

# Family structure and childhood well-being in the early twentieth century United States

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## Introduction and objectives

Connections between children's nutrition, childhood growth, and later socio-economic and health outcomes have been recognized since the nineteenth century. However, the social correlates and long-term consequences of impaired growth are not well measured in the past.

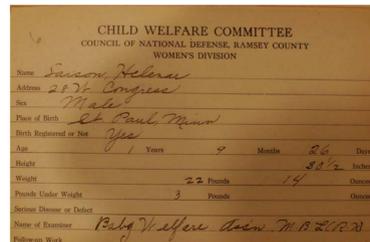
We link microdata from a 1918 childhood health survey to socioeconomic data from the 1920 census.

### Research Objectives:

1. Measure the distribution of childhood height and weight
2. Estimate the effects of family size, birth order and social class on childhood height and weight

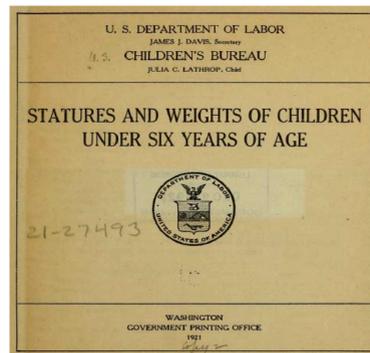
## Unique historical microdata

**Health data:** Archival microdata from a 1918 survey of 14,000 children aged 0-6 in Saint Paul, MN. Collected as part of federal "Children's Year" campaign



linked to

**Demographic & socio-economic data:** Complete microdata from the 1920 federal census



**72% of children linked.**

## Measures and methods

Children's height and weight change rapidly, and population norms change over time. We compare height and weight at different ages by normalizing to age specific Z-scores from current World Health Organization growth norms.

### Dependent variables

Height-for-age Z score  
Weight-for-age Z score

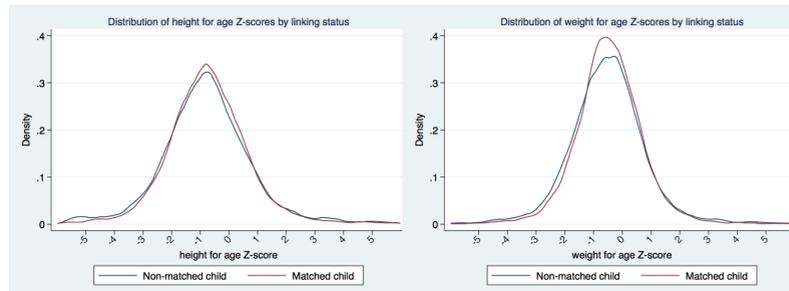
### Independent variables

Birth order  
Home ownership  
Household head's Occupation & Ethnic background

Family size  
Gender

We measure the effect of family structure and economic resources on children's height and weight using family fixed effects regressions.

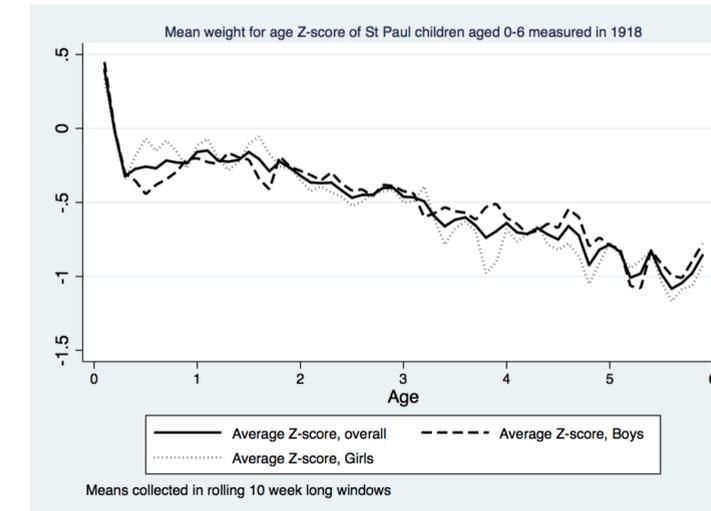
## Linked sample was representative



Children in the linked sample had similar height- and weight-for-age Z scores as unlinked children, and matched national Children's Bureau growth norms.

The ethnic and occupational profile of the households was similar to the population of Saint Paul.

## Growth faltering for boys and girls



Height- and weight-for-age means fell with age, similar to developing countries today.

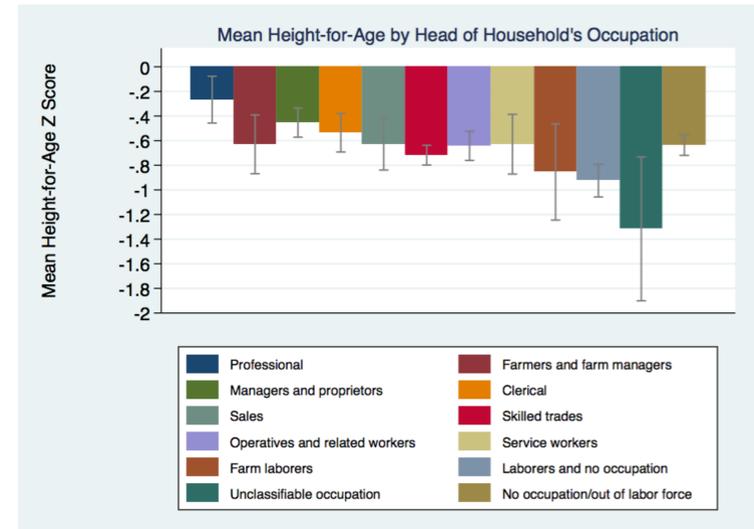
Boys' and girls' growth profiles were similar, suggesting no systematic gender discrimination.

## Birth order affected height and weight

Sibling order	N	Mean age	Mean Height for Age Z-Score	Mean Weight for Age Z-Score
One	3,280	2.883	-0.641	-0.474
Two	2,224	2.773	-0.691	-0.454
Three	1,354	2.801	-0.756	-0.505
Four	824	2.735	-0.782	-0.536
Five	465	2.895	-0.964	-0.585
Six +	765	2.834	-0.925	-0.595
Total	8,912	2.826	-0.725	-0.496

Children with a lower birth order and children from smaller families were taller. Each additional birth order was 0.03 – 0.06 standard deviations shorter.

## Social class had large effects on height



Social class effects on height-for-age scores were substantial. Professionals' children were more than half a standard deviation taller than laborers' children.

## Conclusions

Using a dataset representative of children in urban America in the early twentieth century we provide the first evidence on the social correlates of childhood growth. We find:

1. No evidence of gender discrimination in nutrition
2. Strong evidence that children in larger families and later-born children were shorter
3. Large social class differentials that compounded the effects of family structure