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Infant mortality and fertility between Francophones and Anglophones of Quebec

Nathalie Auger, Mai Thanh Tu, Marianne
Bilodeau-Bertrand, André Costopoulos

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Introduction



In Quebec, Anglophones generally have favourable health, but when socioeconomic conditions are considered:

Compared with Francophones and advantaged Anglophones, Anglophones living in areas with high material deprivation were more at risk for:

- Small-for-gestational-age at birth (Auger et al. 2013)
- Stillbirth (Auger et al. 2015)

Objectives



- To assess trends in inequality between Francophones and Anglophones in:
 - Infant mortality
 - Total fertility
- Focus on Anglophones living in areas with high material deprivation

Methods - Data



- Death registration certificates
 - 1989-2012
- Birth registration certificates
 - 1989-2012
- Census
 - Women aged 15-49 years
 - 1991, 1996, 2001, 2006

Methods - Variables



- Language spoken at home
 - Reported on birth and death registration certificates
- Material deprivation: based on postal code of residence and data from the Census
 - Proportion of individuals with no high school diploma
 - Employment rate
 - Mean personal income

Methods - Analysis

- Infant mortality rate (per 1000): $\frac{\text{Infant deaths}}{\text{Births}} * 1000$

(infant aged less than one year old)

- Total fertility rate (Total number of children a woman has on average):

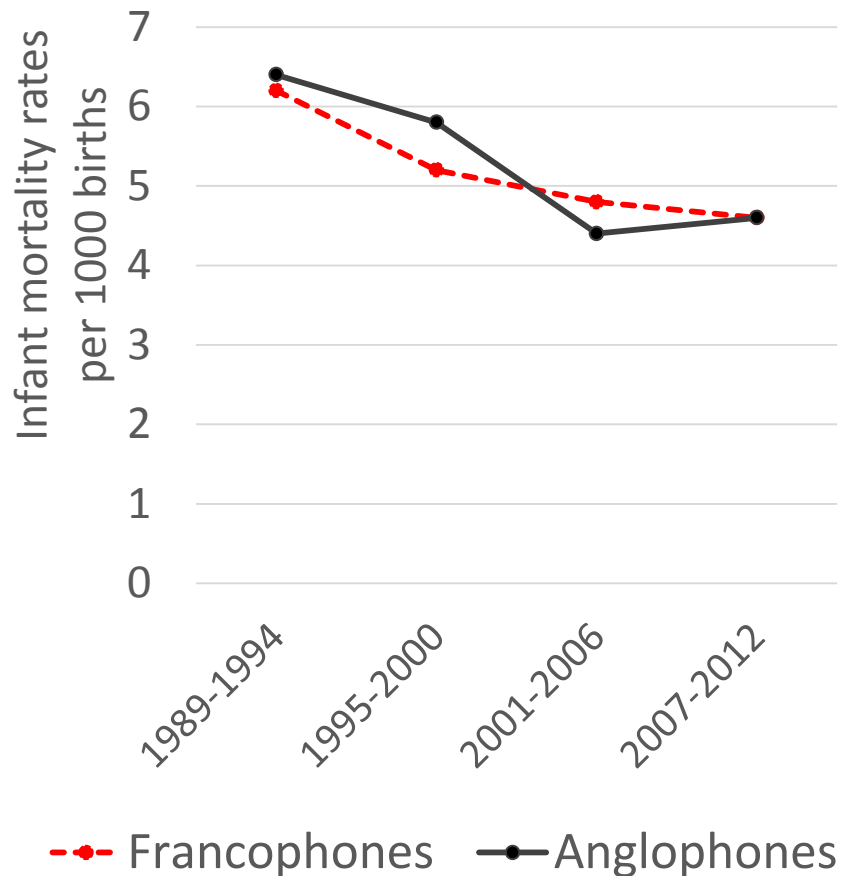
$$\sum_{i=15-19}^{45-49} \left(\frac{\text{Births}_i}{\text{Women}_i} * 5 \right) \quad i = \text{age group of the mother at birth}$$

- Rate difference: e.g. $\text{Rate}_{\text{Anglophones}} - \text{Rate}_{\text{Francophones}}$

or e.g. $\text{Rate}_{\text{period 1}} - \text{Rate}_{\text{period 2}}$

Results – Infant mortality

Fig. 1: Infant mortality, trends over time



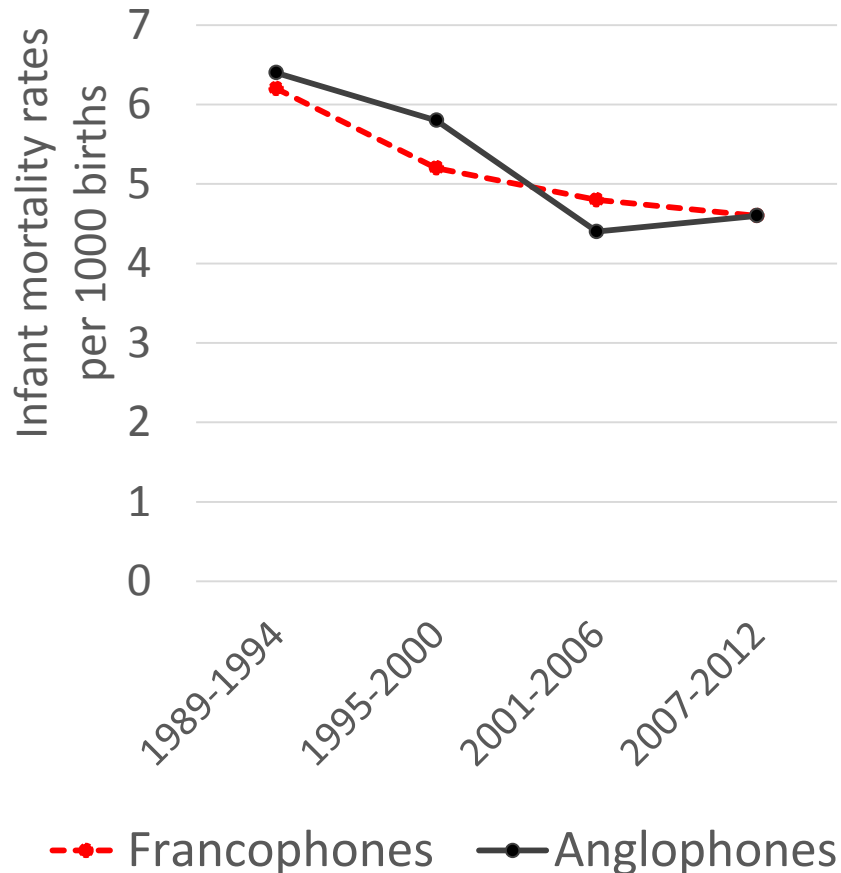
Difference in rates from 1989-1994 to 2007-2012

Francophones: -1.6

Anglophones: -1.8

Results – Infant mortality

Fig. 1: Infant mortality, trends over time



Difference in rates from 1989-1994 to 2007-2012

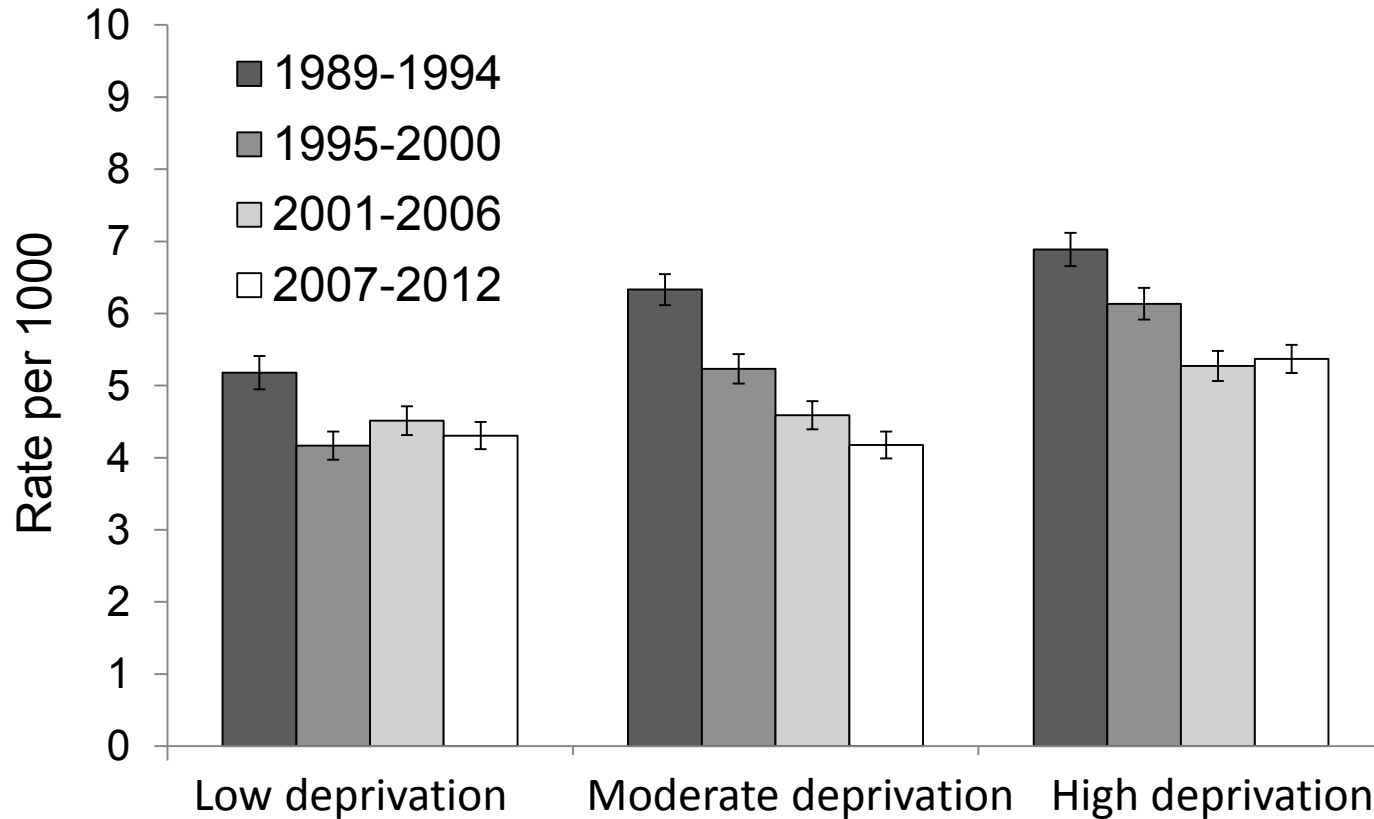
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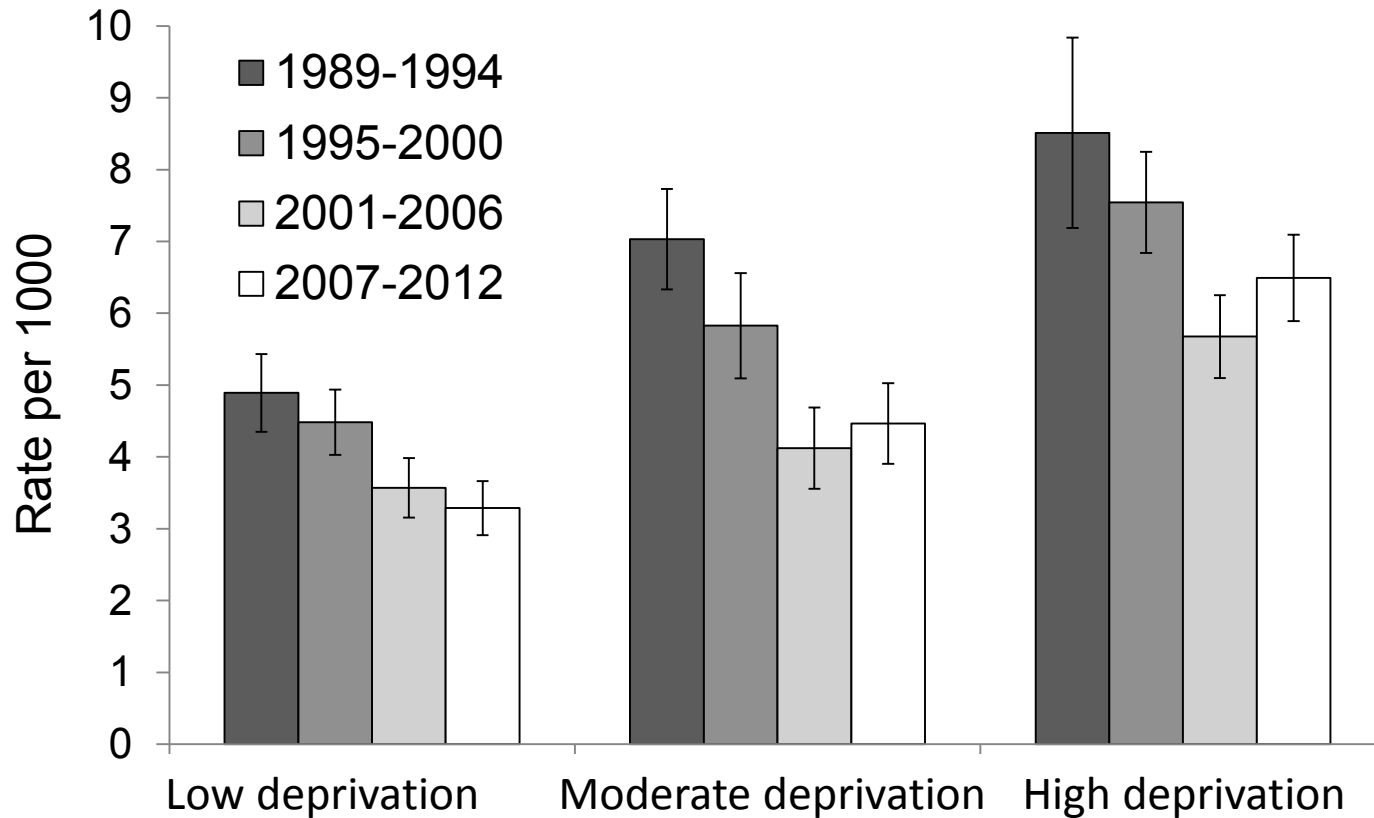
Why do rates decline? A few hypotheses....

- Large decline in one subgroup that drives the overall rate lower
- Decrease in the number of individuals in a subgroup with high mortality

Results – Infant mortality in Francophones



Results – Infant mortality in Anglophones



Results – Infant mortality

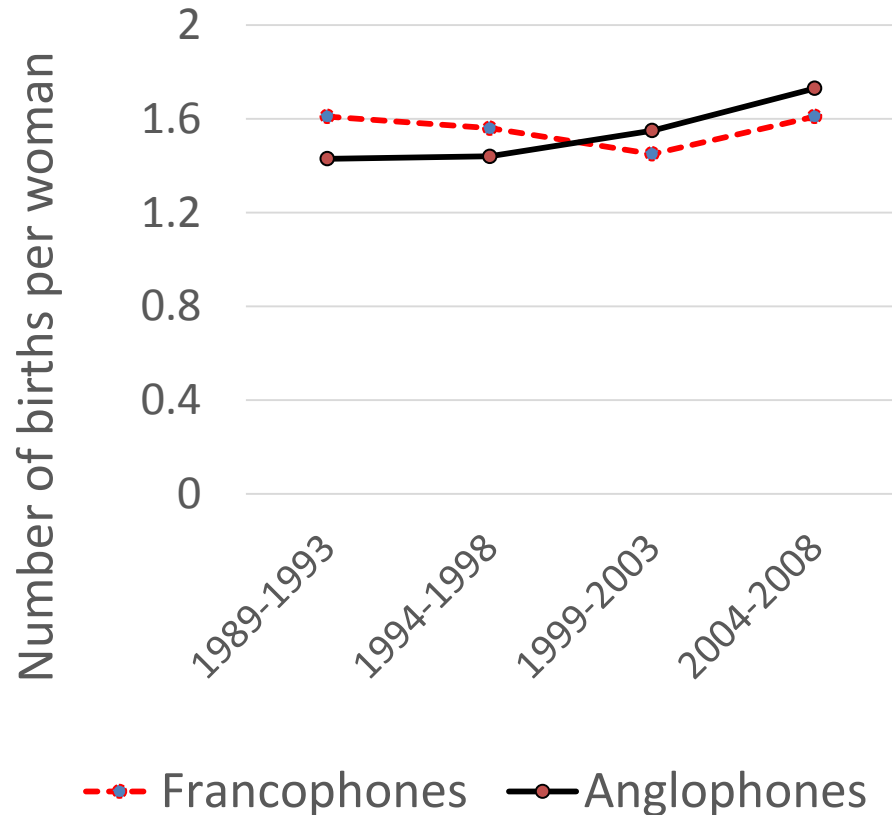
Table 1: Contribution to the total decline in rates between 1989-1994 and 2007-2012 (Number of deaths per 1000 over time)

Total decline : -1.6 deaths per 1000

	Low deprivation	Moderate deprivation	High deprivation
Francophones	- 0.2	- 0.5	- 0.7
Anglophones	- 0.1	- 0.1	0

Due to larger growth in the number of births in 2007-2012?

Results – Fertility trends over time



Fertility: Total number of children a woman has on average

Rate Difference
(Anglophones–Francophones)

1989-1993:
- 0.18 (95%CI: -0.21, -0.15)

2004-2008:
0.12 (95%CI: 0.09, 0.17)

Results – Contribution to fertility

	Francophones		Anglophones	
	1989- 1993	2004- 2008	1989- 1993	2004- 2008
Material deprivation (quintiles)				
High	0.33	0.31	0.19	0.36
Middle-low	0.35	0.33	0.22	0.28
Middle	0.34	0.34	0.25	0.28
Low-middle	0.32	0.33	0.27	0.36
Low	0.26	0.30	0.49	0.46
Total fertility rate	1.61	1.61	1.43	1.73

Conclusion



Trends in inequality in infant mortality and total fertility suggest that socioeconomically disadvantaged Anglophones may be an emerging vulnerable group in Quebec.

- Disadvantaged Anglophones slowed the decrease in infant mortality
- Disadvantaged Anglophones have higher total fertility over time

Ongoing work: other perinatal indicators e.g. interpregnancy interval

Contact:

nathalie.auger@inspq.qc.ca

marianne.bilodeau-bertrand@inspq.qc.ca

Pour joindre le Bureau d'information
et d'études en santé des populations

Site Web : www.inspq.qc.ca/biesp

Courriel : biesp@inspq.qc.ca

Téléphone : 418 654-3033

www.inspq.qc.ca

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