

THE IMPACT OF HOUSING PRICE ON THE FERTILITY RATE IN HONG KONG

Group 4
Cheung Sum Ki Samuel 1155107488
Lo Man Hin 1155104674
Lui Chun Him 1155094916



Fertility Rate in Hong Kong

- One of the lowest in the world
- Latest Data (2017) – 1.06
- < 2.1 For more than three decades

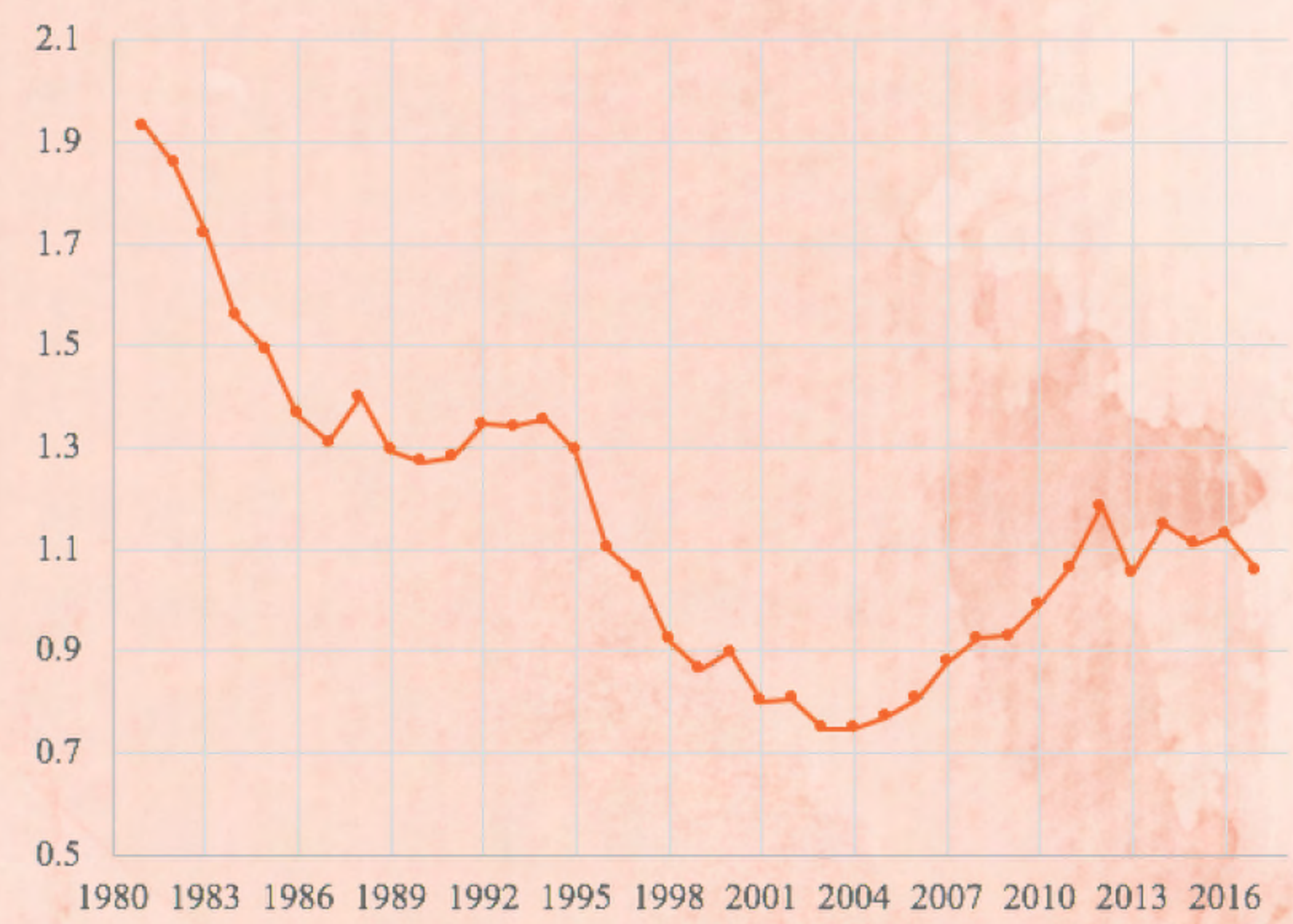


Figure 1: Total Fertility Rate of HK

Housing Price in Hong Kong

- ❖ Most Expensive
 - According to the CBRE (2019), Hong Kong remains the most expensive city in the world to buy a home
- ❖ Centa-City Index (CCI)
 - important indicator to reflect the overall price trend of the Hong Kong property market
- ❖ Constituent Estates
 - CCI: 128
 - Centa-City Index Mass: 107 (excluding 21 luxurious estates)
- ❖ Base Index
 - from July 1997, Base index: 100

Methodology

Correlation Analysis

	CCI	CCIMass	TFR	CBR	AFR
CCI	1.0000				
CCIMass	0.9991	1.0000			
TFR	0.6931	0.6950	1.0000		
CBR	0.0267	0.0030	0.4485	1.0000	
AFR	-0.0784	-0.0604	0.5507	0.2355	1.0000

Figure 2: Correlation Analysis

ARIMA Regression Model [R-squared=0.48]

Source	SS	df	MS	Number of obs	=	23
Model	.253689589	1	.253689589	F(1, 21)	=	19.41
Residual	.274425628	21	.013067887	Prob > F	=	0.0002
Total	.528115217	22	.024005237	R-squared	=	0.4804
				Adj R-squared	=	0.4556
				Root MSE	=	.11431

TFR	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
CCI	.0034887	.00079	4.41	0.000	.0018378 .0051235
_cons	.7129969	.0628751	11.34	0.000	.582241 .8437528

Figure 3: ARIMA Result

❖ positive relationship between fertility rate and housing price

❖ R-squared is acceptable
❖ positive relationship between fertility rate and housing price

MAIN ANALYSIS

1 Children as analogous to Goods



- ❖ Normal goods / Inferior goods ?
 - A normal good - a good that experiences an increase in its demand due to a rise in consumers' income
 - An inferior good - a good whose demand decreases when consumer income rises
- ❖ Gary Becker (1960)
 - Children would bring utility for their parents as same as other goods
 - Normal goods since no substitutes
 - Treated children as analogous to consumer durables such as cars or houses
- ❖ Real world
 - Departed from earlier theorizing on fertility by demographers and sociologists in two different and equally important ways
 - Childbearing is more likely an inferior good

2 Wealth Effect

- ❖ House-owners could enjoy the gain in wealth effect from the increasing property price, and expand their consumption plan
- ❖ Creates a wealth effect, so people are more willing to give birth.

3 Utility Theory

- ❖ Assume there are only two goods, children and properties
- ❖ Before the change in housing price, the budget constraint is AB1, and the indifference curve is U1, utility is maximized at E1, household consumes P1 of properties, and C1 of children
- ❖ After the property price increases, household have to adjust their consumption in housing and children to adapt to the new budget constraint (AB2). The utility curve shifts inwards to U2, and the new utility maximizing point is E2. The consumption of properties decreases from P1 to P2 and the number of children decreases from C1 to C2.

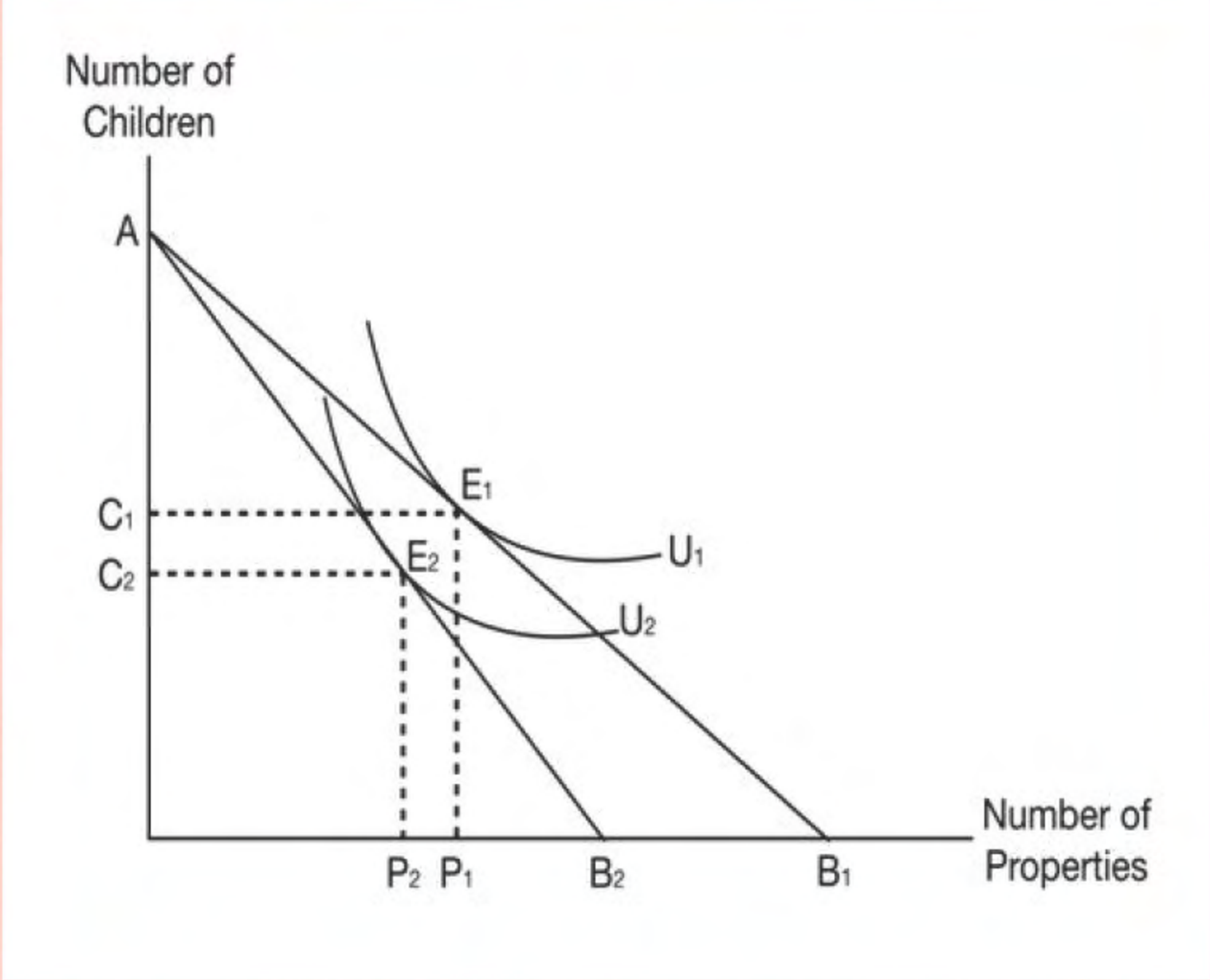


Figure 4: Correlation Analysis

Conclusion

- ❖ positive relationship between fertility rate and housing price
- ❖ Home equity effect
 - when property price ↑, the birth rate of "home-owners" would ↑
 - "non-owners" would decrease
- ❖ under the average age of first time home buyer,
 - negative correlation between the increasing property price and birth rate