

# Reducing Health Inequalities – The Role of the Welfare State

National Bureau of Economic Research

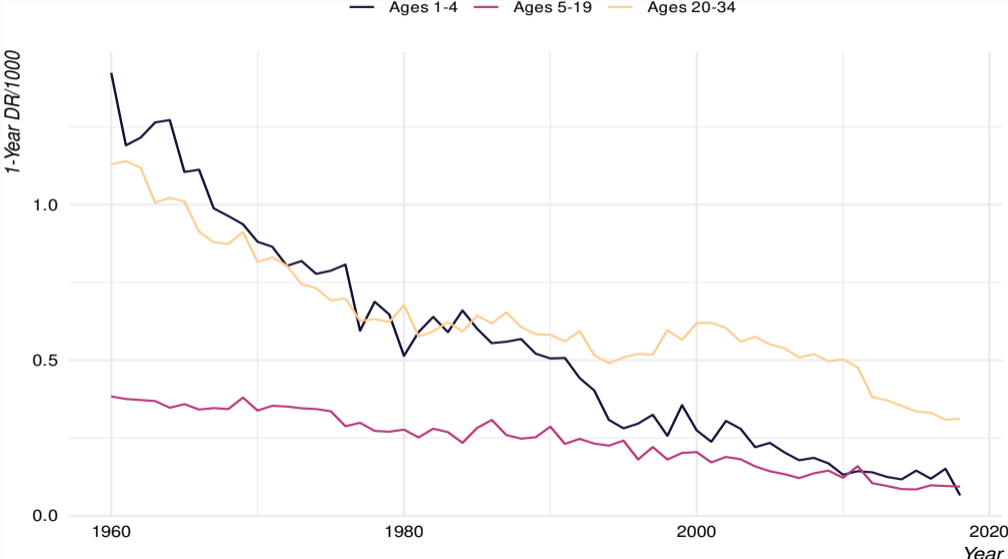
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# Mortality in Norway 1960 - 2018



Age Standardised to 1950, Source: Human Mortality Database

# Inequality in Mortality

- Substantial decreases in early life mortality during the past decades
- Are the gains from this decrease contributing to more or less equality in mortality?
- What are potential roles of public policy?

# The Beginning of the Norwegian Welfare State

- High inequality before 1930
- Local philanthropic institutions built up services later mandated by the government
- Social democratic governments in 1930s mark beginning of the welfare state
- Area of focus after WWII
  - Old age and disability pension
  - Sickness leave
  - Unemployment
  - Public health

# The Norwegian Welfare State Today

## Welfare state with universal character

- Universal health care, with little co-payments accessible to all residents
- No co-payments for children and pre-natal care
- Subsidised and almost universal uptake of childcare
- Free primary to tertiary education

## Low levels of inequality in international comparison

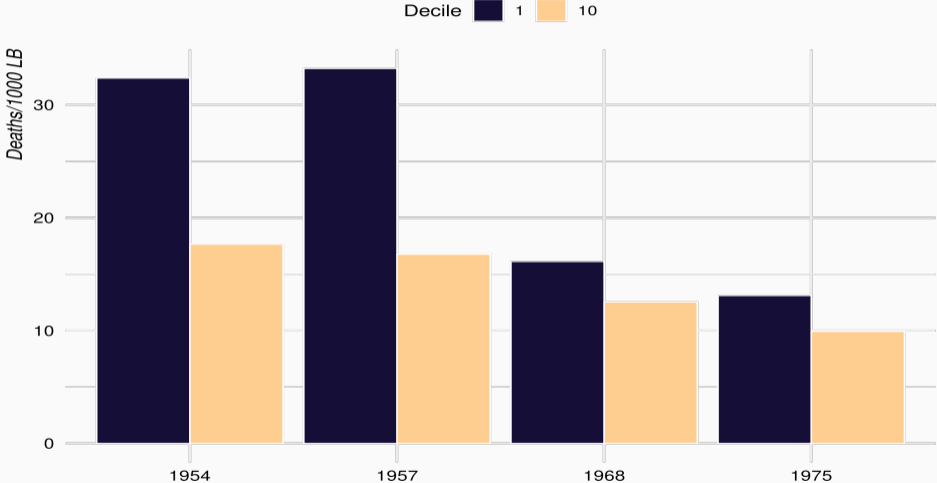
- High levels of gender equality in international comparison (Blau and Kahn, 2017)
- Low levels of income inequality (Aaberge et al., 2020)
- High levels of income mobility (Ahrsjö et al., 2021; Bratberg et al., 2017)
- High levels of taxation financing public goods provision (Kleven, 2014)

- Administrative data registers
  - Population register covering demographic information (since 1967)
  - Cause of death register (1961 - 2018)
  - Income register (1967 - 2018)
  - Census data (1960)
- Linkage of families via personal identifiers
- Infant death before 1961 from historical records

# Municipality and Individual-Level Inequality

- Municipality-level
  - Based on Currie and Schwandt (2016)
  - Municipalities are ranked from richest to poorest and grouped into population ventiles
  - Mortality rates are age-standardised
- Individual-level
  - Children are ranked based on parental life-time income (income between ages 35 - 37) and grouped into deciles
  - Mortality rates as deaths per 1,000 in income decile

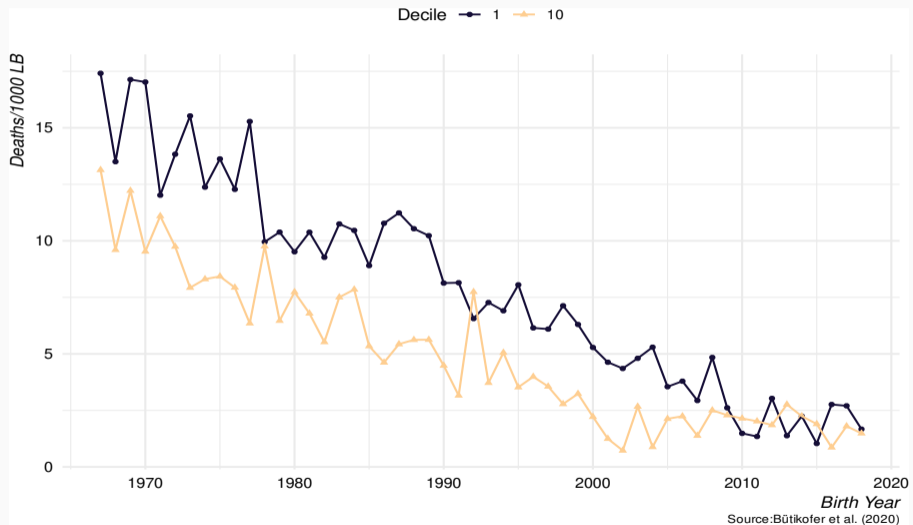
# Municipality-Level Inequality in Infant Mortality



Source: Bütikofer et al. (2020)



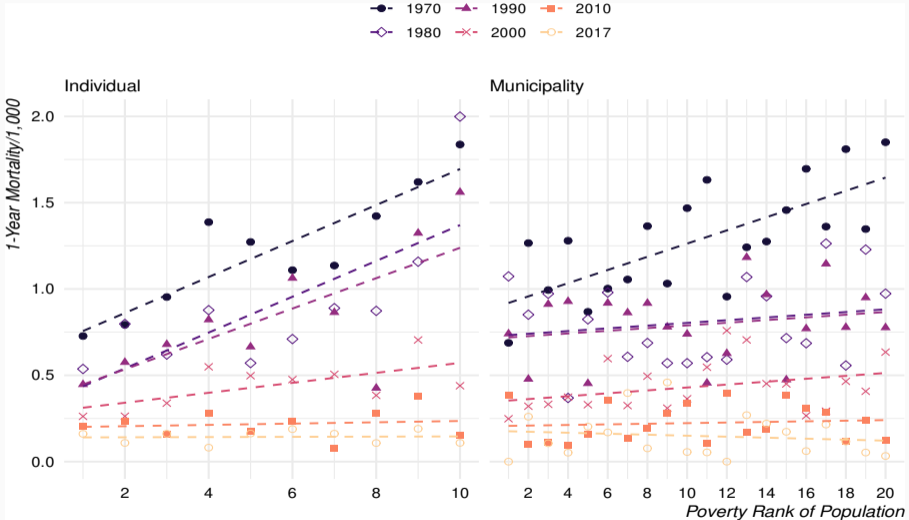
# Individual-Level Inequality in Infant Mortality



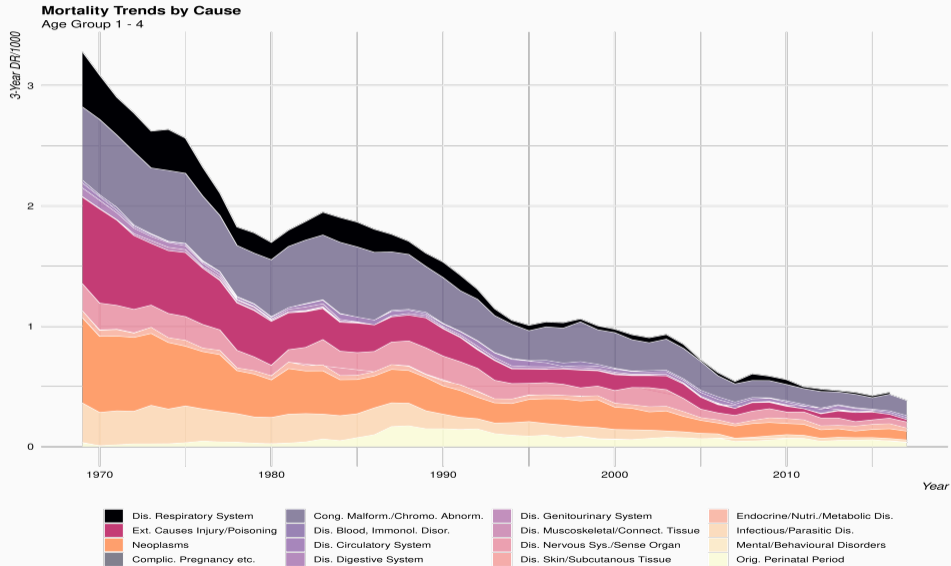
## Summary: Infant Mortality

- Convergence in infant mortality rates across poorer and richer municipalities by 1960s
- Expansion of health care access, disease prevention and primary education to rural areas
  - Infant health care centres (Bütikofer et al., 2019)
  - Tuberculosis testing/vaccination (Bütikofer and Salvanes, 2020)
- Individual-level inequalities in infant mortality persisted significantly longer
  - Take-up of new health-related information faster among richer families

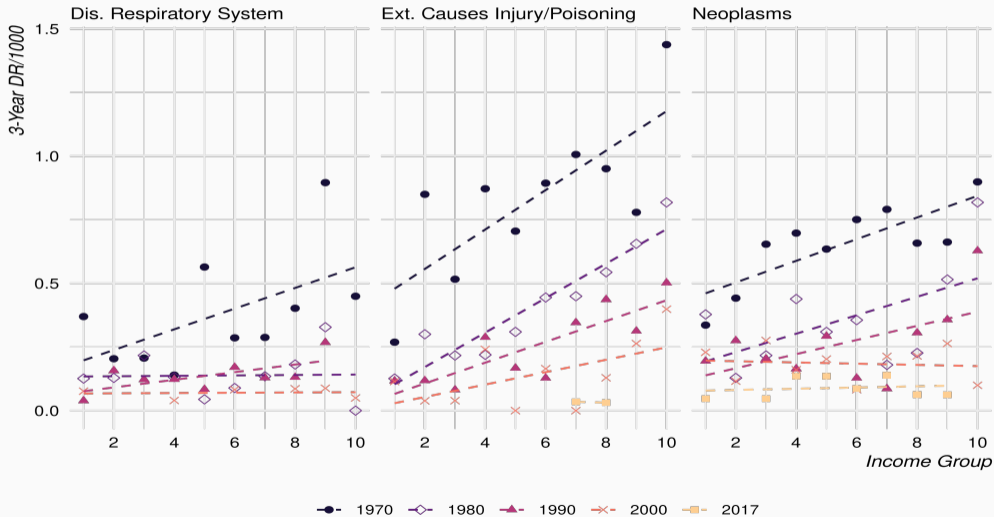
# Individual vs. Municipality-Level: Males Ages 1 - 4



# Decrease in Mortality Ages 1 - 4



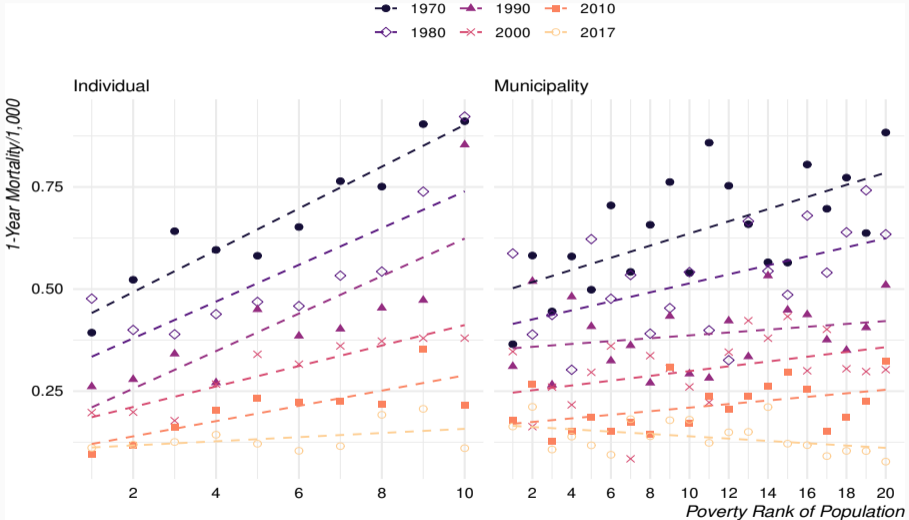
# Inequality in Mortality: Neoplasms, Injuries & Respiratory Dis. Ages 1 - 4



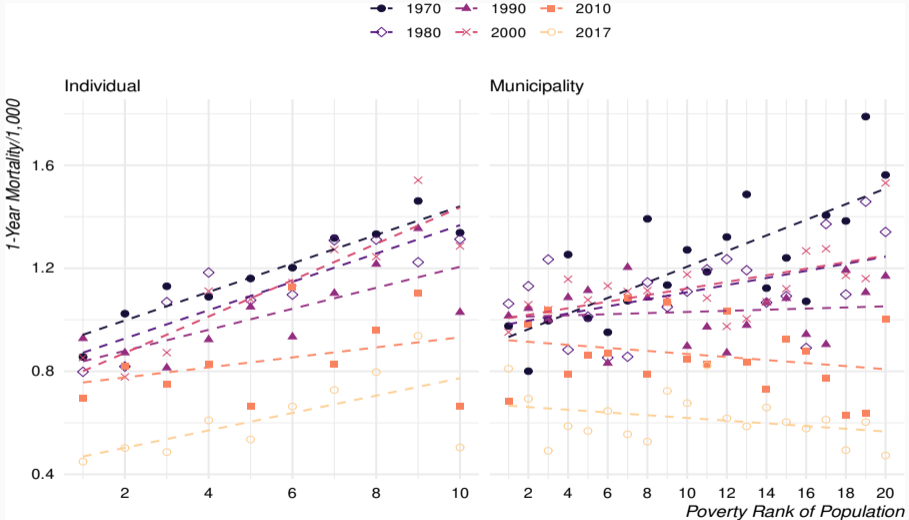
# Inequality in Mortality: Neoplasms, Injuries & Respiratory Dis. Ages 1 - 4

- Respiratory Diseases
  - Very large decline in mortality from respiratory diseases (pneumonia, CF, asthma, bronchiolitis)
- Injuries
  - Large focus of information campaigns at health care centres
  - Increasing number of children in formal childcare and stronger protection through child welfare services
- Neoplasms
  - Inequalities in early detection of cancer and relapse
  - Child cancer centres in all health regions
  - Family flats and home care for children with cancer (since late 1990s)

# Individual vs. Municipality-Level: Males Ages 5 - 19

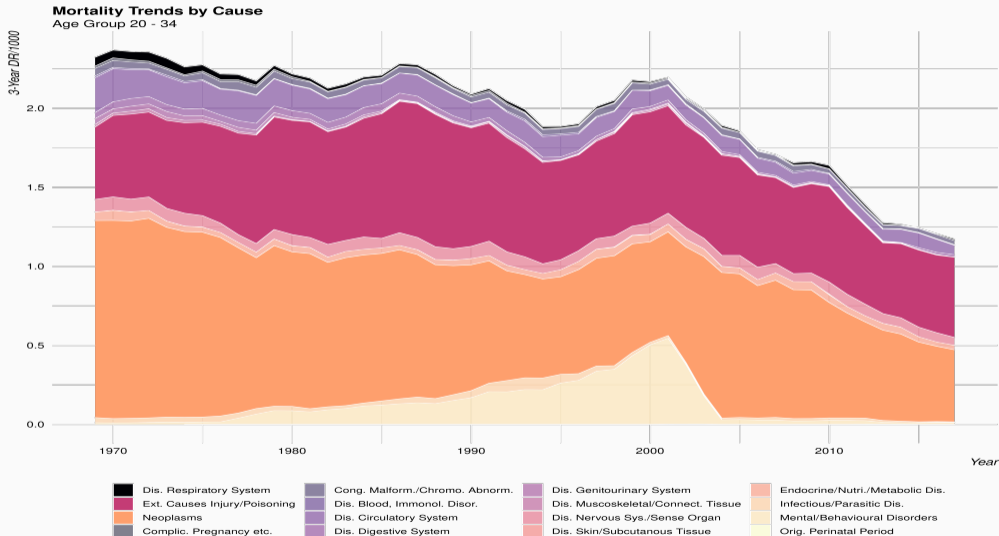


# Individual vs. Municipality-Level: Males Ages 20 - 34

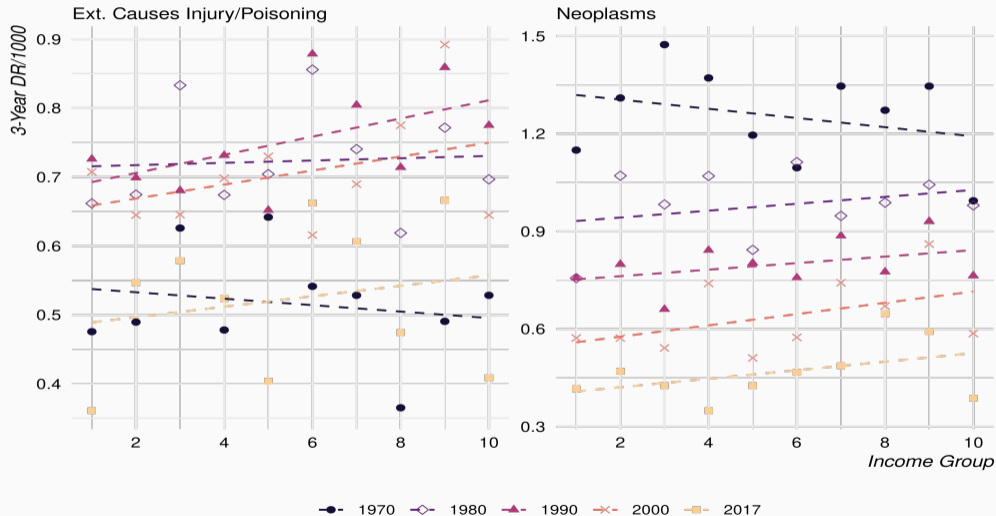




# Decreases in Mortality Ages 20 - 34



# Inequality in Mortality: Neoplasms & Injuries Ages 20 - 34



# Conclusion

- Inequality in mortality persists longer on individual- than on municipality-level
- Convergence on individual-level for younger age groups
- Older age mortality gradients do not disappear
- Mortality gradients for women are smaller, but non-negligible
- Substantial decrease in inequality in death from cancer and injuries for younger ages
- Convergence in a time with increasing income inequality but also increase in public provision of health care and social services

## References i

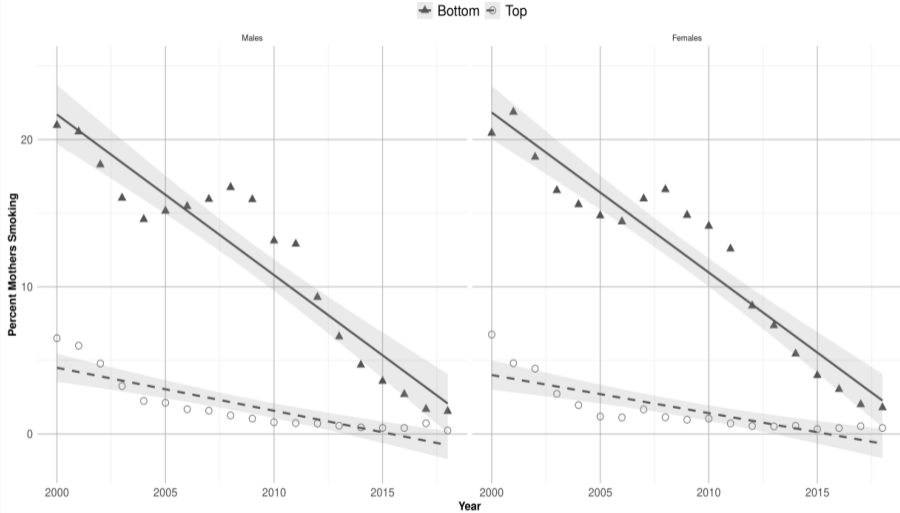
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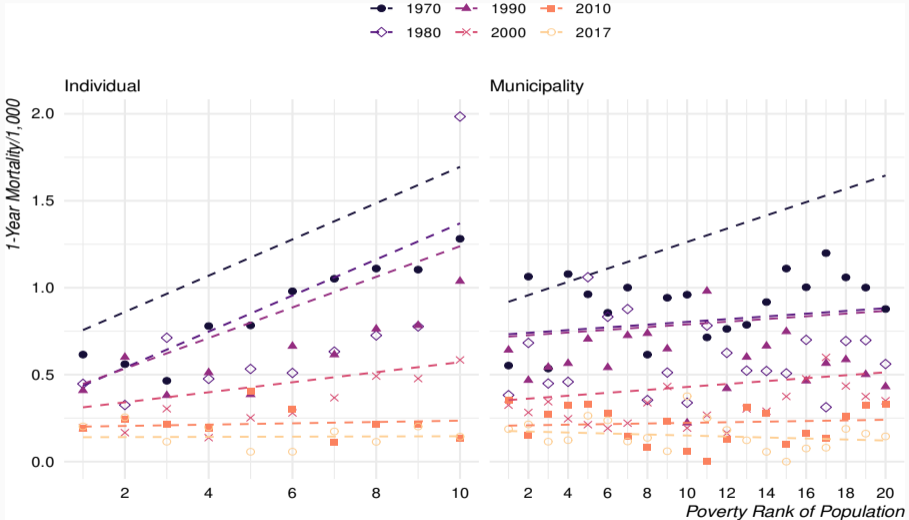
## Appendix: Mortality Gradients - OLS Coefficients

Year	Statistic	Individual Level						Municipality Level					
		Females			Males			Females			Males		
		Age 1-4	Age 5-19	Age 20-34	Age 1-4	Age 5-19	Age 20-34	Age 1-4	Age 5-19	Age 20-34	Age 1-4	Age 5-19	Age 20-34
1970	Estimate	0.0851	0.0123	0.0373	0.1043	0.0554	0.0512	0.0126	0.0026	0.0070	0.0382	0.0303	0.0149
1970	Std. Error	0.0114	0.0092	0.0125	0.0133	0.0102	0.0058	0.0078	0.0039	0.0040	0.0091	0.0066	0.0040
1980	Estimate	0.1061	0.0307	0.0165	0.1037	0.0550	0.0450	-0.0018	-0.0045	0.0051	0.0079	0.0138	0.0110
1980	Std. Error	0.0589	0.0073	0.0062	0.0463	0.0105	0.0163	0.0075	0.0038	0.0020	0.0110	0.0065	0.0042
1990	Estimate	0.0572	0.0247	0.0275	0.0880	0.0408	0.0459	-0.0035	-0.0027	-0.0025	0.0078	0.0022	0.0035
1990	Std. Error	0.0153	0.0148	0.0069	0.0318	0.0169	0.0171	0.0038	0.0026	0.0020	0.0073	0.0038	0.0035
2000	Estimate	0.0445	0.0245	0.0180	0.0289	0.0706	0.0251	0.0091	0.0080	0.0015	0.0084	0.0128	0.0059
2000	Std. Error	0.0075	0.0052	0.0030	0.0140	0.0149	0.0032	0.0035	0.0026	0.0019	0.0046	0.0051	0.0030
2010	Estimate	-0.0066	0.0269	0.0142	0.0038	0.0195	0.0187	-0.0014	0.0069	0.0027	0.0018	-0.0059	0.0044
2010	Std. Error	0.0062	0.0142	0.0026	0.0101	0.0212	0.0068	0.0042	0.0028	0.0012	0.0047	0.0065	0.0023
2017	Estimate	-0.0059	0.0141	0.0024	0.0006	0.0338	0.0051	-0.0042	-0.0034	-0.0021	-0.0029	-0.0053	-0.0028
2017	Std. Error	0.0062	0.0089	0.0022	0.0044	0.0210	0.0045	0.0022	0.0018	0.0014	0.0043	0.0038	0.0014

# Appendix: Maternal Smoking Behaviour

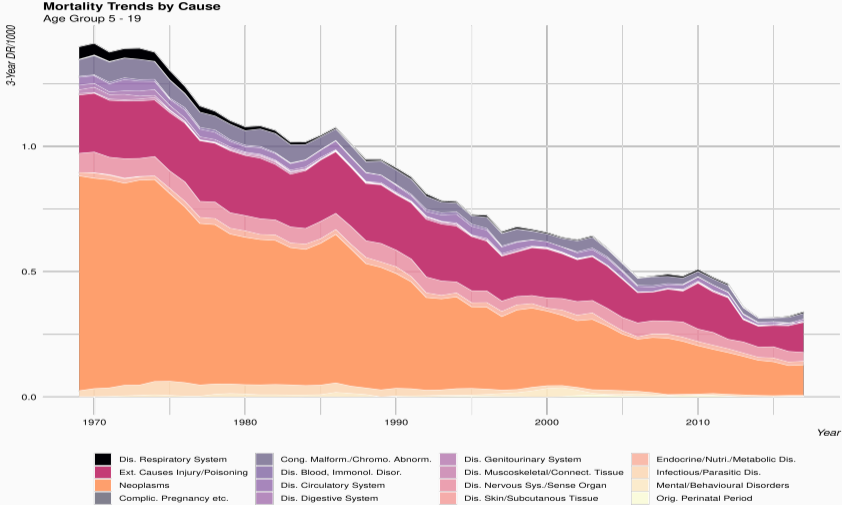


# Appendix: Females Ages 1 - 4





# Appendix: Trends by Cause: Ages 5 - 19



# Appendix: Inequality in Mortality, Neoplasms and Injuries Ages 5-19

