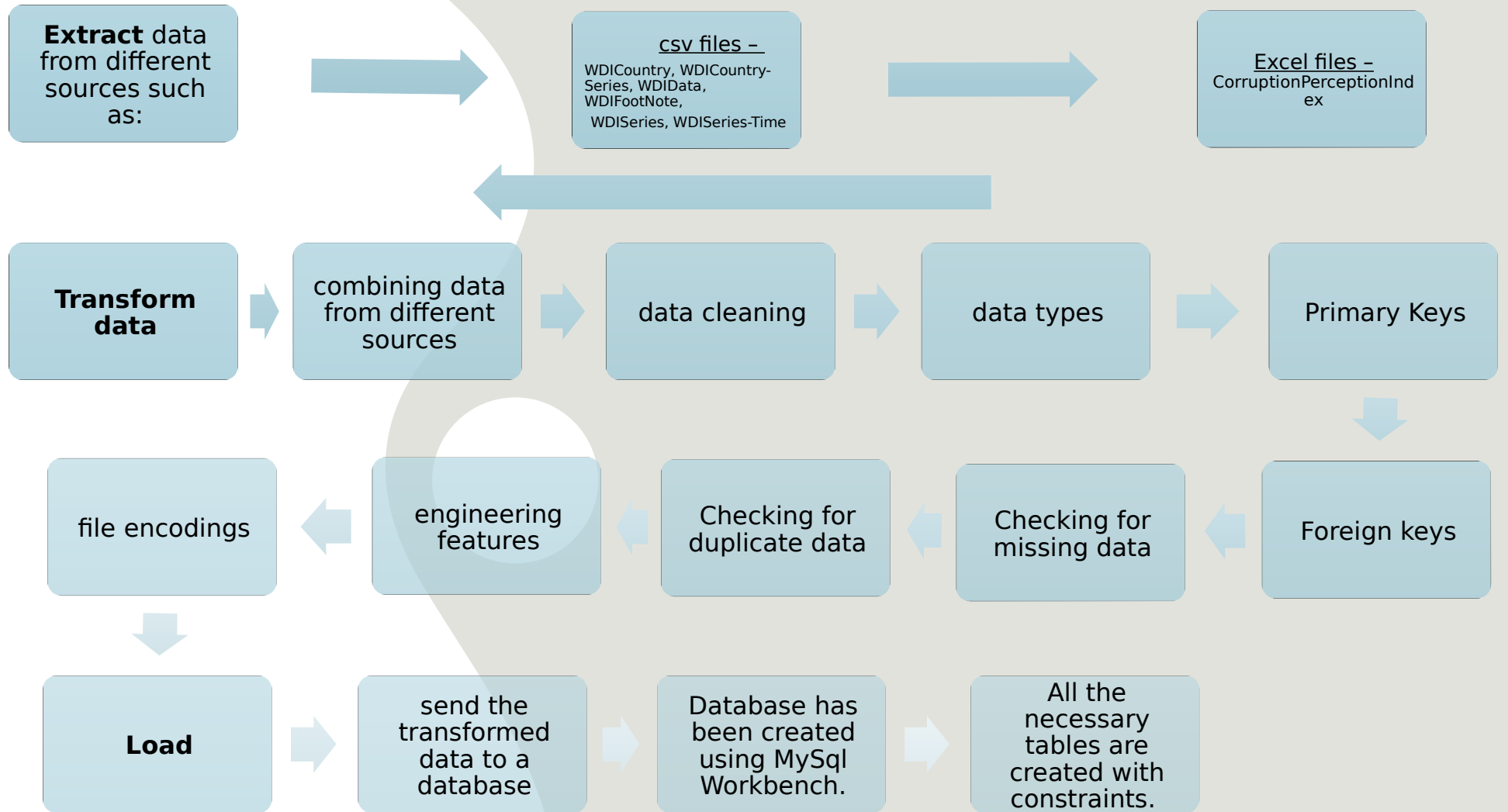
It includes data for 180 countries, 48 Categorized territories and 7 Aggregated Regions ; with notable exception of Taiwan(going back as far as 1960)

Although, Observed Many indicators started recording after year 2000 .

Corruption Perception Index

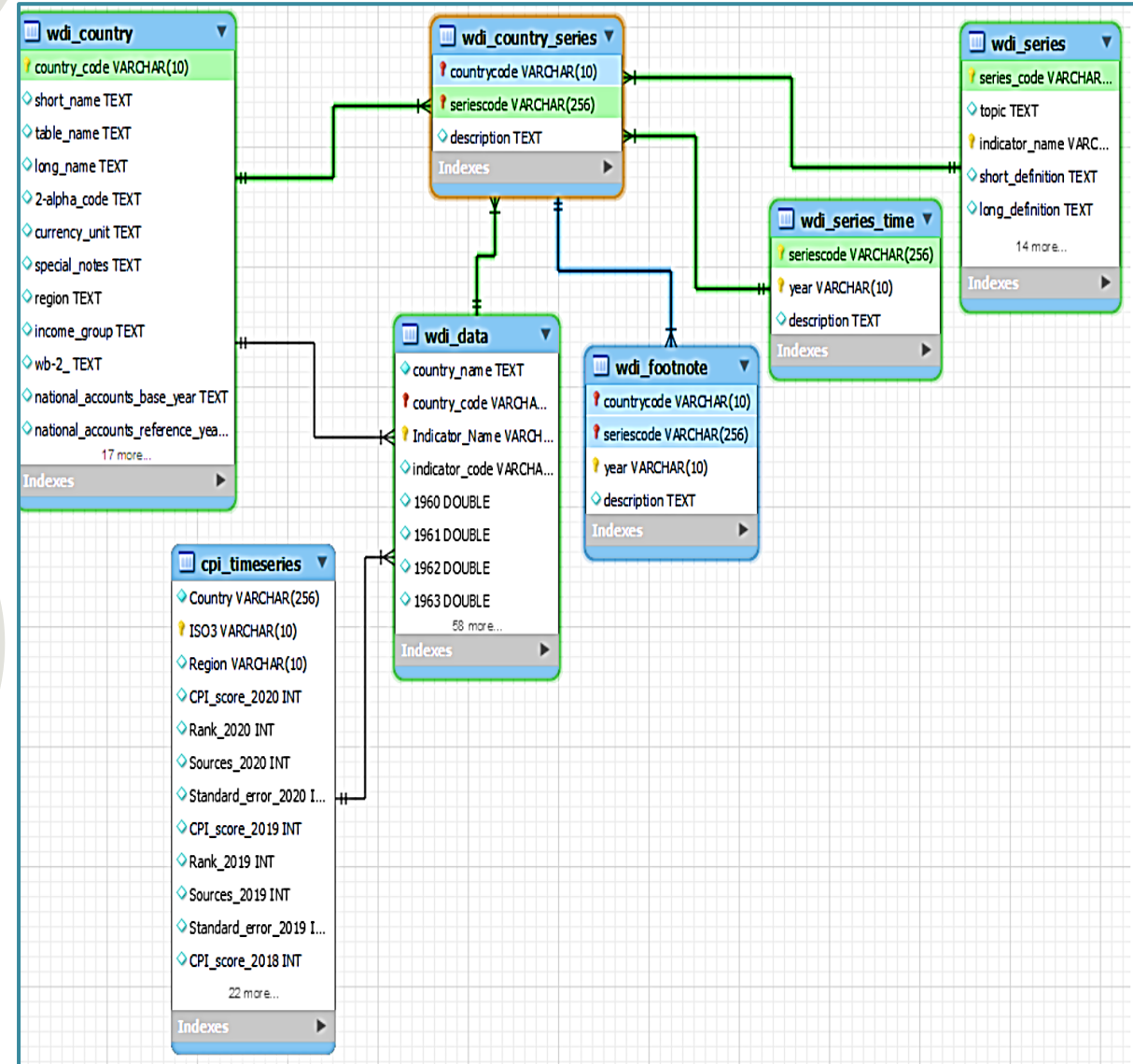
- The Corruption Perception Index data holds the Corruption indicator and the rank from 2012-2020.
 - The higher the CPI score lower is the corruption.
 - The higher the rank higher is the corruption
 - Denmark is the least corrupted country.
 - South Sudan and Somalia are the highest corrupted countries.
- CPI2020 data consists of
 - The confidence interval of the score calculation
 - Different types are indexes and ratings are provided

Data Pipeline



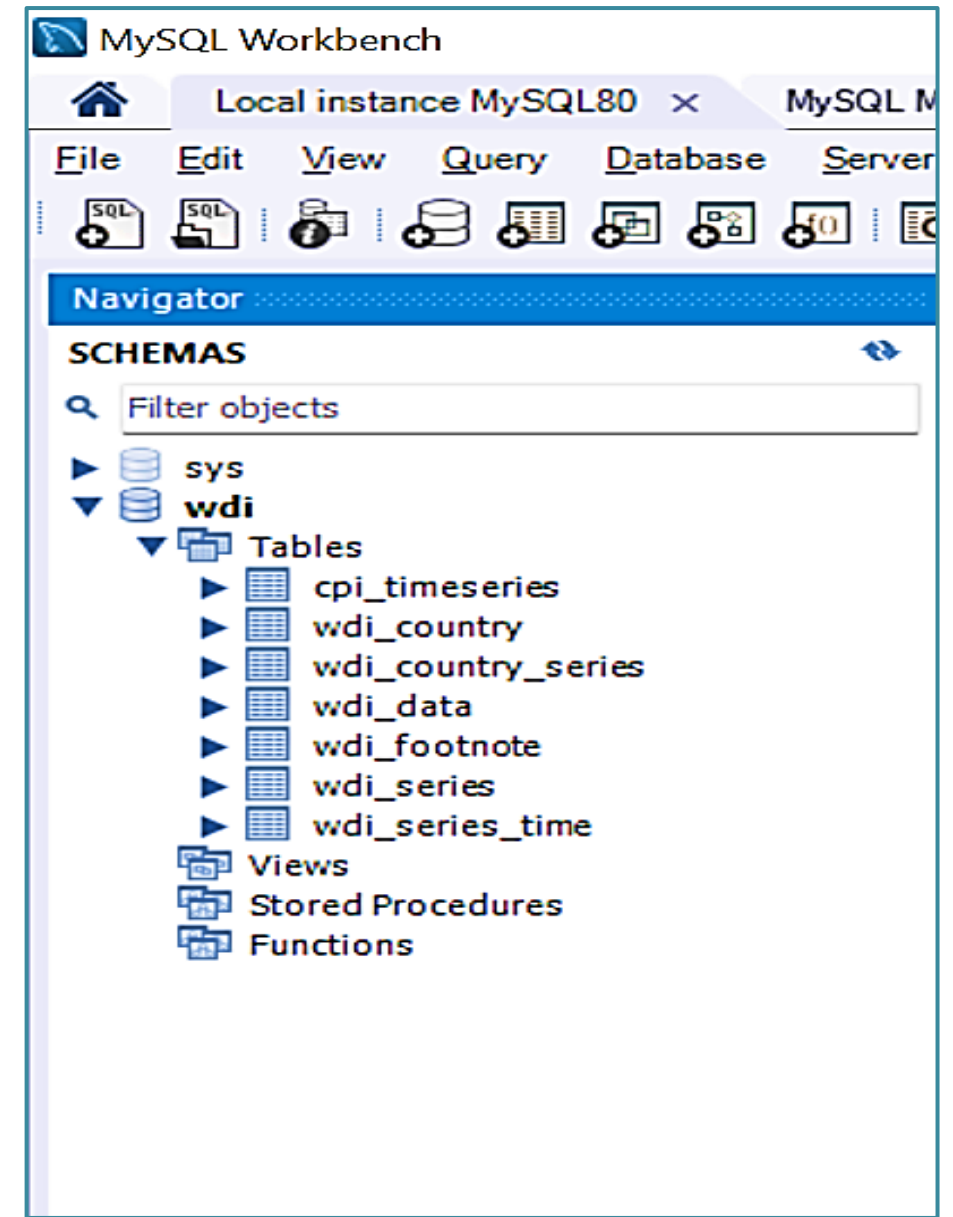
Creating Database

Logical EER Diagram



Creating Database

Schema creation



Creating Database

Tables creation along with Constraints

```
-- Table `wdi`.`wdi_country_series`  
-----  
• CREATE TABLE IF NOT EXISTS `wdi`.`wdi_country_series` (  
  `countrycode` VARCHAR(10) NOT NULL,  
  `seriescode` VARCHAR(256) NOT NULL,  
  `description` TEXT NULL DEFAULT NULL,  
  PRIMARY KEY (`countrycode`, `seriescode`),  
  INDEX `SERIES_FK_idx` (`seriescode` ASC) VISIBLE,  
  CONSTRAINT `Country_fk1`  
    FOREIGN KEY (`countrycode`)  
    REFERENCES `wdi`.`wdi_country` (`country_code`),  
  CONSTRAINT `Series_fk1`  
    FOREIGN KEY (`seriescode`)  
    REFERENCES `wdi`.`wdi_series` (`series_code`),  
  CONSTRAINT `Series_fk2`  
    FOREIGN KEY (`seriescode`)  
    REFERENCES `wdi`.`wdi_series_time` (`seriescode`))  
  
ENGINE = InnoDB  
DEFAULT CHARACTER SET = utf8mb4  
COLLATE = utf8mb4_0900_ai_ci;
```


Creating Database

Loading Data

```
USE WDI;

-- -----
-- Table `wdi`.`wdi_country`
-- -----

LOAD DATA LOCAL INFILE 'C:/Users/pushy/Desktop/MCB/WDI_csv/WDICountry.csv' INTO TABLE wdi_country
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\r\n'
IGNORE 1 LINES;

SELECT COUNT(*) FROM WDI.WDI_COUNTRY;

-- -----
-- Table `wdi`.`wdi_series`
-- -----

LOAD DATA LOCAL INFILE 'C:/Users/pushy/Desktop/MCB/WDI_csv/WDISeries.csv' INTO TABLE wdi_series
FIELDS TERMINATED BY ','
ENCLOSED BY '"'
LINES TERMINATED BY '\r\n'
IGNORE 1 LINES;

SELECT COUNT(*) FROM WDI.wdi_series;
```

Exploratory Data Analysis

```
select count(*) as num_countries from wdi_country;
```

Result Grid   Filter Rows: Export:  Wrap Cell Content: 

num_countries
▶ 265

```
select count(distinct seriescode) as num_etry_seriescode from wdi_country_series;
```

Result Grid   Filter Rows: Export:  Wrap Cell Content: 

num_etry_seriescode
▶ 192

```
select count(distinct indicator_code) as num_indicators from wdi_data;
```

Result Grid   Filter Rows: Export:  Wrap Cell Content: 

num_indicators
▶ 1442

```
select count(distinct series_code) as num_seriescode from wdi_series;
```

Result Grid   Filter Rows: Export:  Wrap Cell Content: 

num_seriescode
▶ 1442

```
SELECT DISTINCT region FROM wdi_Country ORDER BY region;
```

Result Grid   Filter Rows: Export:  Wrap Cell Content: 

region
▶

East Asia & Pacific
Europe & Central Asia
Latin America & Caribbean
Middle East & North Africa
North America
South Asia
Sub-Saharan Africa

Exploratory Data Analysis

```
with newest_data as (  
    select country_code, indicator_code, '2020' as value_2020 from wdi_data  
    where  
        indicator_code = (select series_code from wdi_series where indicator_name = 'Adjusted savings: education expenditure (current US$)')  
    group by country_code  
)  
  
select c.long_name as country, c.income_group, value_2020 as "Literacy_expenditure_value"  
from wdi_data, newest_data  
    join wdi_country c  
    on c.country_code = newest_data.country_code  
where wdi_data.indicator_code = newest_data.indicator_code  
    and wdi_data.country_code = newest_data.country_code  
order by value_2020 desc limit 10
```

Result Grid Filter Rows: Export: Wrap Cell Content:			
	country	income_group	Literacy_expenditure_value
▶	United States of America	High income	936449187745.971
	People's Republic of China	Upper middle income	261340000000
	Federal Republic of Germany	High income	174806647216.242
	United Kingdom of Great Britain and N...	High income	144945163046.239
	Japan	High income	140021479616.733
	French Republic	High income	131402684870.96
	Federative Republic of Brazil	Upper middle income	89260331373.0182
	Republic of India	Lower middle income	81312000000
	Canada	High income	80359000000
	Republic of Korea	High income	76539128827.7346

Report – list of countries & list of indicators

```
( select Country, ISO3 , 'Corruption Perception Index' as Indicator_Name, 'CPI.Score' as indicator_code,
  CPI_score_2020 as value_2020 ,CPI_score_2019 as value_2019, CPI_score_2018 as value_2018
  from cpi_timeseries c
  where Country in('Seychelles', 'Maldives', "Côte d'Ivoire", 'Kenya', 'Sri Lanka', 'India', 'Singapore', 'Australia', "Denmark & Finland")
)
union
(select country_name,country_code,d.Indicator_Name, d.indicator_code, `2020` as value_2020 ,`2019` as value_2019, `2018` as value_2018
  from wdi_data as d
  where indicator_code in (select series_code
    from wdi_series
    where indicator_name in( "Total fisheries production (metric tons)","Agricultural land (sq. km)",
      "Time required to start a business (days)",
      "New businesses registered (number)",
      "Employment in agriculture (% of total employment) (modeled ILO estimate)",
      "Self-employed, total (% of total employment) (modeled ILO estimate)"))
    and country_name in('Seychelles',
      'Maldives', "Côte d'Ivoire", 'Kenya',
      'Sri Lanka', 'India', 'Singapore',
      'Australia', "Denmark & Finland")
  group by Indicator_Name, country_code)
limit 15
;
```

Country	ISO3	Indicator_Name	indicator_code	value_2020	value_2019	value_2018
Australia	AUS	Corruption Perception Index	CPI.Score	77	77	77
Cote d'Ivoire	CIV	Corruption Perception Index	CPI.Score	36	35	35
India	IND	Corruption Perception Index	CPI.Score	40	41	41
Kenya	KEN	Corruption Perception Index	CPI.Score	31	28	27
Sri Lanka	LKA	Corruption Perception Index	CPI.Score	38	38	38
Maldives	MDV	Corruption Perception Index	CPI.Score	43	29	31
Singapore	SGP	Corruption Perception Index	CPI.Score	85	85	85
Seychelles	SYC	Corruption Perception Index	CPI.Score	66	66	66
Australia	AUS	Agricultural land (sq. km)	AG.LND.AGRI.K2	3557750	3624770	3588950
Australia	AUS	Employment in agriculture (% of total employment)	SL.AGR.EMPL.ZS	0	2.55999994277954	2.61999988555908
Australia	AUS	New businesses registered (number)	IC.BUS.NREG	236447	223389	235684
Australia	AUS	Self-employed, total (% of total employment) (modeled ILO estimate)	SL.EMP.SELF.ZS	0	16.5799999237061	16.4599990844727
Australia	AUS	Time required to start a business (days)	IC.REG.DURS	0	2	2.5
Australia	AUS	Total fisheries production (metric tons)	ER.FSH.PROD.MT	314528.28	301839.84	313107.8
Cote d'Ivoire	CIV	Agricultural land (sq. km)	AG.LND.AGRI.K2	312000	312000	312000

Report – list of countries & list of indicators

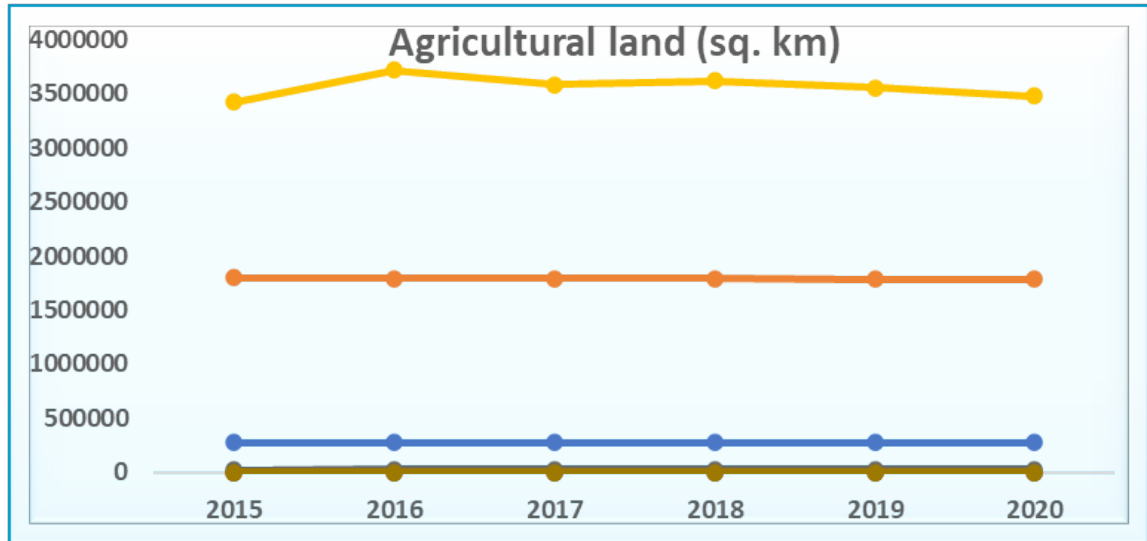
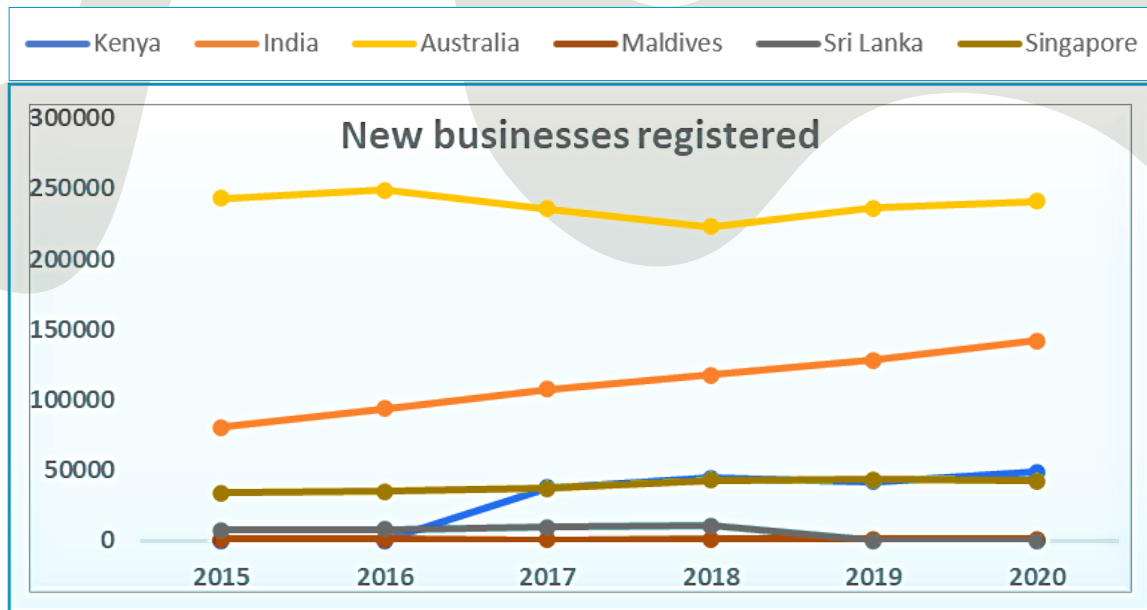
Country	Kenya, India, Singapore, Finland, Seychelles, Australia, Cote d'Ivoire, Denmark, Maldives, Sri Lanka			Indicator	New businesses registered (number)
Country	Country Code	Region	Indicator	Time required to start a business (days) 2020	Time required to start a business (days) 2019
Kenya	KEN	Sub-Saharan Africa	New businesses registered	49037	42085
India	IND	South Asia	New businesses registered (number)	142000	128565
Singapore	SGP	East Asia & Pacific	New businesses registered (number)	42217	43762
Finland	FIN	Europe & Central Asia	New businesses registered (number)	20020	18100
Seychelles	SYC	Sub-Saharan Africa	New businesses registered (number)	109	157
Australia	AUS	East Asia & Pacific	New businesses registered (number)	236447	223389
Cote d'Ivoire	CIV	SSA	New businesses registered (number)	11451	11210
Denmark	DNK	Europe & Central Asia	New businesses registered (number)	0	0
Maldives	MDV	South Asia	New businesses registered (number)	1153	1280
Sri Lanka	LKA	South Asia	New businesses registered (number)	0	0

Report – list of countries & list of indicators

Country	Maldives, Kenya, Australia, Finland, India, France, China, Singapore			Indicator	Corruption Perception Index				
Country	Country Code	Region	Indicator	Time required to start a business (days) 2020	Time required to start a business (days) 2019	Change in scores	Time required to start a business Rank 2020	Time required to start a business 2019	Change in Rank
Maldives	MDV	AP	Corruption Perception Index	43	29	↑ 14	75	130	↓ -55
Kenya	KEN	SSA	Perception Index	31	28	↑ 3	124	137	↓ -13
Australia	AUS	AP	Perception Index	77	77	→ 0	11	12	↓ -1
Finland	FIN	WE/EU	Corruption Perception Index	85	86	↓ -1	3	3	→ 0
India	IND	AP	Perception Index	40	41	↓ -1	86	80	↑ 6
France	FRA	WE/EU	Corruption Perception Index	69	69	→ 0	23	23	→ 0
China	CHN	AP	Corruption Perception Index	42	41	↑ 1	78	80	↓ -2
Singapore	SGP	AP	Corruption Perception Index	85	85	→ 0	3	4	↓ -1

Country	Maldives, Kenya, Australia, Finland, India, France, China, Singapore			Indicator	Access to electricity (% of population)				
Country	Country Code	Region	Indicator	Time required to start a business (days) 2020	Time required to start a business (days) 2019	Change in scores	Time required to start a business Rank 2020	Time required to start a business 2019	Change in Rank
Maldives	MDV	South Asia	Access to electricity (% of population)	100	100	→ 0	Not Data Available	Not Data Available	
Kenya	KEN	Sub-Saharan Africa	Access to electricity (% of population)	71.4379425	69.69999695	↑ 1.737945557	Not Data Available	Not Data Available	
Australia	AUS	East Asia & Pacific	Access to electricity (% of population)	100	100	→ 0	Not Data Available	Not Data Available	
Finland	FIN	Europe & Central Asia	Access to electricity (% of population)	100	100	→ 0	Not Data Available	Not Data Available	
India	IND	South Asia	Access to electricity (% of population)	99	97.30826569	↑ 1.691734314	Not Data Available	Not Data Available	
France	FRA	Europe & Central Asia	Access to electricity (% of population)	100	100	→ 0	Not Data Available	Not Data Available	
China	CHN	East Asia & Pacific	Access to electricity (% of population)	100	100	→ 0	Not Data Available	Not Data Available	
Singapore	SGP	East Asia & Pacific	Access to electricity (% of population)	100	100	→ 0	Not Data Available	Not Data Available	

Analysis of WDI among Countries



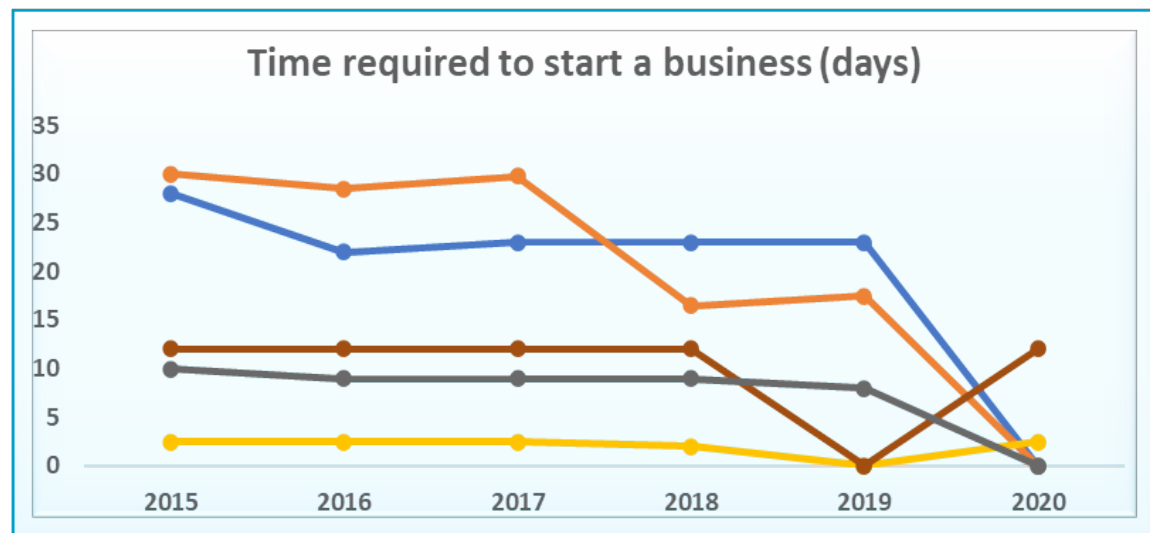
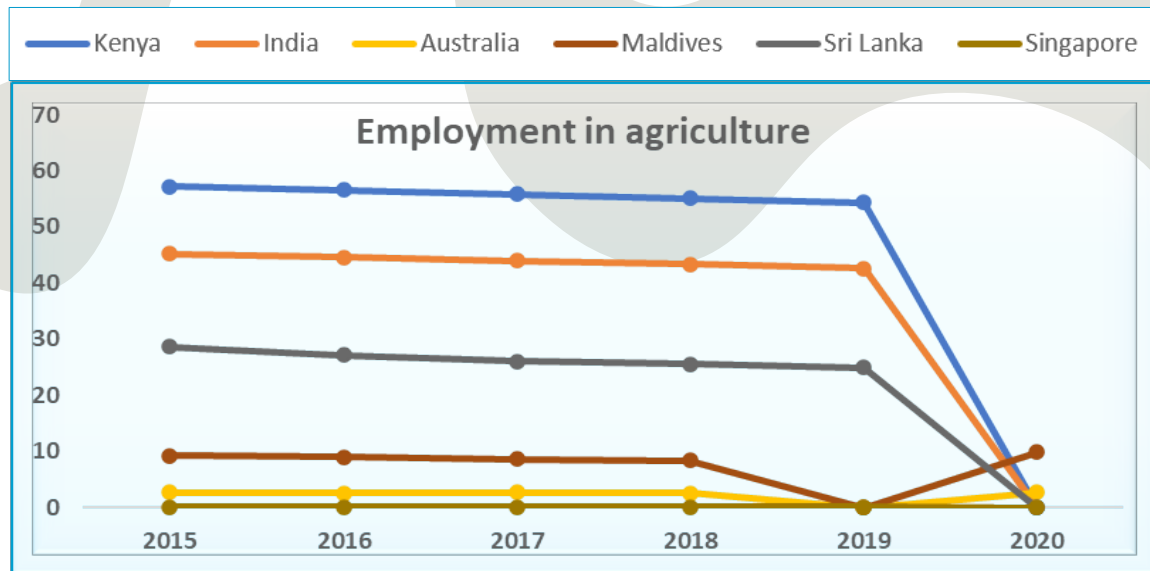
New Businesses Registered:

- Australia has highest number of business registered over the period though there is a slight fall during 2018,2019.
- Followed by India, which is linearly increasing over the period.

Agricultural Land :

- Australia holds the highest land under agricultural compared to other countries ,peak value in 2016 from there on the value is dropping.
- Followed by India, maintaining the same proportion of land year on year.

Analysis of WDI among Countries



Employment in Agriculture

- Kenya has highest employment in agriculture in 2015 and there is a slight fall every year.
- Followed by India, which is proportionately decreasing over the period.
- In 2020 the data has not been recorded.

Time required to start new business:

- In 2015 India is taking highest time to start the business followed by Kenya.
- In the following years India has comparatively reduced the time to start the new business. Whereas Kenya has increased the time to start the new business.
- The data hasn't been recorded for Maldives in 2019 and other countries in 2020.

GDP Per capita

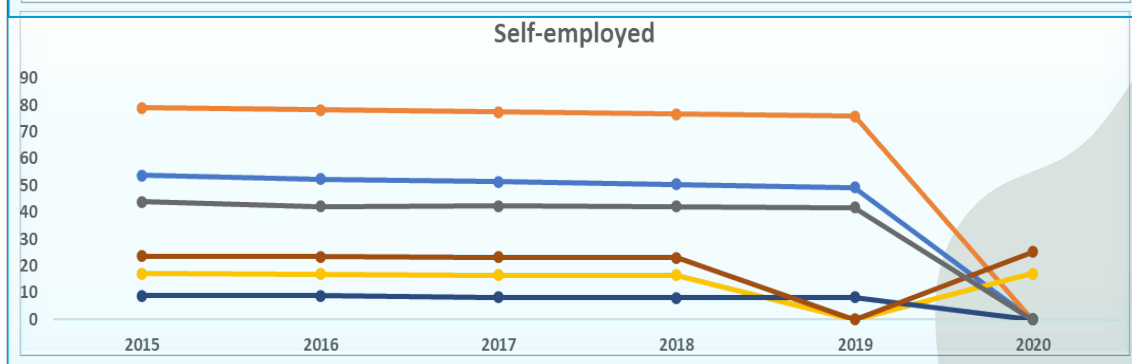
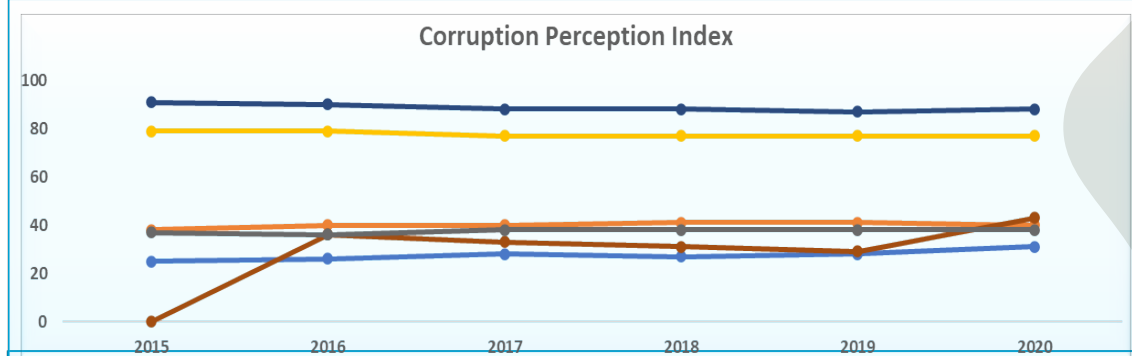
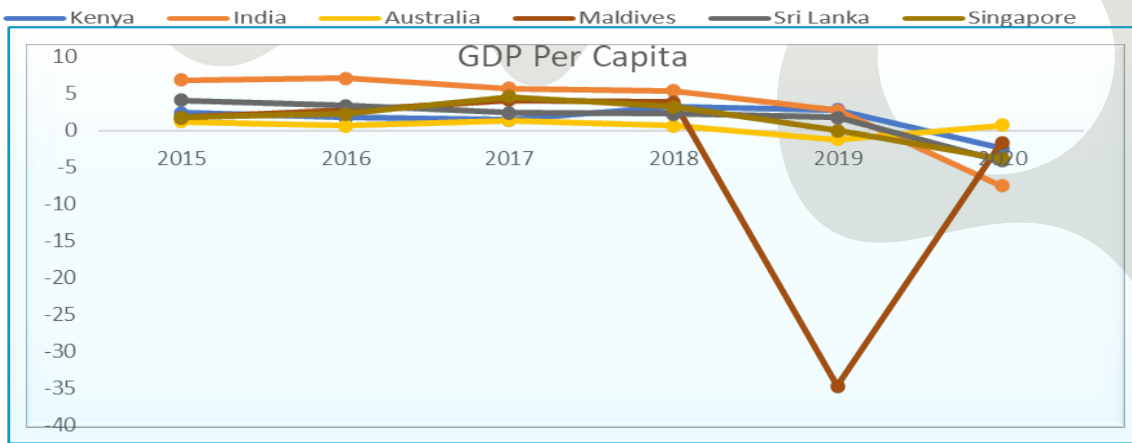
- India has highest GDP in 2015, over the period of time it is following a decreasing trend.
- Maldives has highest negative in 2019, which increased comparatively better by 2020.
- All the countries has a dip in 2019.

Corruption Perception Index:

- In 2015 Maldives has lowest perception index which indicates it has highest corruption, which slowly improved over time except for 2019.
- Rest of the countries are able to maintain a steady corruption perception index over the period.

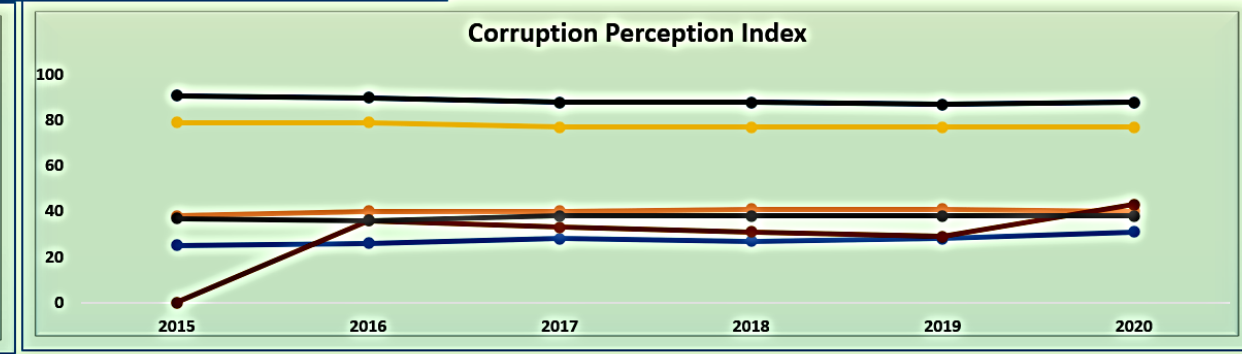
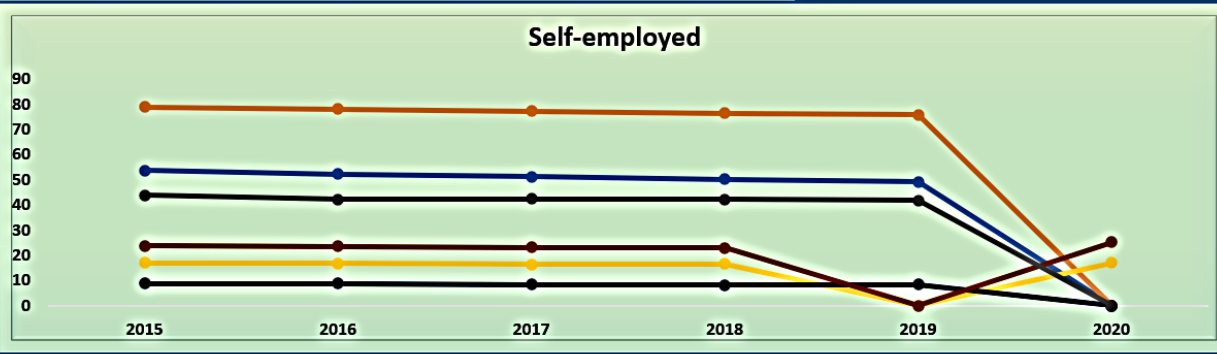
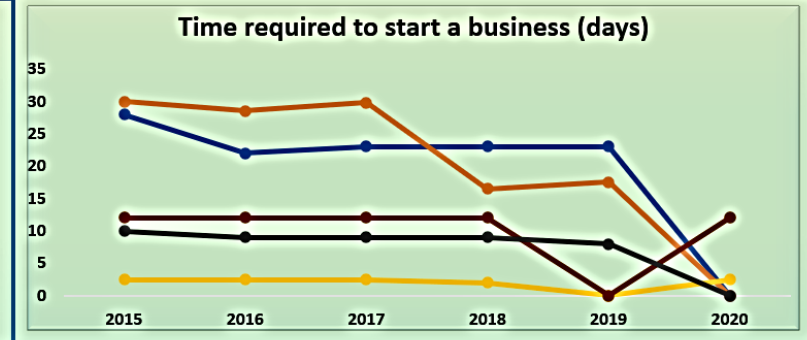
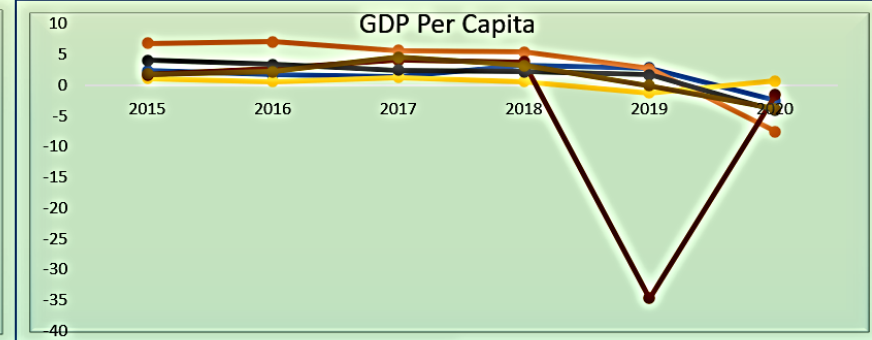
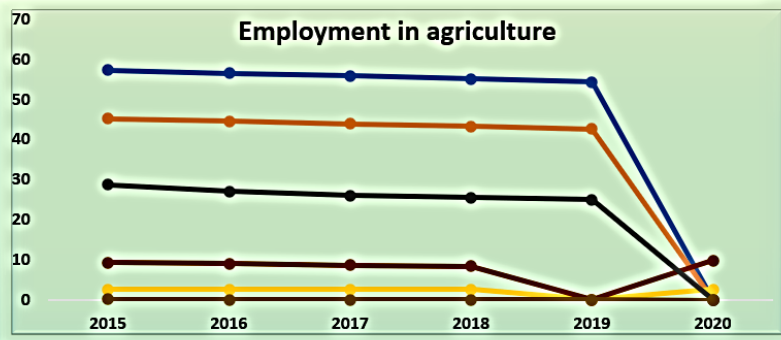
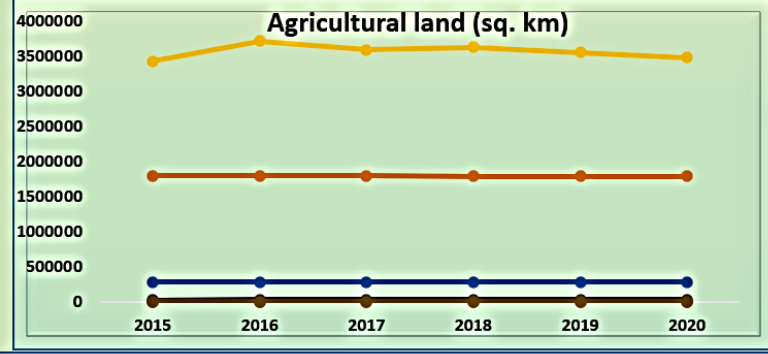
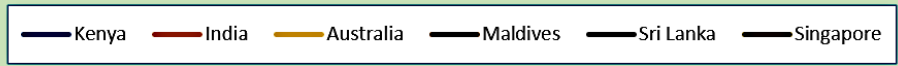
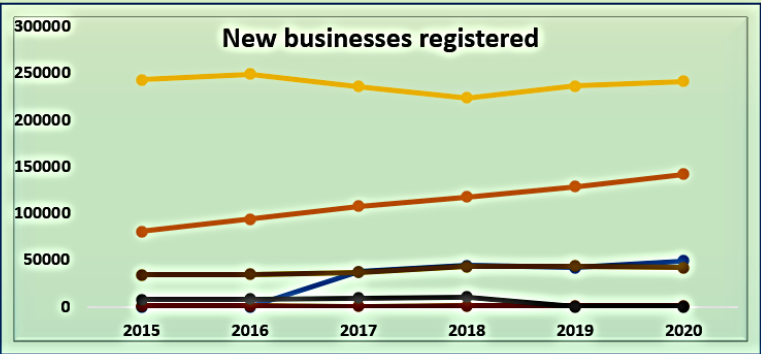
Self-Employed:

- In 2019, the data has not been recorded for Maldives, Australia.
- In 2020 except for Australia, the data hasn't been recorded for other countries.
- The average score of self employed indicator has been maintained in all the years.



Analysis of WDI among Countries(2015-2020)

ANALYSIS OF WORLD DEVELOPMENT INDICATORS AMONG COUNTRIES (2015-2020)



GitHub Repository

Please find the SQL Queries for the database creation :

<https://github.com/pushyamikeerthi/World-Development-Indicators>