



**UNECE**

# Measuring the population

**UNECE Workshop on Communicating Official Statistics**

**Astana, 19-21 October 2022**

- What is demography?
- Applications
- Data sources
- Life expectancy
- Sex ratios
- Fertility rates



# What is demography?



- The study of human populations
- Size, structure and change of populations
- Births, deaths and migration
- **Demographers produce indicators such as:**
  - Life expectancy
  - Fertility rates
  - Migration rates
  - Population growth estimates

# What does it tell us?



## U.S. life expectancy falls again in 'historic' setback



nytimes.com  
U.S. Life Expectancy Falls Again in 'Historic' Setback  
The decline during the pandemic is the sharpest in nearly 100 years, hitting Native American and Alaska Native communities particularly ...

## Baby boomers will make Spain the oldest country by 2050



lavanguardia.com  
Los 'baby boomers' harán que España sea en el 2050 el país más env...  
Son más de nueve millones de personas en España las que hoy por hoy tienen 65 años o más y las que tienen que hacer frente a la brecha ...

## Fertility rate in Germany rises to 33-year high



theguardian.com  
Fertility rate in Germany rises to 33-year high  
In 2015 the fertility rate was 1.5 children per woman, in a sign a corner has been turned after years of declining births

# What does it tell us?



## Europe's graying population poses challenges for its economy

THE WALL STREET JOURNAL

Europe's Graying Population Poses Challenges for Its Economy-- Talking Markets

wsj.com



## Extreme water stress affects a quarter of the world's population



## Around 20% of global population under coronavirus lockdown



theguardian.com

Around 20% of global population under coronavirus lockdown  
Britons told to stay at home while Trump goes against tide, saying economy will reopen in weeks, not months

# Main data sources



- Population and housing censuses
- Demographic and health surveys
- Civil registration systems (births, deaths, marriages)
- Population registers

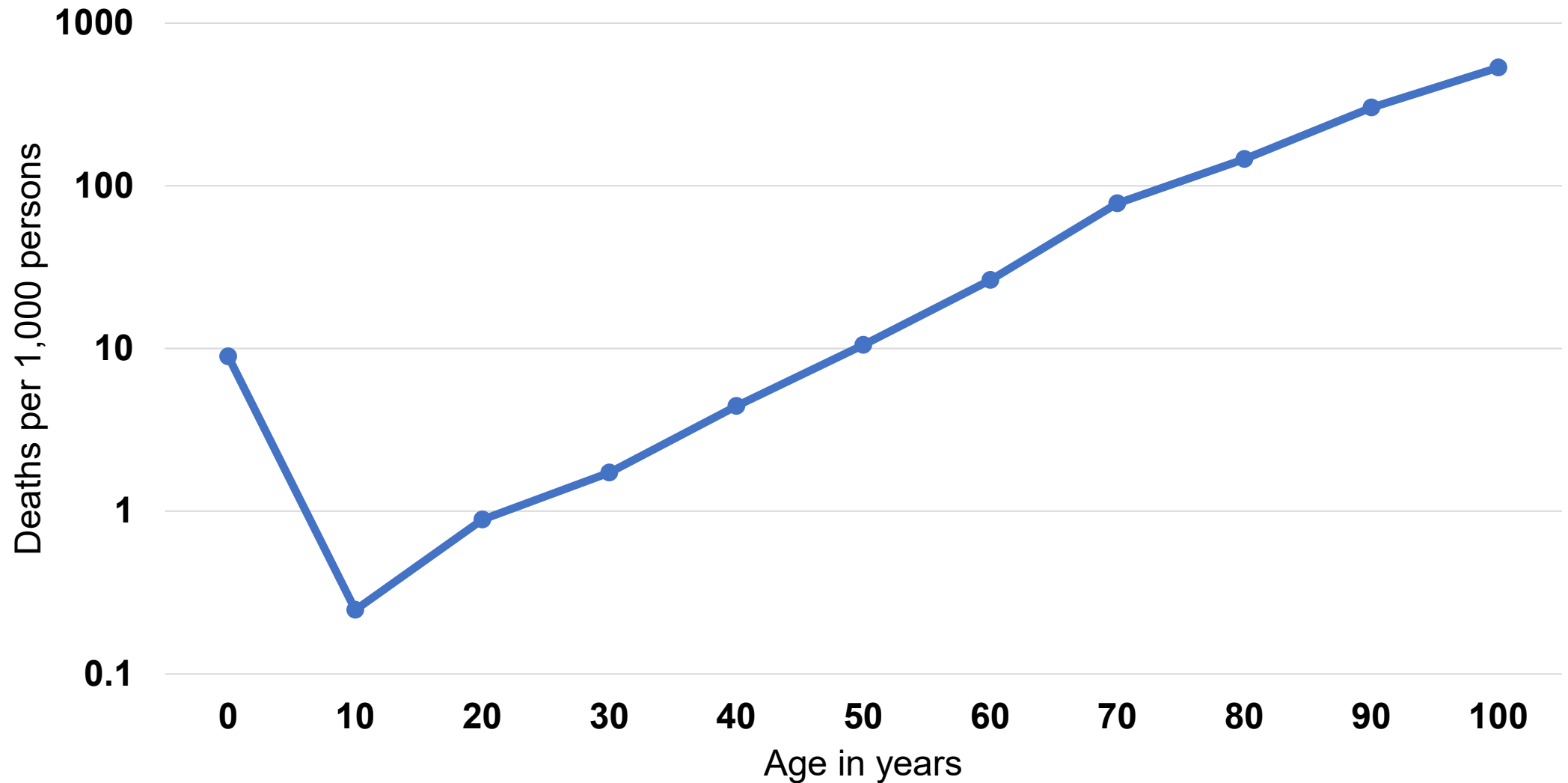
# Life expectancy



- Often-quoted, widely misunderstood
- Life expectancy *at birth*
- Average number of years that newborns **would** live if mortality rates did not change throughout their lifetime
- Not the age at which most people could expect to die

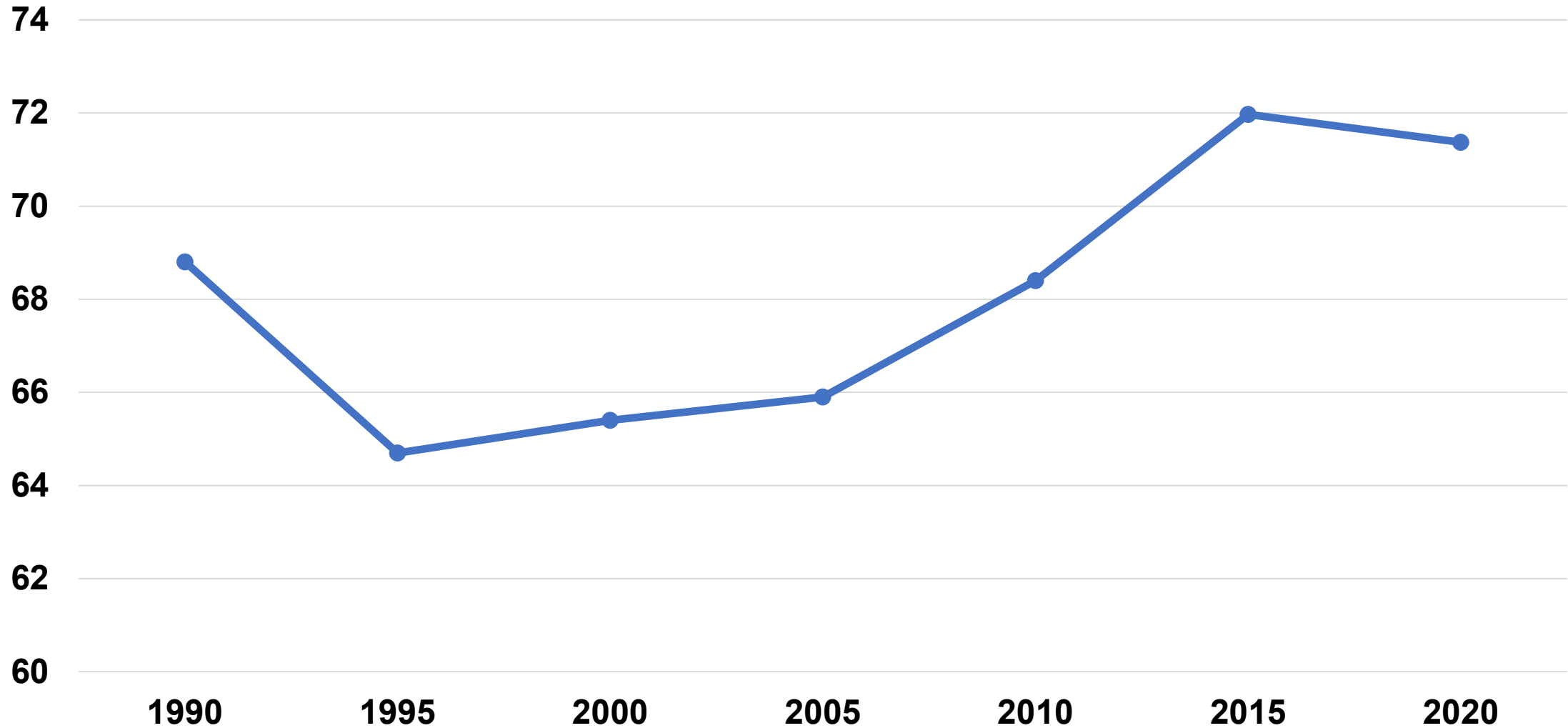


# Age-specific mortality rates Kazakhstan 2021





# Life expectancy in Kazakhstan, 1990-2020



# Life expectancy



- **What drives changes in life expectancy?**
  - Infant & child mortality
  - Standard of living
  - Education
  - Lifestyle habits of population
  - Quality & access to healthcare
  - Wars, conflict, violence
  - Epidemics / pandemics
- **What can it tell us?**
  - Regional and socio-economic differences
  - Underlying mortality changes—for which groups is mortality increasing or decreasing?
  - Impact on health systems, social services, economy

## America was in an early-death crisis long before COVID



theatlantic.com

America Was in an Early-Death Crisis Long Before COVID

Even before the pandemic began, more people here were dying at younger ages than in comparably wealthy nations.

# What is a sex ratio?



	Female	Male
European Union-27	228,372,753	218,073,691
Armenia	1,429,087	1,399,368
Azerbaijan	5,019,077	5,005,206
Belarus	5,053,685	4,411,990
Georgia	1,929,572	1,790,589
Kazakhstan	9,540,008	8,973,665
Kyrgyzstan	3,252,895	3,203,620
Moldova, Republic of	1,387,290	1,275,960
Ukraine	22,458,816	19,399,356
Uzbekistan	16,859,971	17,045,287

Source: UNECE Statistical Database & Eurostat. Data refer to 2019.

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Moldova, Republic of	1,387,290	1,275,960	92
Ukraine	22,458,816	19,399,356	86
Uzbekistan	16,859,971	17,045,287	101

## Interpretation guide

**100 = same number of males as females**

**Less than 100 = more females**

**More than 100 = more males**

Source: UNECE Statistical Database & Eurostat. Data refer to 2019.

# Sex ratios Kazakhstan 2019



	Sex ratio	Females	Males	Sex ratio
Sex ratio of total population		9,540,008	8,973,665	94
Sex ratio at birth		194,272	208,038	107
Sex ratio for older people (age 65+)		902,112	503,409	56

Source: UNECE Statistical Database

# Sex ratios



- **What impacts sex ratios?**
  - Biological differences
  - Tendency for women to live longer
  - Son preference
  - Labour migration
  - Health-related behaviours
  - Wars and conflicts
- **What can they tell us?**
  - Likelihood of other demographic events
  - Demand for services
  - Impacts on education, labour force
  - Care burden

## Sex ratios of babies linked to pollution and poverty indicators



theguardian.com

Sex ratio of babies linked to pollution and poverty indicators

Study finds some pollutants are correlated with higher levels of boys and others with more girls

# Total Fertility Rate (TFR)



- The average number of children a woman *would* have if she passed through her childbearing ages experiencing the fertility rates of a given year
- Usually expressed as ‘the number of children per woman’
- Not simply all babies divided by all women!



# How to interpret the TFR

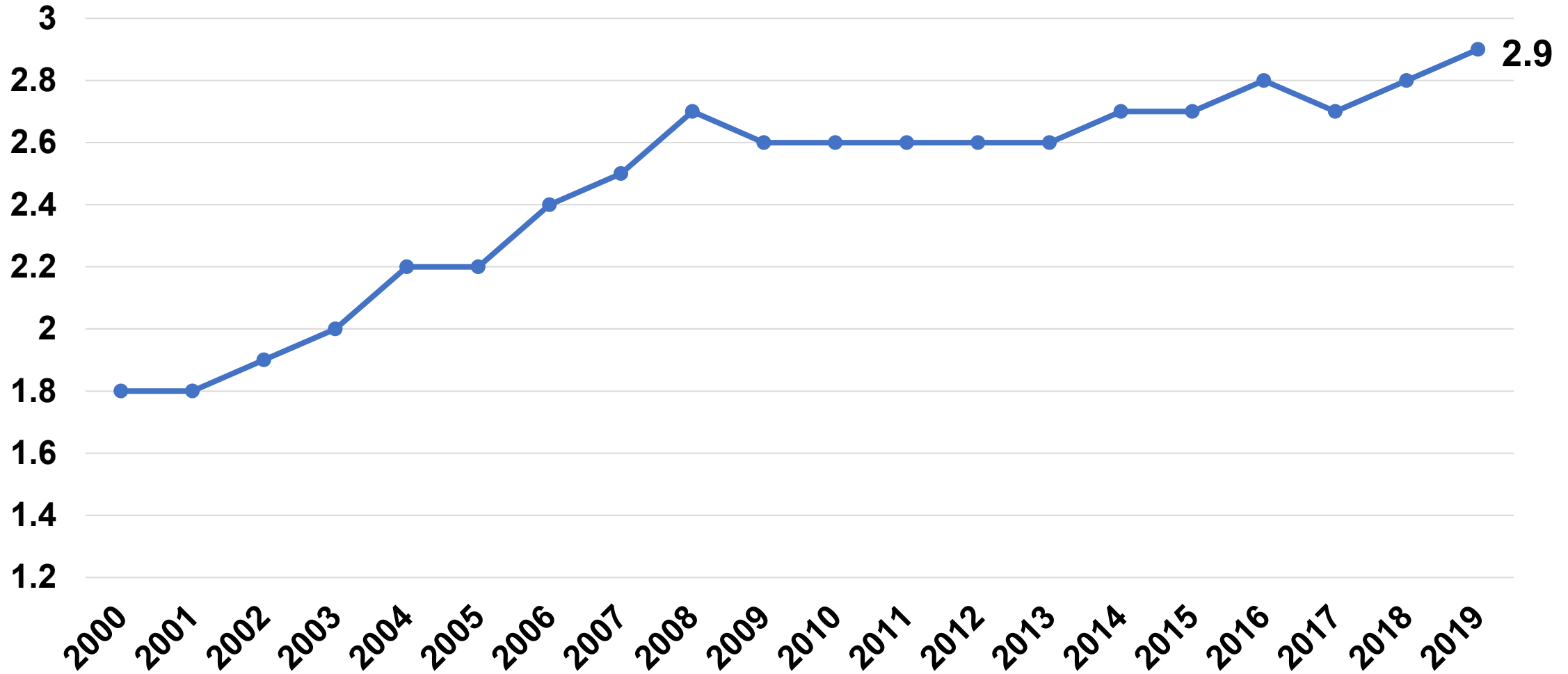


- Key factor influencing population growth/decline
- Replacement level fertility: TFR of ~2.1 children per woman

Total fertility rate		
TFR of 2.0 or lower	Low fertility	Armenia, Azerbaijan, Belarus, Georgia, Republic of Moldova, Ukraine
TFR of 2.1 – 3.1	Moderate fertility	Kazakhstan, Turkmenistan, Uzbekistan
TFR of 3.2 or higher	High fertility	Tajikistan, Kyrgyzstan



# TFR in Kazakhstan, 2000-2019



# Fertility rates



- **What impacts fertility rates?**
  - Educational opportunities for girls and women
  - Access to family planning services
  - Average age at marriage
  - Child mortality
  - Cultural and religious norms
  - Economic conditions
- **What do they tell us?**
  - Structure of population
  - Demand for services
  - Economic production
  - Burden of care in the home
  - Environmental impacts

**Few South Koreans are having babies.  
A mayor's answer? More nannies.**



nytimes.com

Few South Koreans Are Having Babies. A Mayor's Answer? More Nan...

The mayor of Seoul wants to ease the high cost and low supply of babysitters in the country to encourage more couples to have children.

**Thank you**

