

WHAT STOPS LOVE IN HONG KONG



PRESENTED BY
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INTRODUCTION

In today's Hong Kong society, what factors prevent Hong Kong young people from falling in love, what prevents them from entering the palace of marriage?

How did I come up with this idea?

HONG KONG'S DECLINING FERTILITY RATE

HONG KONG'S DECLINING MARRIAGE RATE

(01)

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WHY IS IT IMPORTANT

important for the society

fresh blood, fresh ideas for the future

ageing society.....

important for individual

I'm single now.....



(02)

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MAIN FACTORS

IMMEASURABLE FACTORS

PERSONALITY, VALUE, CULTURAL DIFFERENCES.....

MEASURABLE FACTORS

HOUSING PRICE, INCOME, SPACE.....

(03)



MY ANALYSIS

Dataset I:

Trends in Marriage and Divorce in Hong Kong

Dataset II:

Property Prices Index by Country

Dataset III:

The Quality of Life Index by Country

Dataset IV:

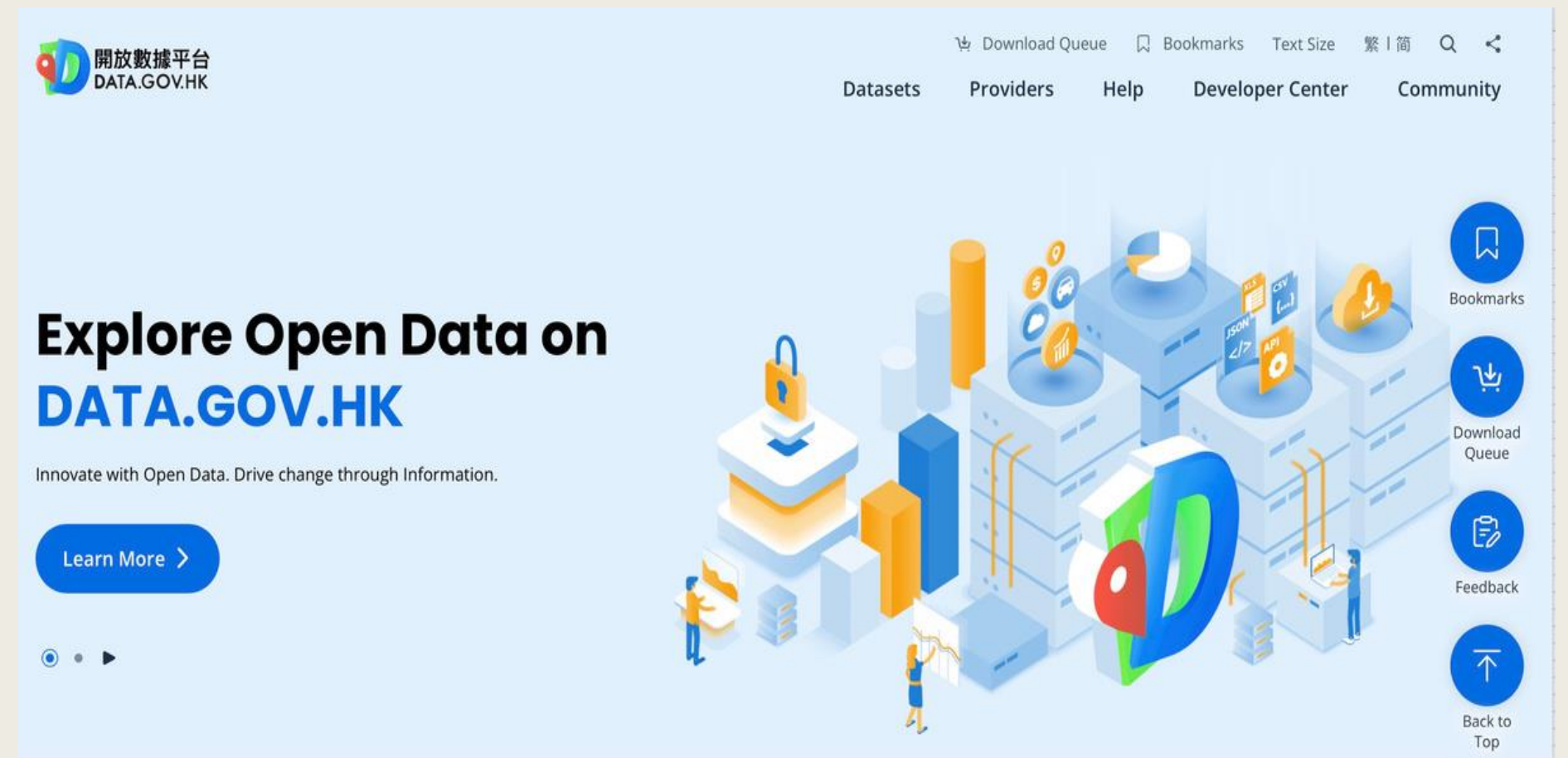
The Purchasing Power Index by Country

Dataset V:

The Costing of Life Index by Country

Tools:

RStudio for data analysis and visualization.



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DATASET I

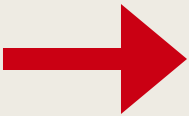
DATA COLLECTION AND
CLEANSING

Table 115-01015_en									
Table 115-01015 : Number of marriages by type									
	Number								
Type of marriage	First marriage of both parties	First marriage of bridegroom and remarriage of bride	First marriage of bride and remarriage of bridegroom	Remarriage of both parties	Others (1)	Total			
Year									
1970	17 074	105	318	126	2 816	20 439			
1971	22 356	109	280	83	4 178	27 006			
1972	23 902	126		104	2 878	27 264			
1973	26 922	132	394	95	2 893	30 436			
1974	32 790	58	240	49	4 497	37 634			
1975	29 930	207	533	82	5 440	36 192			
1976	34 378	314	548	163	4 214	39 617			
1977	34 519	358	587	173	4 753	40 390			
1978	34 530	471	698	168	4 533	40 400			
1979	38 510	537	783	235	5 238	45 303			
1980	42 724	752	1 049	272	6 314	51 111			
1981	41 190	850	1 041	305	7 370	50 756			
1982	41 554	926	1 071	350	7 566	51 467			
1983	36 537	1 063	1 196	362	8 620	47 778			
1984	43 660	1 070	1 206	368	7 105	53 409			
1985	36 346	1 312	1 374	431	5 593	45 056			
1986	34 088	1 404	1 377	552	5 859	43 280			
1987	39 960	1 491	1 545	564	5 001	48 561			
1988	37 380	1 660	1 730	682	3 786	45 238			
1989	33 959	1 789	1 739	727	5 733	43 947			
1990	37 581	1 893	1 893	830	4 971	47 168			
1991	34 522	2 008	1 973	911	3 154	42 568			
1992	38 065	2 061	2 250	882	2 444	45 702			
1993	34 394	2 096	2 190	918	2 083	41 681			
1994	31 348	2 101	2 227	981	1 607	38 264			
1995	32 033	2 047	2 199	1 041	1 466	38 786			
1996	29 397	2 280	2 409	1 207	1 752	37 045			
1997	30 427	2 441	2 523	1 334	868	37 593			
1998	25 064	2 241	2 511	1 330	527	31 673			
1999	24 520	2 302	2 520	1 408	537	31 287			
2000	23 917	2 259	2 688	1 684	331	30 879			
2001	25 285	2 490	2 926	1 857	267	32 825			

NOT FULLY CLEANED

(05)

AFTER CLEANSING
(COPY AND PASTE)



	A	B	C	D	E	F	G
	Year	First marriage of both parties	First marriage of bridegroom and remarriage of bride	First marriage of bride and remarriage of bridegroom	Remarriage of both parties	Others	Total
	2012	40 841	4 540	6 912	8 090	76	60 459
	2013	35 703	4 399	6 433	8 676	63	55 274
	2014	37 217	4 428	6 198	8 571	40	56 454
	2015	34 046	4 060	5 531	7 932	40	51 609
	2016	32 673	3 969	5 083	8 248	35	50 008
	2017	34 263	4 026	5 217	8 277	34	51 817
	2018	31 828	4 017	4 854	8 596	36	49 331
	2019	28 398	3 567	4 276	7 989	17	44 247
	2020	21 324	1 755	2 128	2 640	16	27 863
	2021	20 153	1 795	2 082	2 866	3	26 899
	2022	21 950	2 065	2 442	3 551	4	30 012
	2023	27 568	4 035	4 446	11 673	1	47 723

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DATASET

NOT AN EXCEL FILE

(06)

Rank	Country ^	Price To Income Ratio ^	Gross Rental Yield City Centre ^	Gross Rental Yield Outside of Centre ^	Price To Rent Ratio City Centre ^	Price To Rent Ratio Outside Of City Centre ^	Mortgage As A Percentage Of Income ^	Affordability Index ^
1	Syria	86.7	3.1	3.7	32.2	27.3	1089.3	0.1
2	Ghana	78.6	17.0	0.4	5.9	255.1	1937.5	0.1
3	Hong Kong (China)	44.9	1.7	1.7	58.6	58.8	286.8	0.3
4	Sri Lanka	40.8	3.3	2.1	30.4	46.7	663.5	0.2
5	China	34.6	1.6	1.6	60.9	63.4	275.1	0.4
6	Nepal	32.8	1.7	2.5	59.2	40.7	444.5	0.2
7	Cambodia	32.5	4.8	5.1	20.9	19.6	398.7	0.3
8	Philippines	30.1	3.5	3.7	28.8	26.9	287.7	0.3
9	Nigeria	28.2	29.4	15.7	3.4	6.4	507.8	0.2
10	Ethiopia	26.4	10.9	6.8	9.1	14.8	445.7	0.2
11	South Korea	26.0	0.9	1.0	115.1	98.6	182.2	0.5
12	Iran	24.4	5.9	6.3	16.9	16.0	508.0	0.2
13	Thailand	24.0	3.2	3.1	31.5	32.5	195.2	0.5
14	Vietnam	23.5	3.3	3.8	30.1	26.6	271.0	0.4
15	Argentina	22.7	2.4	2.3	41.1	43.8	1058.3	0.1
16	Taiwan (China)	20.1	1.5	1.7	64.9	57.6	119.4	0.8
17	Peru	19.0	4.8	4.5	20.6	22.2	203.8	0.5
18	Venezuela	18.9	7.9	6.2	12.6	16.2	471.6	0.2
19	Indonesia	18.5	4.1	4.8	24.2	20.8	207.9	0.5
20	Lebanon	18.3	5.6	6.5	17.9	15.5	197.7	0.5
21	Brazil	18.3	3.9	4.1	25.6	24.3	206.3	0.5
22	Mongolia	17.6	5.0	5.7	20.0	17.6	180.8	0.6
23	Colombia	17.5	4.8	4.8	21.0	21.0	222.1	0.5
24	Armenia	17.2	8.5	11.8	11.8	8.4	232.8	0.4

DATASET

```
<!DOCTYPE html>
<html lang="en-US"> 滚动 事件
  <head>...</head>
  <body style>
    <script>...</script>
    <nav>...</nav>
    <div class="innerWidth">...</div>
    <!-- innerWidth -->
    <div class="innerWidth" style="height: auto !important;">
      <div class="right-ads-and-info">...</div>
      <p> </p>
      <nav itemscope itemtype="http://schema.org/BreadcrumbList" class="breadcrumb">...</nav>
      <h1> Property Prices Index by Country 2023</h1>
      <div id="page_container">
        <div class="regionChartDivContainer">...</div>
        <p>...</p>
        <div style="display: flex; width: 100%;">...</div> flex
        <div id="t2_wrapper" class="dataTables_wrapper dt-jqueryui no-footer">
          <div class="fg-toolbar ui-toolbar ui-widget-header ui-helper-clearfix ui-corner-tl ui-corner-tr">...</div>
          <table id="t2" class="stripe row-border order-column compact dataTable no-footer" role="grid" aria-describedby="t2_info"> 事件
            <thead>...</thead>
            <tbody>
              <tr style="width: 100%" role="row" class="odd">...</tr>
              <tr style="width: 100%" role="row" class="even">...</tr>
              <tr style="width: 100%" role="row" class="odd">
                <td>3</td>
                <td class="cityOrCountryInIndicesTable">Hong Kong (China)</td> = $0
                <td style="text-align: right" class="sorting_1">44.9</td>
                <td style="text-align: right">1.7</td>
                <td style="text-align: right">1.7</td>
                <td style="text-align: right">58.62</td>
              </tr>
            </tbody>
          </table>
        </div>
      </div>
    </div>
  </body>
</html>
```

"Rank", "Country", "PriceToIncomeRatio",
 GrossRentalYield", "PriceToRentRatio",
 MortgagePercentage", "AffordabilityIndex"

www.numbeo.com/property_investment/ranking
 numbeo(target_url)

border-top: 1px solid #ccc;
 box-sizing: content-box;
 color: #000000;
 display: table-cell;
 font-family: Arial, sans-serif;
 height: 40px;
 line-height: 20.799999px;
 padding-bottom: 4px;
 padding-left: 4px;
 padding-right: 4px;
 padding-top: 4px;
 text-indent: 0px;
 vertical-align: middle;
 width: 113.9375px;
 -webkit-border-horizontal-spacing: 0px;
 -webkit-border-vertical-spacing: 0px;

```
scrape_numbeo <- function(url) {  
  webpage <- httr::GET(url, headers) %>%  
    read_html()  
}
```

[illegible]

NODE

(07)

DATASET

A tibble: 10 × 9

Rank<lg>	Country<chr>	PriceToIncomeRatio<dbl>	GrossRentalYield<dbl>	PriceToRentRatio<dbl>	MortgageAsPercentage<dbl>
NA	Syria	86.7	3.1	3.7	32.2
NA	Ghana	78.6	17.0	0.4	5.9
NA	Hong Kong (China)	44.9	1.7	1.7	58.6
NA	Sri Lanka	40.8	3.3	2.1	30.4
NA	China	34.6	1.6	1.6	60.9
NA	Nepal	32.8	1.7	2.5	59.2
NA	Cambodia	32.5	4.8	5.1	20.9
NA	Philippines	30.1	3.5	3.7	28.8
NA	Nigeria	28.2	29.4	15.7	3.4
NA	Ethiopia	26.4	10.9	6.8	9.1

1–10 of 10 rows | 1–6 of 9 columns

Year	HK_PurchasingPowerIndex	HK_CostOfLivingIndex
2013	81.2	77.8
2014	71.4	76.4
2015	74.9	75.2
2016	102.3	81.5
2017	81.5	80
2018	82.9	78.7
2019	69.3	78.1
2020	65.3	77.2
2021	62.4	79.9
2022	65.7	80.7
2023	67.7	75.7

Year	HK_HousingPriceToIncomeRatio
2012	23.5
2013	23.6
2014	27.1
2015	30.1
2016	37.6
2017	36.1
2018	41.1
2019	49.4
2020	47.5
2021	45.2
2022	46.9
2023	44.9

DATA VISUALIZATION

(11)

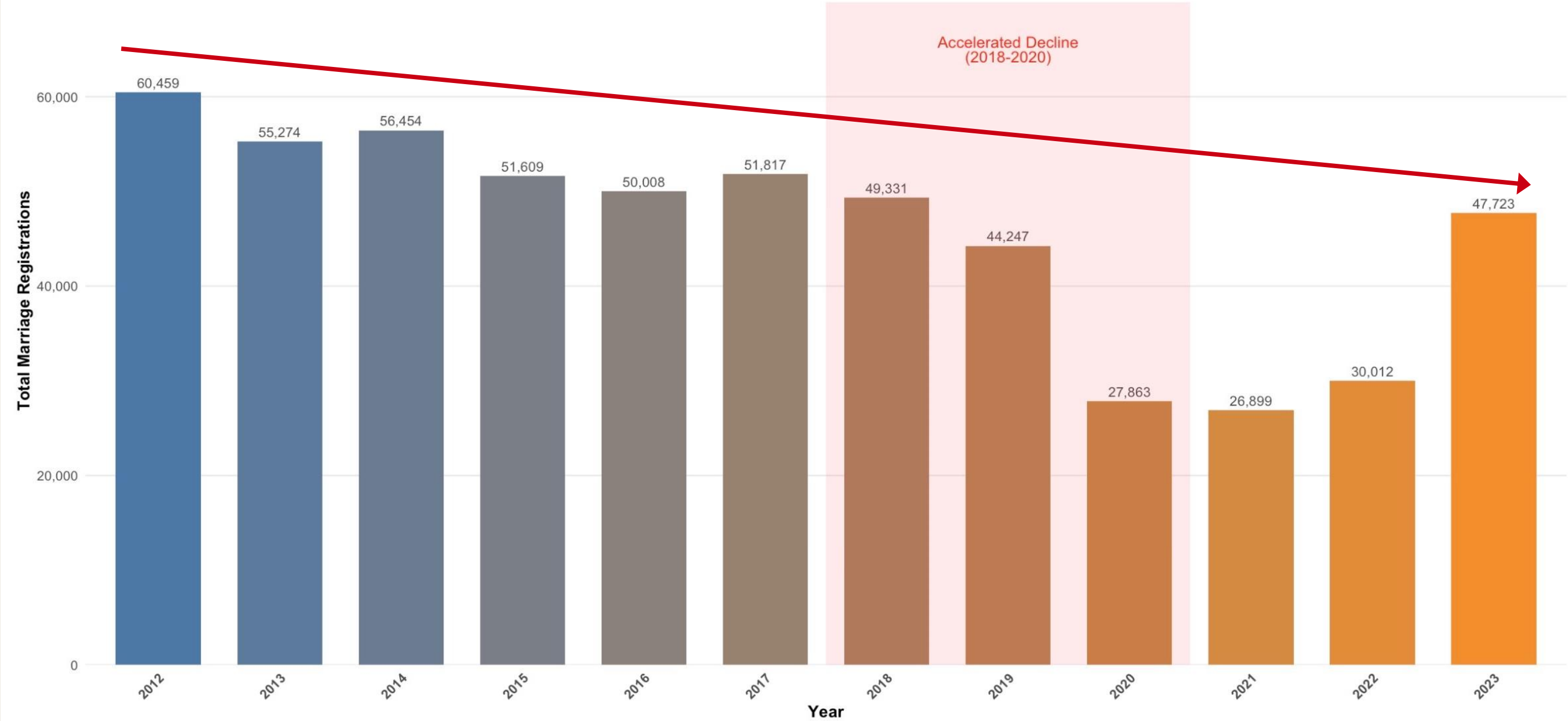
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```
marriage_plot <- ggplot(marriage, aes(x = as.factor(Year), y = FirstMarriage)) +  
  geom_col(aes(fill = color_gradient), width = 0.7, show.legend = FALSE) +  
  geom_text(aes(label = format(Total, big.mark = ",")),  
    vjust = -0.5, color = "grey30", size = 3.5) +
```

RStudio: Notebook Output

Trend Analysis of Marriage Registrations in Hong Kong (2012-2023)

Data Source: Census and Statistics Department, HKSAR



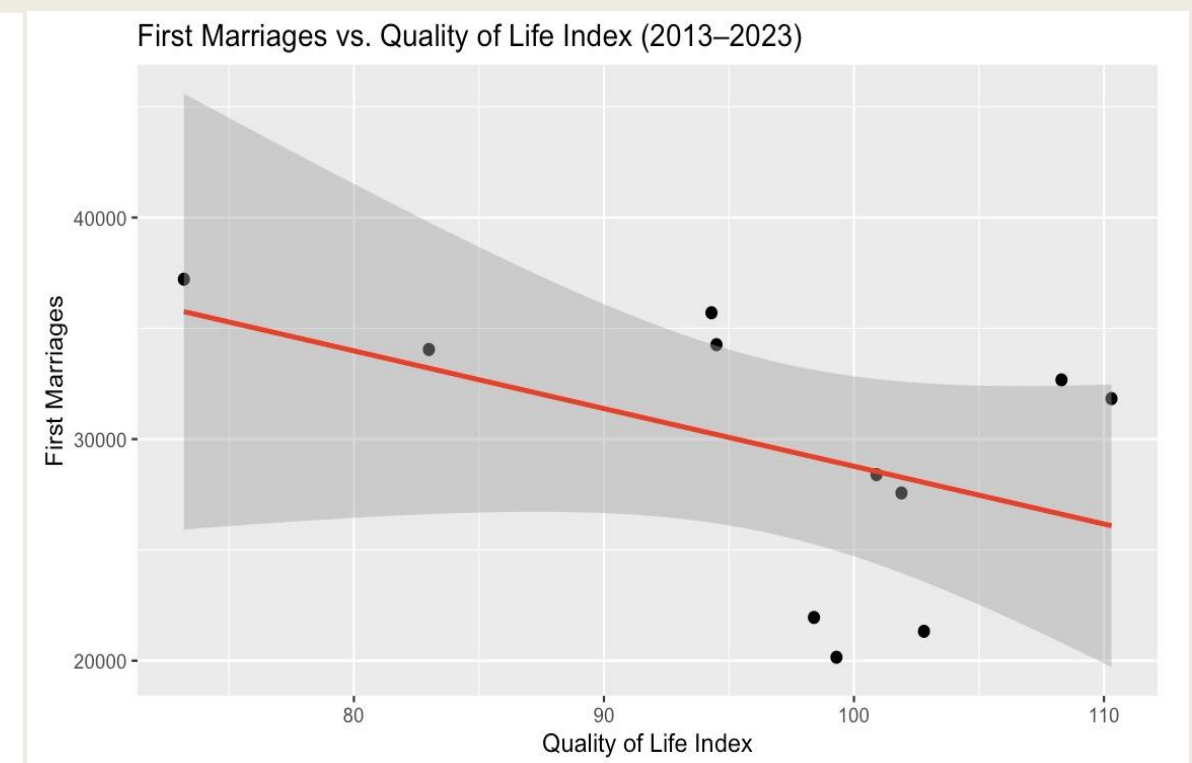
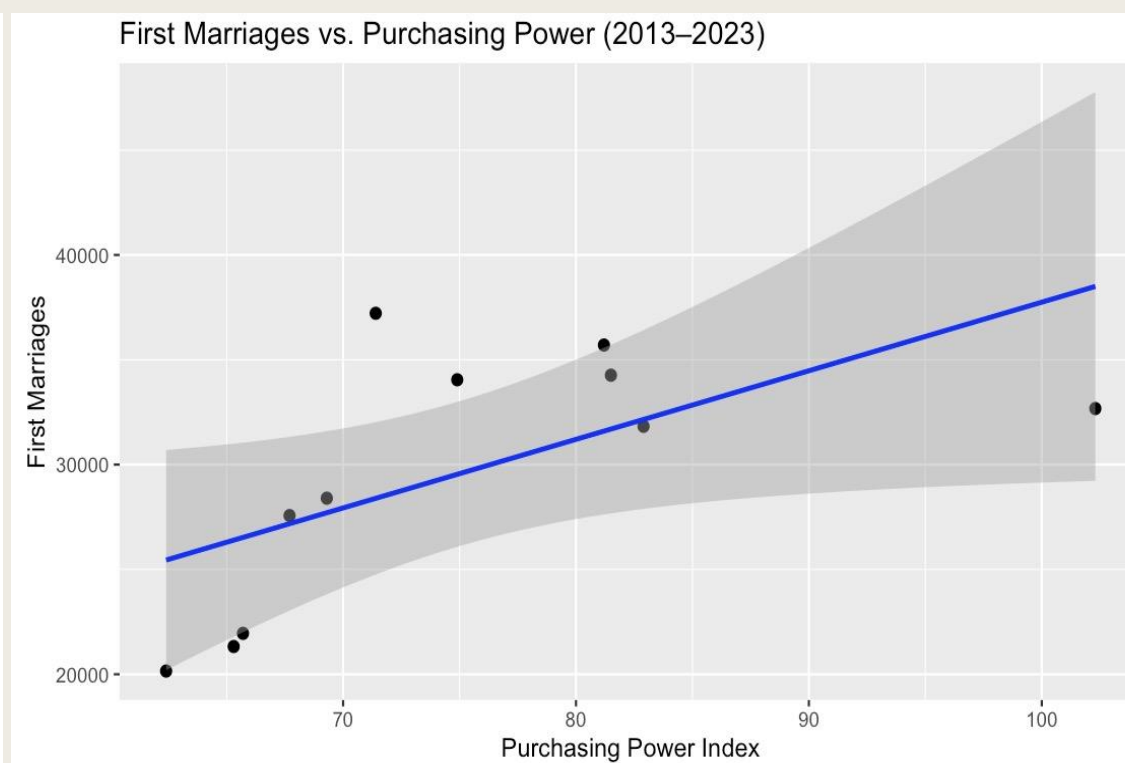
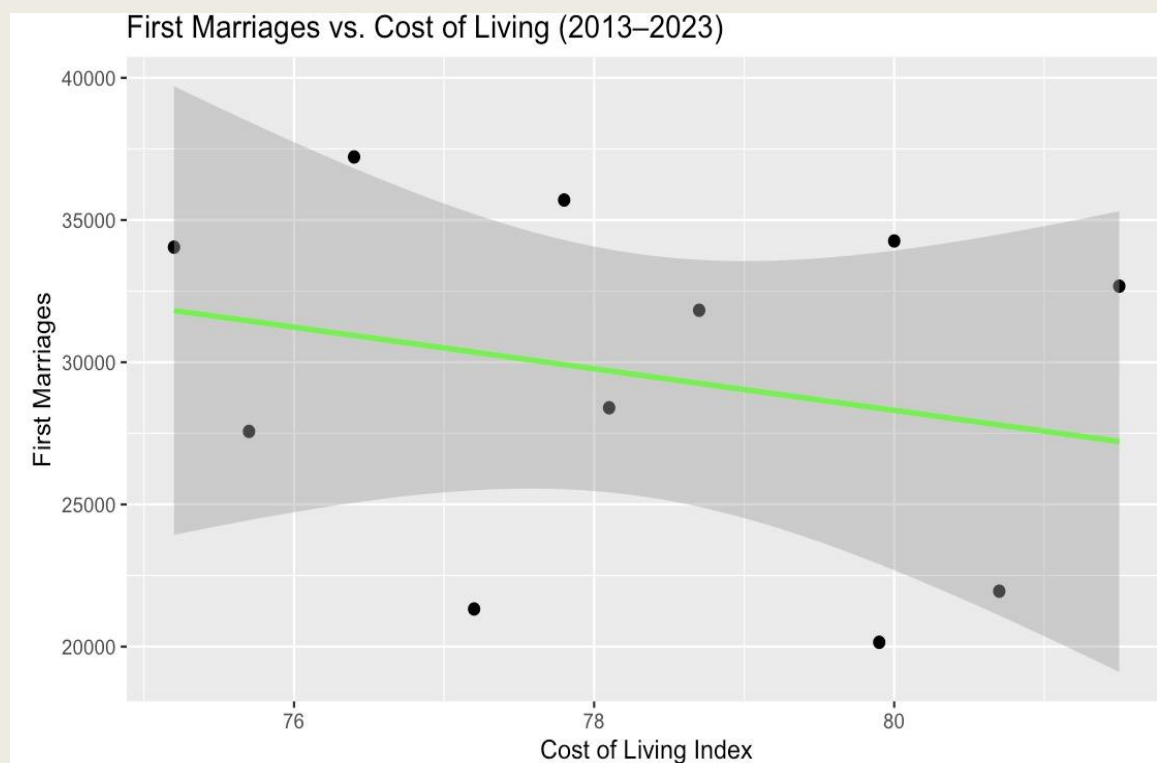
DATA VISUALIZATION

(09)

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```
sheet3 <- read_excel("/Users/qiuweijie/Desktop/yeyeyeye.xlsx", sheet = 3) |>
  mutate(Year = as.numeric(Year)) #HK_QualityOfLifeIndex
sheet4 <- read_excel("/Users/qiuweijie/Desktop/yeyeyeye.xlsx", sheet = 4) |>
  mutate(Year = as.numeric(Year)) #FirstMarriageOfBothParties
sheet5 <- read_excel("/Users/qiuweijie/Desktop/yeyeyeye.xlsx", sheet = 5) |>
  mutate(Year = as.numeric(Year)) #PurchasingPower & CostOfLiving
df_sheet3_sheet4 <- inner_join(sheet4, sheet3, by = "Year")
df_sheet4_sheet5 <- inner_join(sheet4, sheet5, by = "Year")
```

```
FirstMarriagesvsCostofLiving<-ggplot(df_sheet4_sheet5, aes(x = HK_CostOfLivingIndex, y = FirstMarriageOfBothParties)) +
  geom_point(size = 2) +
  geom_smooth(method = "lm", color = "green") +
  labs(
    title = "First Marriages vs. Cost of Living (2013–2023)",
    x = "Cost of Living Index", y = "First Marriages"
  )
```



CORRELATION?

The correlation coefficient (r), specifically Pearson's r, measures the strength and direction of the linear relationship between two variables.

Pearson's r Formula:

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

```
cor_purchasing_marriage <- cor(df_sheet4_sheet5$HK_PurchasingPowerIndex, df_sheet4_sheet5$FirstMarriageOfBothParties)
cor_cost_marriage <- cor(df_sheet4_sheet5$HK_CostOfLivingIndex, df_sheet4_sheet5$FirstMarriageOfBothParties)
```

Weak correlation:

Correlation (Cost of Living): -0.25

Moderate correlation:

Correlation (life quality): -0.46

Correlation (Purchasing Power): 0.62

(10)

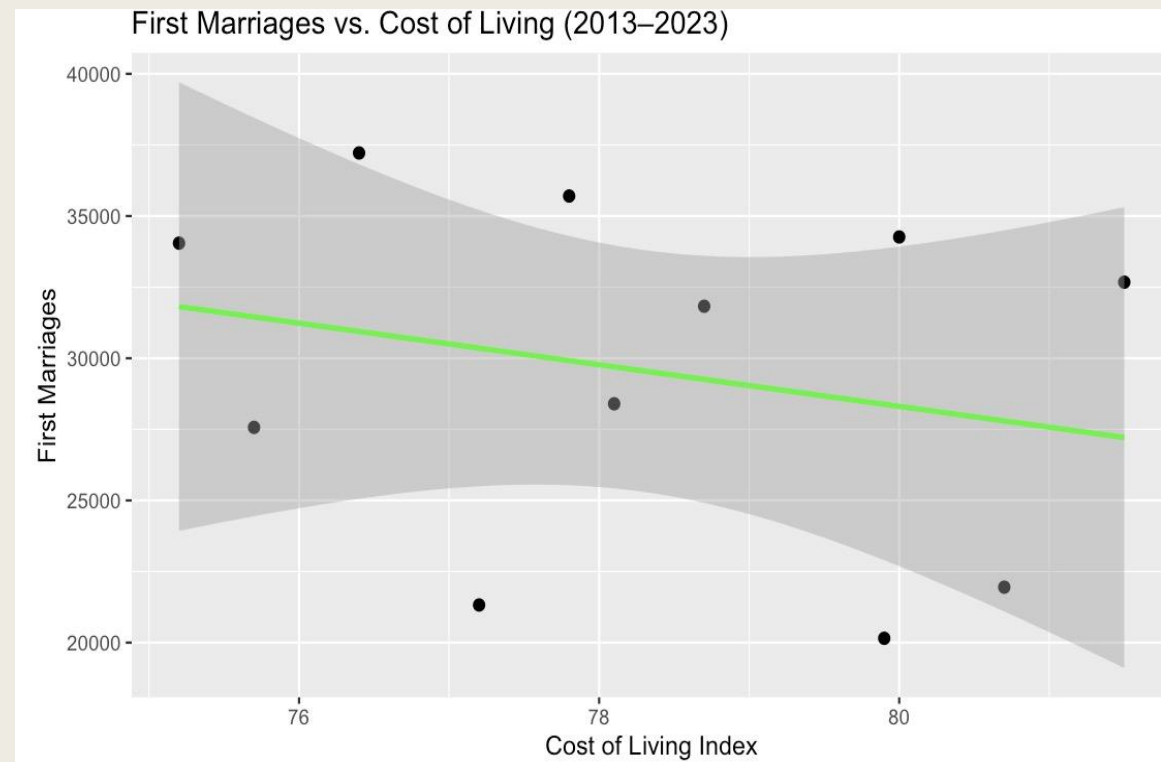
More about correlation coefficient:

<https://www.investopedia.com/terms/c/correlationcoefficient.asp>

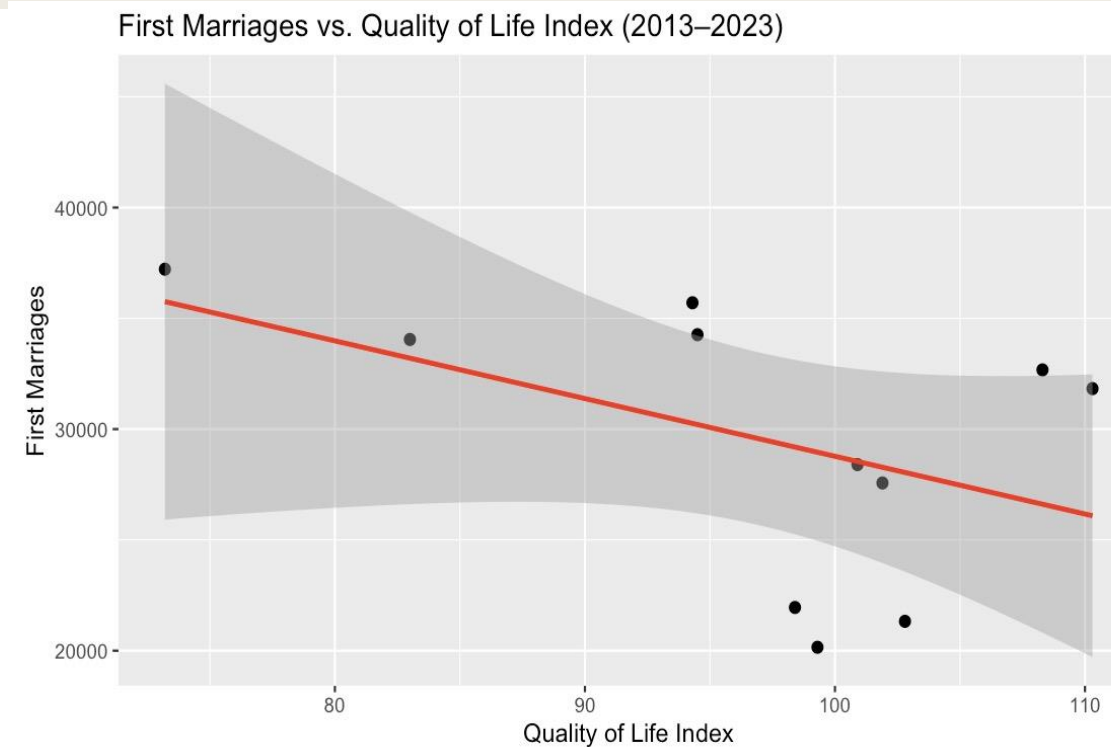
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CORRELATION?

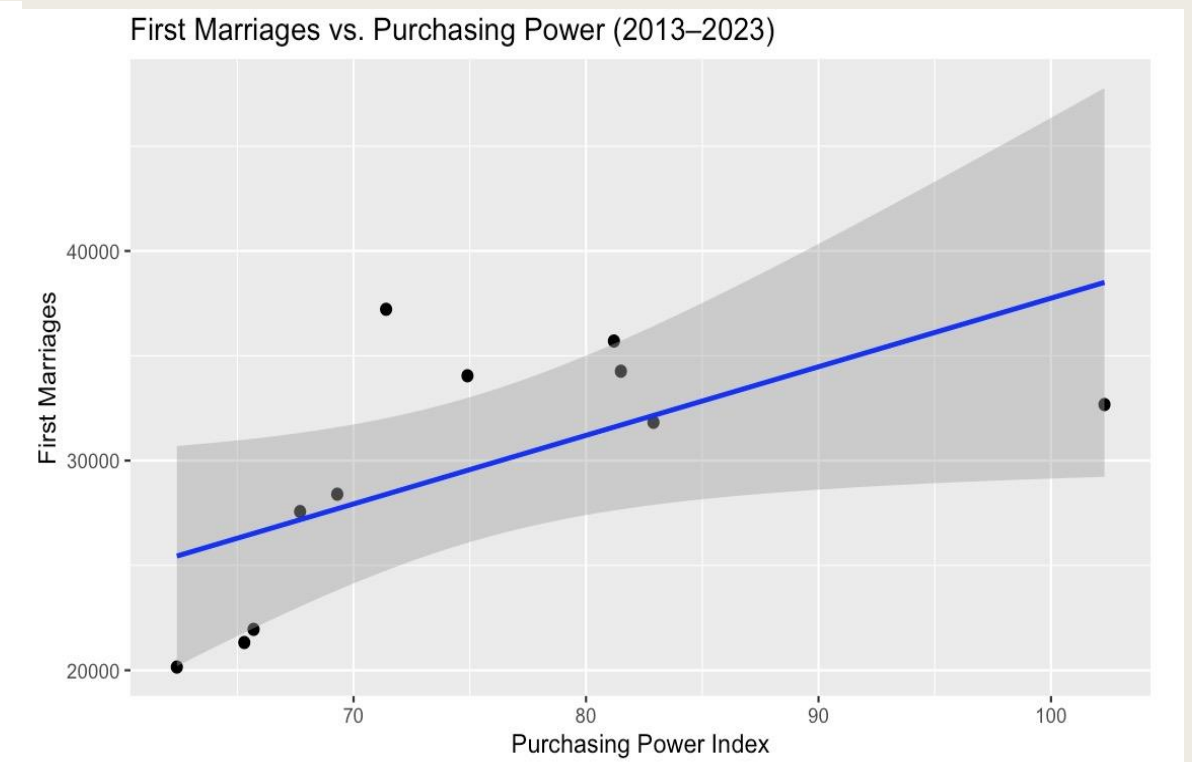
Correlation (Cost of Living): -0.25



Correlation (life quality): -0.46



Correlation (Purchasing Power): 0.62



Insight:

Purchasing Power (+0.62): Higher incomes encourage marriage.

Quality of Life (-0.46): Paradoxically, better living standards correlate with lower marriage rates. Why? Maybe comfort reduces urgency to settle down.

Cost of Living(-0.25): As cost of living increases, marriage rates tend to decrease slightly.

However, the effect is not strong. It is speculated that the reason is that people's purchasing power is on the rise.

DATA VISUALIZATION

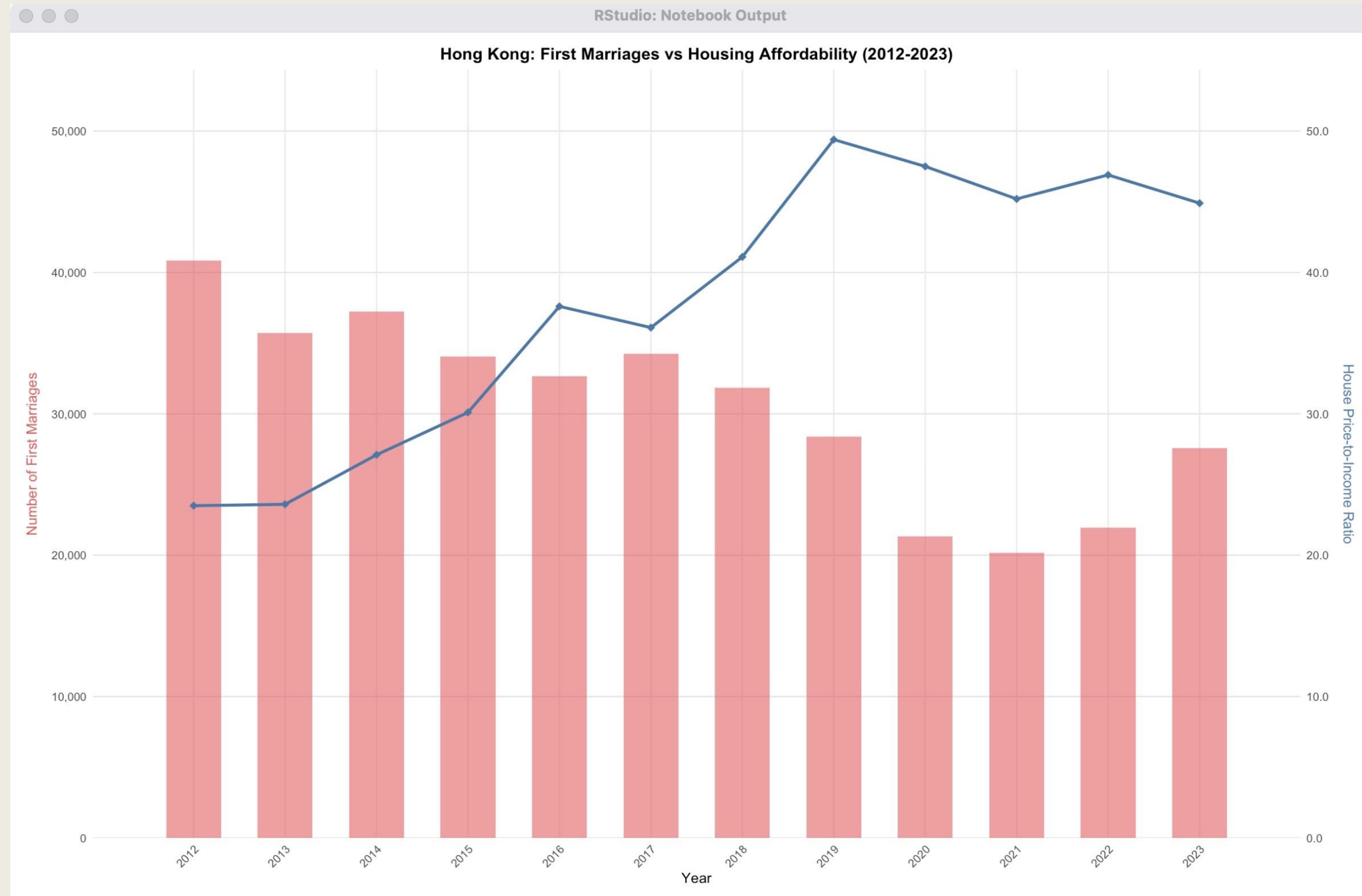
(12)

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Property Prices Index

```
combined_data <- marriage %>%  
  left_join(housing, by = "Year") %>%  
  rename(  
    FirstMarriage = FirstMarriageOfBothParties,  
    HousingRatio = HousingPriceToIncomeRatio  
  )
```

```
(dual_plot <- ggplot(combined_data, aes(x = Year)) +  
  geom_col(aes(y = FirstMarriage),  
    fill = "#E15759", alpha = 0.6, width = 0.6) +  
  geom_line(aes(y = HousingRatio * 1000),  
    color = "#4E79A7", linewidth = 1.2, linetype = "solid") +  
  geom_point(aes(y = HousingRatio * 1000),  
    color = "#4E79A7", size = 3, shape = 18) +
```



CORRELATION?

$$R \approx -0.83$$



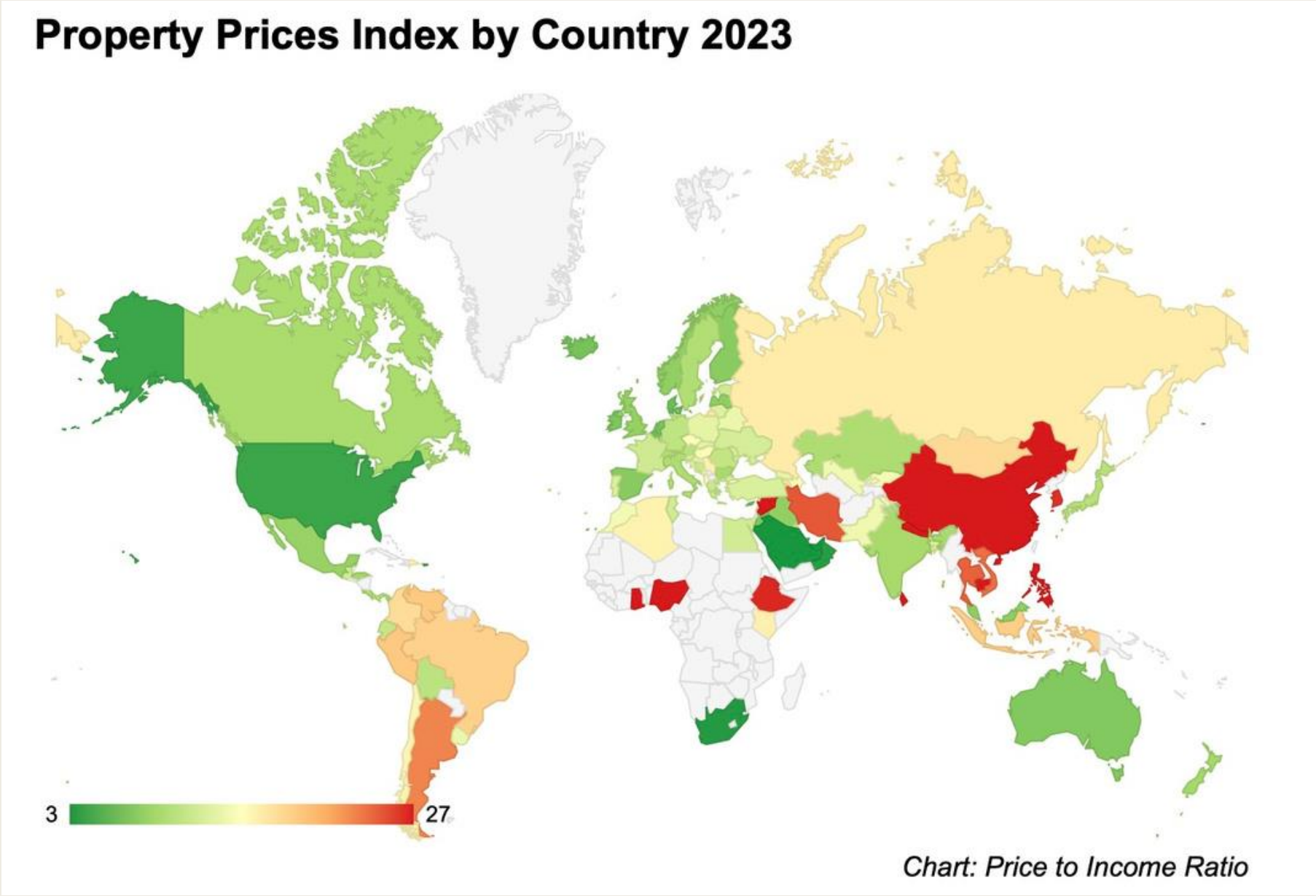
As the Housing Price to Income Ratio increases, Total Marriages decrease.

The correlation is strong ($|r| > 0.8$), indicating a significant relationship.

High housing costs relative to income may deter marriage due to financial stress.

In market research in 94 different regions, Hong Kong is the least affordable market globally (median multiple: 16.7), followed by Sydney (13.8) and Vancouver (12.3)(Cox, 2024).

Rank	Nation	Metropolitan Market	Median Multiple
83	N.Z.	Auckland	8.2
84	Canada	Toronto, ON	9.3
85	U.S.	San Diego, CA	9.5
86	Australia	Adelaide, SA	9.7
86	U.S.	San Francisco, CA	9.7
88	Australia	Melbourne, VIC	9.8
89	U.S.	Honolulu, HI	10.5
90	U.S.	Los Angeles, CA	10.9
91	U.S.	San Jose, CA	11.9
92	Canada	Vancouver, BC	12.3
93	Australia	Sydney, NSW	13.8
94	China	Hong Kong	16.7



LIMITATION

LOVE

Love is a subjective idea that cannot be measured by statistics.

We can only focus on the data of marriage and fertility, but still there are some of the people who do not want to get marriage even they fall in love.

OTHER FACTORS

Immeasurable factors like personality, value and cultural differences.

We can only analyze it at the physical level.

Covid 19 pandemic.

CONCLUSION

High housing costs and stagnant incomes create financial stress, deterring young people from marrying or starting families.

While data reveals the economic hurdles to love in Hong Kong, the heart's choices remain a complex interplay of numbers and emotions.

REFERENCE LIST

Census and Statistics Department. Marriage and Divorce Trends in Hong Kong. <https://data.gov.hk/sc-data/dataset/hk-censtatd-tablechart-fa100055>

Cox, W. (2024). Demographia international housing affordability: 2024 edition. Center for Demographics and Policy, Chapman University.

Property Prices Index by Country. https://www.numbeo.com/property-investment/rankings_by_country.jsp?title=2023

Quality of Life Index by Country. https://www.numbeo.com/quality-of-life/rankings_by_country.jsp

Cost of Living Index by Country. https://www.numbeo.com/cost-of-living/rankings_by_country.jsp

Purchasing Power Index by Country. https://www.numbeo.com/cost-of-living/rankings_by_country.jsp?title=2025&displayColumn=0

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THANK YOU!