

# Urban Mortality Penalty: Pollution in Paris 1880-1910

A spatial and temporal investigation into the impact of industrial coal pollution on respiratory deaths

Hot, thick and ultimately toxic air in our cities is an invisible killer and there are increasingly fewer spaces to escape. A recent study finds air pollution contributes to 48,000 premature deaths a year in France where 34,000 of the deaths were avoidable. Our global pollution history is important to understanding the environmental burden on public health in cities over generations. La Belle Époque (1870-1913) in France was a period of fast economic growth; however, this indicator of prosperity in fact came at a cost to public health.

## Methodology

**Part 1:** Identify the years and arrondissements where respiratory-related deaths were highest

**Part 2:** Examine the relationship between respiratory deaths and industrial pollution levels

Primary Source: *Annuaire Statistique de la Ville de Paris* 1880, 1900, and 1910

Primary Source: *Dénombrement de la Population* (occupations)

Secondary: Beach & Hanlon (2017) for industrial coal use

Take cause of death by respiratory disease/arrondissement

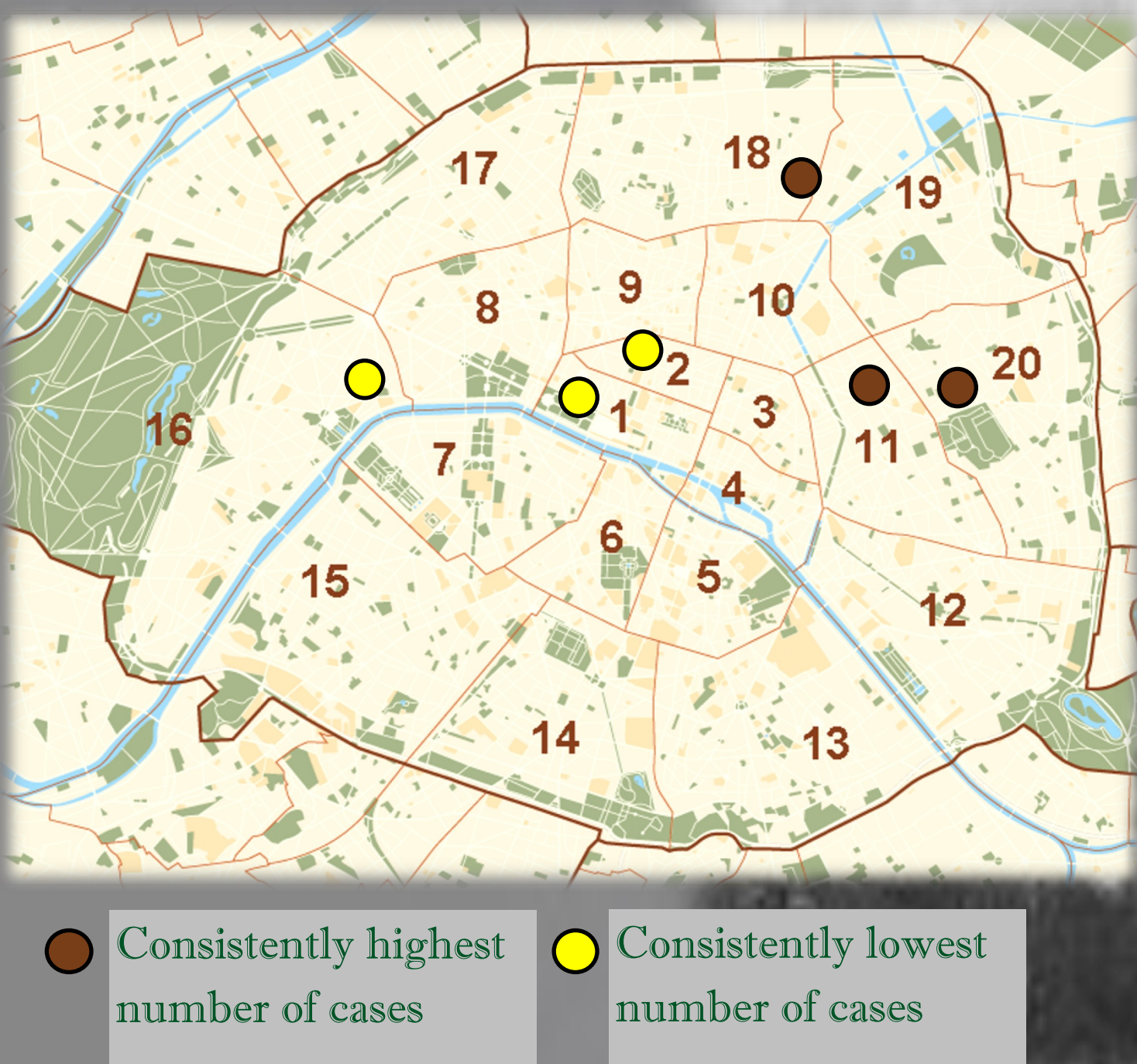
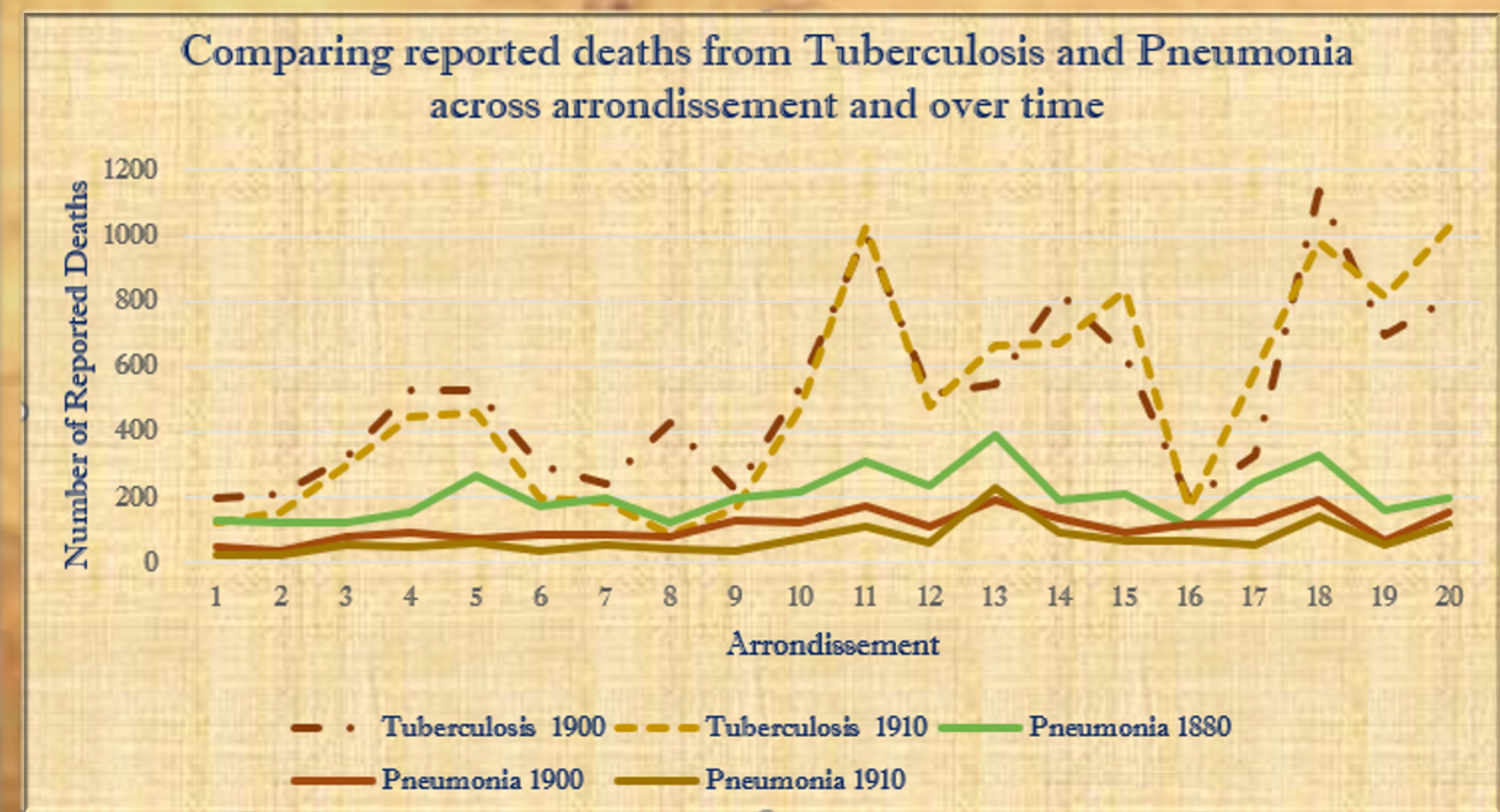
1. Take number of workers in each industry/arrondissement
2. Estimate coal consumption per worker by industry
3. Estimate total coal consumption /arrondissement

## Respiratory-Related Deaths

Year	1880	1900	1910
Average Respiratory-Related Deaths/Total Deaths	18.4%	36.9%	34.5%

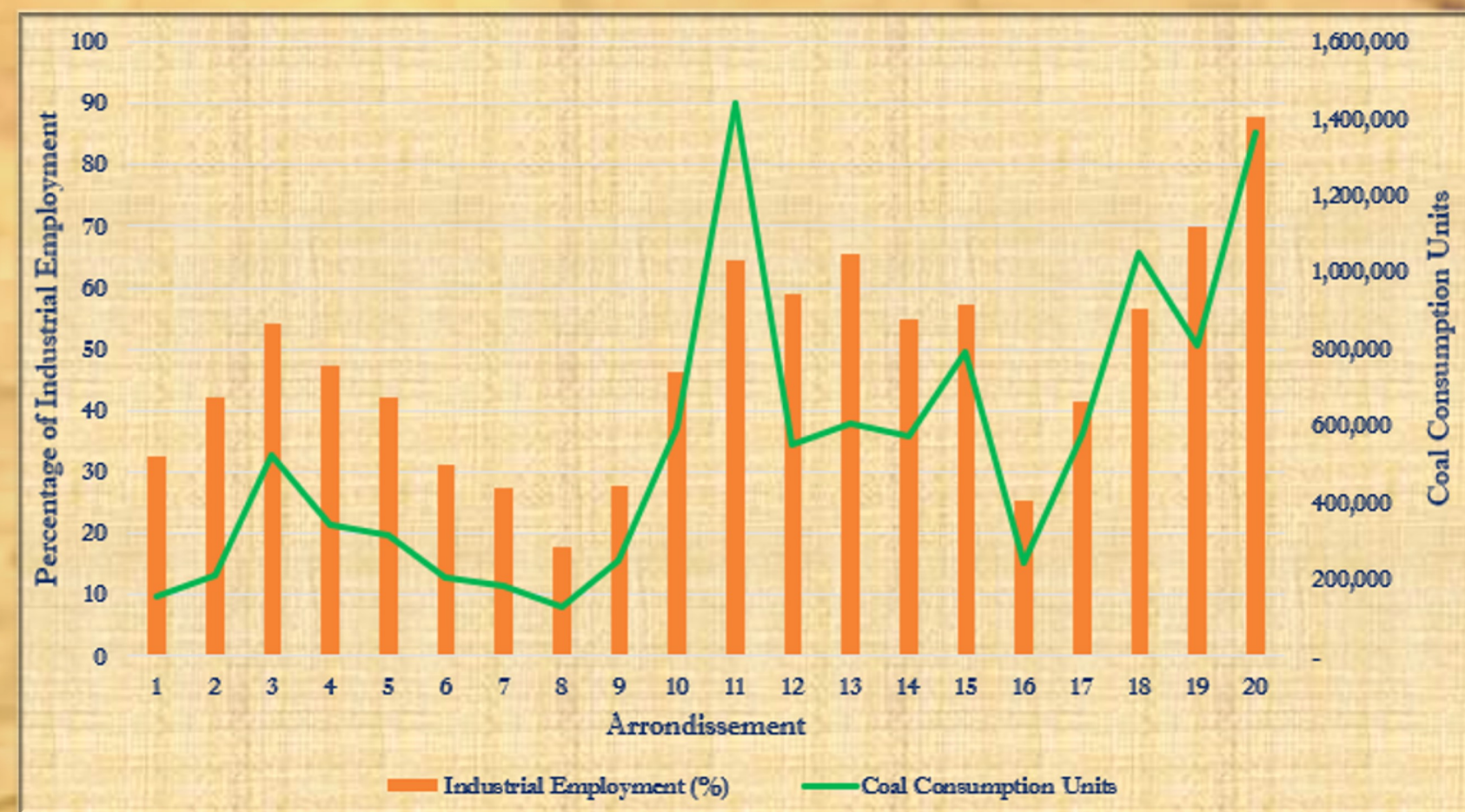
In 1880, pneumonia was the largest contributor to deaths from respiratory-related illnesses, followed by chronic and acute bronchitis.

Tuberculosis became an increasing concern and became the largest proportion of total respiratory-related deaths in 1900 and 1910.



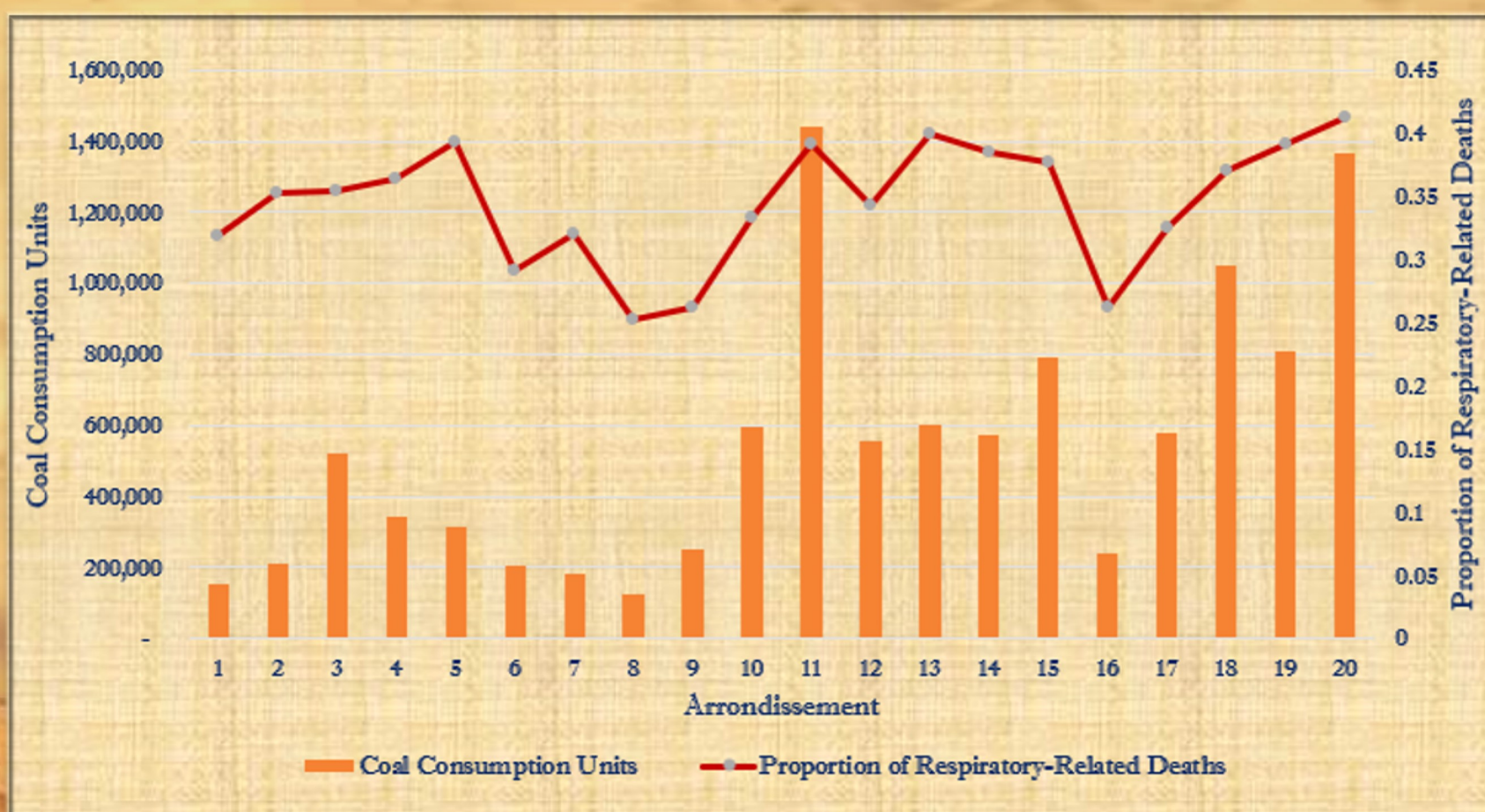
## Industrial Coal Pollution, 1910

As expected coal consumption/emissions is highest in arrondissement with the highest concentration of industrial workers.



## Preliminary Results, 1910

The graph below reveals that the arrondissements with the highest estimated coal consumption (arr. 11, 18, 20) also experienced the largest proportion of respiratory deaths. However this is not always the case, for example, arr. 5. This calls for an analysis of the specific types of respiratory death. Secondary literature also offers other possible explanations.



## Summary

The results show a correlation with respiratory-related deaths, however, this by no means proves causality. Reported respiratory-related deaths doubled between 1880-1900 during a period of rapid economic growth.

## Next Steps

- \*Additional variables such as population density will be included to strengthen the analysis
- \*Contextualise primary results with aid of secondary literature to better understand the industrial landscape and the role of public health policies.
- \***Additional Research:** Deconstruct cause of respiratory deaths by age group to analyse infant mortality. This would allow for a valuable comparison to a similar paper on Industrial Britain.
- \*Integrate data provided on public spaces/gardens provided in the *Annuaire Statistique*.

## Bibliography & Notes:

*Annuaire Statistique de la Ville de Paris* 1880-1911, Imprimerie Nationale  
*Résultats statistiques du dénombrement 1911*, Imprimerie Nationale  
Beach & Hanlon (2017), *Coal Smoke & Mortality in an Early Industrial Economy*, *The Economic Journal*, Vol. 128  
Santé Publique France (2016), *Impacts sanitaires de la pollution de l'air*  
\*All graphs were constructed by inputting raw data from the above.