# Explaining Socioeconomic Inequalities in Child Vaccination in Ethiopia: Analysis of National Health Surveys

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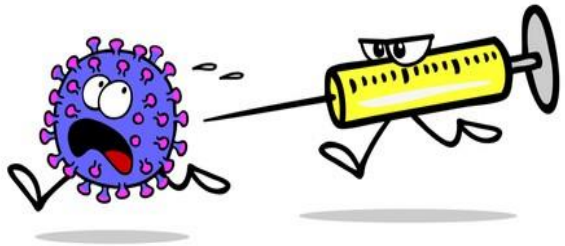


# Introduction

- Monitoring and addressing unnecessary and avoidable differences in child vaccination is a critical global concern.

  - The objective of this study was to ***examine trends and socioeconomic inequalities in childhood vaccination***.

  - Moreover, we present ***factors that explain socioeconomic inequalities in childhood vaccination*** in the country using a decomposition approach.

# Method

## Outcome

Binary variable indicating whether a child received ***all basic vaccinations that include eight recommended basic vaccines***.

Table 1 Basic vaccination schedule for children under 12 months in Ethiopia

| Vaccine | Diseases | Age |
|---|---|---|
| BCG | Tuberculosis | At birth |
| DPT | Diphteria, Pertussis, Tetanus | 6, 10, 14 weeks |
| OPV | Polio | At birth, 6, 10, 14 weeks |
| Measles | Measles | 9 months |

# Methods

**Data source** ***Demographic and health survey (DHS)***

- A ***nationally representative*** survey conducted every five years in over 90 countries.
- ***Standardised questionnaires*** are used across time and countries to ensure collected data are comparable.
- Sampling – ***a stratified, two-stage random sampling design*** in all surveys
- ***Children aged 12 to 23 months*** at the time of the survey were included in this analysis.
- Final sample for this analysis *1930 mother-child pairs in 2011*, and *2004 mother-child pairs in 2016*.

# Methods…

## Statistical analysis

- ***Concentration curve and concentration index*** were used to examine socioeconomic inequalities in vaccination coverage

## Decomposing inequality

- The concentration curve and concentration index can only show and quantify the level of inequalities related to wealth in the use of health services.
- However, policymakers are also ***interested in the factors that contribute to socioeconomic inequalities in vaccination coverage***.
- This can be done using an approach forwarded by Wagstaff and colleagues.

# Results and discussion

## Vaccination coverage in Ethiopia

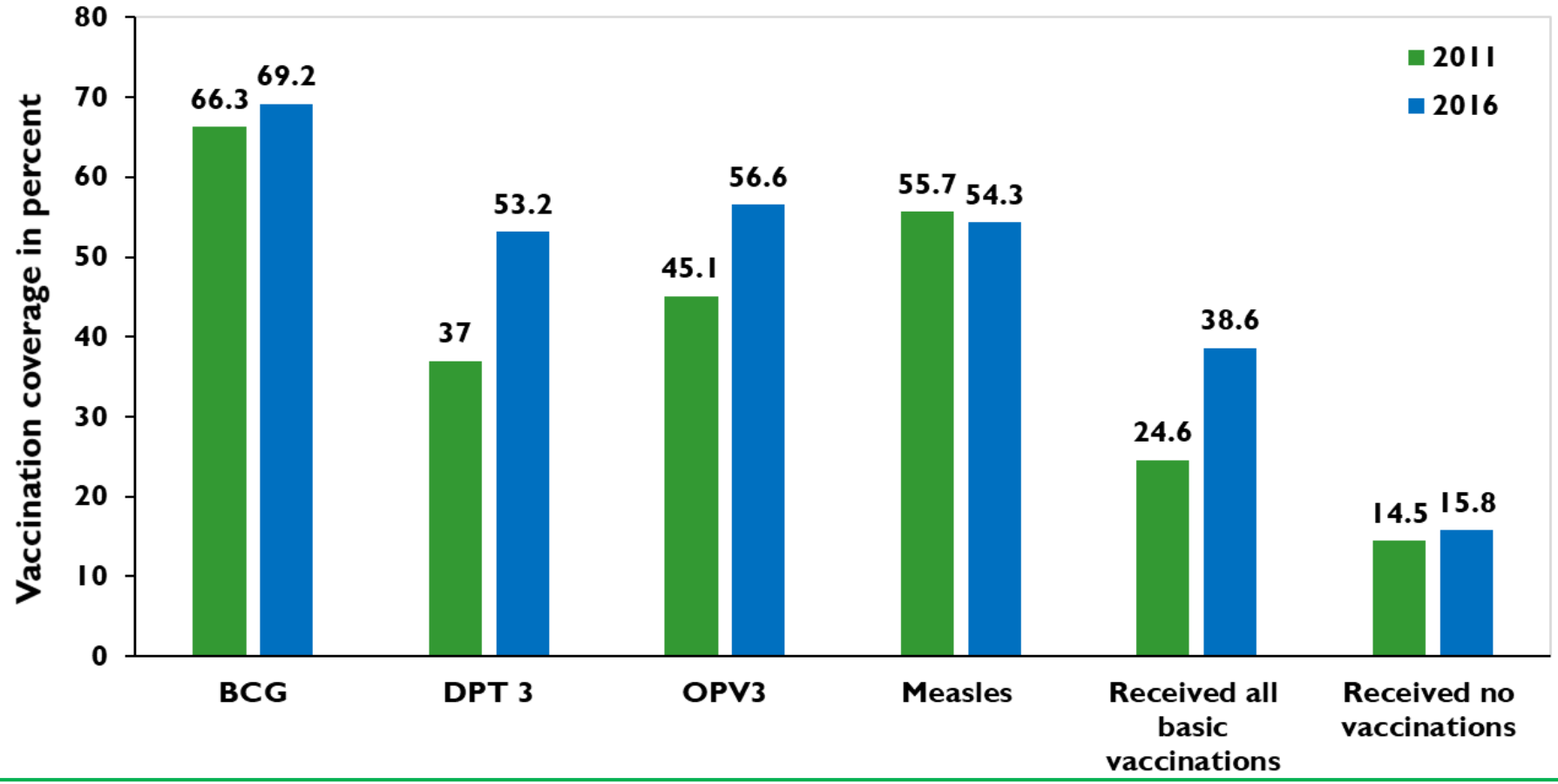



Fig. 1 Vaccination coverage among children aged 12-23 months in Ethiopia (DHS 2011, 2016).

# Results and discussion

## Inequalities in vaccination coverage

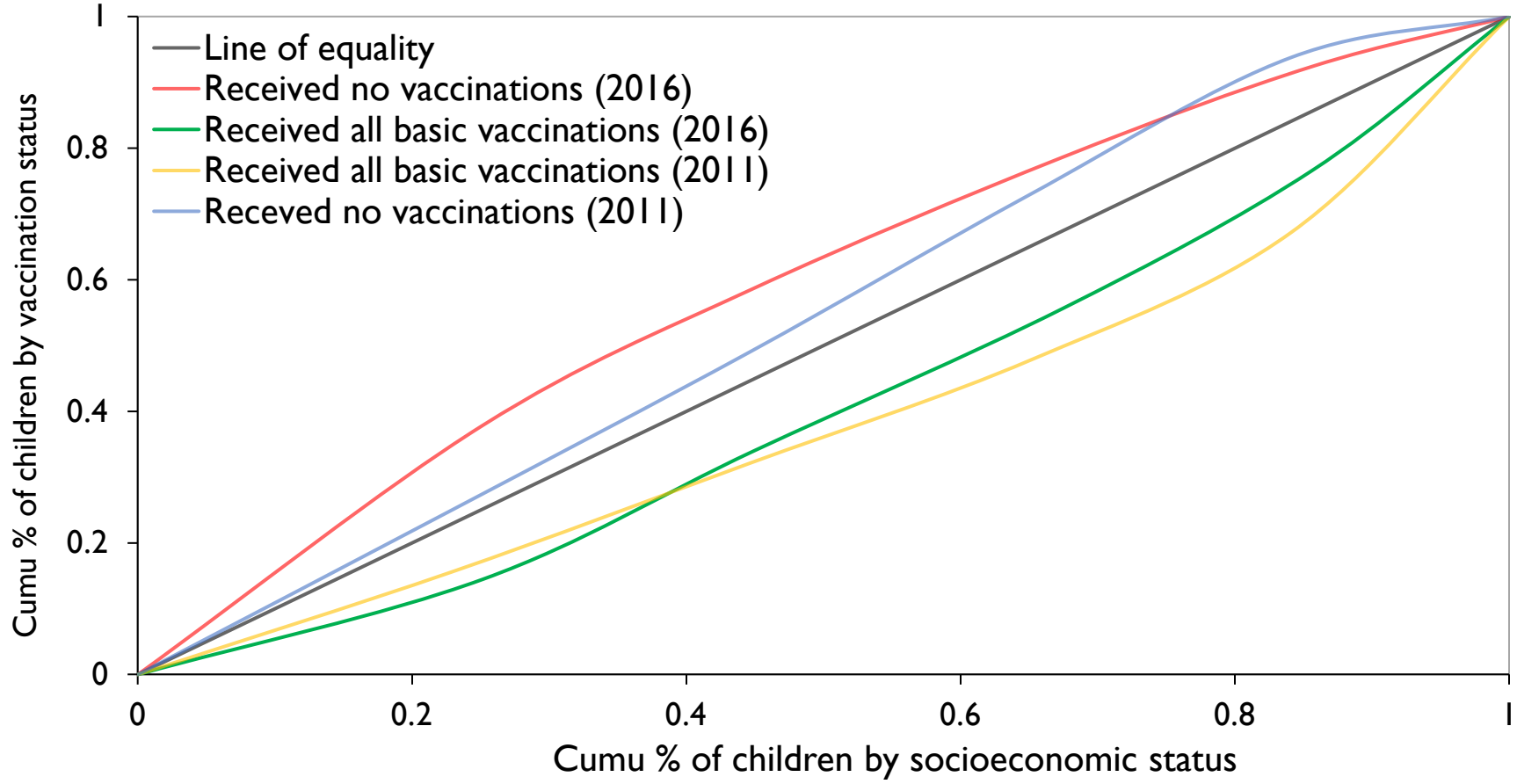
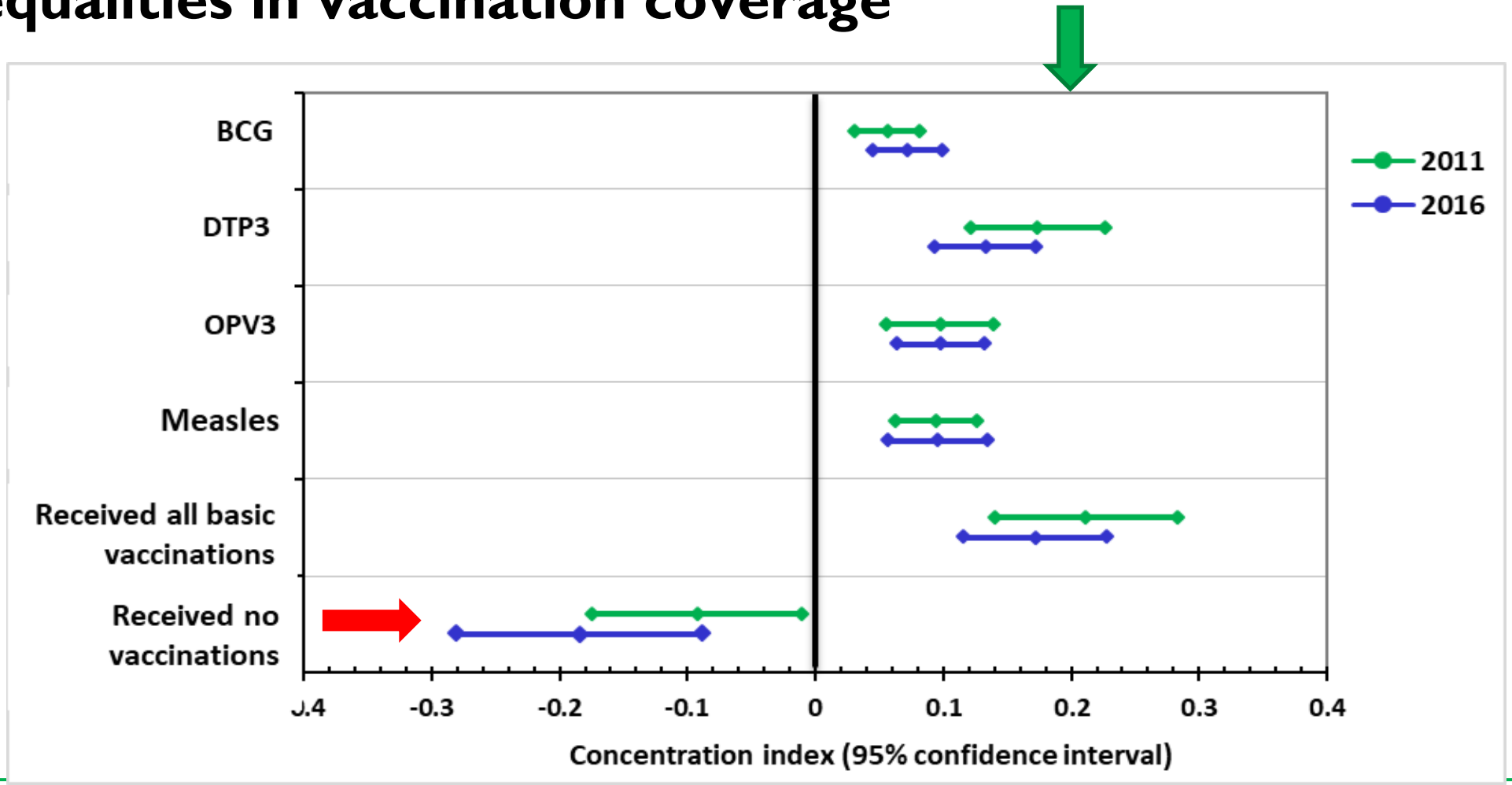



Fig. 2 Concentration curves for child vaccination status, Ethiopia (DHS 2011, 2016)

# Results and discussion

## Inequalities in vaccination coverage

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# Results and discussion…

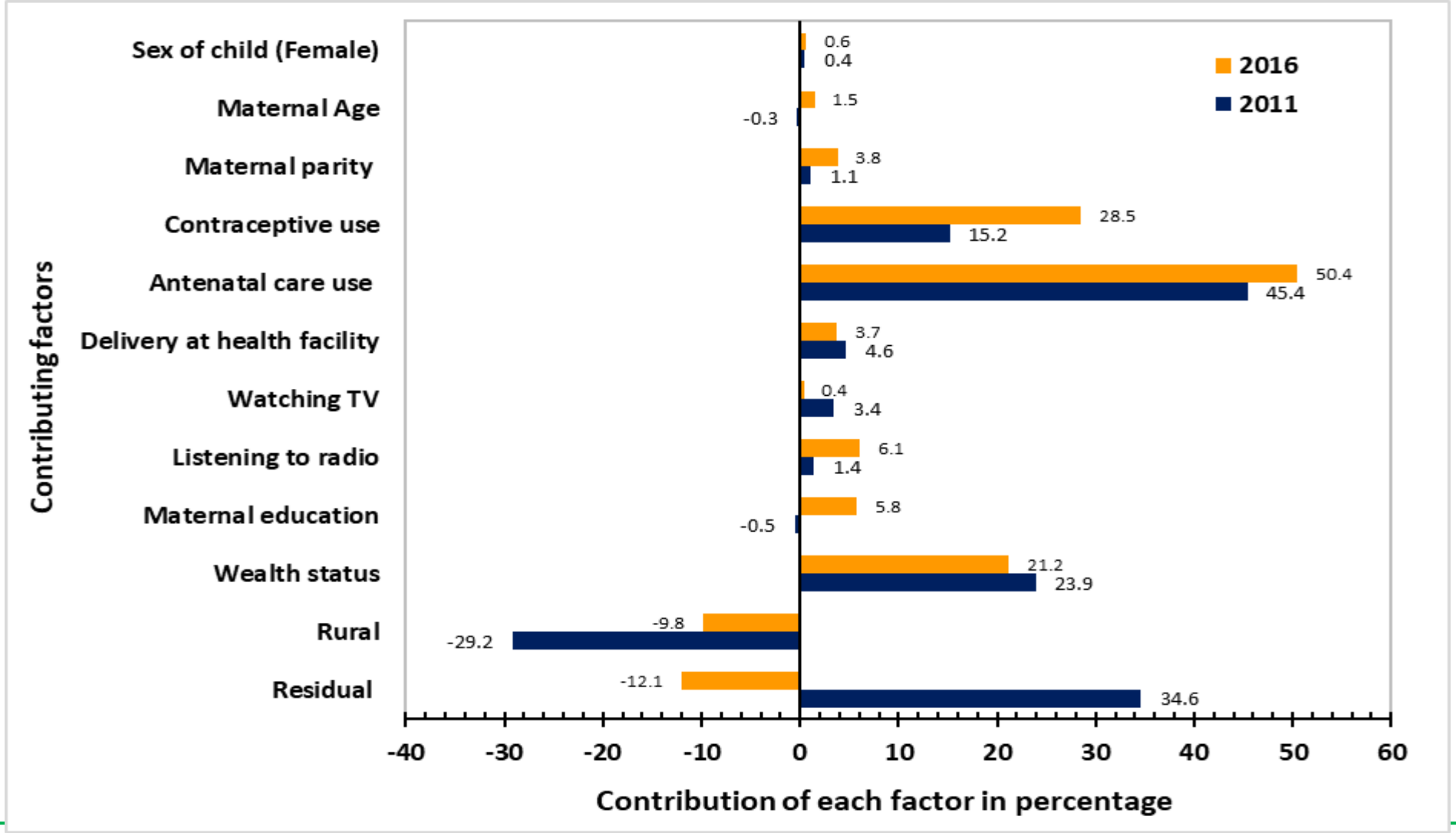


Fig. 4 Percentage contributions of factors explaining socioeconomic inequalities in full vaccination coverage, Ethiopia

# Results and discussion…

- Ethiopia remains ***one of the top ten high priority*** countries in the world where ***children remain unvaccinated***.

- Possible explanations for under vaccination or no vaccination may include
  - vaccine hesitancy or refusal,
  - lack of access to vaccination services
  - missed opportunities

(Porth et al., 2019)

# Recommendations and conclusion

- The coverage of full vaccination improved from 2011 to 2016, ***but the overall coverage remains low.***
- Increased vaccine coverage was ***disproportionately concentrated among children from wealthy households***, while the majority of children who had no vaccination were from disadvantaged households.
- Continued efforts at improving coverage of maternal health services, maternal education, and socioeconomic well-being are required to improve vaccination rates in Ethiopia.
- Moreover, regions such as Afar, Somali, and rural areas of the country at large require targeting.

# Thanks!