# Project Report

## Report

Our team decided to collect data that relates various social & economical activities in New Zealand; we will attempt to collect monetary policies data such as CPI, HPI, Exchange Rate as well as Inflation. Other economical activities data such as but not limited to “Transportation data”, “Ferry data”, “Tourism Satellite Account”.

The aforementioned data could come from different types of sources, we have observed data source type like “html”, “pdf”, “csv”, “excel file” and “Rest api”.

We plan to retrieve aforementioned data via these different sources first, then through the process of data wrangling to transform these data sources into relational database;

The final deliverable of our project should be a relationship database, that contains all aspects of New Zealand economic activities as well as government monetary policies. Such database can be utilized for further data mining analysis as well as data visualization tasks. We will plot a simple flow chart diagram to indicates the correlation between some of the chosen data, for example “Exchange Rate” VS. “Tourism Satellite Account”. It is anticipated that as exchange rate drops, New Zealand dollar becomes cheaper, we should be able to observe an increase of “Tourism account”.



The relationship key between these entities are timestamps (Year, Month, Quarter); Based on economical principles, as New Zealand Reserve Bank sets its interest rate up, business will have difficult of getting cheap loans for further development, it is anticipated that business development will be reduced, which leads to increase of unemployment. On the other hand, increase of Reserve Bank interest rate will attract oversea hot money for short term investment, therefore it is anticipated that exchange rate of New Zealand dollars VS. Other currency will go up. The high Reserve bank interest rate will lead to lower level of economic activities, hence in term of cargo freight statistics, general vehicle activities and tourism account, we are anticipating dropping in these activities. However, Reserve Bank raise interest rate usually to combat high inflation rate (CPI), therefore, we should be expecting dropping of the CPI.

When the economic activities are low and unemployment rate is high, the government is under pressure to unleash new monetary policies to stimulate economy. Hence government usually resolve to lower reserve bank interest rate. With high reserve bank interest rate, we should be able to observe weak New Zealand dollars VS over currency. Thus make export of our products cheaper, therefore attracts more oversea orders, subsequently we should be able to observe an increase of freight transportation activities, oversea passage flights. To stimulate general economic growth, government usually starts major infrastructural projects like major road works, etc. Hence it is also anticipated that general road construction activities are increasing.

Freight Data :

<https://catalogue.data.govt.nz/dataset/freight-information-gathering-system>

Such data include Gross National Product and its components, Gross National Expenditure, Gross National Income in the National Income and Product Accounts, and also the capital stock and national wealth. In these examples data may be stated in nominal or real values, that is, in money or inflation-adjusted terms.

The Consumer Price Index (CPI) is a critical indicator of pricing pressures in an economy and provides a gauge of inflation. Forex traders monitor the CPI, as it can lead to changes in monetary policy by the central bank that will either strengthen or weaken the currency against rivals in the markets.

<https://www.investopedia.com/articles/forex/111015/how-cpi-affects-dollar-against-other-currencies.asp>

<https://tradingeconomics.com/new-zealand/consumer-price-index-cpi>

<https://www.rbnz.govt.nz/statistics/series/exchange-and-interest-rates/exchange-rates-and-the-trade-weighted-index>

## Project Diary

# Project diary - Group Asclepius

### (Ansar Ali, Jeffrey Chi & Jinze Zhou)

### 21-09-2022

Team had online meeting for the third time to discuss the direction of the project, we have decied to collect New Zealand economical data and formulate a database for further analysis.

### 21-09-2022

**Ansar** setup a repository on github and invited the the memebers to join the the repository as contributors.

### 19-09-2022

**Ansar** received the confirmation from both members about the git/github

### 19-09-2022

**Ansar** asked the group members if they are comfortable using git and github. If so he would create a repository for the Group Project.

### 19-09-2022

**Jinze** joined the discussion later and replied to **Ansar**'s email saying that he liked the two options and suggested if we go for the first one, he suggested:

* To focus on currency pairs between free market economies, e.g. USDJPD/ USDGBP, whose variables and complexity will be relatively more uncomplicated. There is an interesting model for currency rate, it's "Mundell–Fleming\_model: <https://en.wikipedia.org/wiki/Mundell%E2%80%93Fleming_model>

### 19-09-2022

**Jeffrey** replied to the email and showed concerns about the option given by **Ansar** and suggested taht due to market fluctuation and plus covid-19 there would be fluctuation which would make it hard to on those options.

**Jeffrey** suggested doing something more in the scientific data, like:

* Agricutluture, or
* health care

### 18-09-2022

**Ansar** initiated communication through email to collaborate on the project. He proposed two topics for the project:

* Predicting forex exchange rates based on scrapped data from apparently not related source.
* prediction of fuel prices based on what's happening around the world in terms of stability or unstability of different international factors.