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## SUMMARY

Housing markets generally describes the supply and demands for houses in a specific geographic location. Housing market trends can be analysed using various indicators like House Price Index, construction, local sales and so on. This insight report addresses the following questions: What do housing-market indicators say about socio-economic conditions in various geographic locations? How can they be used to provide forecast on future economy? What are the other main factors influenced by housing market? These questions specifically focus on housing market and its relationship with economic condition. This report presents a detailed critical analysis of Australian House Price Index (HPI) and other economic indicators like CPI (Consumer Price Index) influenced by HPI. Consumer Price Index are nothing but the measure of weighted average of prices of ‘basket’ of consumer goods and services like communication, entertainment, food, beverages, transportation, education, health and so on.

This analysis demonstrates the impact of falling HPI on local economy, which helps in forecasting future economic condition. In order to strengthen the analysis, one of the vital indicators of economy, CPI (Consumer Price Index) is compared. Relation between CPI and HPI is identified to know how their variation makes a difference in local economy. Insights developed out of this analysis may help stakeholders like Economists, Australian government in decision making process about future economy.

On understanding the importance of HPI and CPI, their impacts on local economy, data required for this analysis is collected from Queensland government site and economy.id community which provides information about HPI and CPI of important states of Australia.

Context of the chosen stakeholder, problems in the space, analysis steps followed, obtained visualisations, developed insights are clearly explained in this report. Ethical considerations, key principles to be followed for overcoming the mentioned ethical issues and the consequences caused because of not following the principles are also detailed in this report.

NOTE: This report is constructed from the following stakeholder’s perspective. It addresses the question of stakeholder’s interest answering which would provide meaningful insights to the respective stakeholder. This may lead to stakeholder motivation. It also details about how the analysis would benefit, impact, or disrupt the stakeholder’s area of context.

## STAKEHOLDER CONTEXT AND PROBLEM SPACE

Economists are considered as one of the interested stakeholders for this analysis, who conducts research on country, state or local economic trends, Identifies the factors that influence economy, analyse the relationship between the factors like HPI, CPI, GDP and so on. They provide forecasts to state, local or federal government and recommends economic solution to government in the form of a statistical reports.

The problems considered in the space are factors/methods used in assessing economy, the impacts of falling/rising HPI on local economy, understanding the relationship between HPI and CPI, use of HPI in developing a forecasting model, which forecasts future economy.

They must be aware of different forecasting models including the methodology for predicting future economy.

## ANALYSIS

The data analysis process involved the following steps:

1. Data collection in which the House Price Index and Consumer Price Index data required for analysis process are retrieved from trusted sources.
2. Structure of the data is examined by viewing and knowing information about the loaded dataset which includes number of columns, rows, datatypes and so on.
3. The datasets are pre-processed by performing basic actions like removal of unwanted columns, renaming columns, replacing missing values and so on. This analysis focused only on House Price Index value and the data about annual percent change is not considered. All the descriptions are removed from the datasets to structure it for creating visualisation.
4. Data visualisation in which visuals are created using the pre-processed data. The visuals are represented in the form of a line chart.
5. Observations made from the visuals are recorded.
6. Insights are developed by understanding the visuals and the recorded observations.

## VISUALISATIONS

The following are the visuals created from the analysis process.

A close up of a map

Description automatically generated

The above-mentioned line graph indicates House Price Index of Brisbane, Sydney, and Melbourne from the year 2002 to 2019. From the above graph it is evident that HPI of all the three cities have increased steadily from the year 2012 till the year 2017. The HPI of all the three cities have fallen between the years 2018 and 2019.

A screenshot of a cell phone

Description automatically generated

The above-mentioned visualisation indicated the Consumer Price Index of Sydney from the year 2010 to 2019. From the line graph, it is evident that the Consumer Price index of Sydney have decreased drastically after the year 2018.

## INSIGHTS

There are several factors which determines Australian economy. These include Labour, Consumer, Housing, Government, Health, Transportation, Business, Markets, Prices, Trade and so on. All these factors act as key economic indicators.

For determining economic trends, one must relate and compare these factors with each other. In this case, housing factor is compared with consumer, to know its impact on economy, thus predicting the future economy.

The following are the insights developed out of this analysis:

HPI and CPI are dependable, which means the fall in HPI, causes CPI to fall and apparently the rise in HPI, causes a rise in CPI value, which leads to an increase in Gross Domestic Product (GDP) and higher rate of economic growth.

This may be considered in two ways:

1) Increase in housing wealth, encourages property owners and landlords to spend more on consumer goods and services. This increases their confidence on spending, as they have property to sell or revalue in any case of emergency.

2) Increased demand for houses may one of the reasons for rising house prices, which means population is high in that area, which is nothing but the increased number of consumers, thus creating a positive impact on consumer spending.

On the other side, falling house prices might decrease the confidence of householders on consumer spending.

Thus, the historical trends of HPI and CPI can be utilised for forecasting future economy.

## ETHICAL CONSIDERATIONS

The following are the ethical considerations of this analysis:

The analysis takes only HPI and CPI into account not all economic indicators, which might mislead the forecasting. Developing a forecasting model based on only House Price Index and Consumer Price Index for predicting local economy may lead to model failure and might create flawed predictions. This may misinterpret the economic issues. As a result of which, the solutions or recommendation provided for economic issues can become erroneous.

Consumer Price Index and House Price Index of Sydney is alone visualised, which might reduce the insight accuracy. Consumer Price index of other cities like Brisbane, Melbourne may not be necessarily influenced by their corresponding House Price Index.

Data retrieved from economy.id where Consumer Price index is measured for greater capital city regions only and the current dataset is updated every financial year. Queensland government data used includes House Price Indices of major cities like Sydney, Melbourne, and Brisbane, which are not considered for Australia-wide. The datasets also lack recency. Historical data might be a problem, which are collected over certain time periods, volatility, and instability of house markets, which might affect forecasting models

## KEY PRINCIPLES

Data collection policies can be modified by collecting more rigorous and relevant datasets containing wide range of variables. This may include a greater number of economic indicators into the analysis process. Rather than considering great capital city regions, the data analysis may take whole Australia into account to make the analysis report Australia-wide, through which the Australian federal government would be benefited.

Implementing better long-term data collection techniques and using more recent data. This may increase the accuracy. Data can be collected from more trustworthy sites like Reserve Bank of Australia (RBA). This analysis can be supplemented with those additional RBA data.

More advanced data analytical techniques like machine learning can be used for analysing the data to create make visualisations more meaningful. Since the data gets updated every financial year, it is advisable to revisit the analysis to verify the relevance of the data and accuracy of the model.

## CONCLUSION

House Price Index, an important indicator of housing market was carefully analysed and compared with Consumer Price Index. This analysis report was structured in such a way that it benefits government economist on predicting future economy and understanding the factors influencing economic growth. Economist of business sectors like real-estate sectors, construction corporates can also utilise this insight for understanding the historical trends of housing prices in main capital cities of Australia like Brisbane, Sydney, and Melbourne.