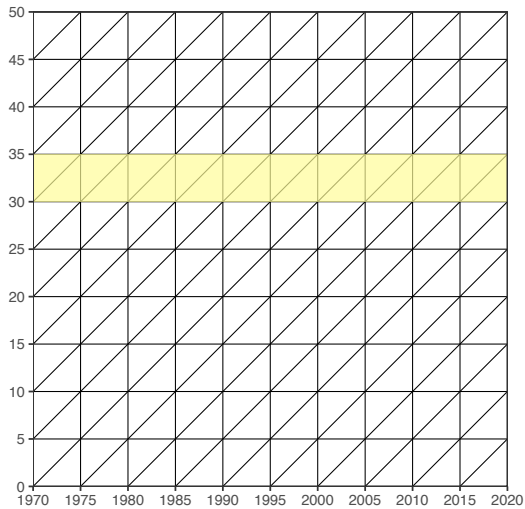


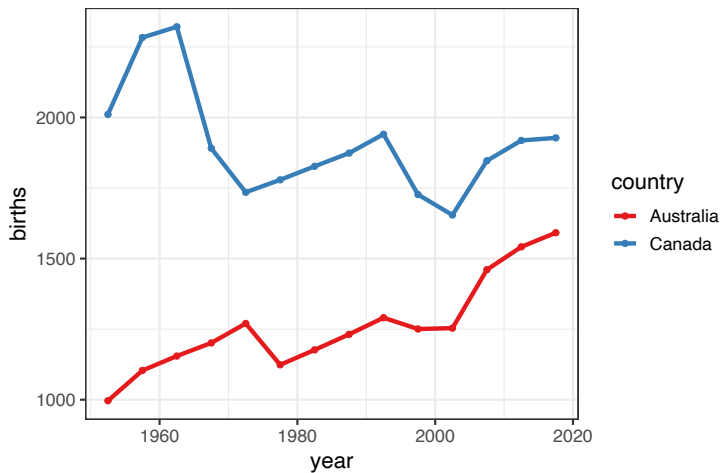
# D is for Demography

Monica Alexander

## A is for Age

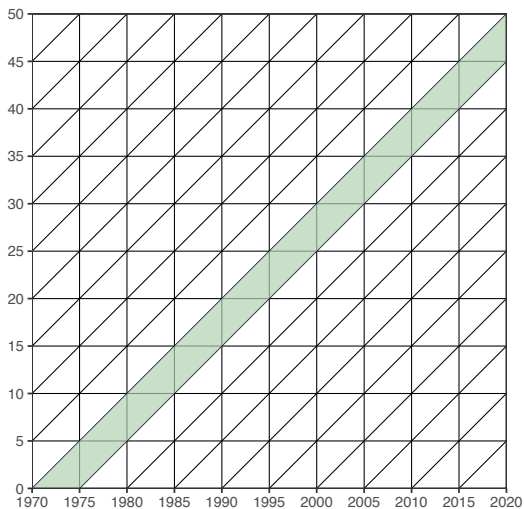


## B is for Births

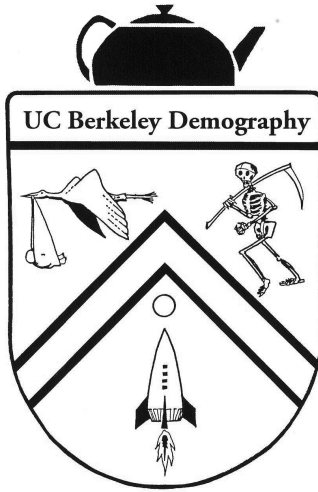


Data from WPP 2019

## C is for Cohort



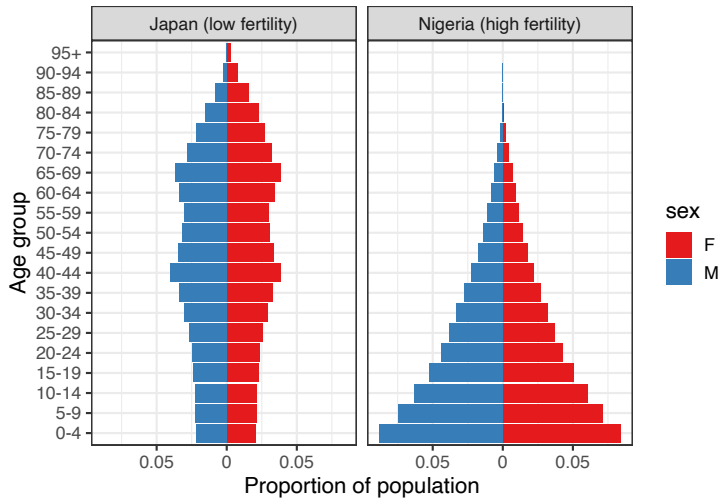
**D is for Demography!**



**E is for Euler-Lotka equation**

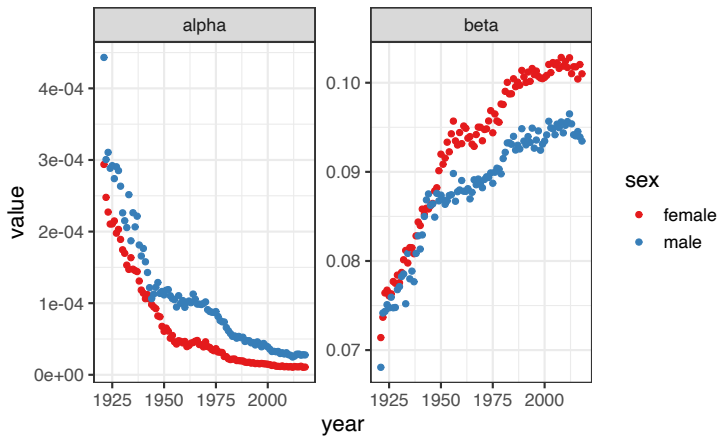
$$1 = \int e^{-ra} l(a) f(a) da$$

## F is for fertility



# G is for Gompertz mortality

Gompertz parameters for Australian males



Data from HMD



## H is for Hutterites

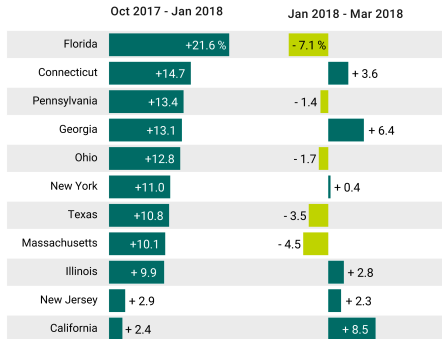
Age	$n(x)$
15	0.36
20	0.46
25	0.431
30	0.396
35	0.321
40	0.167
45	0.024

Data reproduced from Wachter 2014

# I is for Immigration

## Migration after Hurricane Maria

Change of Puerto Rican migrant populations in the US\*  
(as percentages)

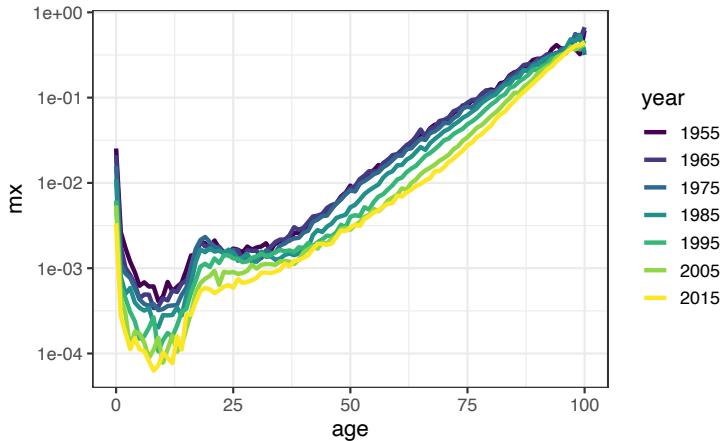


\* For the nine US states with the largest  
populations of Puerto Rican migrants

© Max Planck Institute for Demographic Research

## J is for 'J-shape' mortality

Age-specific mortality, Males, Australia

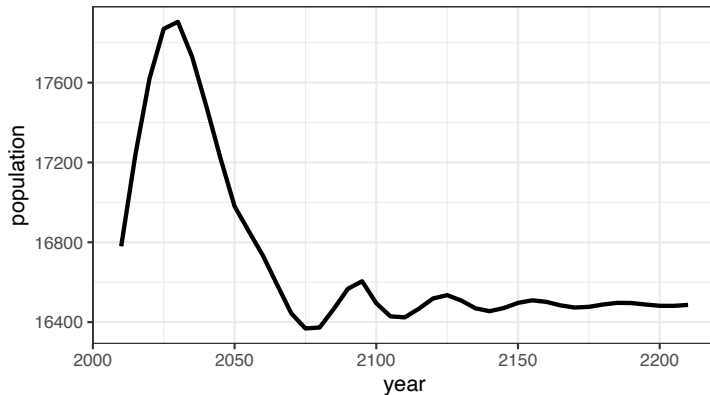


Data from HMD

## K is for Keyfitz momentum

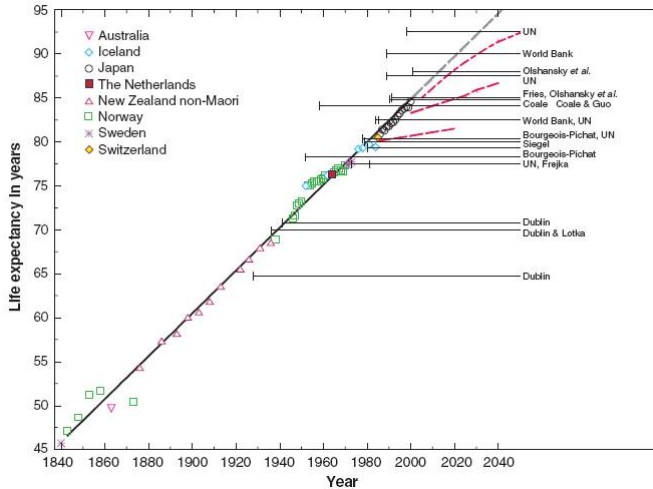
Population over time if NRR went to 1 in 2010

Canada 2010-2250



Data from WPP 2019

# L is for Life expectancy

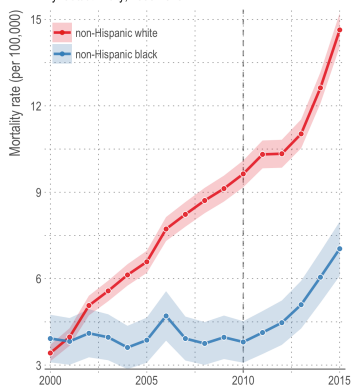


From Oeppen and Vaupel (2002)

# M is for Mortality

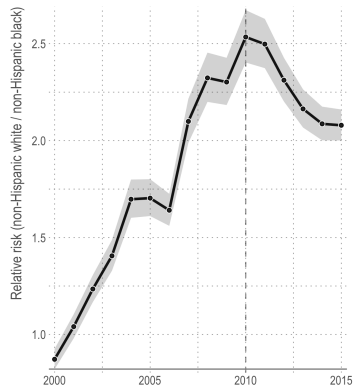
## Opioid-related mortality rate

By race/ethnicity, 2000-2015



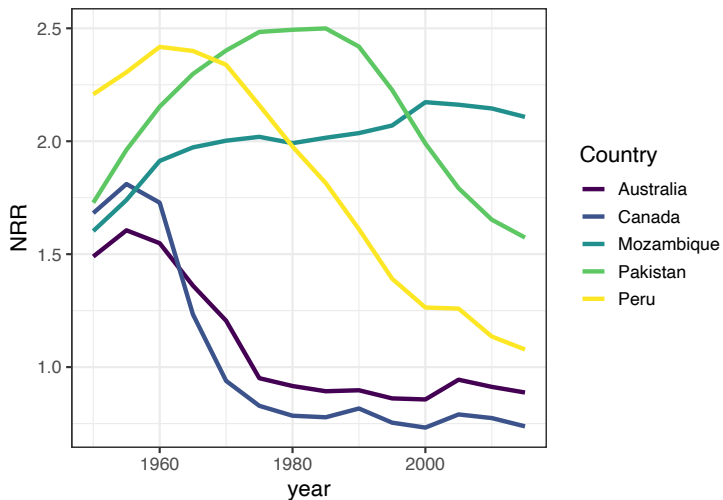
## Relative risk

Opioid-related mortality, 2000-2015

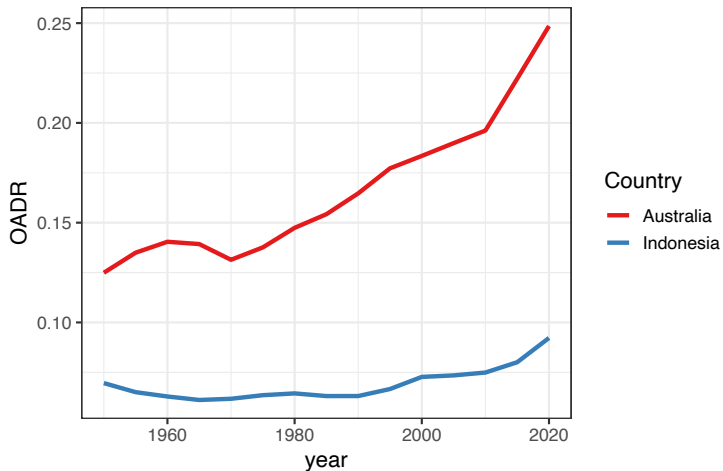


From <https://github.com/MJAlexander/opioid-mcd>

## N is for Net Reproduction Ratio



## O is for Old-age dependency ratio

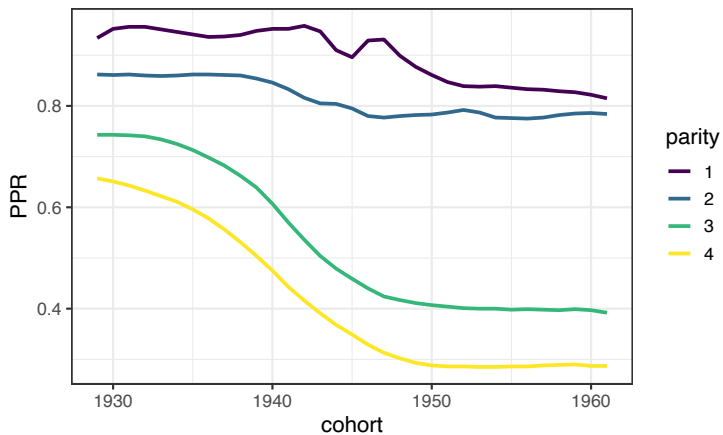


Data from WPP 2019



# P is for Parity

Parity Progression Ratios in Canada

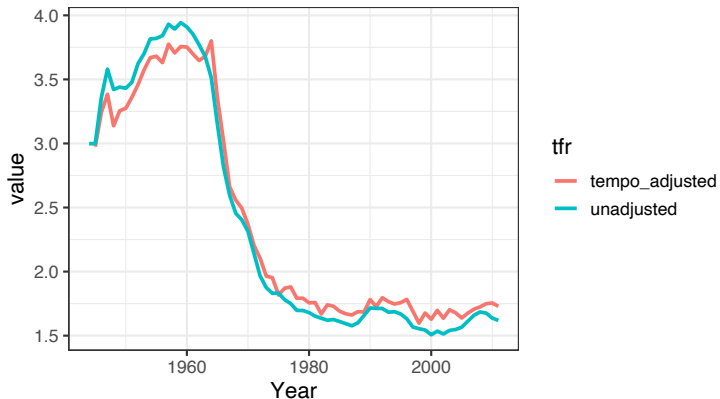


Data from HFD

## Q is for Quantum (and tempo)

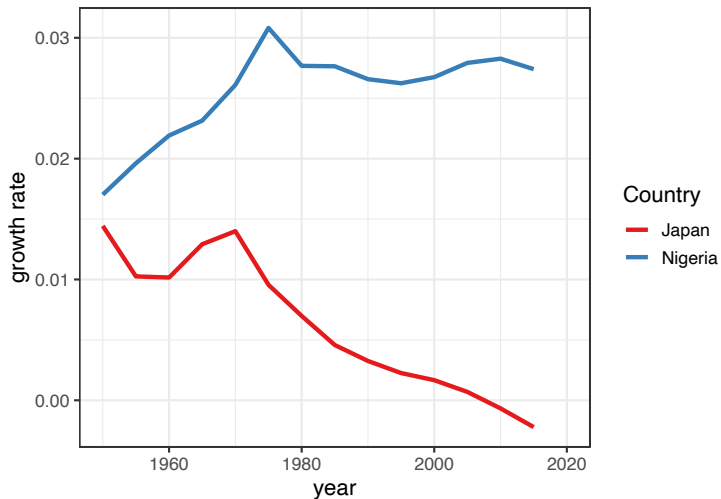
TFR and tempo-adjusted TFR

Canada 1944-2011



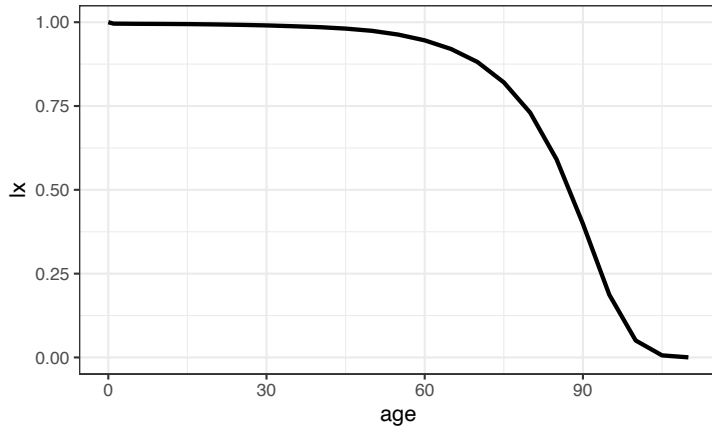
Data from HFD

## R is for r (the population growth rate)



# S is for Survivorship

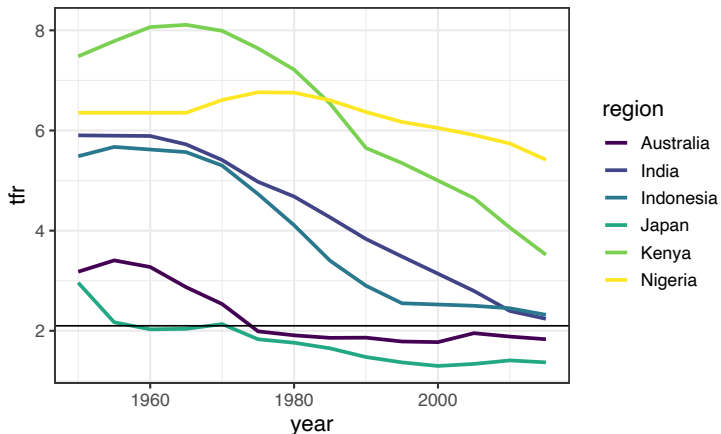
Survivorship for Ontario, 2015



data from the Canadian Human Mortality Database

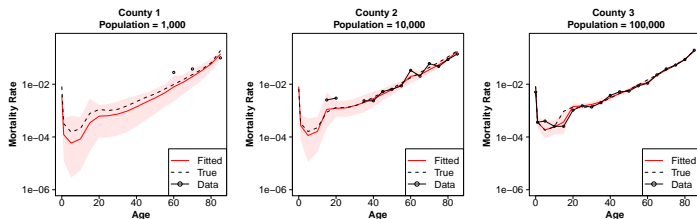
# T is for Total Fertility Rate

Total fertility rate for selected countries, 1950-2015



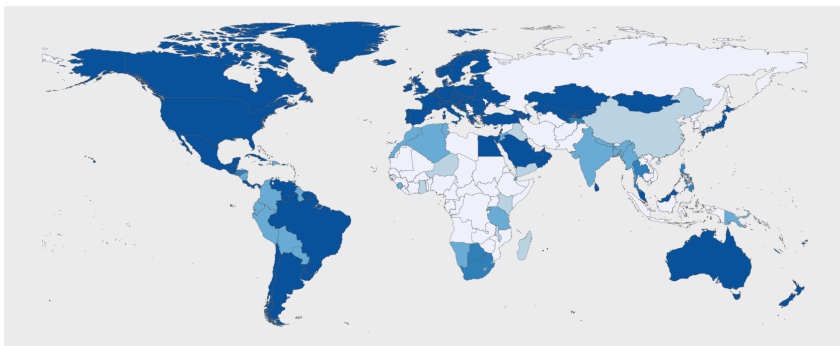
Data from WPP 2019

# U is for Uncertainty



From Alexander, Zagheni and Barberi (2017)

## V is for Vital registration systems

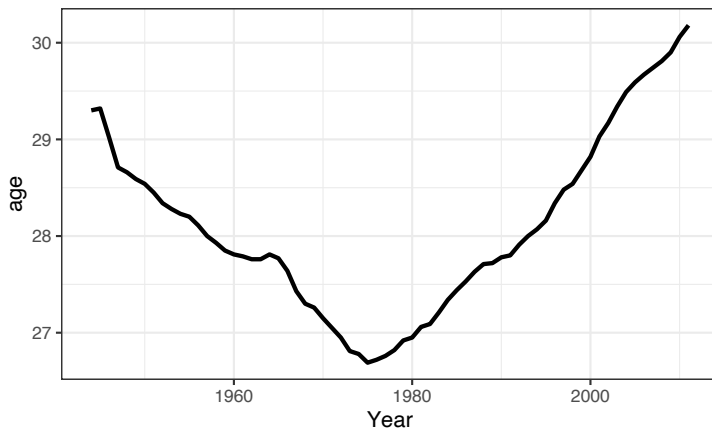


Vital registration system deaths coverage

No data	<50%	50-74%	75-89%	>90%
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## W is for Weighted mean

Mean age of childbearing, Canada



Data from HFD

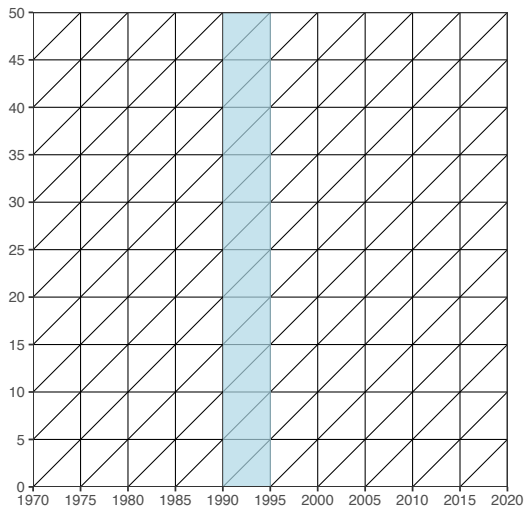


## **X is for $x$ (the age variable)**

Table 1: Ontario life table (up to age 15), 2015 (Source: CHMD)

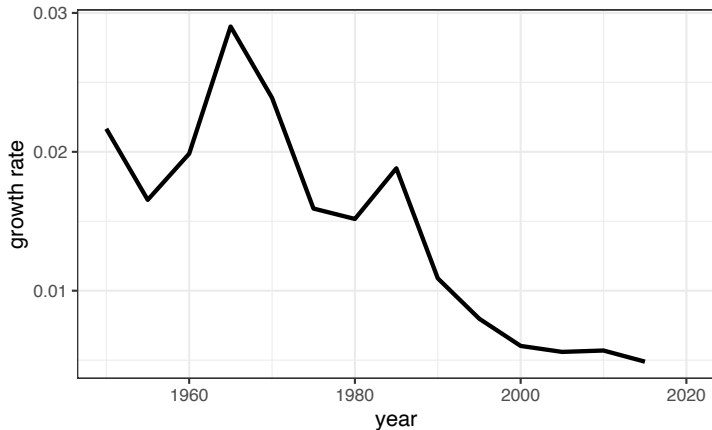
x	n	lx	dx	ax	Lx	Tx	ex
0	1	100000	421	0.14	99638	8441504	84.42
1	4	99579	53	1.55	398187	8341866	83.77
5	5	99526	36	2.54	497543	7943679	79.81
10	5	99490	51	2.72	497334	7446136	74.84
15	5	99439	94	2.74	496983	6948802	69.88

## Y is for Year (period)



## Z is for Zero population growth

Annual growth rate, China female population



Data from WPP 2019