

Isabella Image, Senior Research Officer  
Oxfordshire County Council  
21<sup>st</sup> September 2021

# Population Forecasts



**OXFORDSHIRE  
COUNTY COUNCIL**

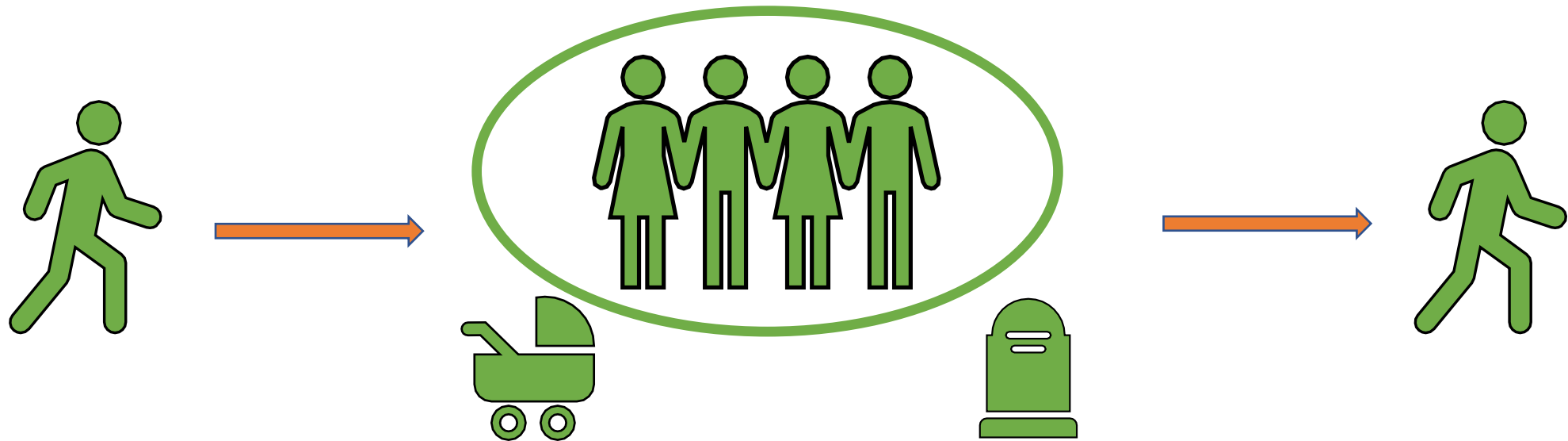
[www.oxfordshire.gov.uk](http://www.oxfordshire.gov.uk)

**Part 1:**

**ONS population projections**

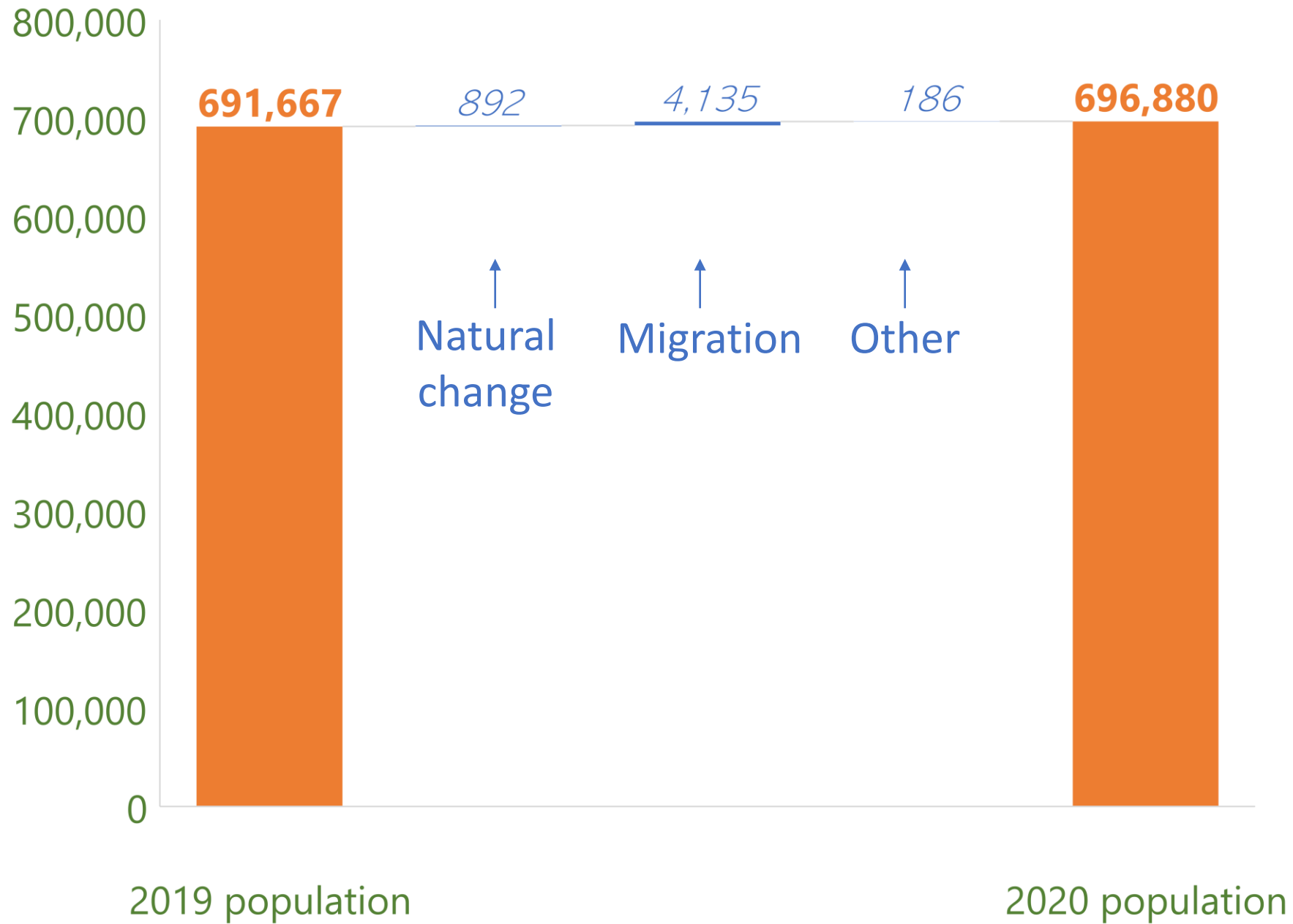
# “Demographic accounting equation”

$$\begin{aligned} \text{Population}_{2020} &= \text{Population}_{2019} \\ &+ \text{Births} - \text{Deaths} \\ &+ \text{Net Migration} \end{aligned}$$

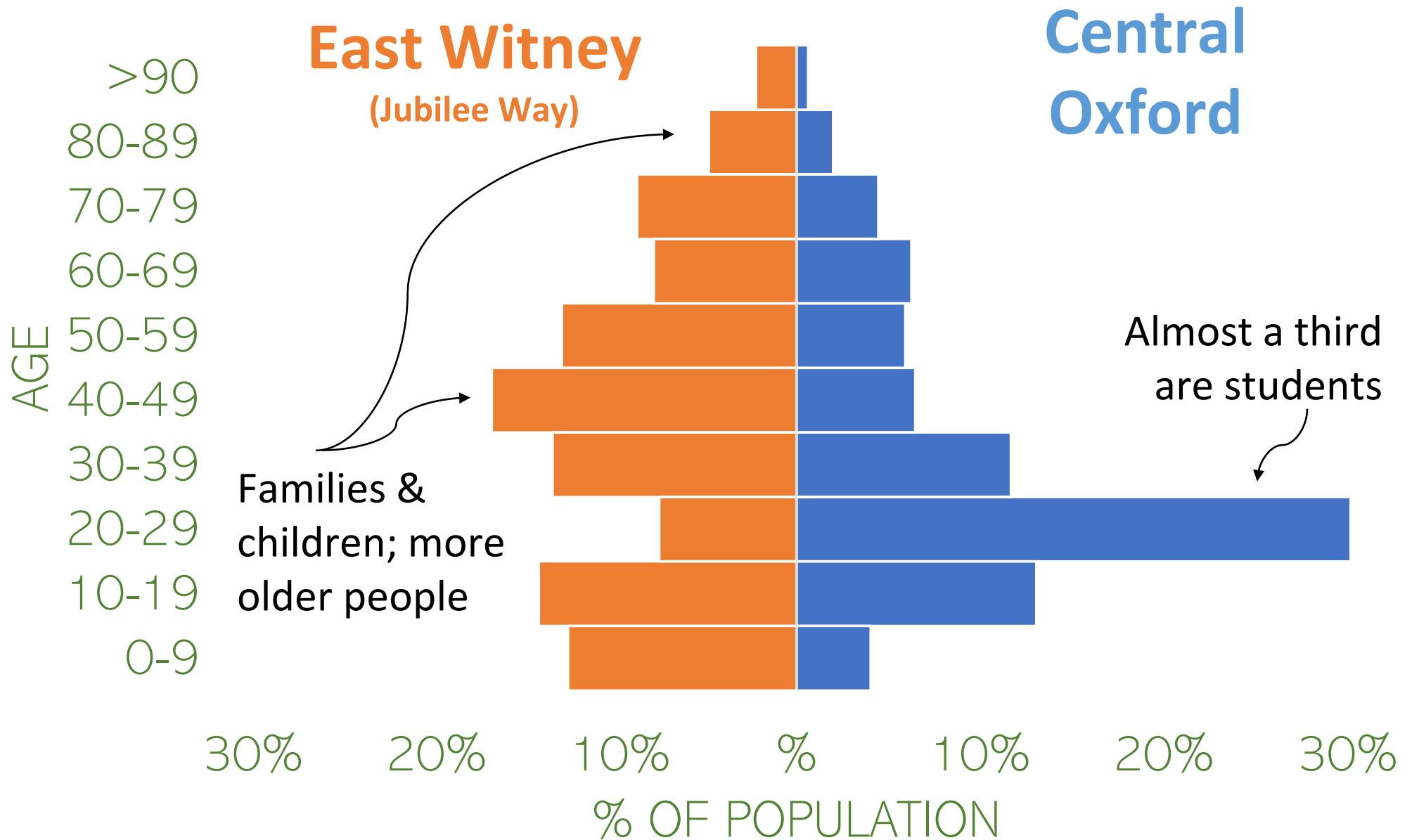


# Oxfordshire population

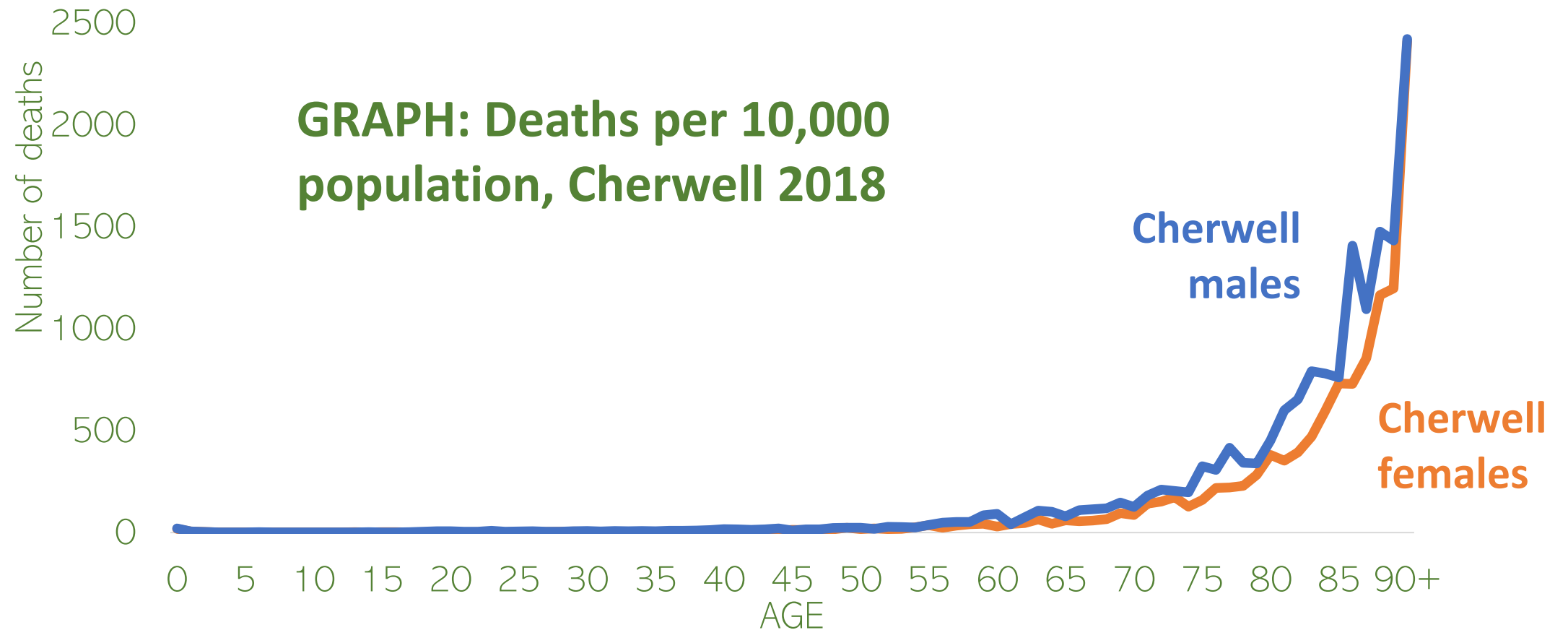
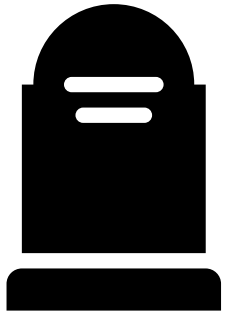
2019 to 2020



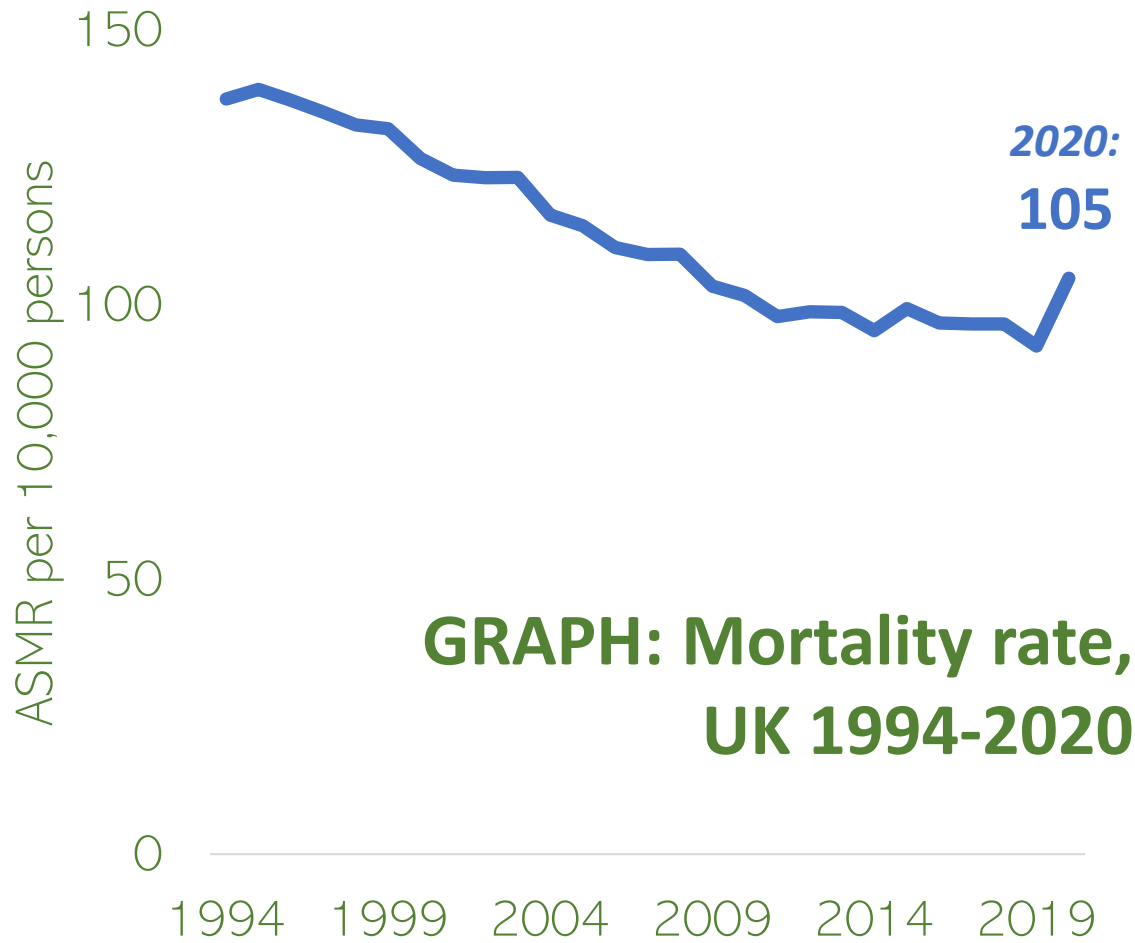
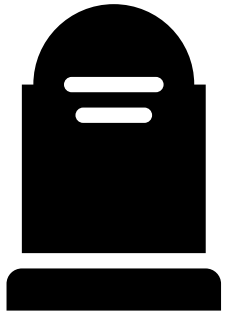
# Age profiles



# Mortality: by age



# Mortality: by year (1)



**GRAPH: Mortality rate,  
UK 1994-2020**

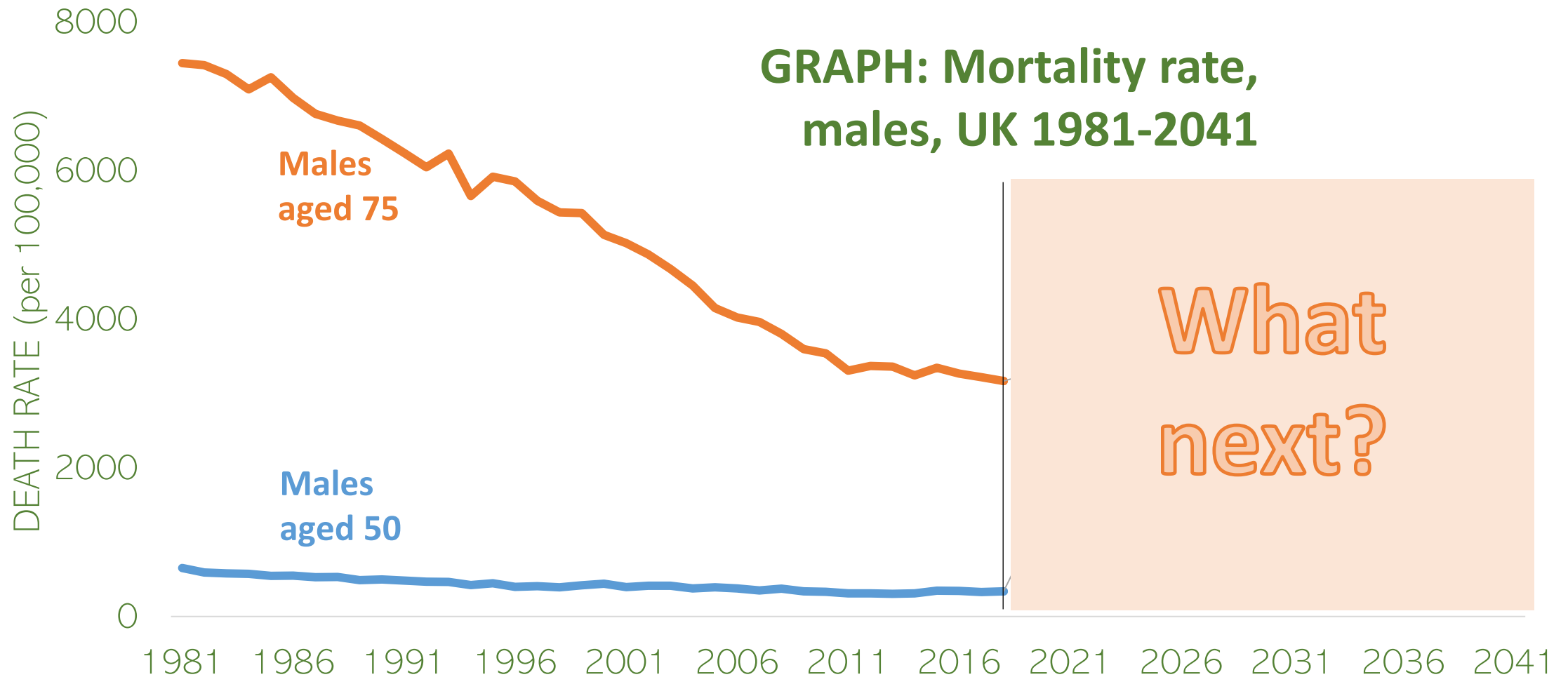
Mortality has declined over the last 25 years, with a flattening off more recently.

However in 2020, mortality increased.

*Q: how will mortality change in future?*

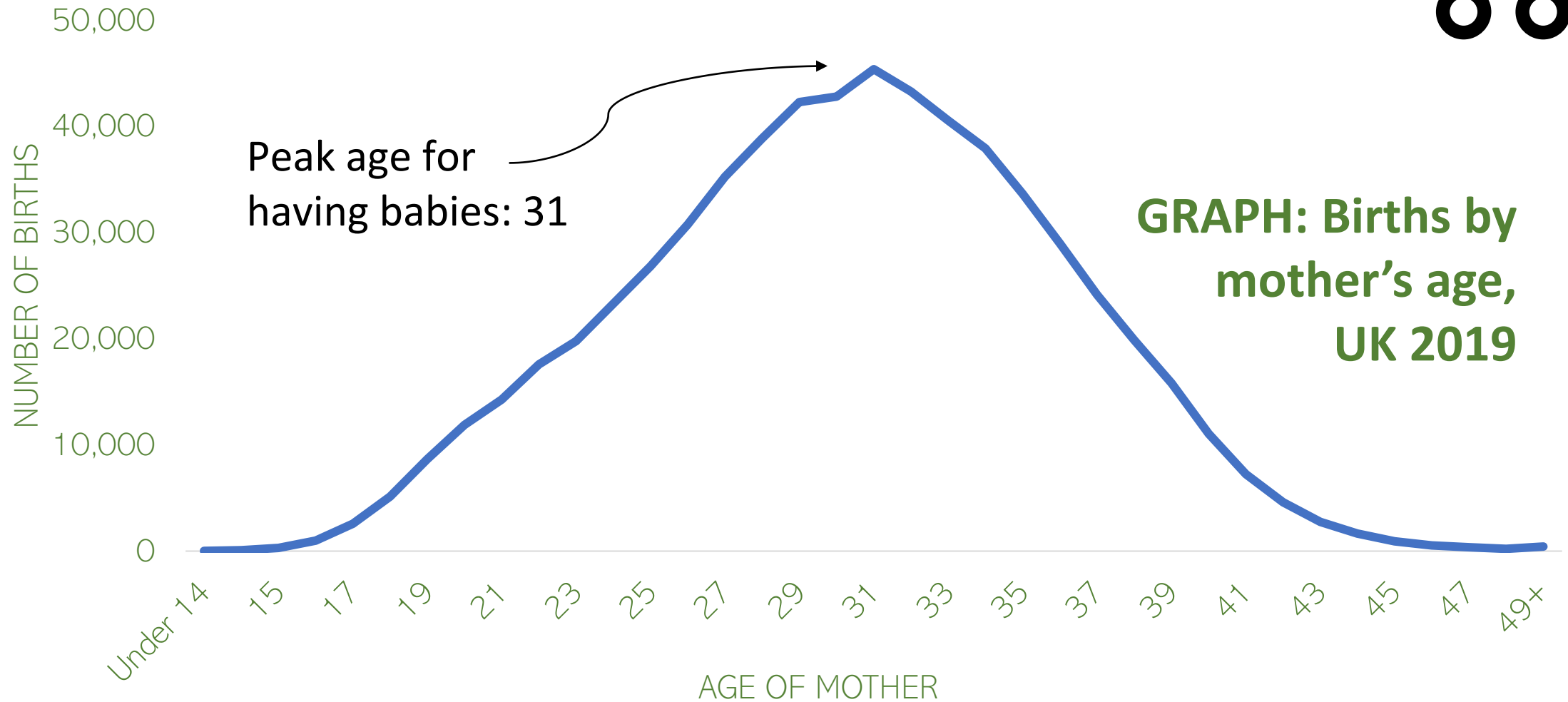
# Mortality by year (2)

- (a) Separate the age groups
- (b) Calculate the rate ('ASMR')





# Fertility: by mother's age

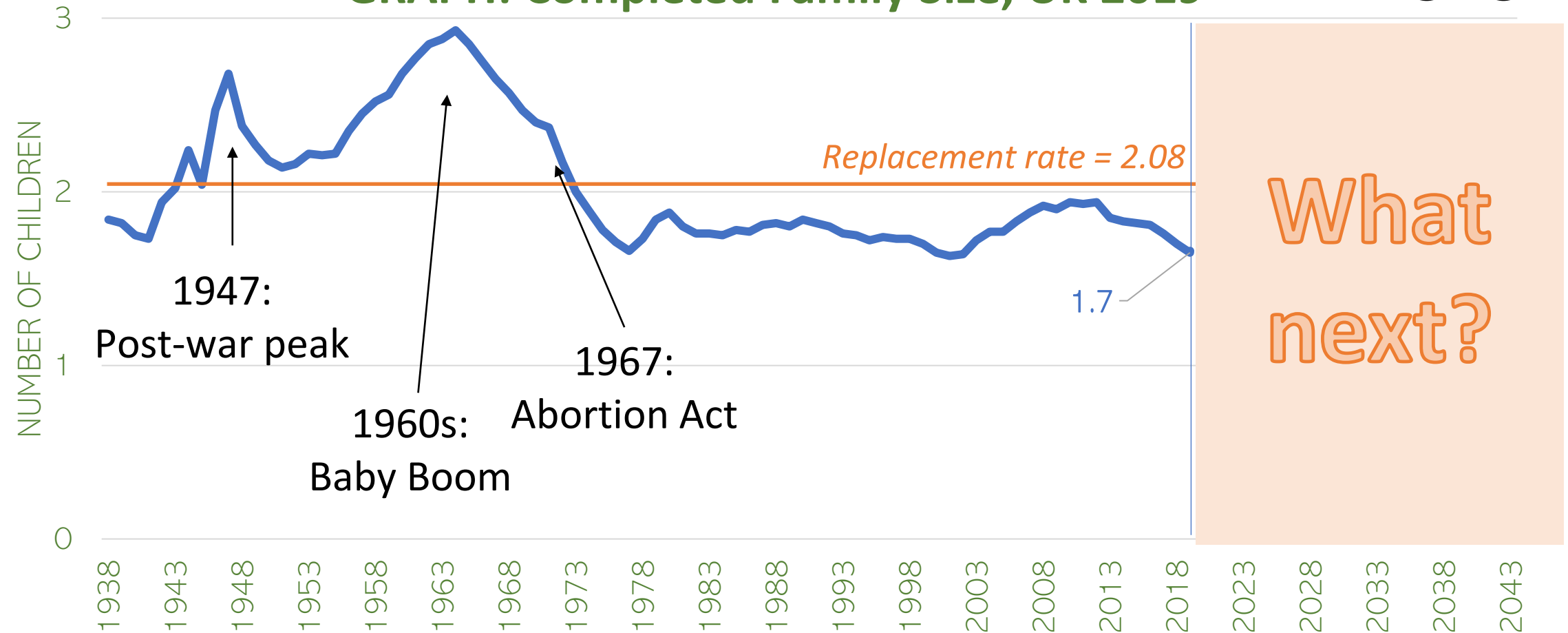


Source: ONS Fertility Table 3

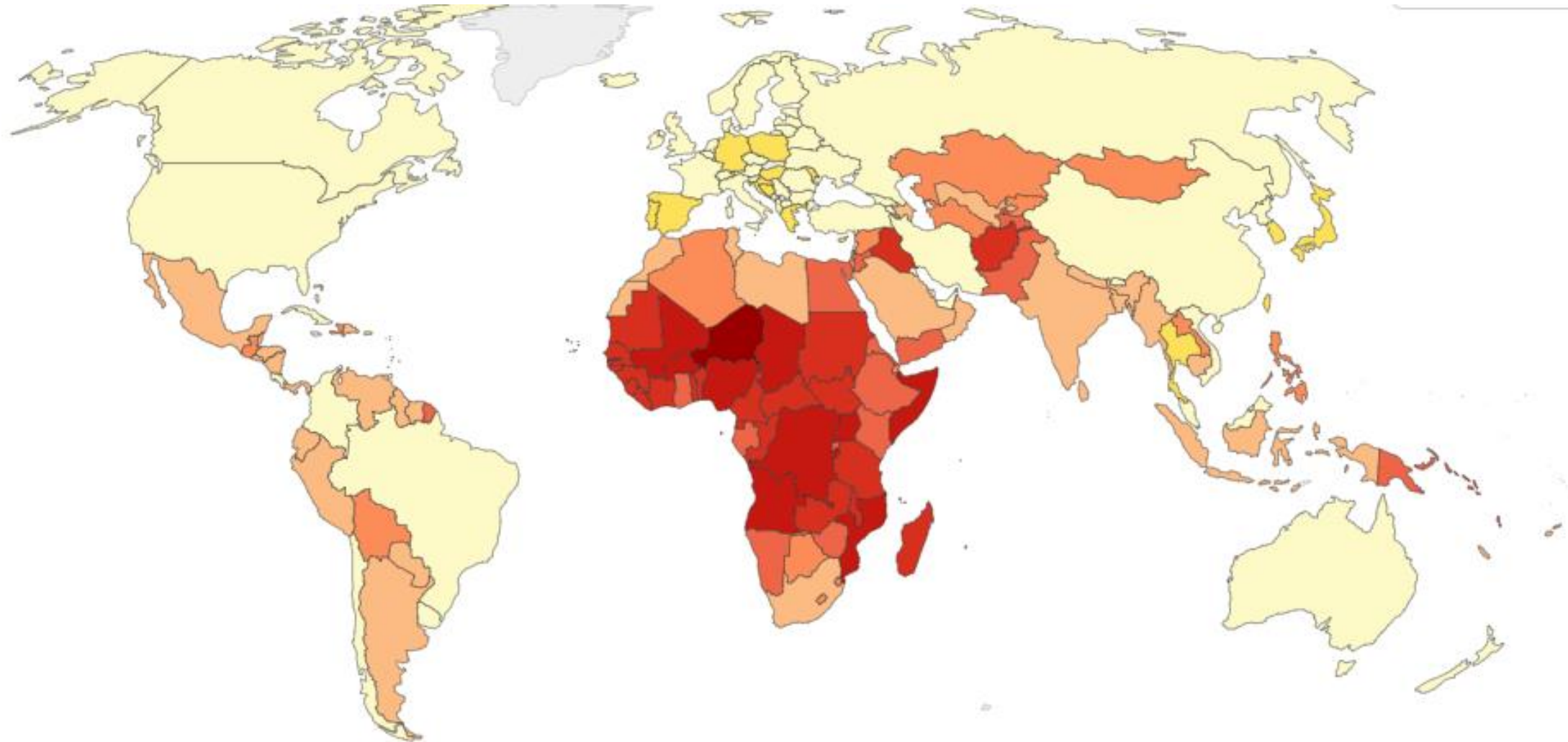
# Fertility: by year



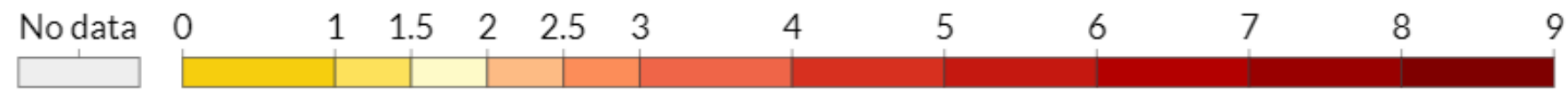
## GRAPH: Completed Family Size, UK 2019



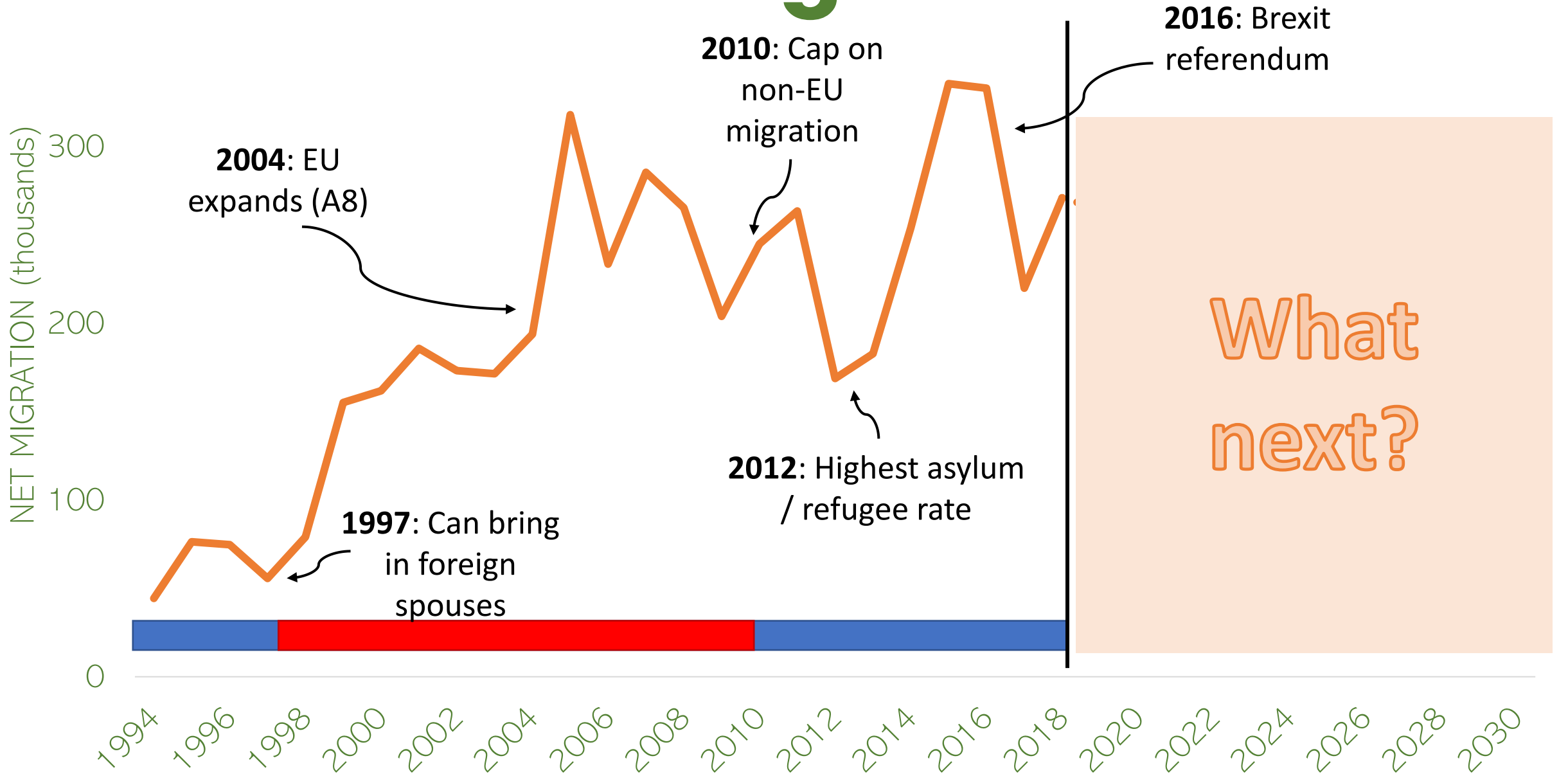
# Children born per woman (TFR), 2019



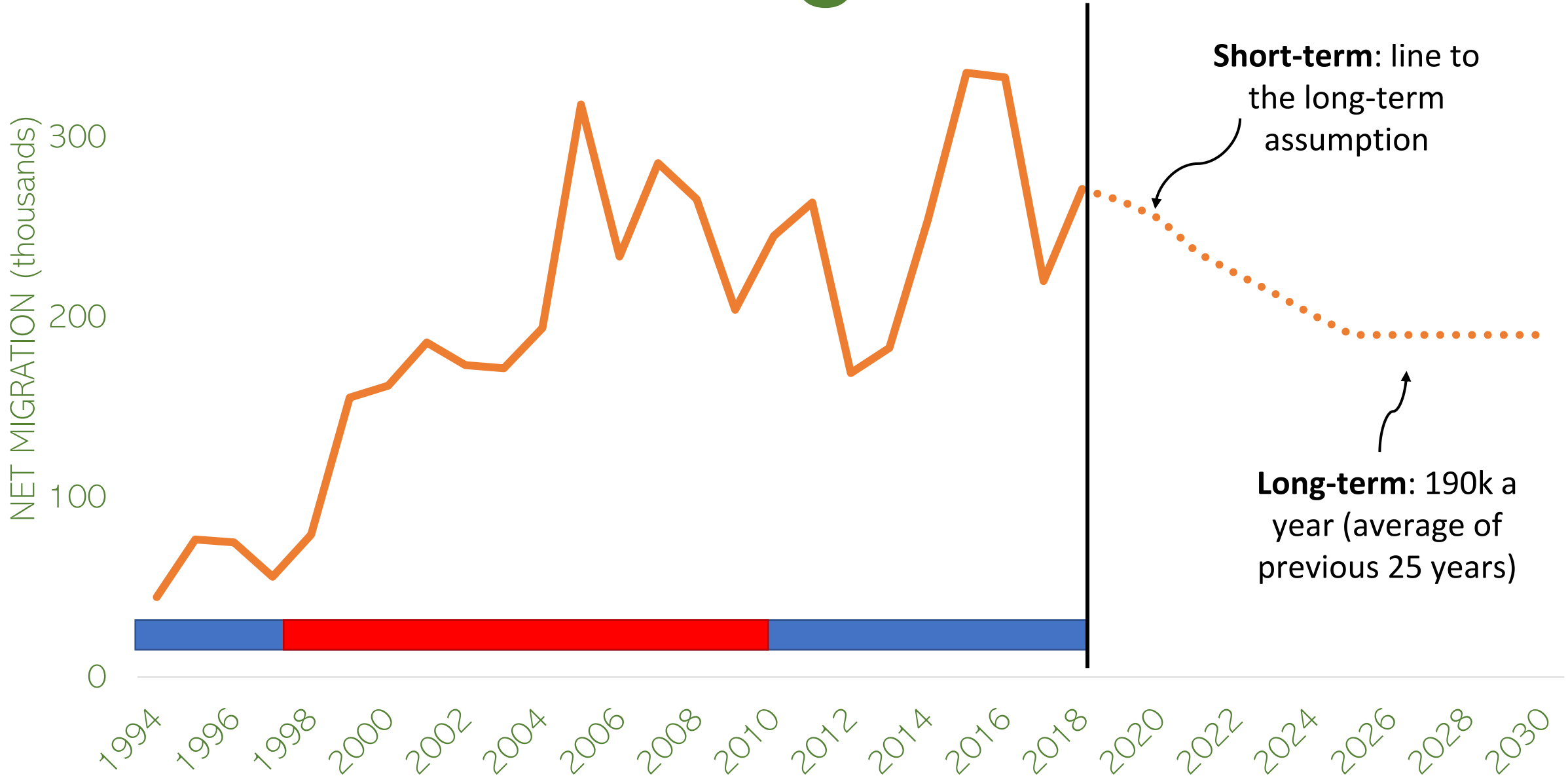
Source: [ourworldindata.org/fertility-rate](https://ourworldindata.org/fertility-rate)



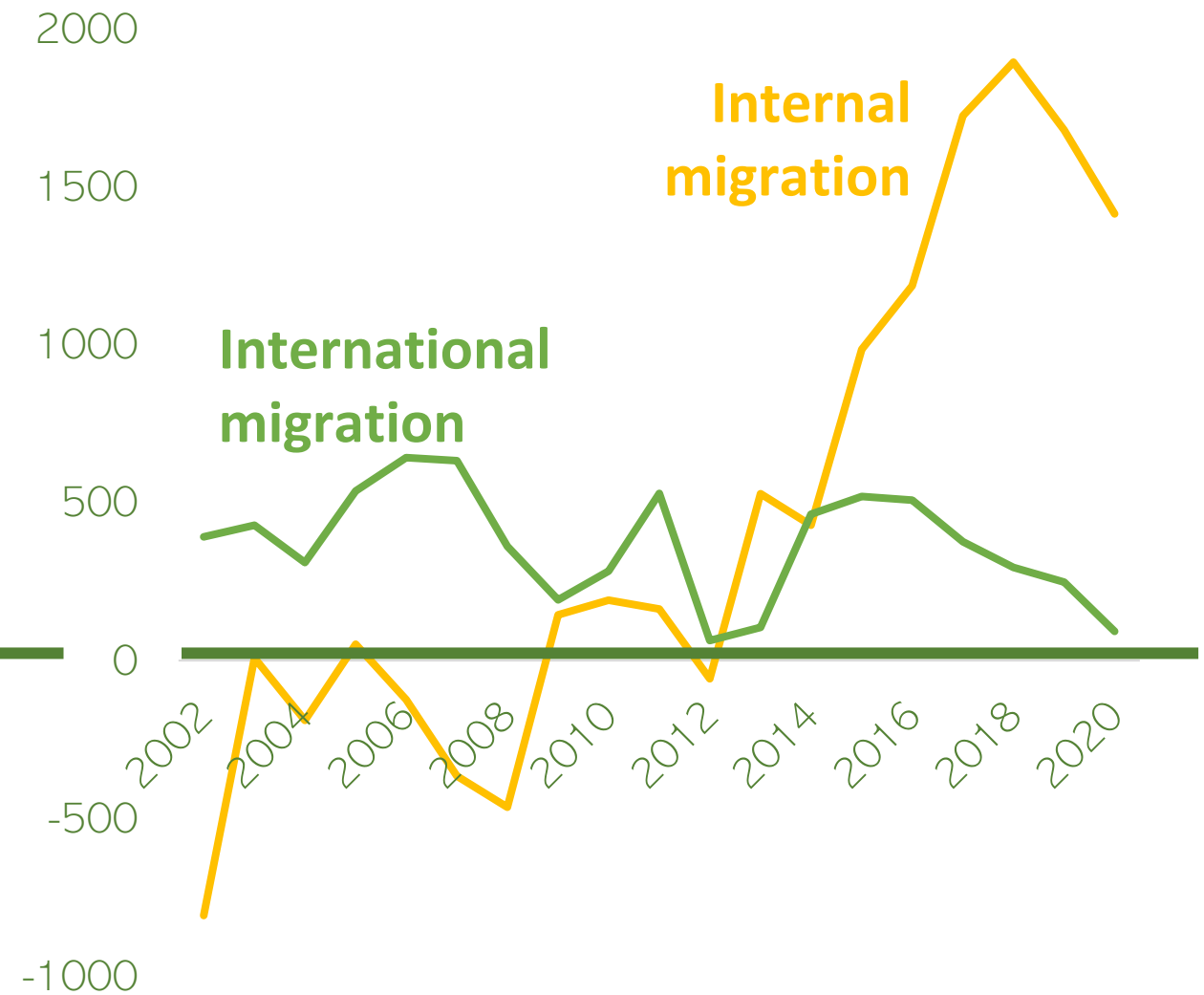
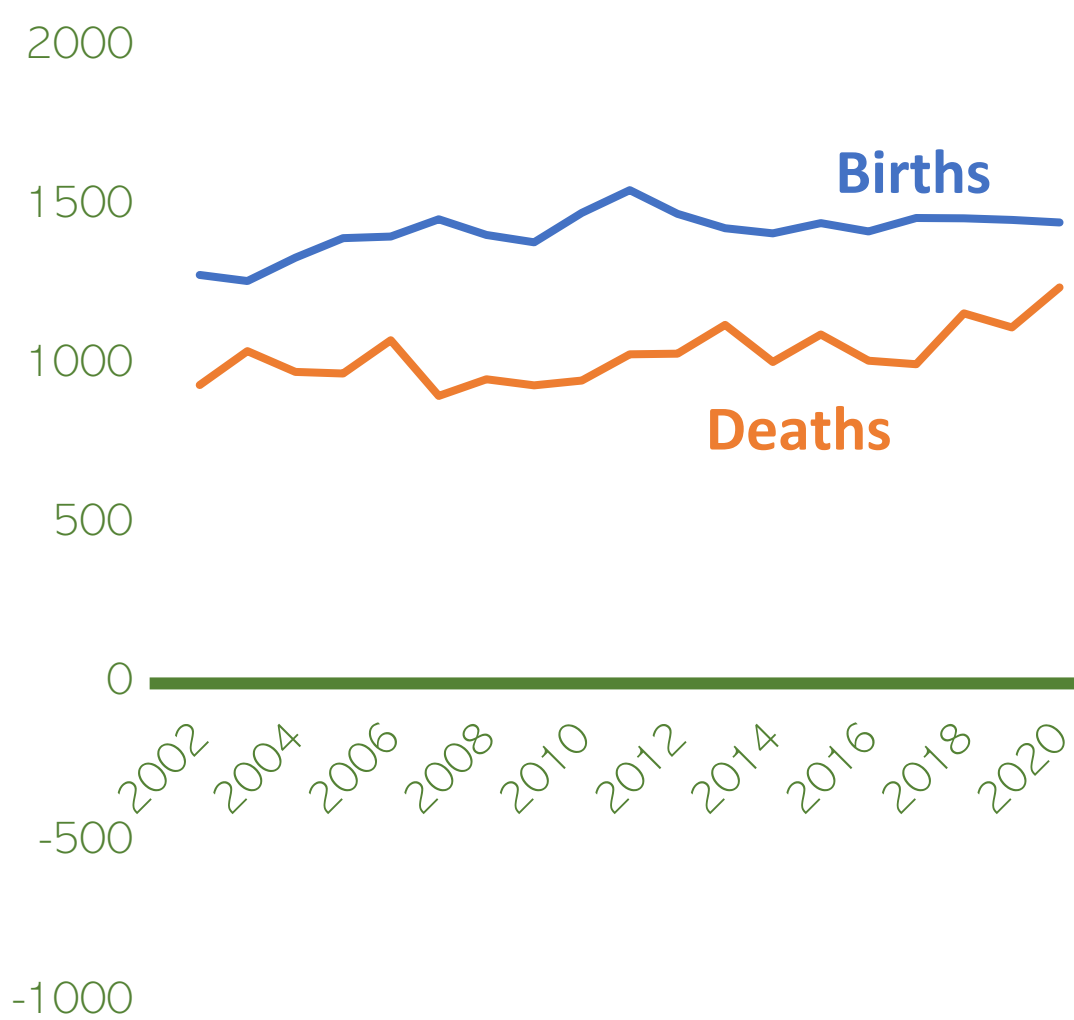
# International Migration



# International Migration



# Components of change (Vale WH)



# **Part 2:**

# **Case Study**

# Case Study

In 2019 there were **2949** females aged 21 in Oxford\*.

How many 22 year olds will there be in 2020?



*\*ONS mid-year estimate for 2019*



# Case Study: natural change

*2949 females aged 21 in Oxford in 2019...*

- **Deaths: around 2 per 10,000.**  
*We expect around 0.6 deaths.*
- **Births: Nobody will be born aged 22.**  
*But they will produce around 29.5 babies.*



# Case Study: migration

*2949 females aged 21 in Oxford in 2019...*

By mid-2020 we expect the following migration of 22 year olds...

- UK internal:  $638 - 1250 = -612$
- International:  $343 - 201 = 142$

Total migration: **-470**



# Case Study

Population of females aged 22 in 2020

= Females aged 21 in 2019 (**2949**)

+ births (0)

– deaths (0)

+ migration (-612 + 142)

+ other (0)

**= 2479**



**Part 3:**

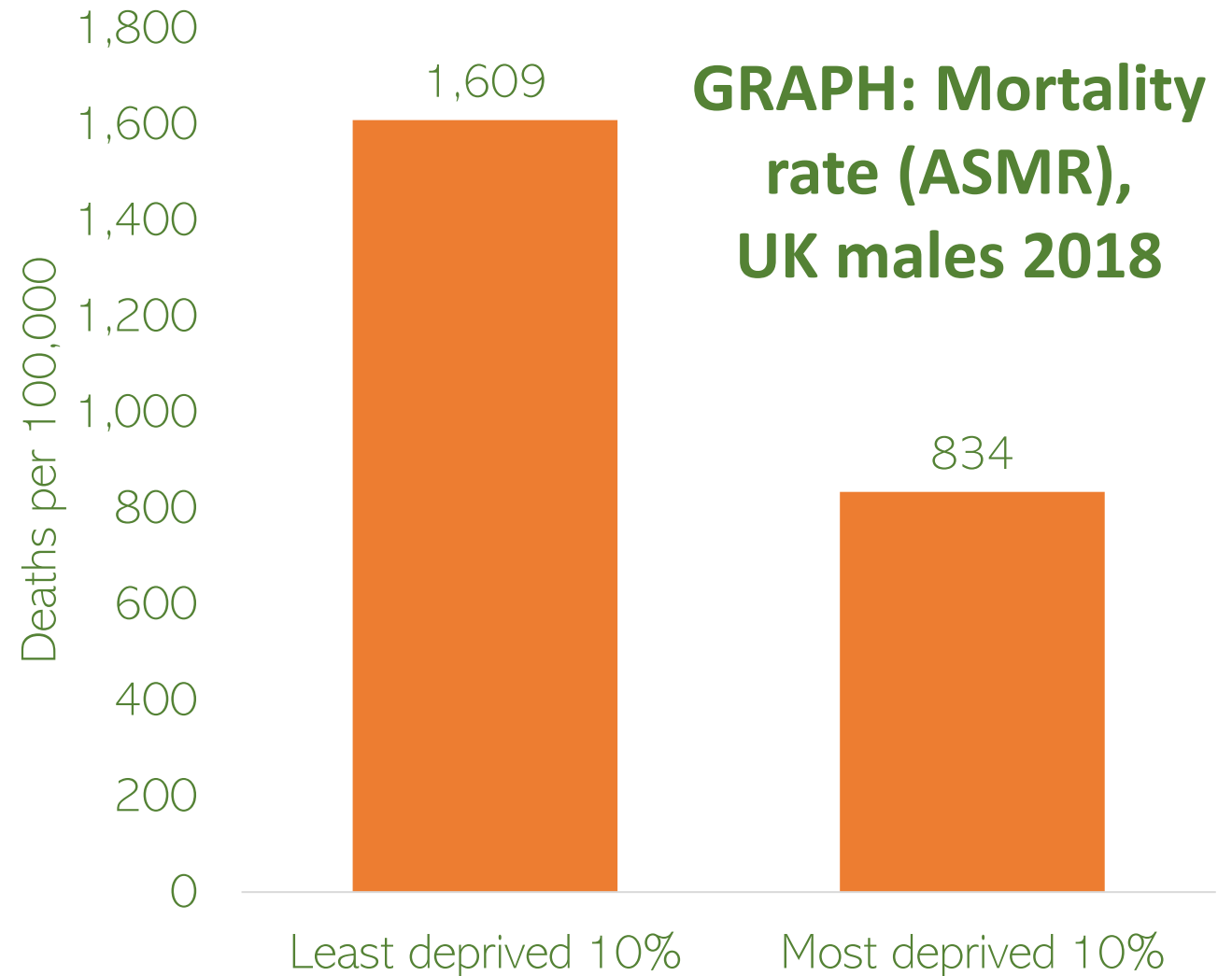
**County population forecasts**

# Problems with ONS projections

- a. The projections only exist at district level; we need small areas (MSOAs)
- b. Oxford city population doesn't seem to be right
- c. ONS includes housebuilding implicitly – but we need to assess the impact of local plans more concretely

# Deaths: by deprivation

Those living in deprived areas have higher death rates *at all ages*

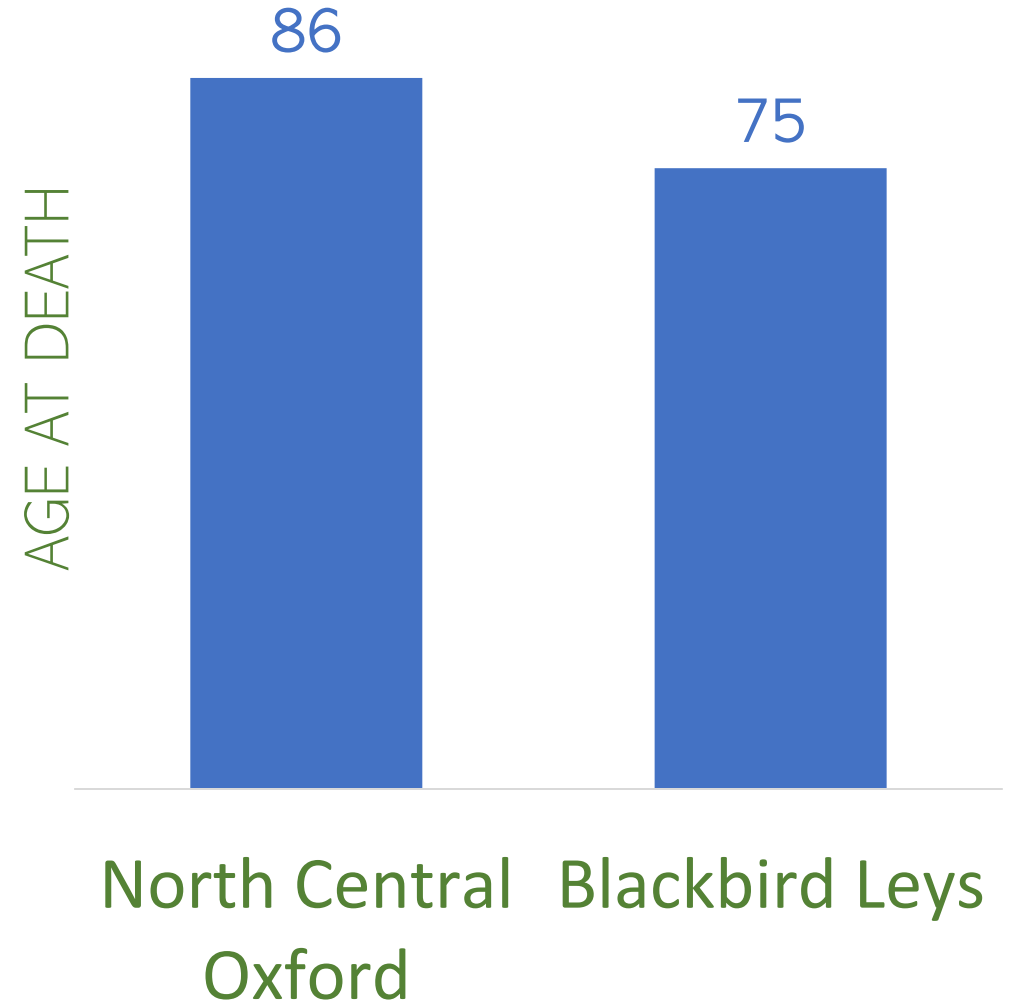


# Deaths: by location (MSOA)

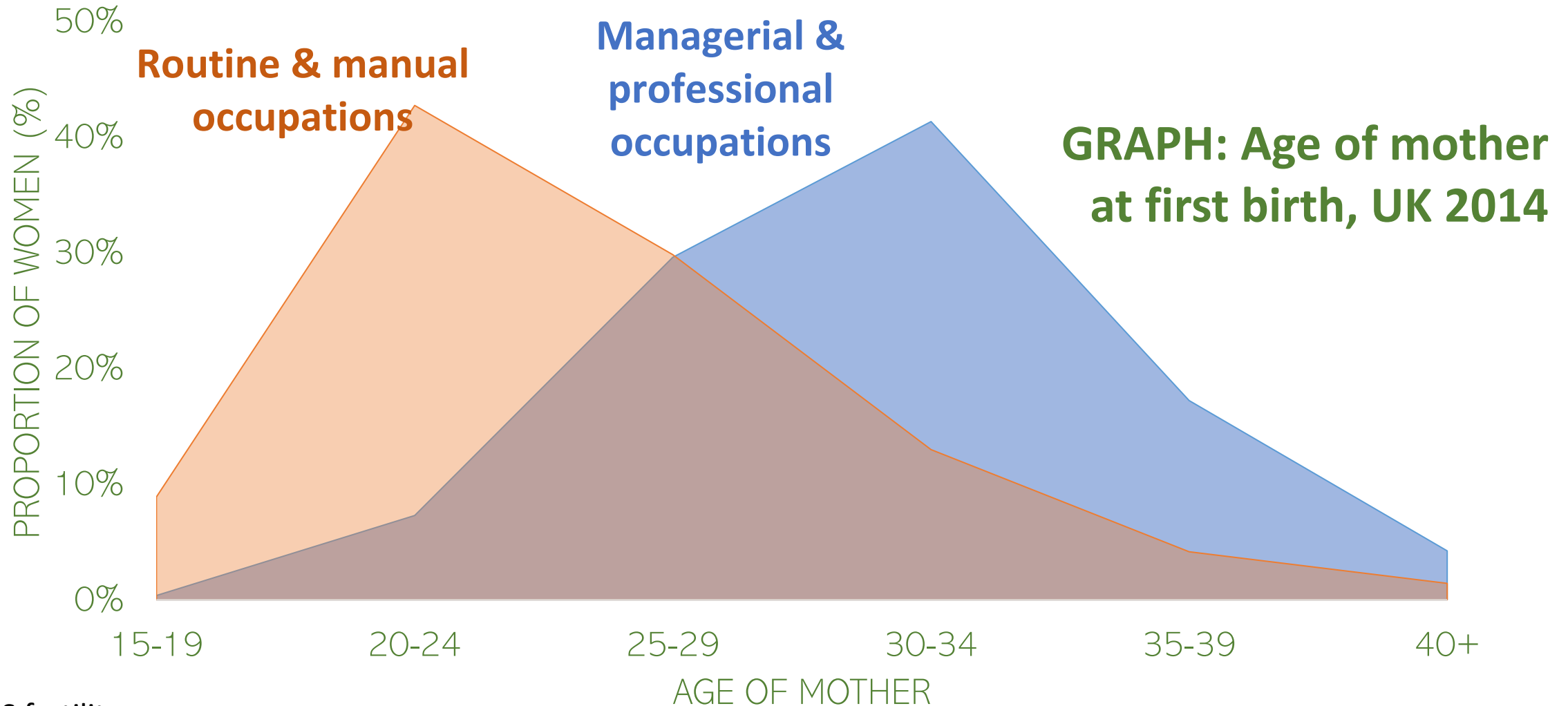
**GRAPH: Life expectancy,  
Oxford males 2015-9**

Life expectancy has a large range across Oxfordshire

5 miles can affect your age at death by 11 years

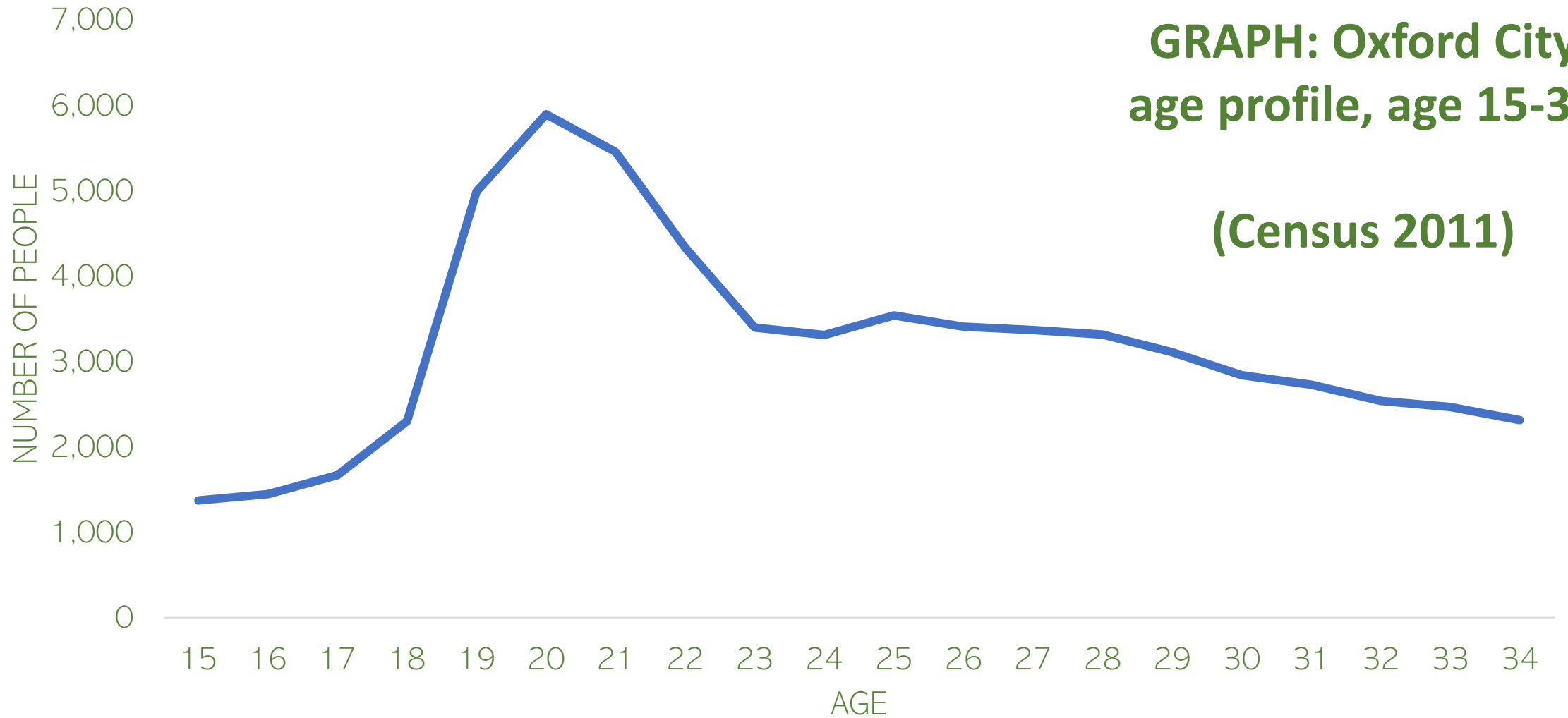


# Births: by Socio-Economic Group

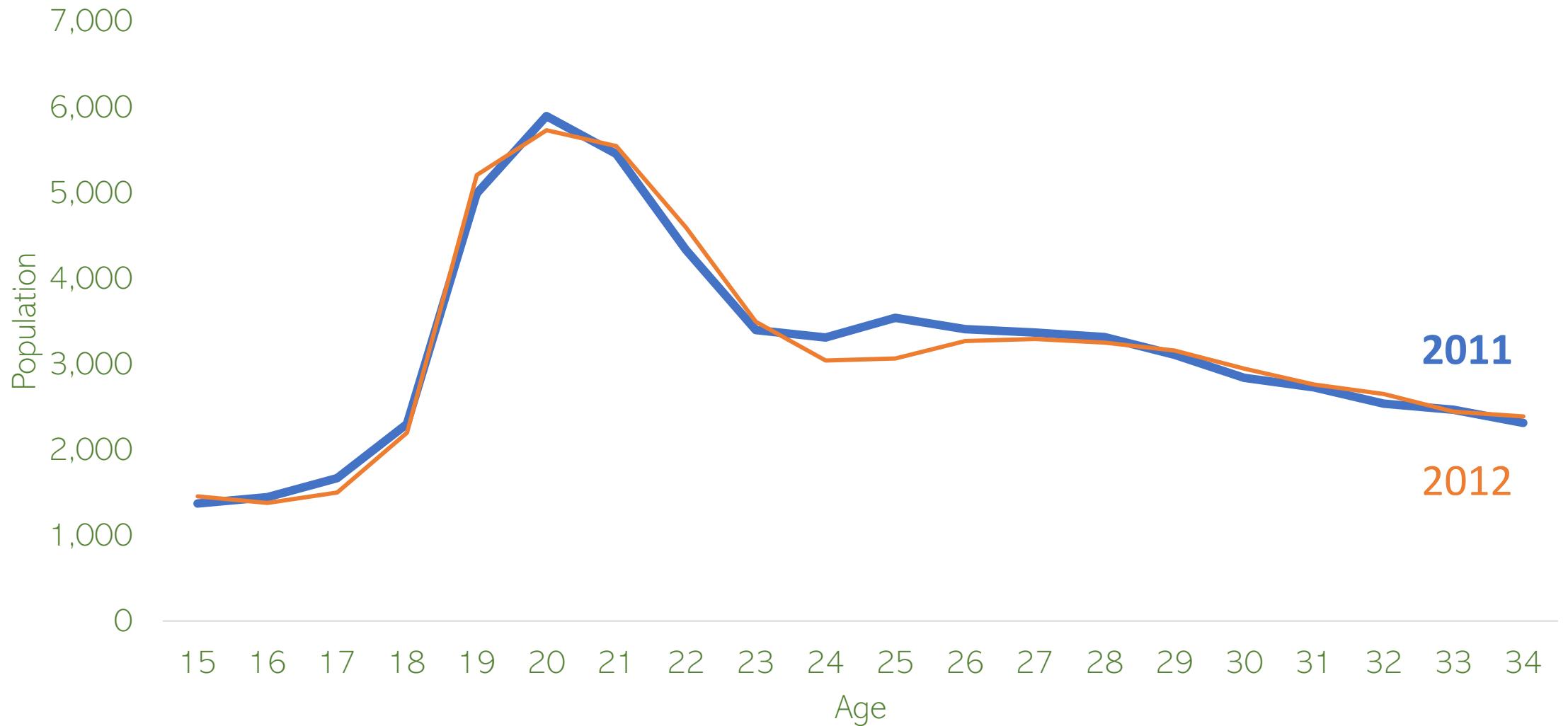




# Oxford City

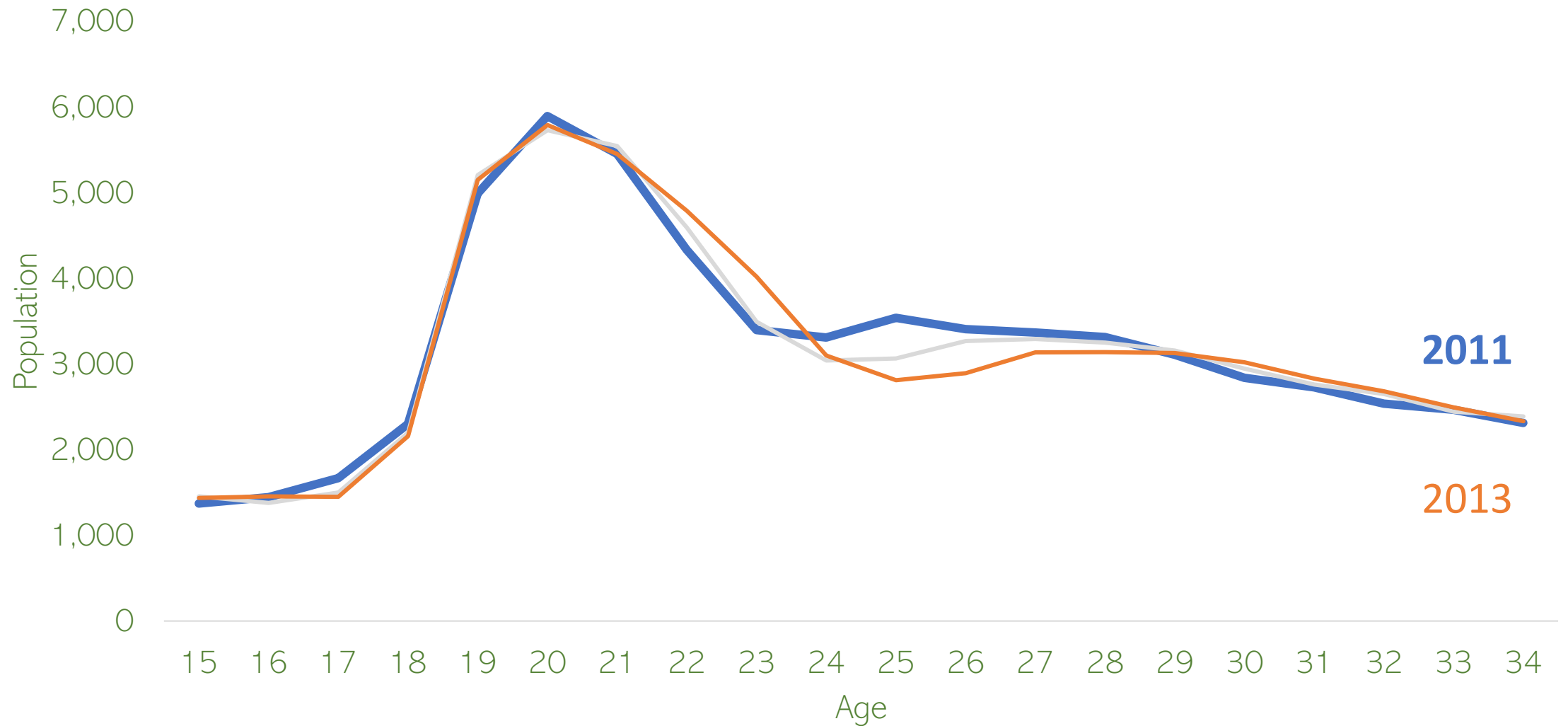


# Oxford City

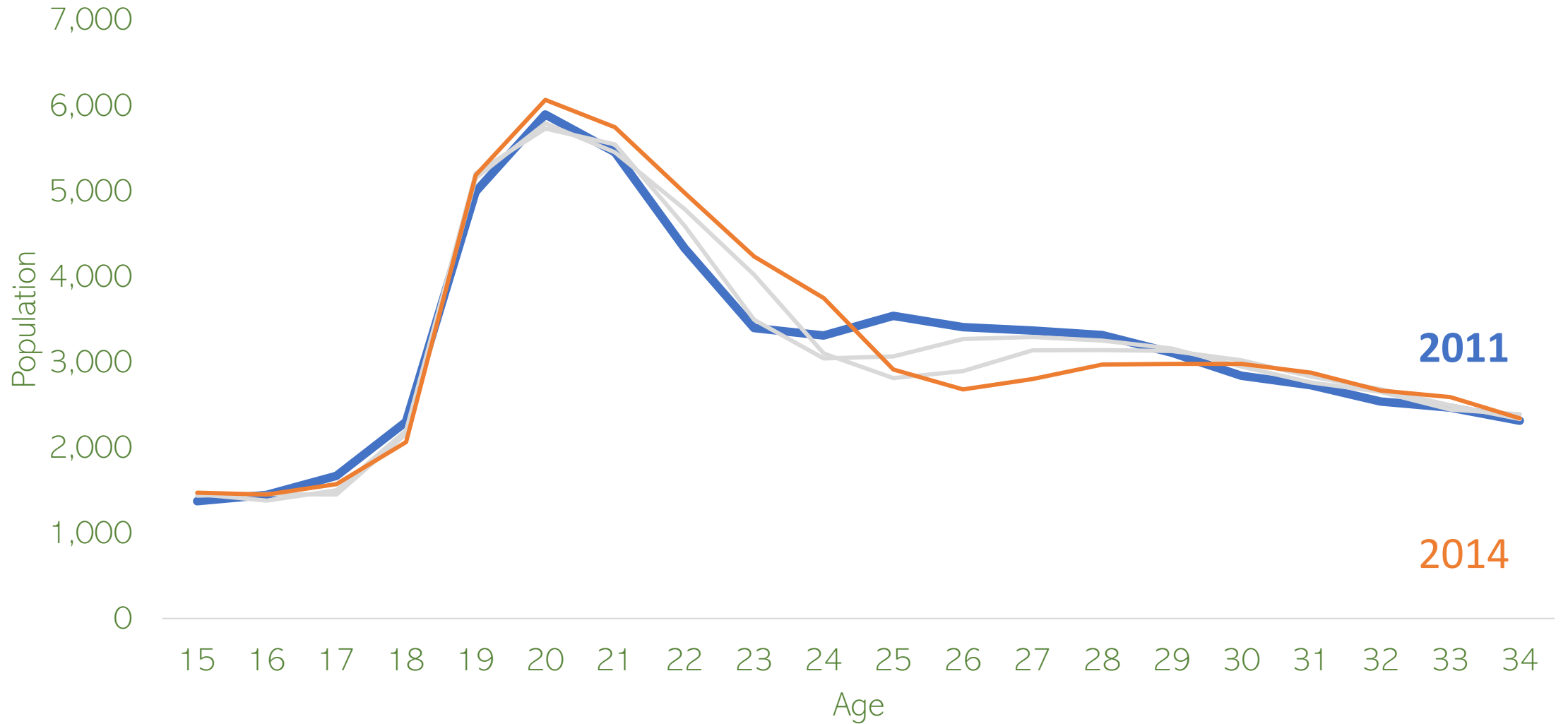


Source: Census 2011; ONS mid-year estimate

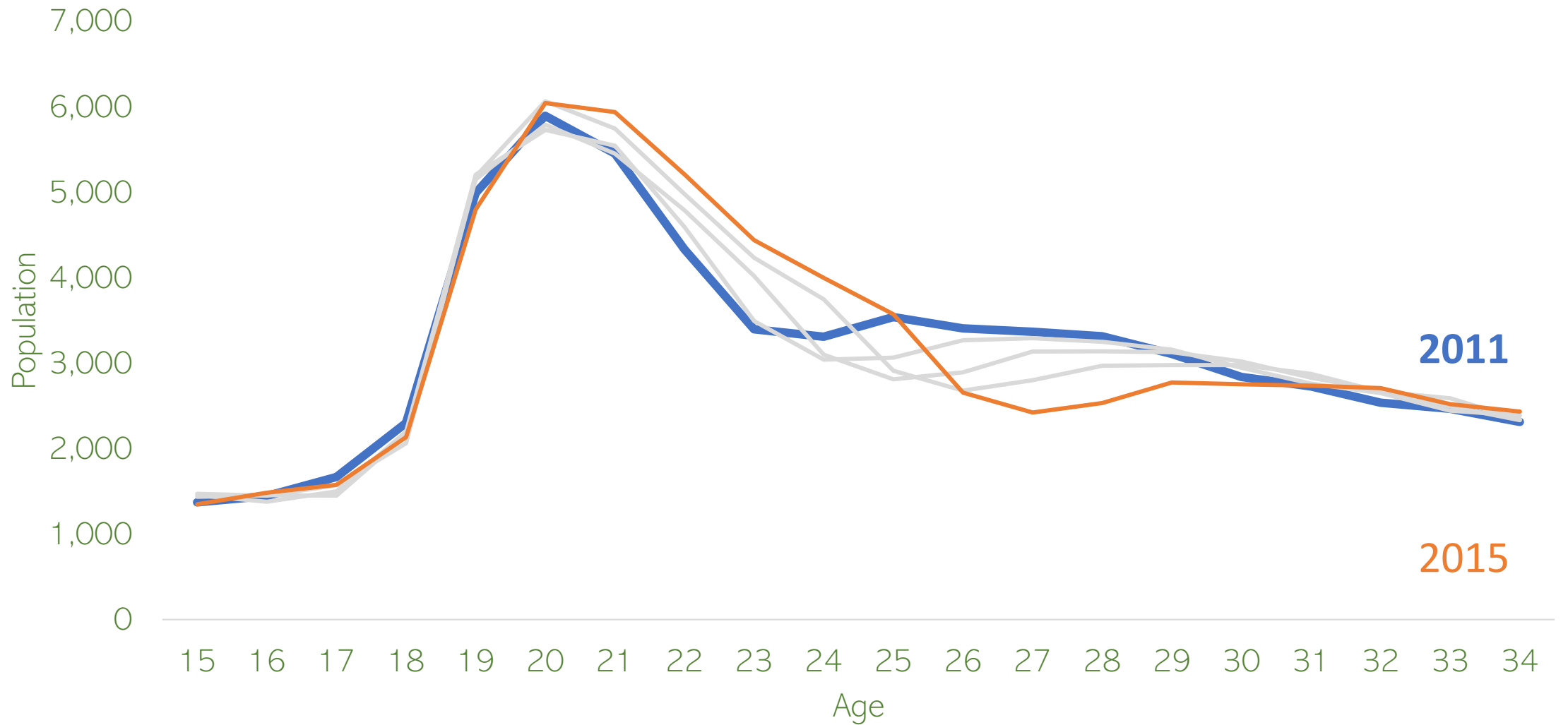
# Oxford City



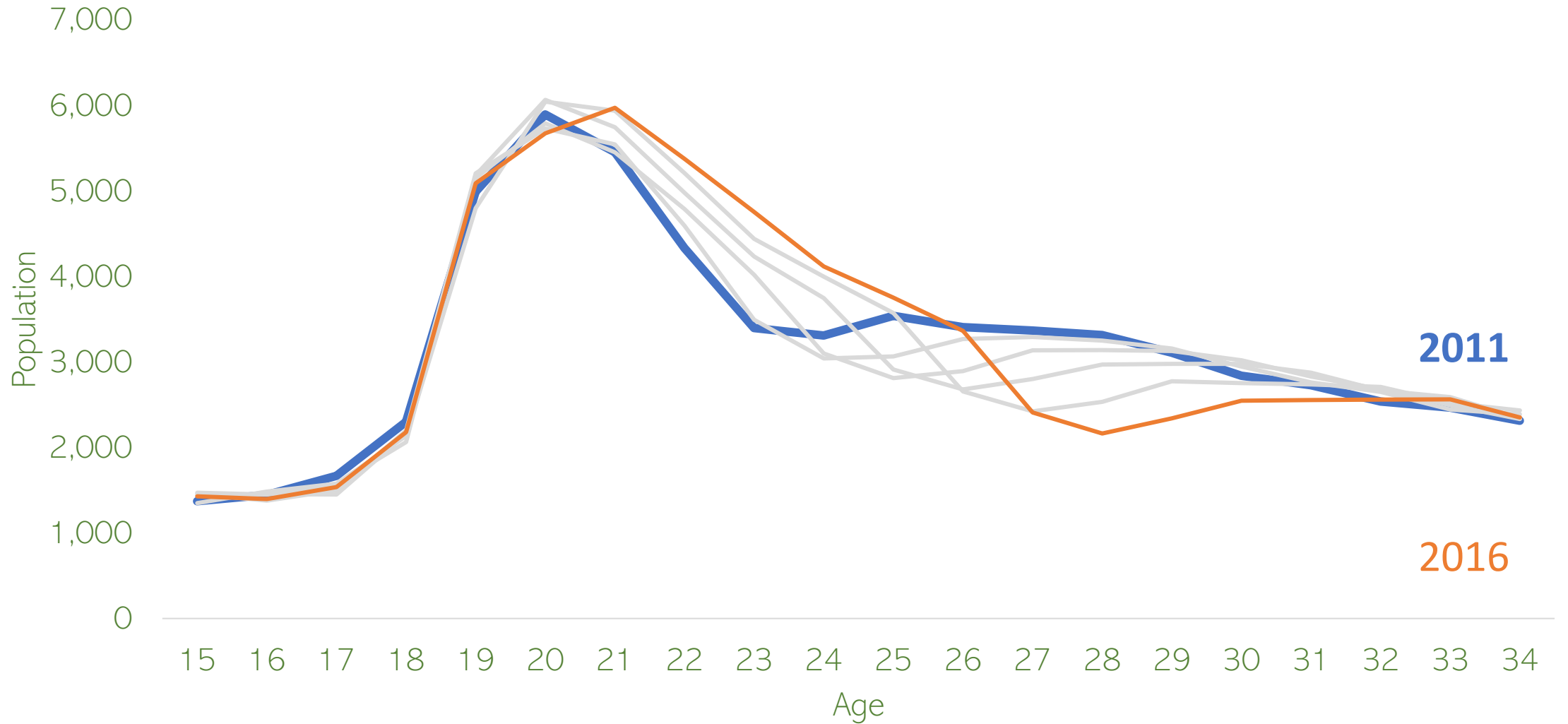
# Oxford City



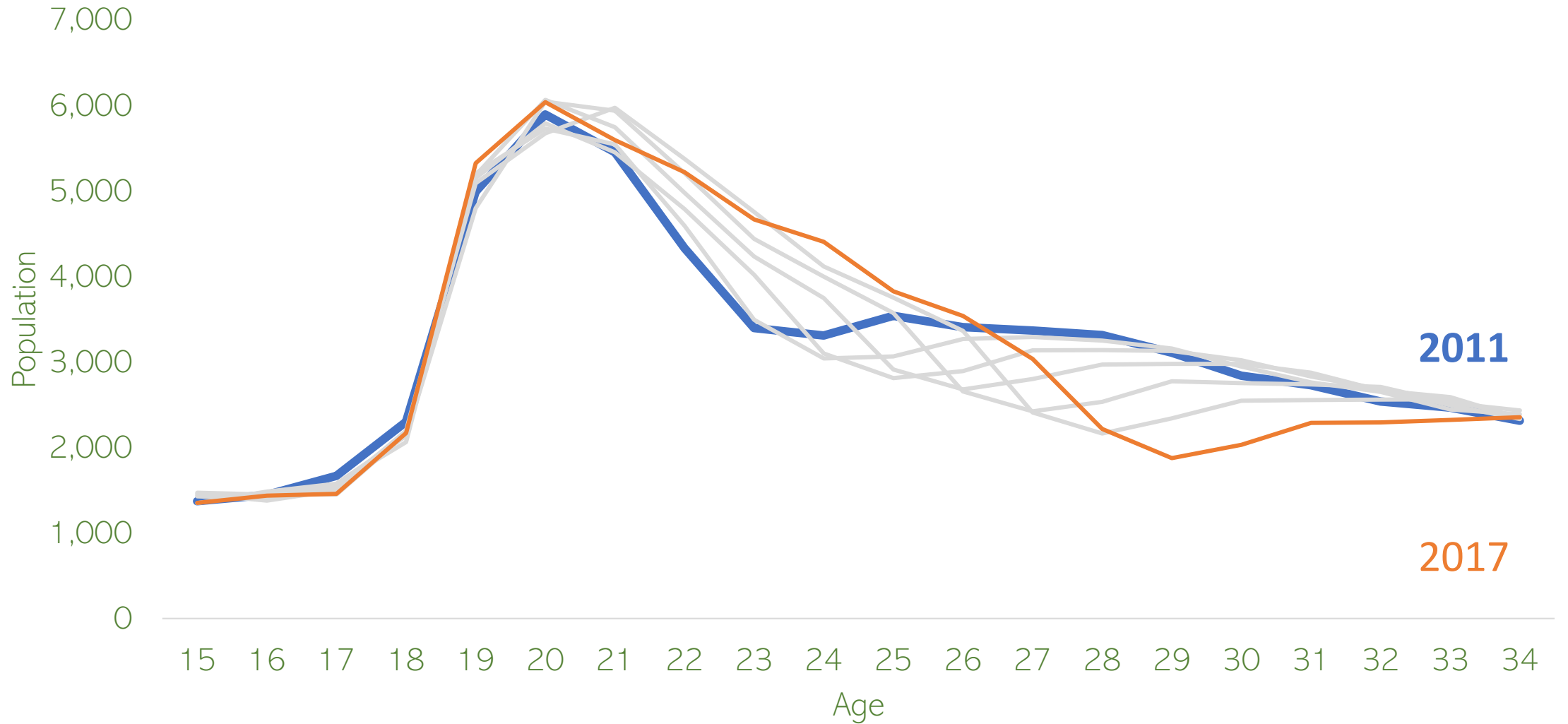
# Oxford City



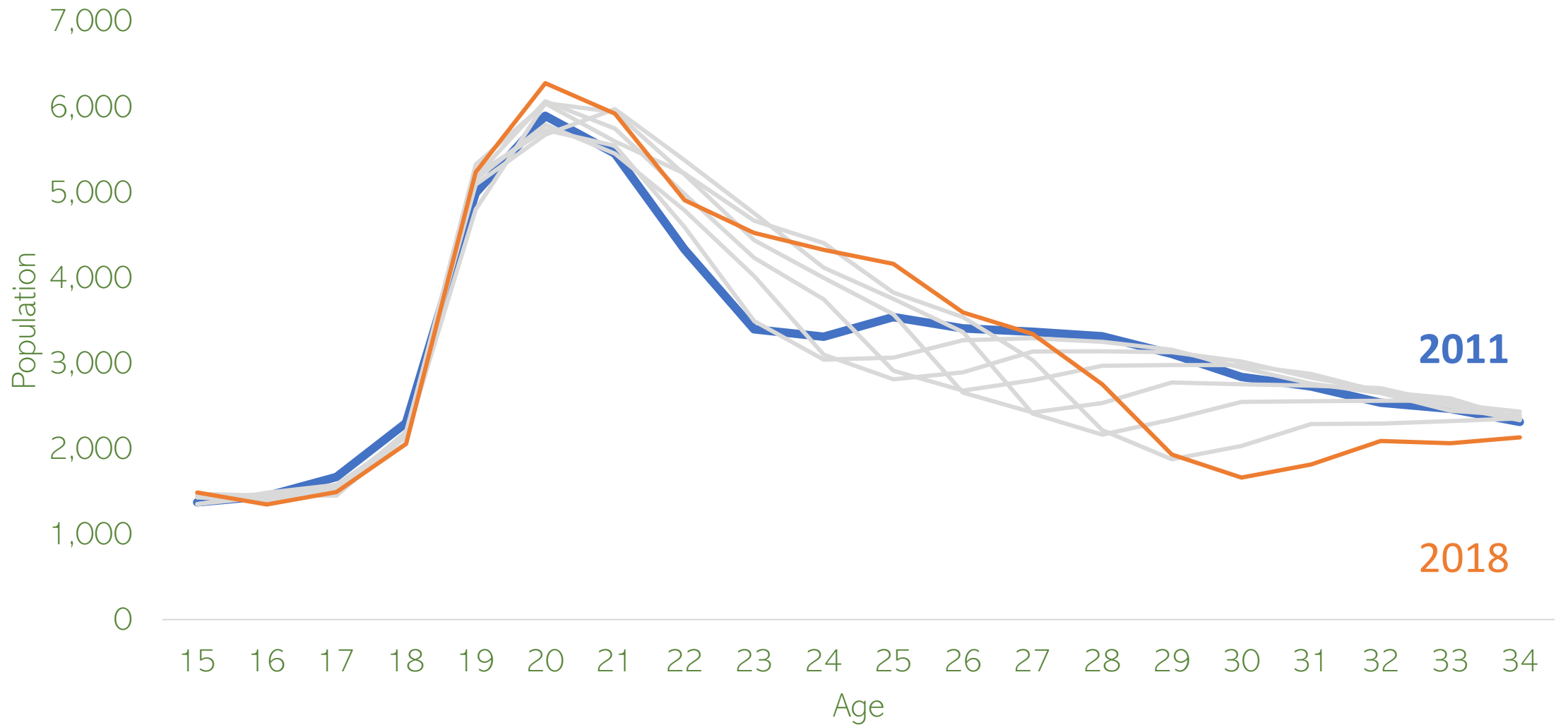
# Oxford City



# Oxford City

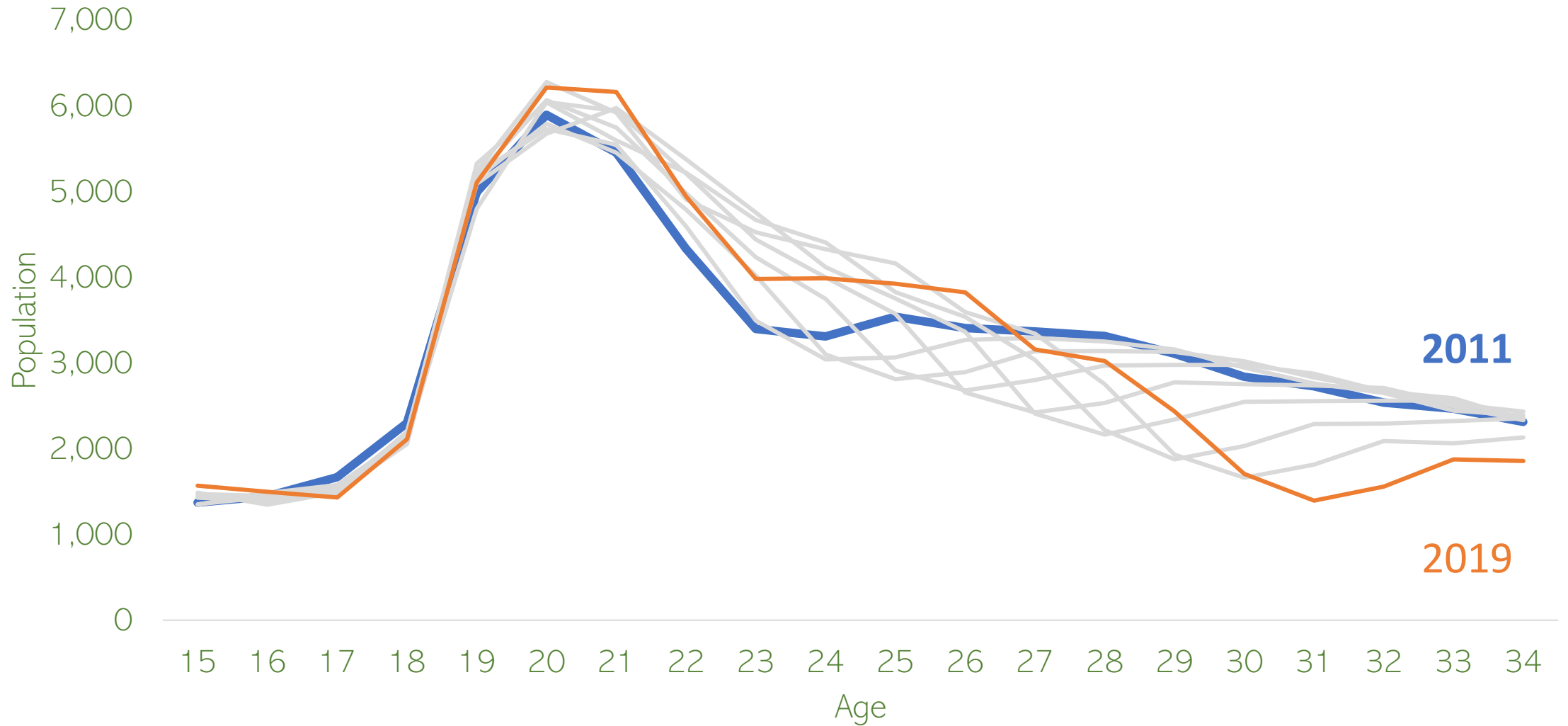


# Oxford City

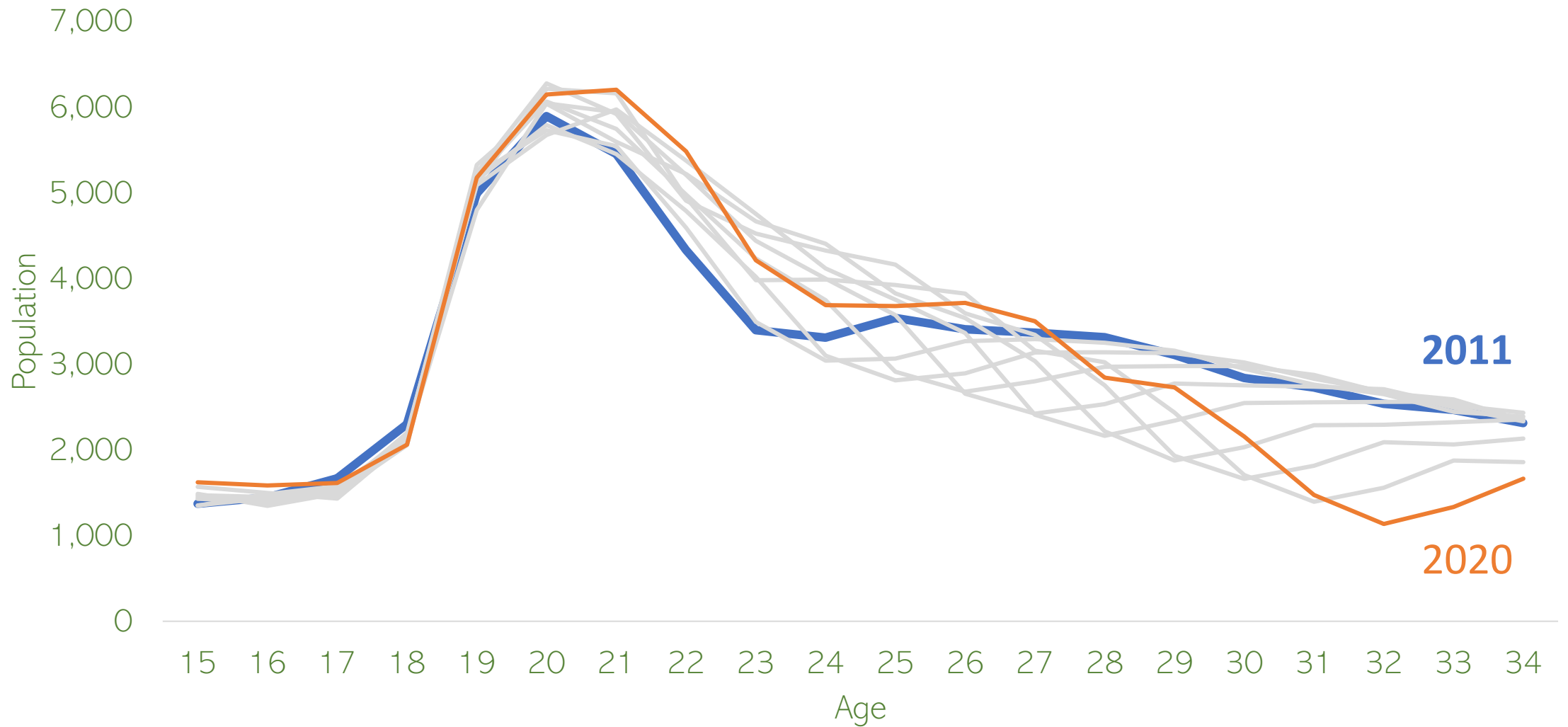




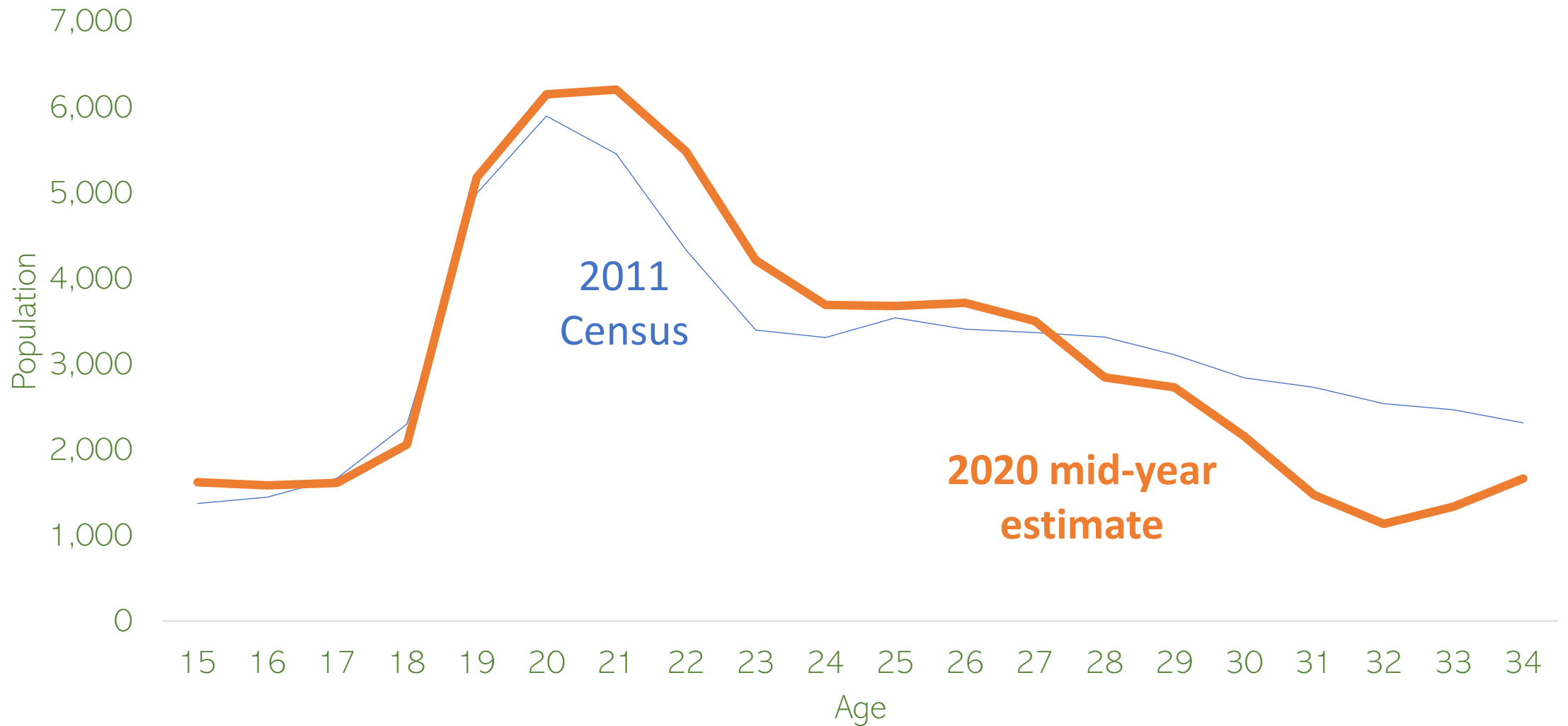
# Oxford City



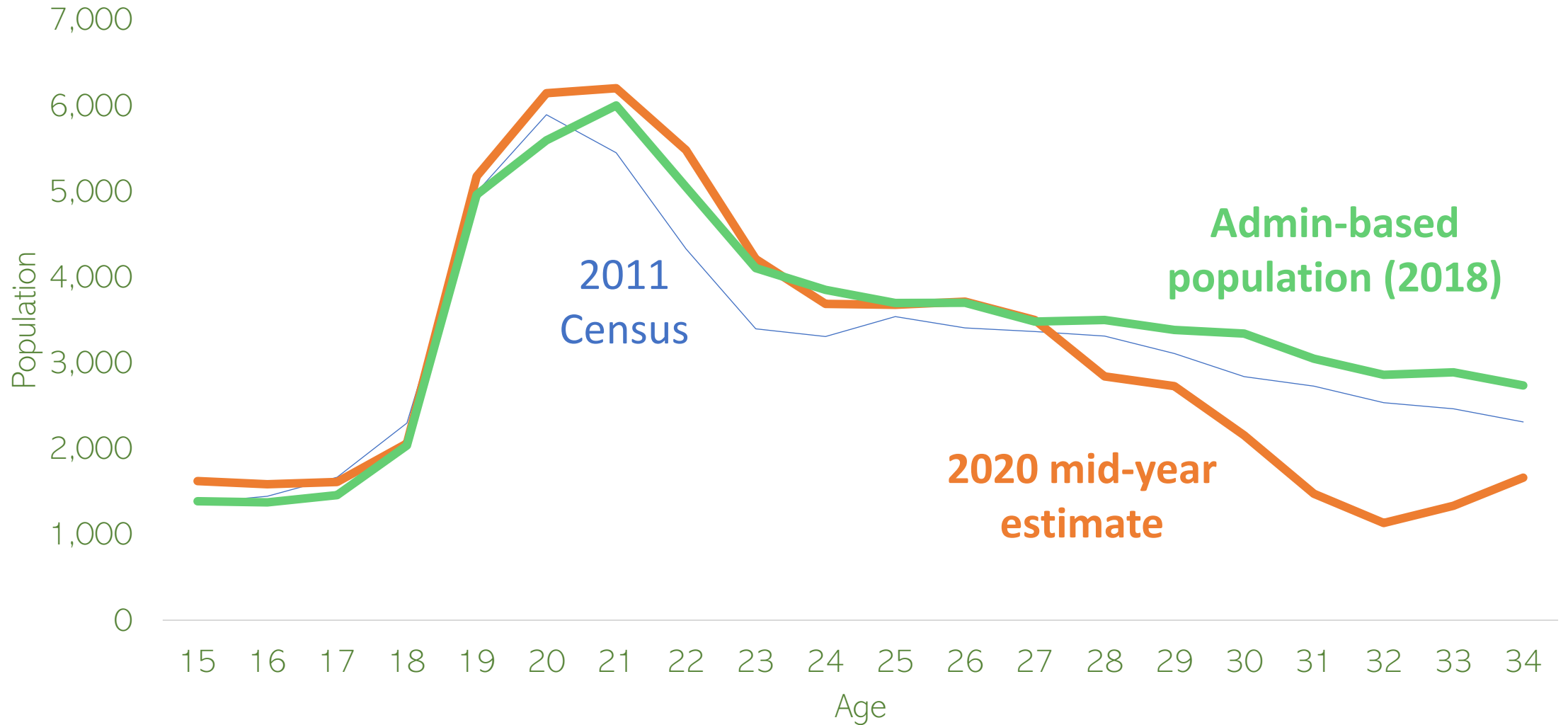
# Oxford City



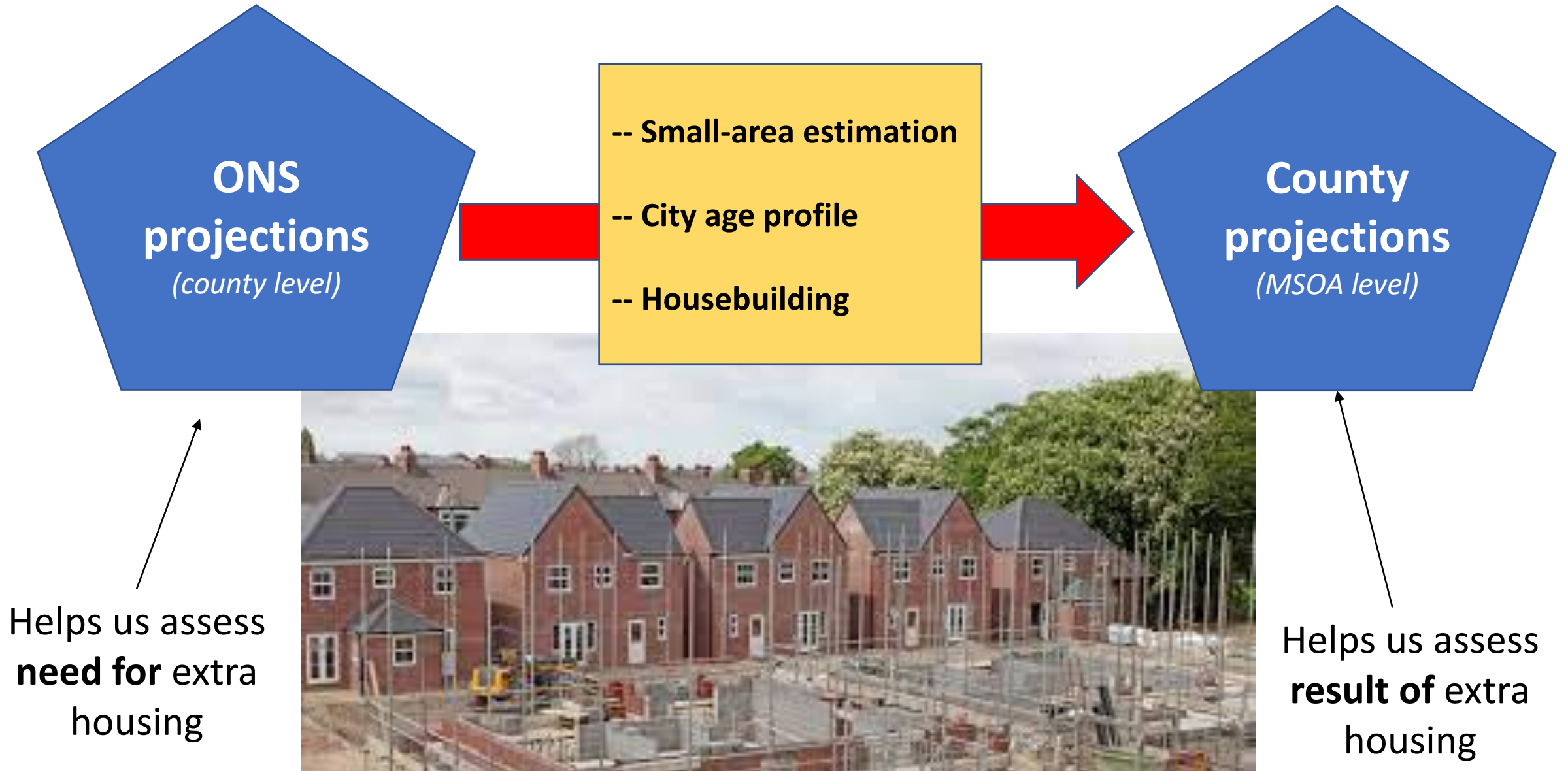
# Oxford City



# Oxford City

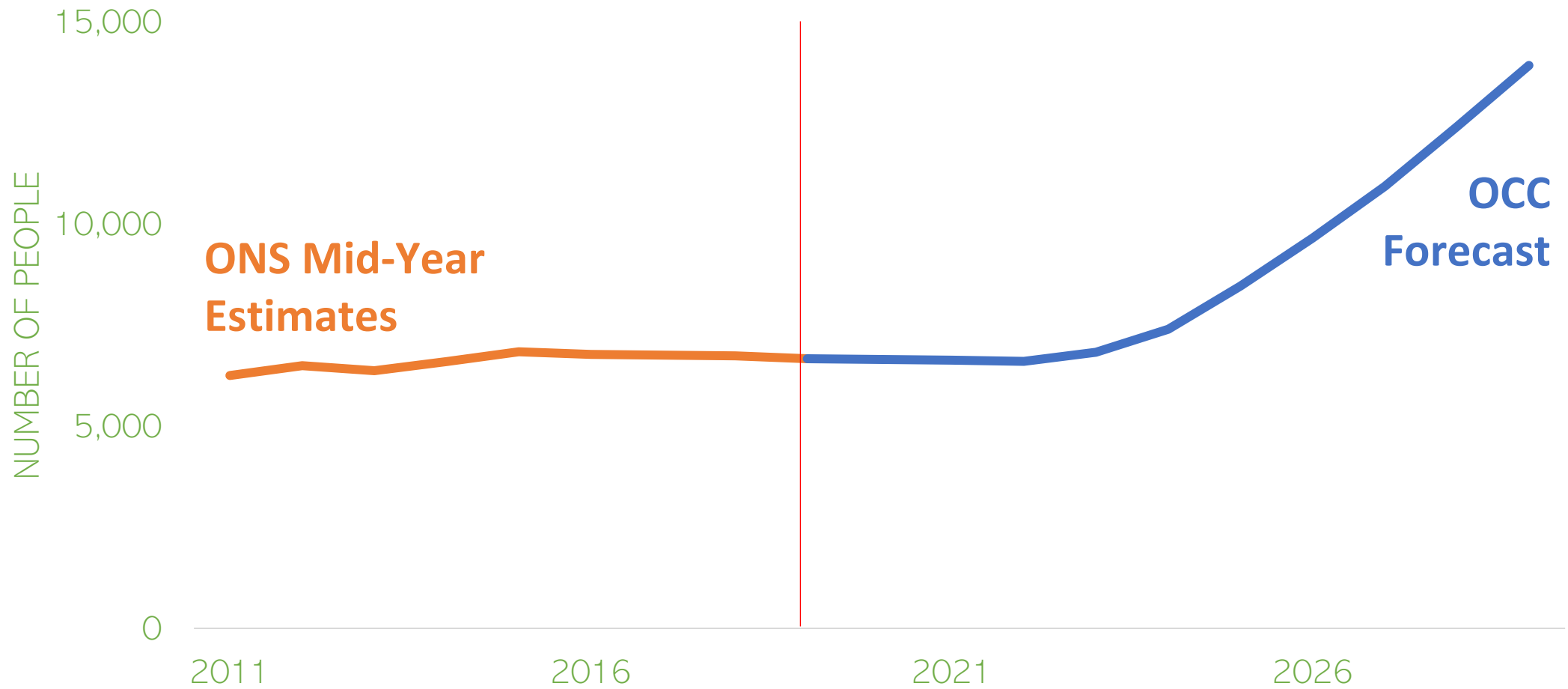


# Housebuilding

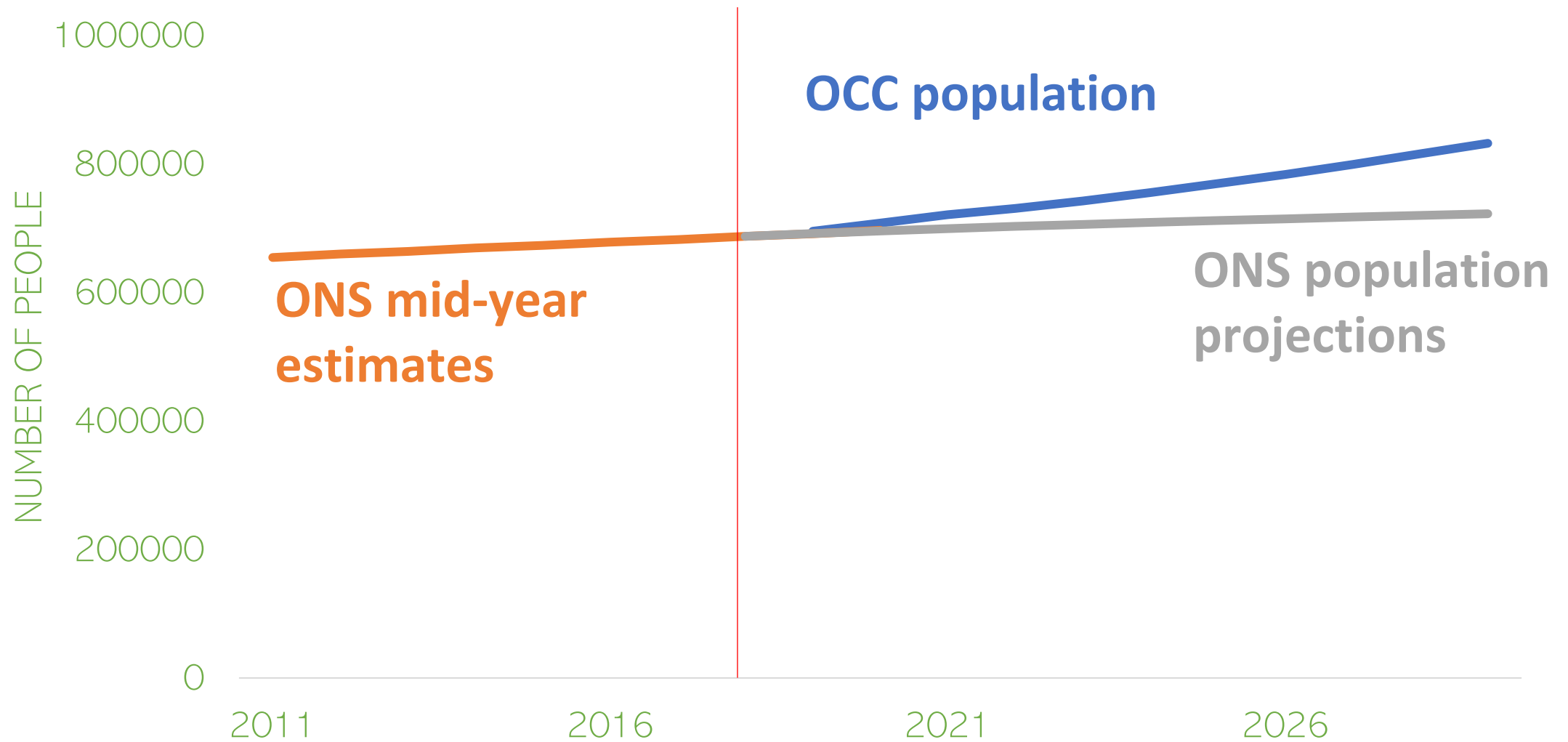


## 4. Outcomes

# Population of Yarnton



# Population of Oxfordshire





# Resources

(1) Office for National Statistics

(2) Oxfordshire Insight : <http://insight.oxfordshire.gov.uk/cms/future-population>

- Article
- Bitesize
- Tableau dashboard

*Do give us feedback...*

(3) County Council: **we're here to help!**

- JSNA (*Margaret Melling*)
- Modelling & Visualisation (*John Courouble, Bella Image, James Carter, Alick Bird*)

**Questions?**