

Raising Total Fertility Rate in Taiwan

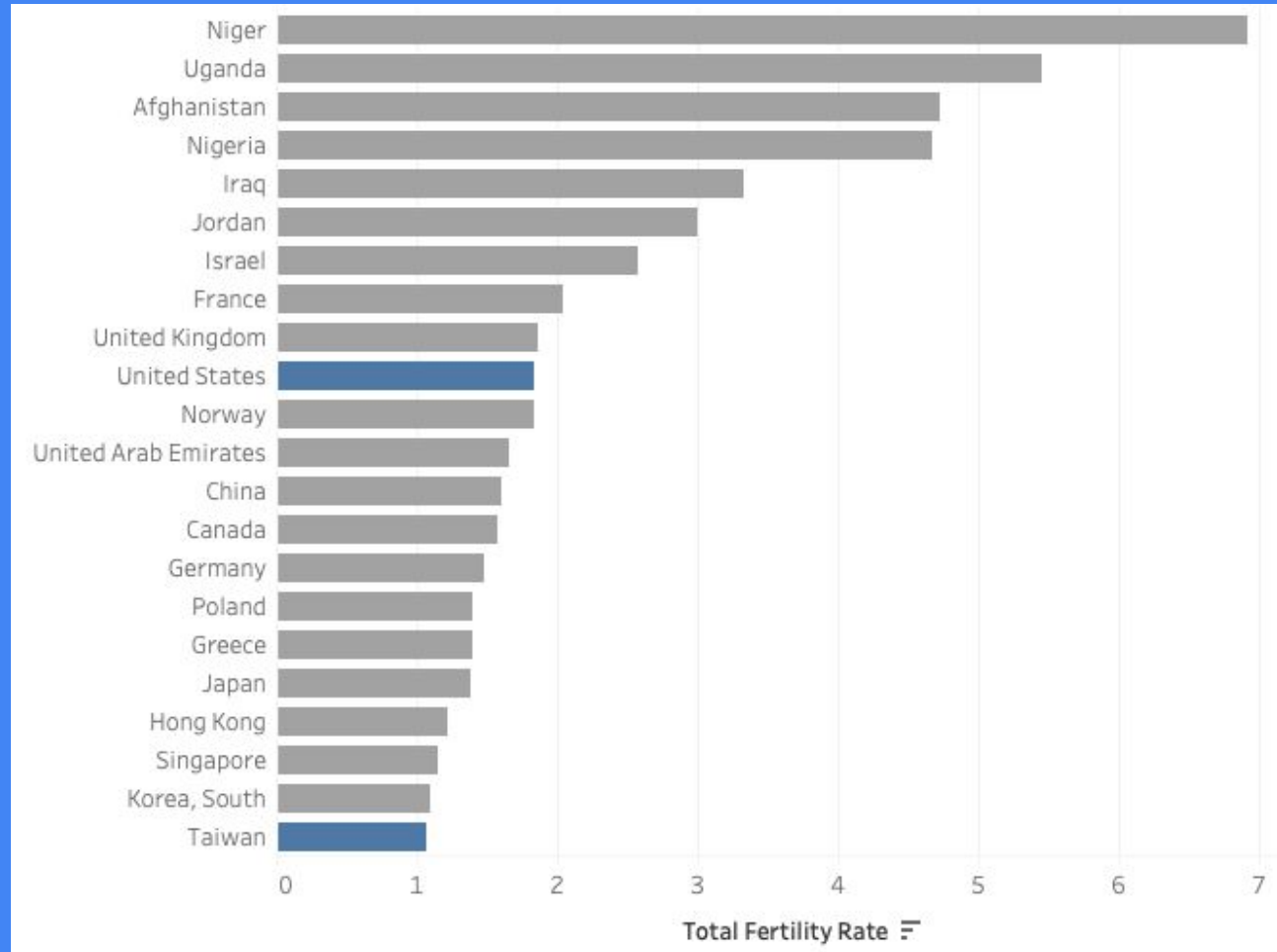
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This is Taiwan.
Home of bubble tea.

Taiwan Has the Lowest Fertility Rate in the World



Goal

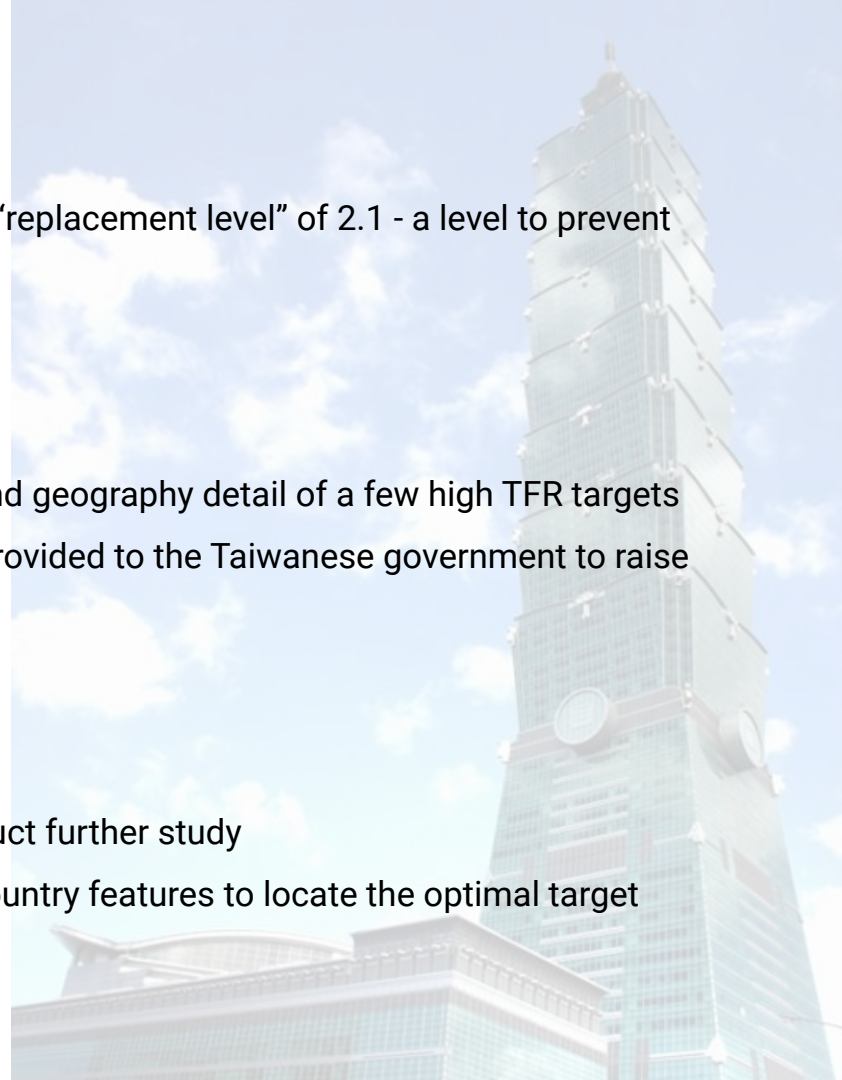
- Raise the total fertility rate (TFR) of Taiwan to above the “replacement level” of 2.1 - a level to prevent the population from shrinking

Impact Hypothesis

- By studying the policy, society, environment, economy, and geography detail of a few high TFR targets similar to Taiwan, actionable recommendations will be provided to the Taiwanese government to raise the TRF to a healthy level

Proposed Solutions

- Solution 1.0: Use EDA to identify the ideal target to conduct further study
- Solution 2.0 (future work): Train a clustering model on country features to locate the optimal target



Methodology



EDA

1

Examine which features are closely related to the birth rate

Identification

2

Identify several target countries with similar traits to Taiwan but with high TFR

Insights

3

Study various aspects of the target countries to find the “secrets” of having a high birth rate

Conclusions

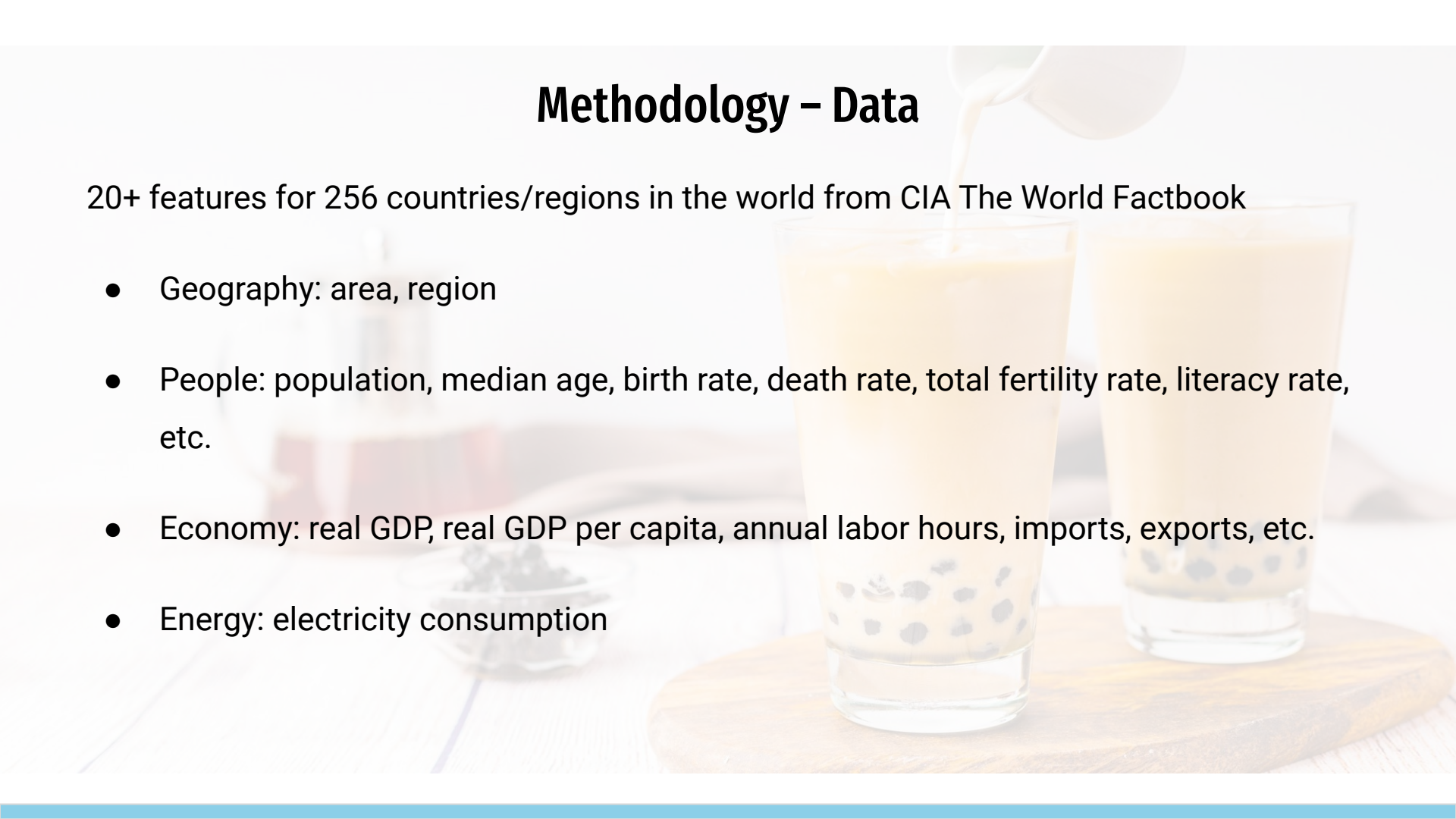
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Provide feasible recommendations to the Taiwanese government

Methodology – Data

20+ features for 256 countries/regions in the world from CIA The World Factbook

- Geography: area, region
- People: population, median age, birth rate, death rate, total fertility rate, literacy rate, etc.
- Economy: real GDP, real GDP per capita, annual labor hours, imports, exports, etc.
- Energy: electricity consumption



Assumptions

- Policies proven to be effective in other countries will be effective in Taiwan
- The Taiwanese government has infinite resources to act on the recommendations

Risks

- Some approaches might be impossible to be adopted by Taiwan, such as religion or societal views based on historical reasons
- Measures may be financially impossible to be implemented by the Taiwanese government

Fertility Rate Negatively Correlated with Education Level



Possible Drivers of Low Fertility Rate

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- Better education for women - increased labor force participation
 - Gender inequalities in housework division
 - Intensive parenting
 - Labor market uncertainty
 - Soaring housing prices
-

Identifying Targets

3.1/woman

Libya

Infant mortality rate: 11.5
GDP per capita: \$10,300

2.9/woman

Philippines

Infant mortality rate: 20.6
GDP per capita: \$8,000

3.0/woman

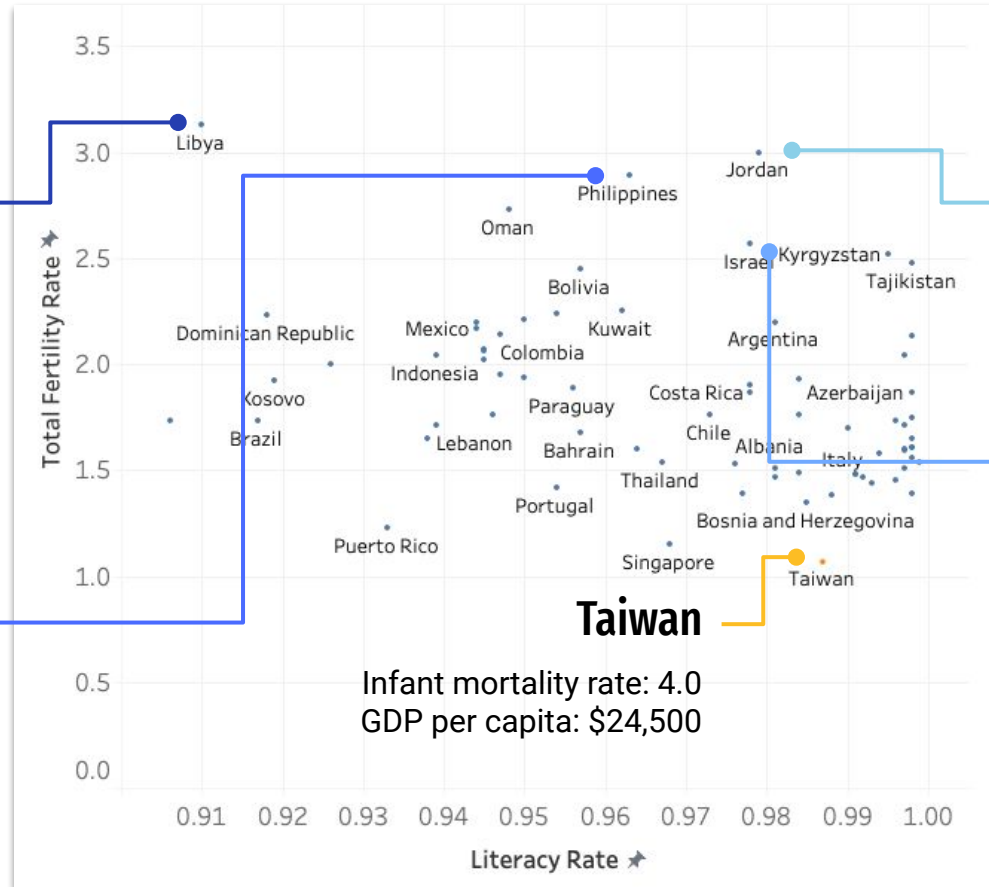
Jordan

Infant mortality rate: 14.3
GDP per capita: \$9,800

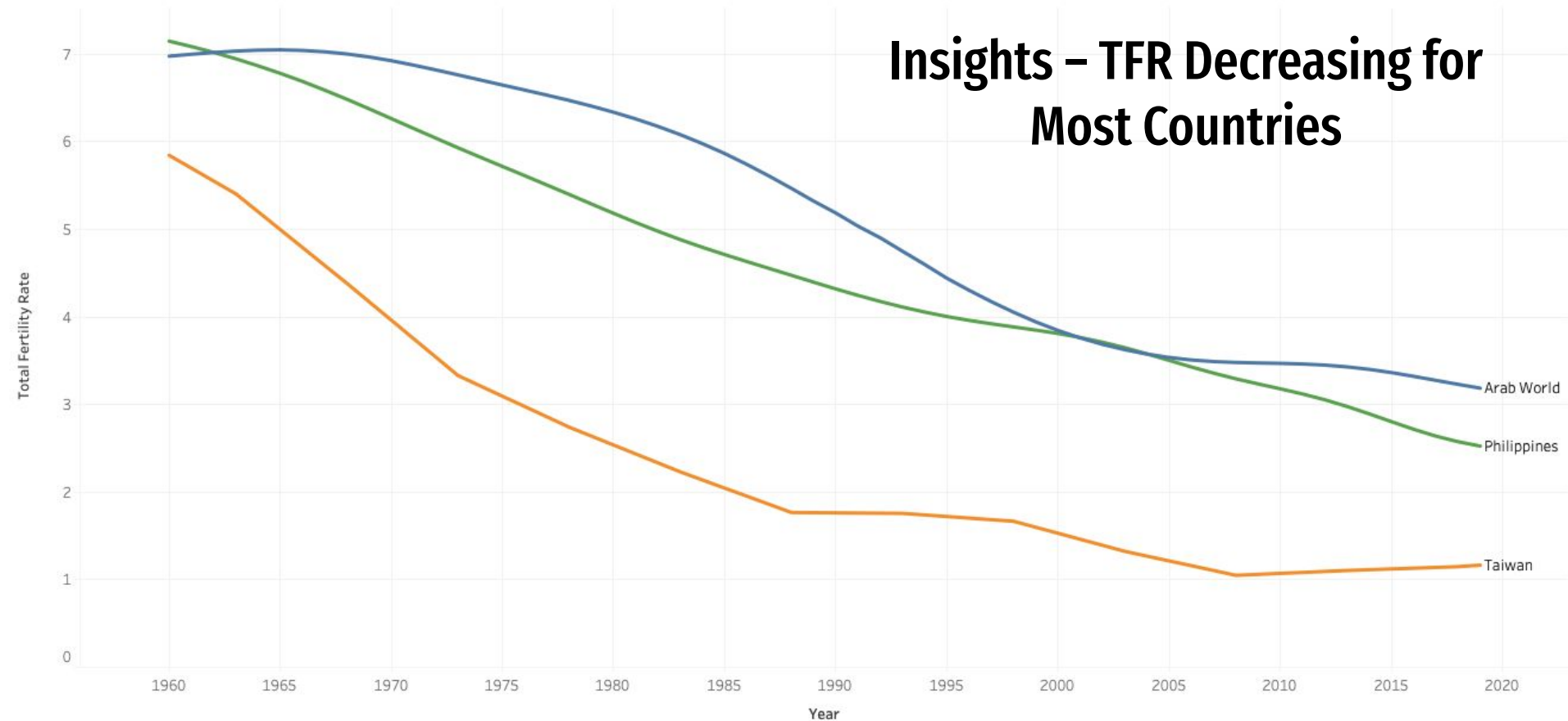
2.6/woman

Israel

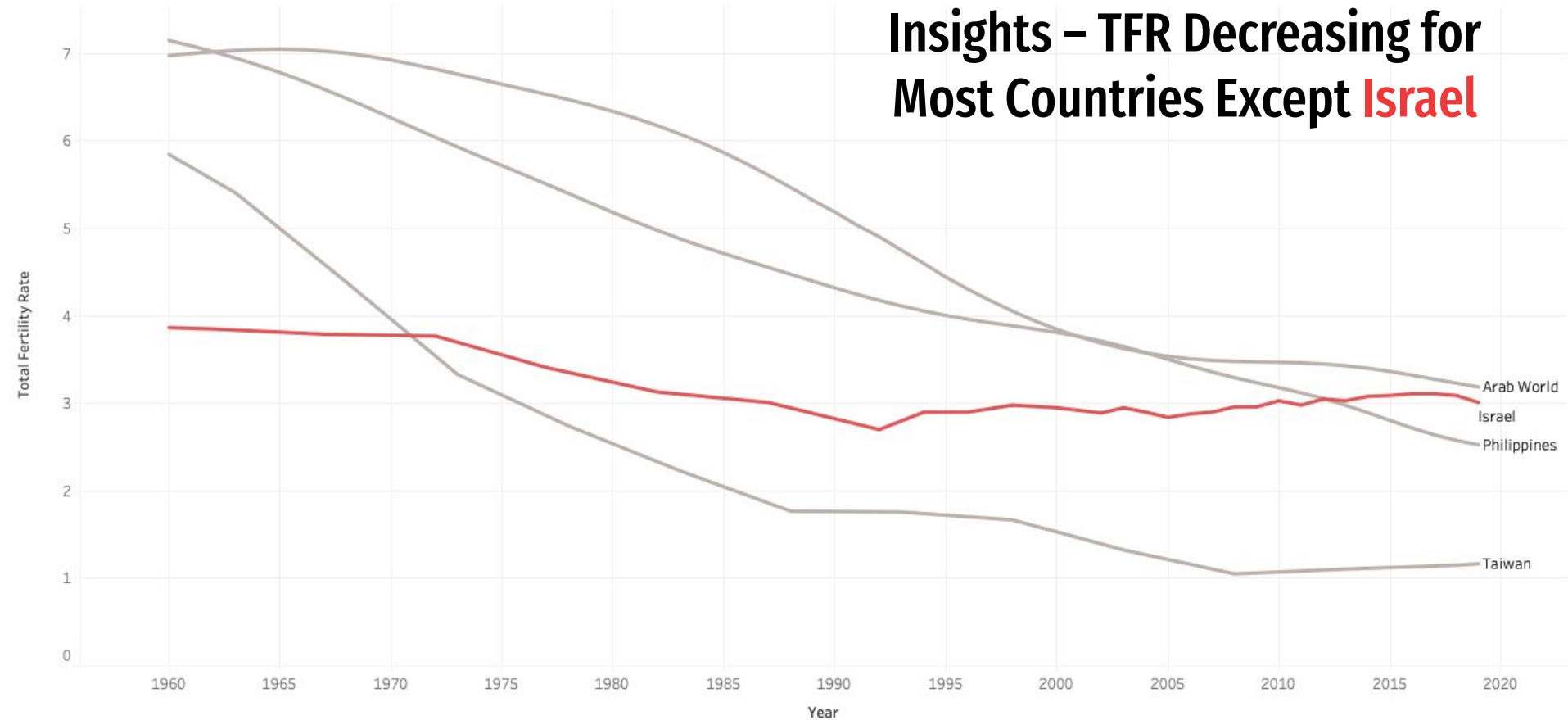
Infant mortality rate: 3.6
GDP per capita: \$38,300



Insights – TFR Decreasing for Most Countries



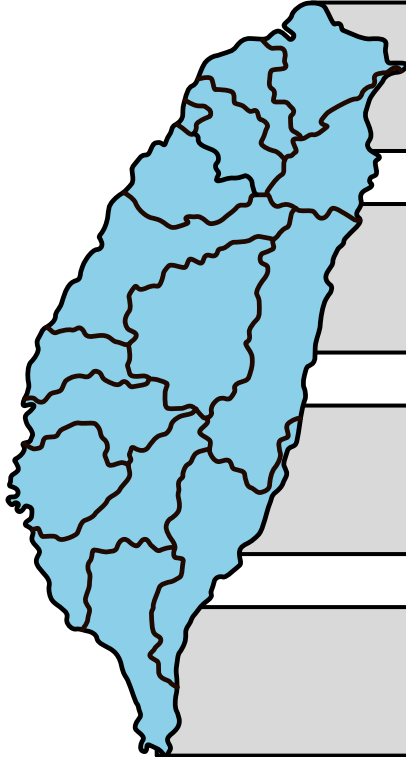
Insights – TFR Decreasing for Most Countries Except **Israel**



Insights – Israel Booms with Babies

- Haredim (ultra-Orthodox) - TFR of around 7
- Historical reasons
 - The holocaust during WWII
 - Fears of Arab demographic dominance
 - Be fruitful, and multiply - first of the 613 commandments
- Almost free in vitro fertilization (IVF) for the first two children up to age 45
- Comprehensive maternity leave policy
- Strong pronatalism throughout the country

Conclusions – Recommendations



Expand the IVF subsidy program

Current program: limited times (6 or 3 based on age) and a limited amount of subsidy

Increase duration of paid maternity leave from 8 weeks to 14 weeks

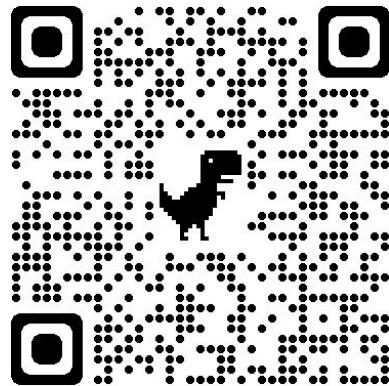
Implement a policy that would support offering flexible working hours for parents, allowing them to leave early and finish their work at night from home

Promote pronatalism in the public education system

Sources

- CIA - The World Factbook
- The World Bank - Historical Fertility Rate

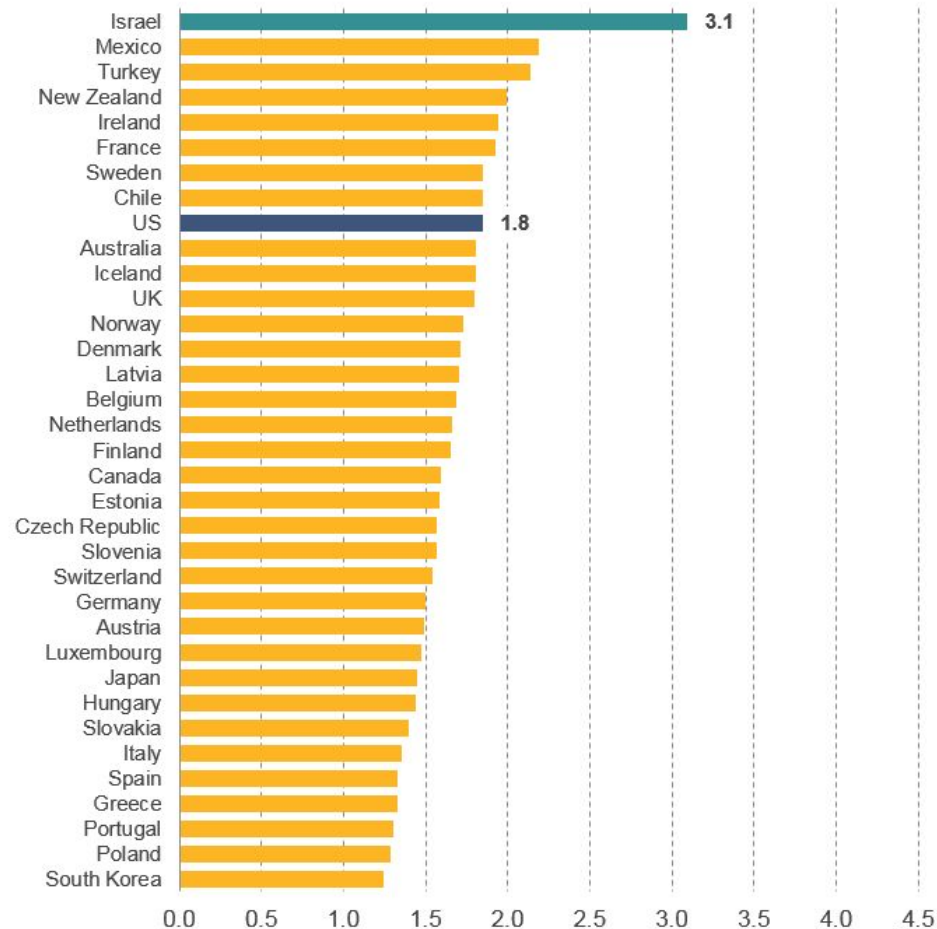
- Interact with the data



Credits: This presentation
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Appendix

Israel's birth rate relative to the OECD countries, 2015



Source: Alex Weinreb, Dov Chernichovsky, and Aviv Brill, Taub Center

Data: OECD Database, Chart SF2.1



