Ports and their influence on local air pollution and public health: a global analysis

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Discussion

- Importance issue

- Interesting litterature review (details provided in tables 1 and 2 should be more used in the text)

- More elements « large » and « small » regions for interpreting the results

- More descriptive statistics should be provided

- More element on the methodology used (pooled data ? panel data ? Indvidual errors terms ? Treatment of spatial correlation ?)

- No comment from the view point of ports or environmental economics

- Some comments of an health economist

Mortality rate and life expectancy:
Two comparable health outcomes?

- **Life expectancy at birth** (for one particular year):

Average length of life for a hypothetical cohort assumed to be exposed, from birth through death, to the mortality rates at hall ages observed at one particular year

- Life expectancy is sensitive to any change in mortality rates, at any age and for any cause of death

- Life expectancy at birth is mainly sensitive to premature death: infant mortality; child mortality and premature mortality.

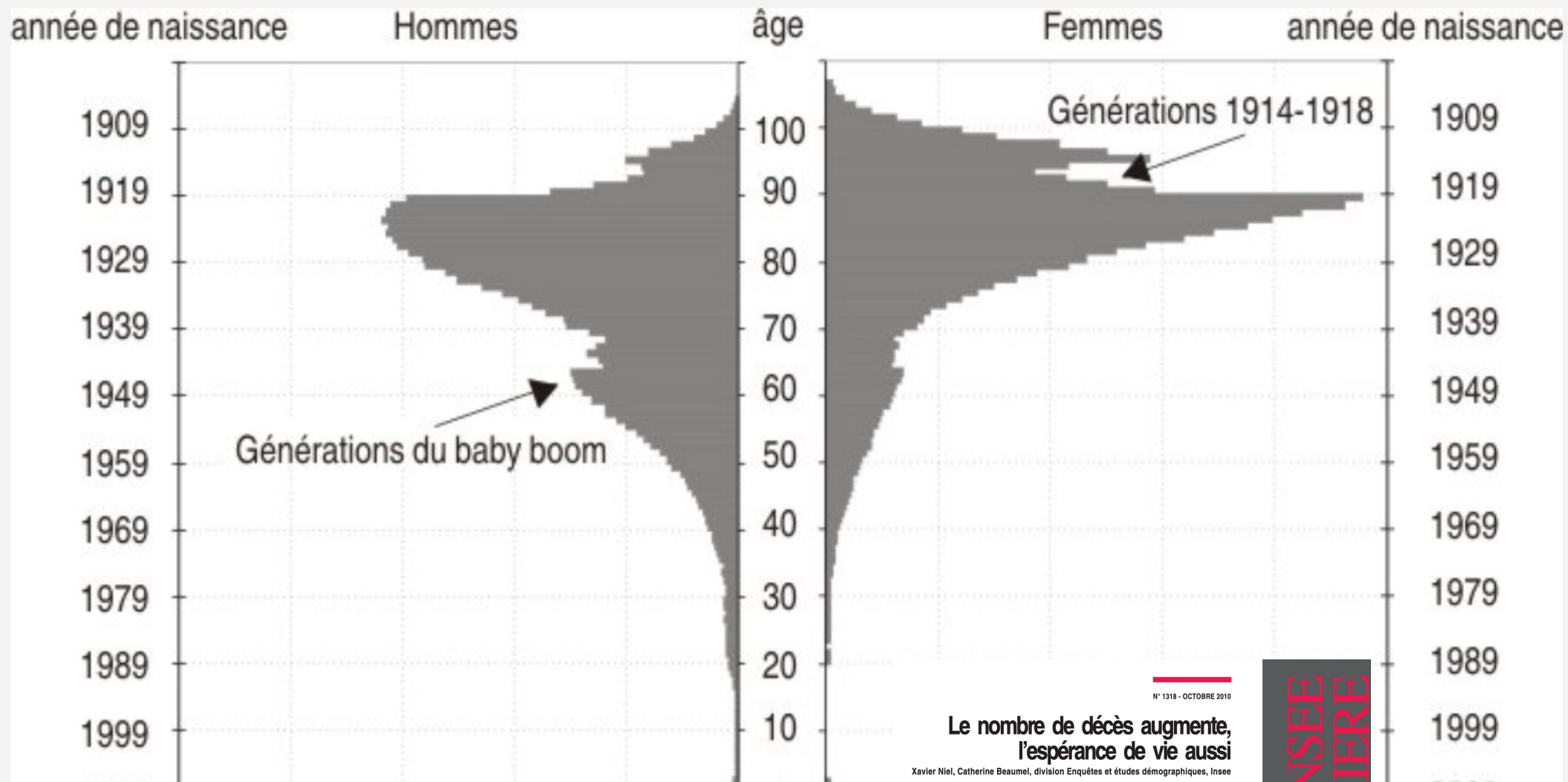Evolution of life expectancy from birth in France from 1740 to 2020
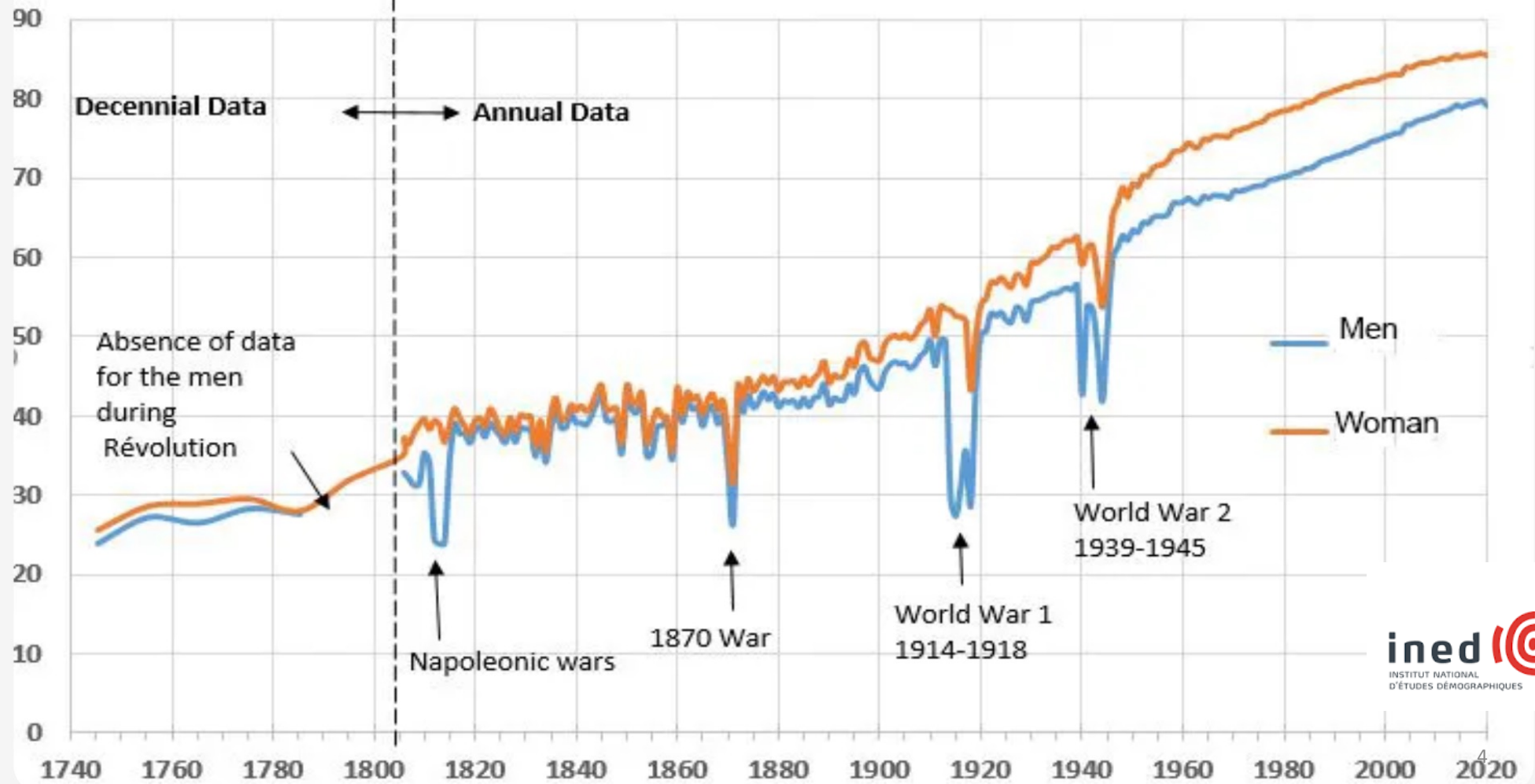
Mortality rate and life expectancy:
Two comparable health outcomes?

- **Mortality rate:**

A mortality rate is the total number of deaths that occur during one year divided by the total population

- Mortality rate is mainly sensitive to the size of each age cohort alive at the beginning of the period

- Mortality rate main reflects the pyramid of age

- If mortality rate is sensitive to the probability of dying at all ages, it is mainly sensitive to the probability of dying at the ages of largest cohorts

Graphique 6 – Répartition du nombre de décès en 2009, par âge et par sexe

année de naissance — Hommes — âge — Femmes — année de naissance

Générations 1914-1918

Générations du baby boom

Health outcomes: possible improvements

- They could be negatively or positively correlated

- The correlation could be reverse depending on the age structure of the population (ageing+++)

- The impact of air pollultion could of the same signs or of opposite signs depending on the age structure of the population

- Having more descriptive statistics on mortality in large and small regions would be useful to interpret the results (mean life expectancy and mean mortality rates)

- Life expectancy at several ages: birth ; 65 +; 75+

- Mortality per age groups (before 10; before 65 ; after 65) could be more relevant and easier to interpret

- Adjustment for the age structure of the population, at least for the proportions of individuals aged 70+, 80+, 90+

- They are not sensitive to the same causes of death since they are not affected in the same way by change in mortality at all ages : why the causes of death are not used in the analysis?

Health outcomes: Other determinants

- Ports may have an influence on employment opportunities
- Inequality in mortality according to average income, but also poverty and income inequality (Chetty et al., 2016 ; Deaton, 2003 among others)
- Adjustment for proportion of poor / unemployment / for income inequality

- Impact of air pollution is larger among the poorest (Suarez-Castillo, 2023): interactions ?

- Income and economics growth seems to have an impact by itself on mortality, independently of healthcare access
- Ports have consequences on urban planning, and hospital facilities may be part of urban planning decision

- Economic cycles may have (had ?) a pro-cyclical impact on mortality (recession reduces pollution, accidents, job strains) (Ruhm, 2000; 2015 among others) : enough business cycle variability?

Many thanks

Do forget tomorrow the PhD defense of

Milena Suarez-Castillo at PSE

"*Air pollution and health: causal approaches and inequalities*"