Statistical Relationship Analysis between States within the Australian Housing Market

FIN60003 - Business Statistical Modelling

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Executive Summary

This paper analyses the residential real estate markets in New South Wales (NSW) and South Australia (SA) from 2011 to 2023. The objective is to comprehend the factors influencing fluctuations in housing prices over time and to ascertain which state has more favourable circumstances for investment. The research examines quarterly price trends and their correlation with population growth, housing supply (approvals), economic activity, and interest rates.

New South Wales saw heightened average price growth accompanied by more pronounced fluctuations, indicating higher possibilities for rewards and higher risks. In contrast, SA saw gradual but consistent development, characterised by less abrupt fluctuations. We assessed whether the robust growth in NSW was statistically distinct from that in SA, and the findings indicated no significant difference, implying that both markets exhibited comparable performance over time.

The variables influencing costs seem to vary by state. In New South Wales, accelerated population growth was correlated with decreased price escalations, an unexpected but statistically significant finding. In South Australia, the quantity of approved houses had the most significant correlation with price escalation, suggesting that supply closely aligns with market demand.

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1. Introduction

This research presents a comparative analysis of the housing markets in New South Wales (NSW) and South Australia (SA) from 2011 to 2023, aiming to identify the main factors influencing property value fluctuations and evaluate the investment potential of each market. Utilising quarterly data from the Australian Bureau of Statistics (ABS) including population growth, dwelling approvals, state-level demand, and the Reserve Bank's cash rate, to dive deeper and explore the impacts of home prices over time.

This study includes an analysis of historical pricing trends, evaluations of price stability, and an examination of statistical connections using correlation and regression methodologies. Every section discusses the practical implications of the data, outlining how changes in supply, demand, and overarching economic circumstances may influence the risk and return profile of the housing market in NSW and SA.

2. Overview of Market Trends

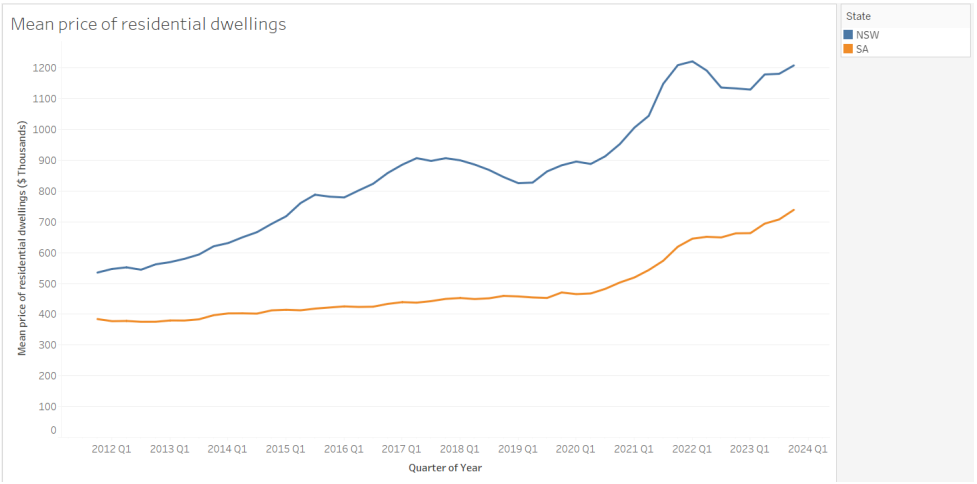

Figure 1: Mean price of residential dwellings 2011 - 2023

From 2011 - 2023, residential property prices in both South Australia (SA) and New South Wales (NSW) have seen a steady incline throughout these years. However, the levels of price changes year-on-year differ greatly between both states. SA had a lower average gain in house prices quarterly (1.39%) compared to NSW at 1.69%. The trend patterns closely align with macroeconomic events as there was a sharp increase in 2021 - 2022, reflecting the post-pandemic boom during that period (Australian Bureau of Statistics, 2022). This was also reported by ABC News (2025), highlighting stronger growth demands in regional areas due to affordability challenges in suburbs closer to major cities like Sydney and Adelaide,

primarily led by the increasing shift in workers returning to the offices instead of work from home setups during the pandemic.

However, despite the higher average price increase in NSW, it is complemented by a higher volatility from quarter to quarter changes with a range of fluctuation between -4.63% and 9.96%; whereas, SA had a slightly narrower volatility range from -1.80% to 7.98%. The volatility is further evidenced by the standard deviation and coefficient of variation measures among both states. The analysis of the dispersion and variability in quarterly home price increases were explored to gain better insights into the relative stability of housing markets in NSW and SA. This was done by calculating and evaluating volatility metrics such as the standard deviation (STDEV), interquartile range (IQR), and confidence intervals (CI).

NSW			*SA*	
Mean	0.016892366		Mean	0.013861115
Standard Error	0.003896357		Standard Error	0.002866544
Median	0.022043714		Median	0.00929656
Mode	#N/A		Mode	#N/A
Standard Deviation	0.027274496		Standard Devia	0.020065807
Sample Variance	0.000743898		Sample Varianc	0.000402637
Kurtosis	0.609142415		Kurtosis	1.155725493
Skewness	0.210199943		Skewness	1.107099251
Range	0.145840235		Range	0.097626968
Minimum	-0.046251994		Minimum	-0.01795472
Maximum	0.099588241		Maximum	0.079672245
Sum	0.827725957		Sum	0.679194639
Count	49		Count	49
CoV	1.598044323		CoV	1.432785067
IQR	3.90%		IQR	2.25%

NSW			*SA*	
Confidence Level(95.(	0.00783415		Confidence Lev	0.005763573
Lower CI	0.91%		Lower CI	0.81%
Upper Ci	2.47%		Upper Ci	1.96%

Figure 2: Full descriptive statistics of % price changes in mean price of residential dwellings from 2011 - 2023

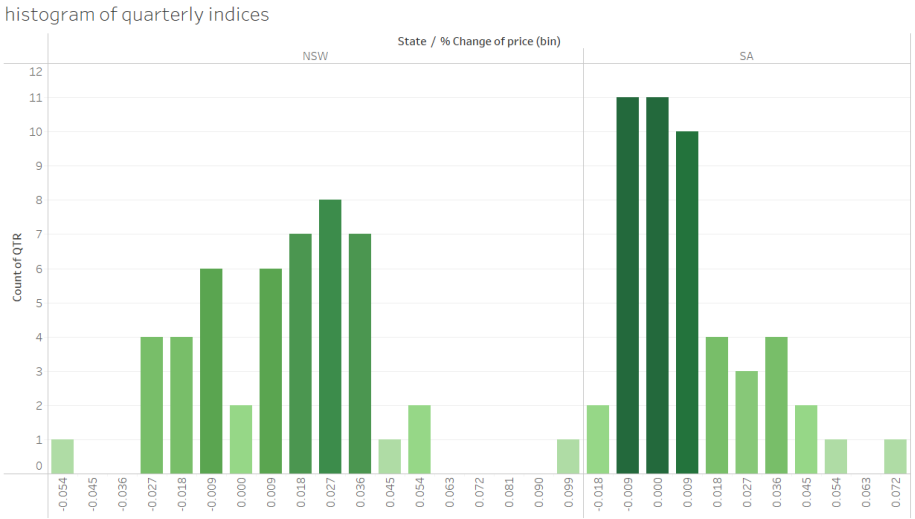

Figure 3: Histogram of quarterly indices

Based on the data, NSW has a greater STDEV of 1.6 and IQR of 3.9% compared to SA's STDEV of 1.4 and IQR of 2.25%. These factors suggest that price fluctuations in NSW are more volatile with larger variations around the mean. To better visualise this, the data was plotted on a histogram, where there is a clear indication of a wider tail in NSW compared to SA. The histogram in SA shows a denser cluster around the mean, which suggests better stability and less fluctuation in residential prices.

Despite this higher volatility seen in NSW, the 95% confidence intervals for average quarterly growth overlapped (Appendix), suggesting that the difference in mean price growth difference between both states may not be statistically significant.

NSW:
Lower CI: 0.91%
Upper CI: 2.47%

SA:
Lower CI: 0.81%
Upper CI: 1.96%

A statistical test was conducted to compare the difference in means between both states, The estimated difference in growth was 0.3%, however the confidence interval at 95% for the difference ranged from -0.65% to 1.25%, suggesting that the difference in mean price change could just be a coincidence in the data.

Based on this observation, the data suggests that NSW provides high growth potential due to higher average pricing gains, however the risk and volatility of prices are more unpredictable compared to SA's modest gains but have better overall predictability in house price changes. Depending on the investment period, NSW could be more appropriate for shorter term endeavours while SA is more suitable for long-term holdings due to its lower volatility and lower risk tolerance. This is also highlighted by Crosby (2023), where SA is currently a leading investor's choice in property among the other states due to affordability, economic recovery, improvements in internal migration and overall infrastructure development.

3. Hypothesis Testing Results

2.1 Comparing Average Price Growth Between States

Hypothesis Testing

t-Test: Two-Sample Assuming Unequal Variances

	NSW	*SA*
Mean	0.016892366	0.013861115
Variance	0.000743898	0.000402637
Observations	49	49
Hypothesized Mean D	0	
df	88	
t Stat	0.626651929	
P(T<=t) one-tail	0.266254867	
t Critical one-tail	1.662354029	
P(T<=t) two-tail	0.532509733	
t Critical two-tail	1.987289865	

Figure 4: two-tail test comparative testing of average price growth between both states

We examined whether the average quarterly price change in NSW differs statistically from that in SA. While NSW had a higher average (1.69% vs. 1.39%), the findings revealed no statistically significant difference. The confidence range for the difference encompassed zero, and the t-test yielded a p-value of 0.53. This indicates that we can't claim with certainty that one state grew quicker than the other on average during the last 12 years.

4. Correlation Tests

Using the collected data, the exploration of the relationship between population growth and number of housing approvals had an effect on price changes in each state. Using Python coding to draw a correlation test (Appendix A).

```
[5 rows x 10 columns]
NSW Correlation: -0.3856061444627979 p-value: 0.006214092966811458
SA Correlation: -0.21414126592799665 p-value: 0.1395437812232511
NSW Approvals Correlation: 0.13156730409705192 p-value: 0.3675235583039142
SA Approvals Correlation: 0.5225446527980071 p-value: 0.0001173990231869309
```

Figure 5: Correlation Test Results for Population Growth (State Correlation) & Dwelling Approvals (State Approvals Correlation) against Price Changes

a) Population Growth vs. Price Change

Results in the hypothesis testing in NSW showed a slight negative relationship of r = -0.39 and p = 0.006, which indicates that higher population growth rate could lead to lower price changes. This concluded that population growth in NSW may have an inverse effect on price changes. This was reflected similarly in SA where there was an inverse relationship between

population growth and price changes, however the p value of 0.14 shows that the result is not statistically significant, indicating no strong evidence of a direct relationship.

b) Dwelling Approvals vs. Price Change

Number of housing approvals in NSW displayed a weak positive correlation to price changes at r =0.13 and p=0.37 which is not statistically significant. However, the number of housing approvals in SA had a strong positive correlation to price changes at $r = 0.52$ and $p < 0.001$.

Although NSW and SA had slightly different price change ranges, there is no sufficient statistical evidence to confirm a meaningful difference in average growth. However it can be concluded that both states may have different drivers of housing prices. This highlights an interesting insight that the housing markets in both states could potentially differ in price changes due to different types of variables, where housing approvals follow market demand more quickly in SA due to the state's efficient planning system (PlanSA, 2024), reflecting a growth-driven housing market. Whereas NSW price changes seem to be tied and affected by overall population growth within the state in an inverse relationship. The different dynamics within both states reinforces the importance of considering local supply and demand behaviours when assessing investment potentials.

5. Regression Analysis

Chosen Variables

To better understand what drives changes in house prices in both states, we built a model combining three key economic indicators: population growth, state final demand (SFD), and approved dwellings. This analysis explores how these variables together influence quarterly changes in residential property prices.

The regression model was statistically significant overall, meaning the combination of these factors provides meaningful insight into price fluctuations. However, the model explained only about 16% of the variation in price changes — indicating that while these indicators matter, other influences are also at play (such as interest rates, employment, or market sentiment).

To dive deeper into the change drivers in housing prices within NSW, a regression model was conducted by combining three key economic indicators that according to researchers and other journal articles have an impact of housing price changes:

Population Growth: As population increases, the demand for housing increases that affects the supply and demand for housing, driving up price (Lin et al., 2018).

State Final Demand (SFD): SFD reflects the overall demand for goods and services within a state, where a higher SFD usually indicates a stronger economy, leading to increase in

purchasing power that drives up house prices for competitive pricing (Abdallah & Lastrapes, 2013).

Number of housing approvals: An increase in housing building approvals directly impacts the amount of housing supply available within the region, directly affecting the change in housing prices (Glaeser et al., 2005).

NSW

Population Growth

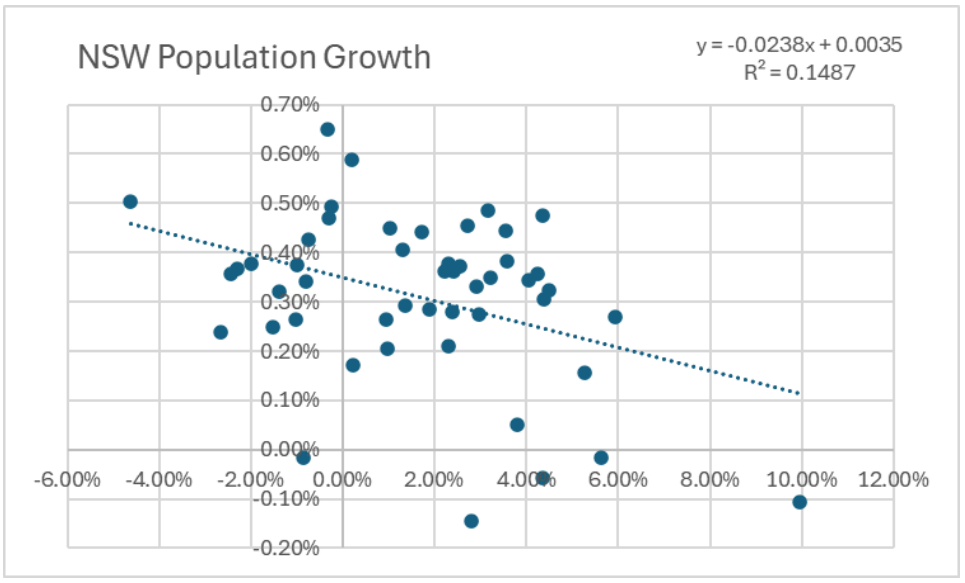

Figure 5: Scatter Plot for NSW Population Growth (x-axis) & Price Changes (y-axis)

The population growth in NSW is found to have a negative relationship with price changes. These unexpected results suggest that there was a lower price increase when there was higher population growth compared to lower population growth. This could be explained where the population arrived before infrastructure was built, or during periods of higher population growth, a majority of the migration could be of lower-income evidenced by NSW Council of Social Services (2023) reported that there was a 20% increase in lower-income households affecting demand dynamics. Visual support from the regression confirms a slight downward trend when plotting price change against population growth, but there's still a wide scatter reinforcing that no single factor dominates price movements.

State Final Demand (SFD)

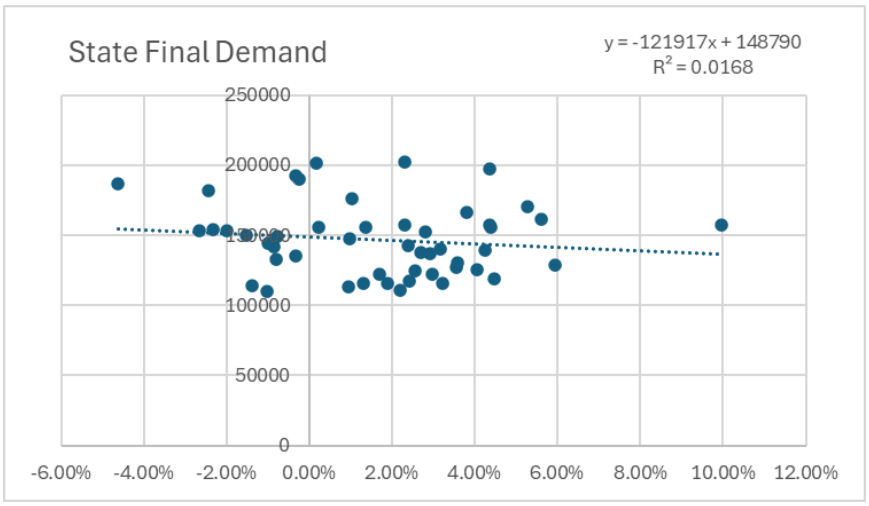

Figure 6: Scatterplot of NSW SFD against mean price changes

SFD also resulted in an inverse relationship on house prices even though the correlation is relatively weak. This could suggest that economic activity does not directly translate to an increase in house prices, as government spending may not be tied to strictly the housing market (Ma, 2025).

Approved Dwellings

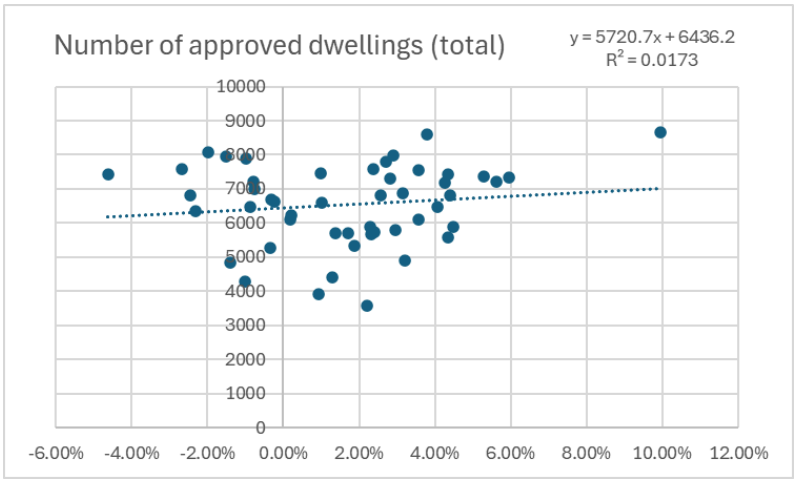

Figure 7: Scatter Plot for NSW Approved Dwellings (x-axis) & Price Changes (y-axis)

More dwelling approvals (Figure 6) were linked to slightly lower price growth, aligning with the idea that increased housing supply relieves some pressure on prices. However, this effect was not statistically significant, suggesting its influence on price is minimal when population and economic conditions are accounted for.

The results show that an increase in housing approvals had an effect on price growth decreasing. This aligns the idea with articles mentioned previously that an increase in housing supply relieves some pressure on prices. However, the regression analysis showed that the

results may not be statistically significant at a $p > 0.05$, indicating that the influence of housing prices may be overshadowed by other variables.

Cash Rate

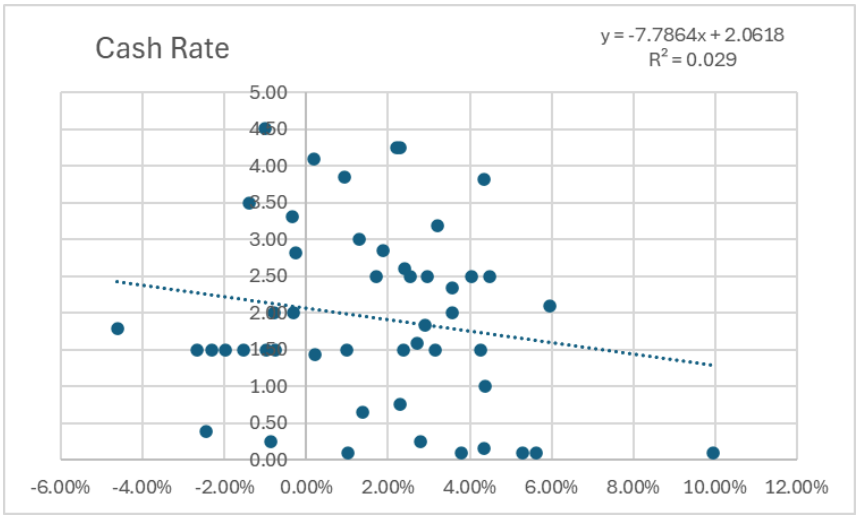

Figure 8: Scatter Plot for NSW Cash Rate (x-axis) & Price Changes (y-axis)

The regression line exploring how cash rate affects the mean housing prices in NSW show slight downward trends, indicating a negative relationship between both variables. This means that as interest rates for loans go up, house prices tend to decrease.

However, the r-squared value of 0.029 indicates a minimal effect on house prices (approximately 3%) of the variation in quarterly price changes. This suggests that the relationship between the two, although negative, has a minimal impact; which is not the main determinant of short-term price movements in NSW's housing market. Research by Lee & Park (2022) states that there is a lag effect of 12 - 15 months before seeing drastic changes in house prices, which could be the reason why it is seen to have less short-term effect in NSW.

SA

A different approach to the regression analysis was used to evaluate the change drivers within the SA housing market, where the regression model in Python was conducted instead of the Data Analysis function in Excel, the code used to conduct a pairplot (Appendix B). The model results indicated that there was a 44% statistical significance of the variables that affected price changes in housing.

Population Growth

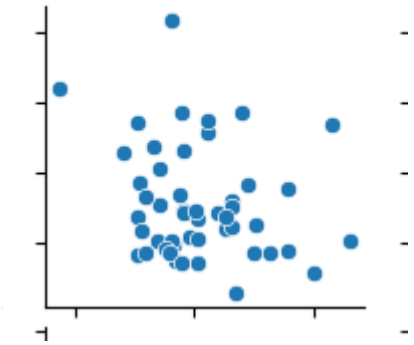

Figure 9: Scatter Plot for SA Population Growth (x-axis) Price Change (y-axis)

The results showed that as population growth increased, price growth decreased, indicating an inverse relationship. Although it is an unexpected result, it may be possible that the results reflect lower-income migration or population increase, or that infrastructure was already built before the increase in population, creating a lag effect on the increase in house price changes.

State Final Demand (SFD)

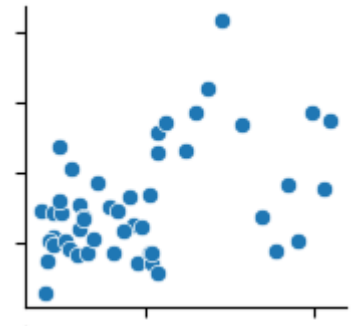

Figure 10: Scatter Plot for SA State Final Demand (x-axis) Price Change (y-axis)

The state final demand also showed a strong inverse relationship to price changes. A higher SFD did not directly drive up housing prices, this could be due to a spread of demand across non-residential sectors, or public investment, offsetting housing pressures.

Approved Dwellings

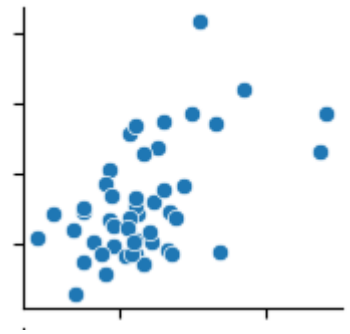

Figure 11: Scatter Plot for SA Approved Dwellings (x-axis) Price Change (y-axis)
Different from the housing market in NSW, the number of approved housing did not significantly impact the changes in housing prices. Although theoretically an increase in housing supply should decrease house prices, approval of housing may also be experiencing a lag effect that reflects short-term price movements.

Cash Rate

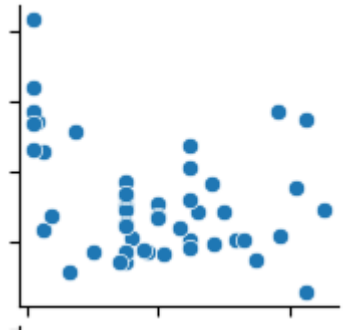

Figure 12: Scatter Plot for SA Cash Rate (x-axis) Price Change (y-axis)

The influence of the RBA's cash rate on housing prices was minimal and statistically negligible in this SA. This indicates that wider macroeconomic changes, although important, may not directly influence quarterly price fluctuations in SA as anticipated.
This model reveals that economic activity and demographic developments in SA do not consistently result in increasing prices. Although growth and demand are significant, their impact may be nuanced or delayed. This indicates that time and external context are essential for strategic investment choices, and that SA's housing market is influenced by factors outside just headline economic data.

6. Conclusion

The data and variables explored in this research to find significant relationships whether positive or negative correlations within the housing markets of NSW and SA grew over the past decades, but consisted of highly different profiles and price change drivers. NSW presented an overall higher growth potential due to a higher average price increase in housing over the past 12 years although it was accompanied by higher volatility as well. Where SA maintained relatively stable and had more predictive growth throughout the years.

While there seems to be not much of a difference in average growth rates in both states, the regression and correlation tests done using statistical models found that both states had varied and unexpected growth drivers and impacts among the three variables chosen. Growth drivers and relationship results in NSW indicated that population growth may be linked to a lack of housing infrastructure or slower development compared to housing demand, while SA had a bigger impact in house prices depending on housing supply. This is evidenced by Local Government NSW (2025) in an article stating the rise in construction costs, labour shortages,

and high interest rates for loans have a bigger impact on building approvals, as there is sufficient housing approvals, however insufficient time to build these houses.

This suggests that it is highly ineffective to create a generalised investment strategy within the property market in Australia as different states have different growth drivers, growth rates, and consumer behaviours. The research highlights the importance of understanding local patterns and trends within each state to effectively invest in the housing market. The housing in NSW offers greater upside potential, however demands rapid responses and careful monitoring of economic shifts and market cyclicality. However, the housing in SA offers a more dependable growth environment where changes in supply directly affects house prices and growth. These findings offer a valuable foundation for making informed, state-specific investment decisions in the Australian property market.

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8, Appendix

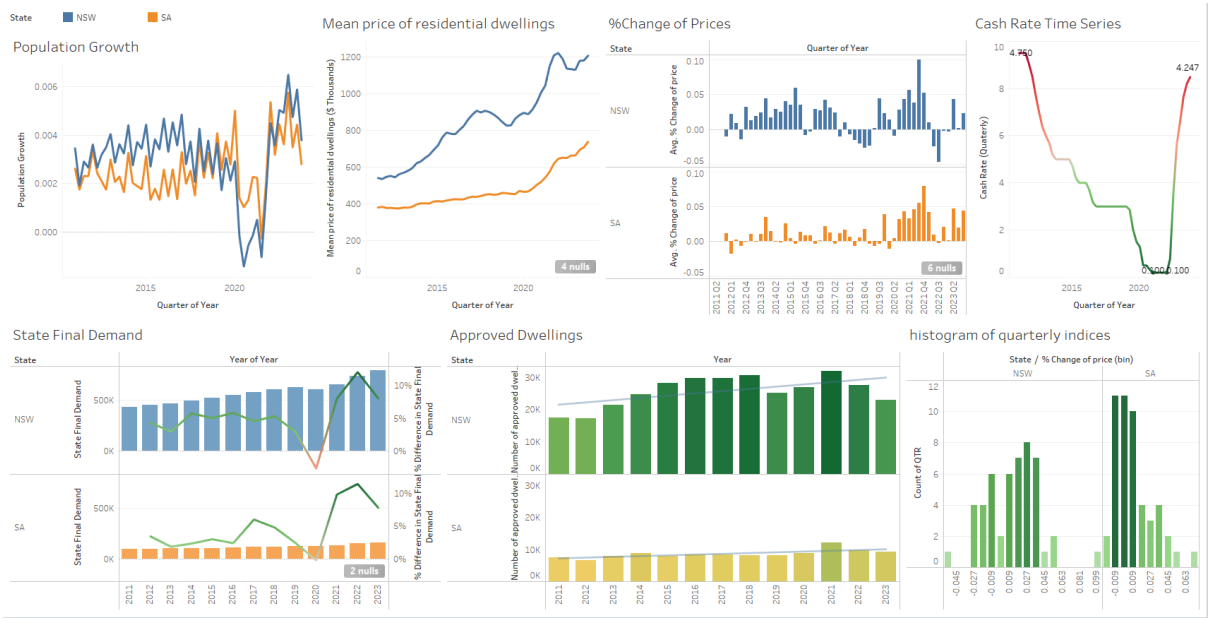
Appendix A - Correlation test code for correlation analysis of price changes based on population growth and approved dwellings

```
from scipy.stats import pearsonr

# NSW

r_nsw, pval_nsw = pearsonr(df_nsw['Population Growth'], df_nsw['% Change of price'])
print("NSW Population Correlation:", r_nsw, "p-value:", pval_nsw)

# SA
r_sa, pval_sa = pearsonr(df_sa['Population Growth'], df_sa['% Change of price'])
print("SA Population Correlation:", r_sa, "p-value:", pval_sa)

# NSW
r2_nsw, pval2_nsw = pearsonr(df_nsw['Number of approved dwellings (total)'], df_nsw['% Change of price'])
print("NSW Approvals Correlation:", r2_nsw, "p-value:", pval2_nsw)

# SA
r2_sa, pval2_sa = pearsonr(df_sa['Number of approved dwellings (total)'], df_sa['% Change of price'])
print("SA Approvals Correlation:", r2_sa, "p-value:", pval2_sa)
```

Appendix B - Pairplot code for regression analysis of south australia

```
import statsmodels.api as sm
import seaborn as sns
import matplotlib.pyplot as plt

# Define dependent and independent variables
X = df_sa[['Population Growth', 'State Final Demand', 'Number of approved dwellings (total)', 'Cash Rate (Quarterly)']]
y = df_sa['% Change of price']

# Add constant term
X = sm.add_constant(X)

# Fit model
model = sm.OLS(y, X).fit()
print(model.summary())

# Pairplot
sns.pairplot(df_sa[['% Change of price', 'Population Growth', 'State Final Demand', 'Number of approved dwellings (total)', 'Cash Rate (Quarterly)']])
plt.show()

sns.regplot(x='Population Growth', y='% Change of price', data=df_sa)
plt.title("Population Growth vs Price Change (SA)")
plt.show()
```

Appendix C - Full Tableau Dashboard



Appendix D - Excel Working File & Data Analysis

YEAR	QTR	STATE	Total Population	Population Growth	Mean price of residential dwellings ($ Thousands)	% Change of price	State Final Demand	Number of approved dwellings (total)	Cash Rate (Quarterly)
12/1/2011	4	NSW	7258722	0.27%	535.3	-1.02%	110117	4297	4.52
12/1/2011	4	SA	1647183	0.23%	384.3	1.16%	23829	1743	4.52
3/1/2012	1	NSW	7284982	0.36%	547.1	2.20%	110781	3563	4.25
6/1/2012	2	NSW	7304244	0.26%	552.2	0.93%	113173	3926	3.85
9/1/2012	3	NSW	7327614	0.32%	544.5	-1.39%	114018	4849	3.50
12/1/2012	4	NSW	7353189	0.35%	562	3.21%	115578	4890	3.18
3/1/2012	1	SA	1652716	0.34%	377.4	-1.80%	24161	1696	4.25
6/1/2012	2	SA	1656725	0.24%	378.1	0.19%	24538	1428	3.85
9/1/2012	3	SA	1660198	0.21%	375.5	-0.69%	24247	1741	3.50
12/1/2012	4	SA	1663082	0.17%	375.6	0.03%	24390	1821	3.18
3/1/2013	1	NSW	7382957	0.40%	569.3	1.30%	115396	4422	3.00
6/1/2013	2	NSW	7404032	0.29%	580	1.88%	115818	5339	2.85
9/1/2013	3	NSW	7430904	0.36%	594	2.41%	117108	5724	2.60
12/1/2013	4	NSW	7454938	0.32%	620.6	4.48%	118854	5881	2.50
3/1/2013	1	SA	1668056	0.30%	379.7	1.09%	24535	1536	3.00
6/1/2013	2	SA	1671488	0.21%	379.4	-0.08%	24601	1950	2.85
9/1/2013	3	SA	1675313	0.23%	383.5	1.08%	25025	2121	2.60
12/1/2013	4	SA	1678052	0.16%	396.8	3.47%	24975	2250	2.50
3/1/2014	1	NSW	7487834	0.44%	631.2	1.71%	122029	5700	2.50
6/1/2014	2	NSW	7508353	0.27%	649.9	2.96%	122072	5784	2.50
9/1/2014	3	NSW	7536277	0.37%	666.5	2.55%	124388	6817	2.50
12/1/2014	4	NSW	7562171	0.34%	693.5	4.05%	125630	6472	2.50
3/1/2014	1	SA	1683544	0.33%	402.7	1.49%	24973	2232	2.50
6/1/2014	2	SA	1686945	0.20%	402.9	0.05%	25297	2207	2.50
9/1/2014	3	SA	1690133	0.19%	402	-0.22%	25535	2322	2.50
12/1/2014	4	SA	1693107	0.18%	412.5	2.61%	25654	1928	2.50
3/1/2015	1	NSW	7595731	0.44%	718.2	3.56%	127040	6091	2.34
6/1/2015	2	NSW	7616168	0.27%	760.9	5.95%	128963	7327	2.10
9/1/2015	3	NSW	7645324	0.38%	788.1	3.57%	130632	7543	2.00
12/1/2015	4	NSW	7671401	0.34%	781.8	-0.80%	132495	7228	2.00
3/1/2015	1	SA	1698433	0.31%	414.4	0.46%	26072	1676	2.34
6/1/2015	2	SA	1700668	0.13%	412.7	-0.41%	25956	2032	2.10
9/1/2015	3	SA	1703703	0.18%	418.2	1.33%	26149	2099	2.00
12/1/2015	4	SA	1705937	0.13%	421.9	0.88%	26325	2067	2.00
3/1/2016	1	NSW	7707412	0.47%	779.3	-0.32%	135169	6689	2.00
6/1/2016	2	NSW	7732858	0.33%	802	2.91%	136805	7987	1.84
9/1/2016	3	NSW	7767915	0.45%	823.7	2.71%	137904	7810	1.59

Master Data | For Data Analysis | NSW Full Data | Cash Rate Daily

NSW	SA
-1.02%	1.16%
2.20%	-1.80%
0.93%	0.19%
-1.39%	-0.69%
3.21%	0.03%
1.30%	1.09%
1.88%	-0.08%
2.41%	1.08%
4.48%	3.47%
1.71%	1.49%
2.96%	0.05%
2.55%	-0.22%
4.05%	2.61%
3.56%	0.46%
5.95%	-0.41%
3.57%	1.33%
-0.80%	0.88%
-0.32%	0.83%
2.91%	-0.40%
2.71%	0.17%
4.25%	2.17%
3.16%	1.29%
2.38%	-0.36%
-0.99%	1.12%
0.98%	1.65%
-0.76%	0.62%
-1.52%	-0.73%
-1.99%	0.53%
-2.67%	1.73%
-2.32%	-0.37%
0.22%	-0.72%
4.39%	-0.37%
2.30%	3.93%
1.37%	-1.13%
-0.87%	0.45%
2.80%	3.19%
4.35%	4.29%
5.62%	3.26%
3.80%	4.64%
9.36%	5.54%
5.28%	7.97%
1.02%	4.21%
-2.45%	0.93%
-4.63%	-0.31%

NSW	
Mean	0.0168324
Standard Error	0.0038364
Median	0.0220437
Mode	#N/A
Standard Deviatio	0.0272745
Sample Variance	0.0007439
Kurtosis	0.6091424
Skewness	0.2101939
Range	0.1458402
Minimum	-0.046252
Maximum	0.0995882
Sum	0.827726
Count	49
CoV	1.5980443
IQR	3.90%

SA	
Mean	0.0138611
Standard Err	0.0028665
Median	0.0092966
Mode	#N/A
Standard De	0.0200658
Sample Varia	0.0004026
Kurtosis	1.1557255
Skewness	1.1070993
Range	0.097627
Minimum	-0.017955
Maximum	0.0796722
Sum	0.6791946
Count	49
CoV	1.4327851
IQR	2.25%

NSW	
Confidence Level(	0.0078341
Lower CI	0.91%
Upper CI	2.47%

SA	
Confidence L	0.0057636
Lower CI	0.81%
Upper CI	1.96%

Statistical Analysis

Difference in Mear	0.003031
Std Error Differenc	0.004837
Margin of Error	0.009481
Lower Bound CI	-0.006450
Upper Bound	0.012512

Hypothesis Testing

t-Test: Two-Sample Assuming Unequal Variances

	NSW	*SA*
Mean	0.0168324	0.013861115
Variance	0.0007439	0.000402637
Observations	49	49
Hypothesized Mea	0	
df	88	
t Stat	0.6266519	
P(T<=t) one-tail	0.2662549	
t Critical one-tail	1.662354	
P(T<=t) two-tail	0.5325097	
t Critical two-tail	1.9872899	

Regression Analysis

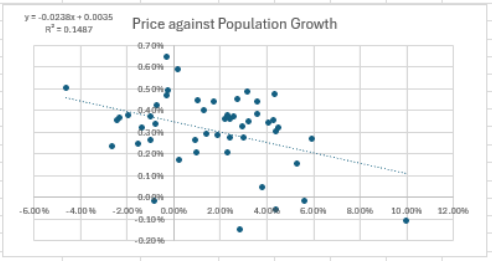
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.3856061
R Square	0.1486921
Adjusted R Square	0.1305792
Standard Error	0.0254315
Observations	49

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	0.005309365	0.0053094	8.2091669	0.0062141
Residual	47	0.030397745	0.0006468		
Total	48	0.035707111			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.0362156	0.007660515	4.72757	2.1E-05	0.0208047	0.0516266	0.0208047	0.0516266
Population Growth	-6.245719	2.179881676	-2.865164	0.0062141	-10.63108	-1.860363	-10.63108	-1.860363



2 Additional Variables

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.3996313
R Square	0.1597052
Adjusted R Square	0.1036855
Standard Error	0.0258218
Observations	49

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	0.00570261	0.0019009	2.8508771	0.0478003
Residual	45	0.030004501	0.0006668		
Total	48	0.035707111			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.0426307	0.027867389	1.5297699	0.1330736	-0.013497	0.0987585	-0.013497	0.0987585
Population Growth	-5.738587	2.382573758	-2.408566	0.0201725	-10.53734	-0.939837	-10.53734	-0.939837
SFD	-1.2E-07	1.58721E-07	-0.756775	0.4531288	-4.4E-07	1.996E-07	-4.4E-07	1.996E-07
Approved Dwelling	1.476E-06	3.56954E-06	0.4134199	0.6812626	-5.71E-06	8.665E-06	-5.71E-06	8.665E-06

Full Regression Eq	5.7812194
If Significance F < 0.05 → reject H_0 → model is significant	
Significance F	0.0478003

YEAR	QTF STAT	Total Population	% Change of pric	Population Growt	State Final Demand	Number of approved dwellings (tot	Cash Rate (Quarterly	Number of residential dwellings
12/1/2011	4 NSW	7258722	-1.02%	0.27%	110117	4297	4.52	2845.1
3/1/2012	1 NSW	7264362	2.20%	0.36%	110781	3563	4.25	2850.3
6/1/2012	2 NSW	7304244	0.93%	0.26%	113173	3926	3.85	2856.3
9/1/2012	3 NSW	7327614	-1.33%	0.32%	114018	4843	3.50	2862.8
12/1/2012	4 NSW	7353169	3.21%	0.35%	115178	4690	3.18	2871.2
3/1/2013	1 NSW	7382957	1.30%	0.40%	115396	4422	3.00	2877.3
6/1/2013	2 NSW	7404032	1.88%	0.29%	115818	5339	2.85	2884.7
9/1/2013	3 NSW	7430304	2.41%	0.36%	117106	5724	2.60	2892.6
12/1/2013	4 NSW	7454938	4.46%	0.32%	118854	5981	2.50	2901.6
3/1/2014	1 NSW	7487834	1.71%	0.44%	122029	5700	2.50	2908.6
6/1/2014	2 NSW	7508353	2.96%	0.27%	122072	5784	2.50	2917.1
9/1/2014	3 NSW	7536277	2.55%	0.37%	124398	6917	2.50	2930.5
12/1/2014	4 NSW	7562171	4.05%	0.34%	125630	6472	2.50	2944.3
3/1/2015	1 NSW	7595731	3.56%	0.44%	127446	6091	2.34	2955.7
6/1/2015	2 NSW	7616166	1.35%	0.27%	127463	7327	2.10	2965.2
9/1/2015	3 NSW	7645324	3.57%	0.38%	129432	7543	2.00	2982.8
12/1/2015	4 NSW	7671401	-0.80%	0.34%	132498	7228	2.00	2998.5
3/1/2016	1 NSW	7707412	-0.32%	0.47%	133163	6683	2.00	3010.4
6/1/2016	2 NSW	7732858	2.91%	0.33%	136805	7997	1.84	3028
9/1/2016	3 NSW	7767395	2.71%	0.45%	137904	7810	1.59	3044.5
12/1/2016	4 NSW	7795525	4.25%	0.36%	139633	7171	1.50	3060
3/1/2017	1 NSW	7833463	3.16%	0.49%	140432	6881	1.50	3072.6
6/1/2017	2 NSW	7855316	2.38%	0.28%	142580	7578	1.50	3086
9/1/2017	3 NSW	7884752	-0.99%	0.37%	144493	7693	1.50	3099.4
12/1/2017	4 NSW	7900946	0.96%	0.21%	147229	7458	1.50	3110.4
3/1/2018	1 NSW	7934668	-0.76%	0.43%	148945	6998	1.50	3121.7
6/1/2018	2 NSW	7954476	-1.52%	0.25%	150100	7952	1.50	3142.4
9/1/2018	3 NSW	7984525	-1.99%	0.38%	153014	8070	1.50	3159.9
12/1/2018	4 NSW	8003564	-2.67%	0.24%	153066	7581	1.50	3176
3/1/2019	1 NSW	8032991	-2.32%	0.37%	154373	6343	1.50	3190.6
6/1/2019	2 NSW	8046748	0.23%	0.17%	155542	6238	1.43	3207.2
9/1/2019	3 NSW	8071350	4.33%	0.31%	156123	6802	1.01	3220.6
12/1/2019	4 NSW	8088361	2.30%	0.21%	157490	5676	0.75	3236.1
3/1/2020	1 NSW	8102001	1.31%	0.23%	156096	5635	0.64	3246.3
6/1/2020	2 NSW	8110610	-0.87%	-0.02%	141938	6486	0.25	3253.3
9/1/2020	3 NSW	8088305	2.80%	-0.14%	152107	7308	0.25	3277.7
12/1/2020	4 NSW	8094300	4.35%	-0.06%	157284	7436	0.15	3294.6
3/1/2021	1 NSW	8093015	5.62%	-0.02%	161559	7208	0.10	3311.3
6/1/2021	2 NSW	8097062	3.80%	0.05%	166267	8595	0.10	3328.5
9/1/2021	3 NSW	8088503	3.96%	-0.11%	157165	8655	0.10	3344.4
12/1/2021	4 NSW	8101223	5.28%	0.16%	170651	7380	0.10	3356.6
3/1/2022	1 NSW	8137688	1.02%	0.45%	176127	6601	0.10	3366
6/1/2022	2 NSW	8166704	-2.45%	0.36%	182065	6811	0.33	3375.1
9/1/2022	3 NSW	8207849	-4.63%	0.50%	186804	7444	1.78	3387.3
12/1/2022	4 NSW	8246249	-0.25%	0.46%	190086	6630	2.82	3396.9
3/1/2023	1 NSW	8301856	-0.34%	0.65%	192915	5277	3.31	3409.2
6/1/2023	2 NSW	8341893	4.35%	0.47%	197699	5594	3.83	3419.7
9/1/2023	3 NSW	8390356	0.16%	0.59%	201158	6119	4.10	3430.7
12/1/2023	4 NSW	8422043	2.30%	0.38%	202294	5892	4.25	3441.8