

ECON1193B– Business Statistic

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 DATA IN MAKING DECISIONS

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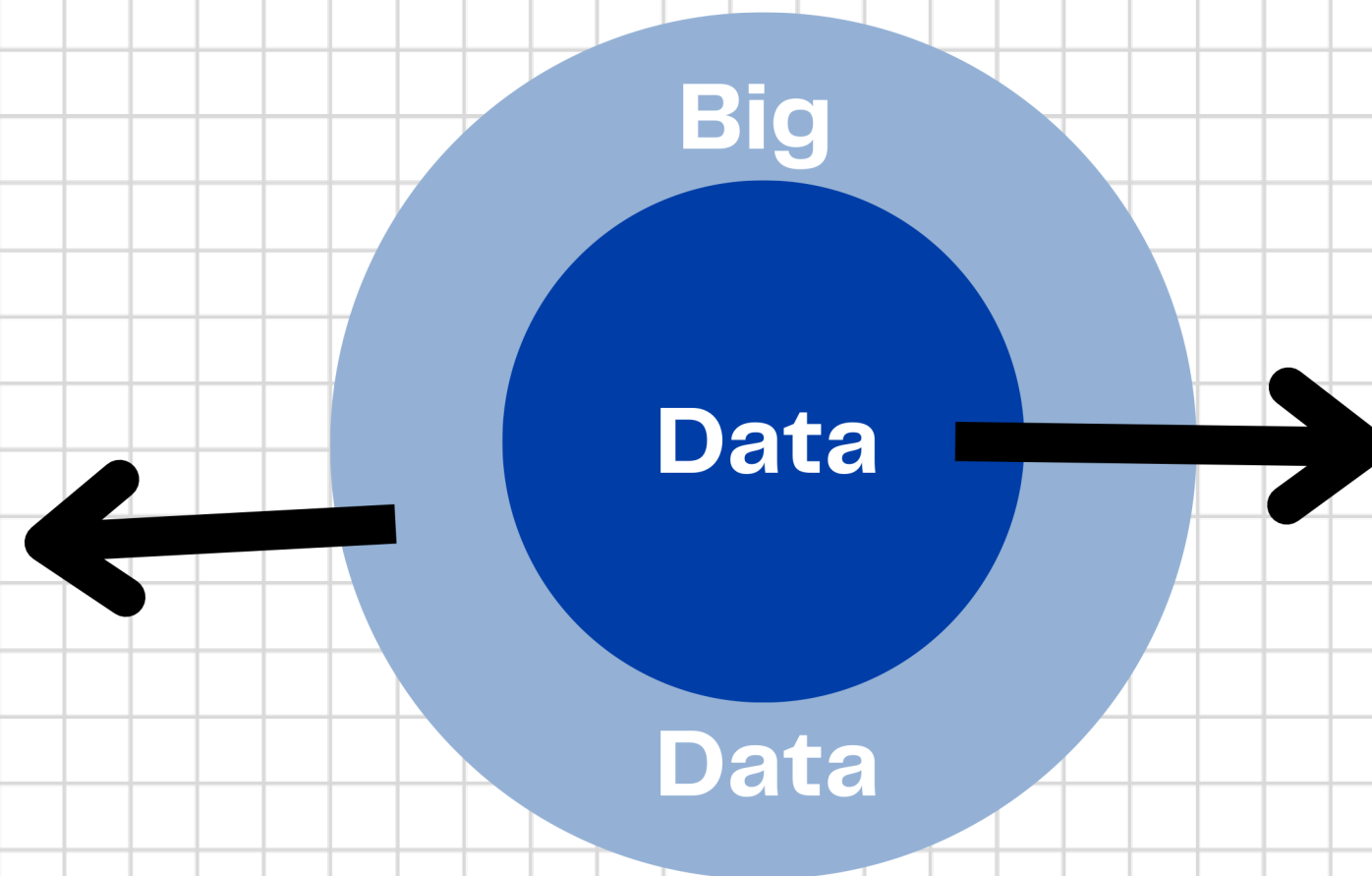
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Data and Big Data

- A **large volume** of data that is growing exponentially over time.
- Helping business **make better decisions** by **analyzing large amount of data** to find hidden patterns. (Hybrid Computational Intelligence, 2020).
- **Collected** by **various sources** such as customer's feedback or survey



- **Information** in a form that is **efficient** for movement or processing (Jack Vaughan n.d.).
- Analyzing large amounts of data may reveal **valuable insights**.
- An **important source** of information for every **company's marketing strategy** (Cowton 1998)

Multiple Regression



- With the use of **independent variables** whose values are known, multiple regression analysis aims to predict the value of a single dependent variable

=> **Regression** analysis will be used to **determine & consider** how various factors affect the business growth rate, as well as estimate it (Allison 1999).

- **Line fit plot:** helpful for determining whether two unrelated data points may be connected in the business industry, or correlation (Allison 1999).

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.831773							
R Square	0.691847							
Adjusted R Square	0.657607							
Standard Error	0.957194							
Observations	21							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	2	37.02672116	18.51336058	20.20623256	2.50555E-05			
Residual	18	16.49196551	0.916220306					
Total	20	53.51868668						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	-30.30111	7.173609187	-4.223970298	0.000510315	-45.37230578	-15.22991848	-45.37230578	-15.22991848
Tourism Policy	9.14E-07	2.37039E-07	3.856520237	0.00115619	4.16145E-07	1.41214E-06	4.16145E-07	1.41214E-06
CO2 Emissions	0.728376	0.161193804	4.518634483	0.000265849	0.389720265	1.067031494	0.389720265	1.067031494

Table 1: Brazil’s multiple regression

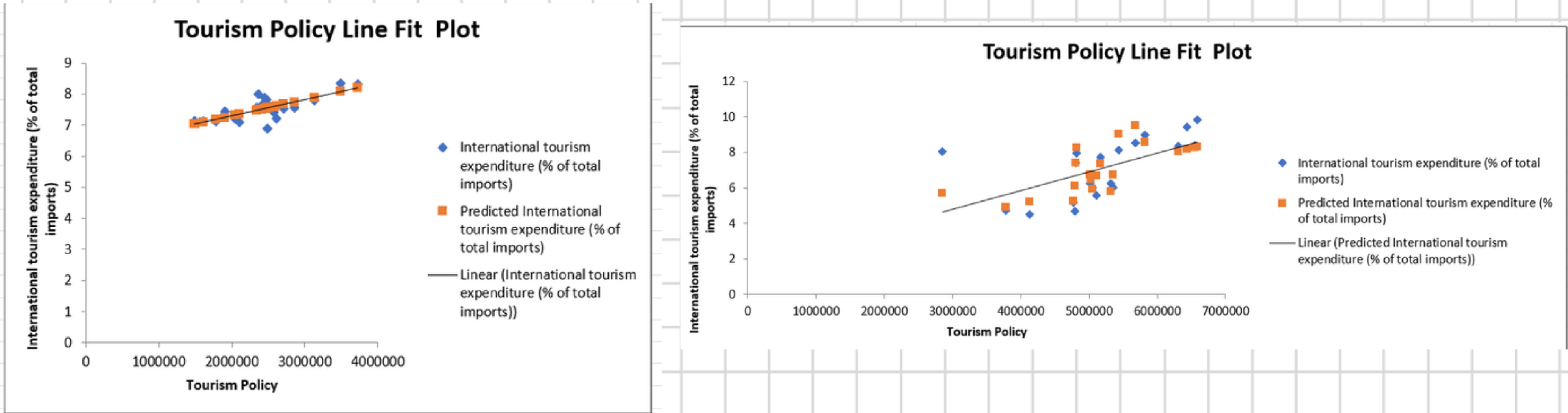


Figure 1: Line Fit Plots for New Zealand, and Brazil’s ITE

Time Series Forecasting



Figure: Line chart of Brazil and New Zealand tourism growth rate from 1997 to 2017

Year	Predicted Brazilian Tourism Growth Rate (% of total import)	Predicted New Zealand's Tourism Growth Rate (% of total import)
2023	15.20	8.20
2024	16.18	8.25
2025	17.20	8.30

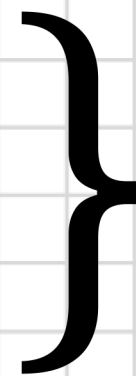
Table: Future prediction of Brazil and New Zealand tourism growth rate in 2023, 2024, 2025.

- **Future forecasting** helps tourism business maintain and develop tourism products and services to meet the demand of internal and international tourists (Rescher 1998)
- **Line chart** is necessary to depict the change of tourism growth rate in a period of time (Molla, Talukder, Hossain 2003)
- With 3 years of growth in the tourism industry, tourism organizations can rest assured to invest in this potential "smokeless industry".

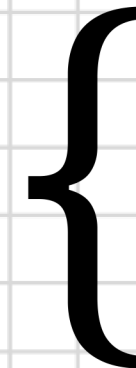
Conclusion

- **Sampling method:** collecting sampling data.

- **Descriptive statistics:** describing or summarizing the characteristics of any dataset.



The value of statistics to big data is to bring meaningful value and helpful a lot in Business



- **Inferential statistic:** determining the significant factors.
- **Time series:** predicting the trend.

Reference

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