

# A Tale of Three Interventions: Cautionary Accounts in the Use of Health Equity Measures in Population Health Intervention Research

Nathan Nickel, Marni Brownell, Dan Chateau, Alan Katz, Elaine Burland, Lorena Vehling

Manitoba Centre for Health Policy, Department of Community Health Sciences, College of Medicine, Faculty of Health Sciences, University of Manitoba, Winnipeg, Canada

## BACKGROUND

### Introduction

- Reducing health inequities is a priority for many government and non-governmental agencies.
- Common measures in epidemiology – such as the Rate Ratio, Risk Ratio, Rate Difference, and Risk Difference – are being used to track progress vis-à-vis reducing health inequities.
- As well, many equity measures developed in other fields are being applied in epidemiology and population health to monitor trends in health equity.
- Each equity measure can illuminate a different and worthwhile aspect of health equity.

### Context

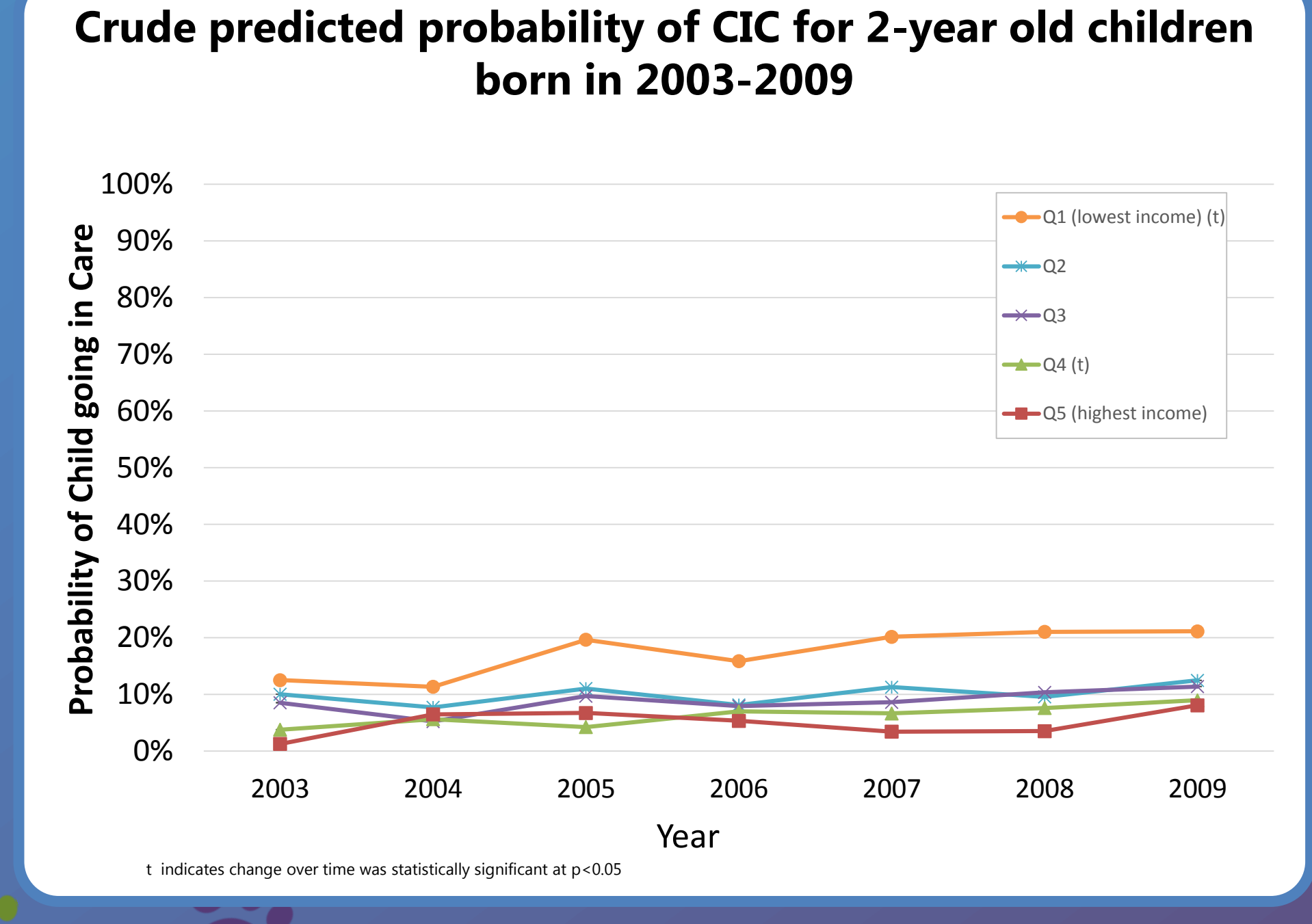
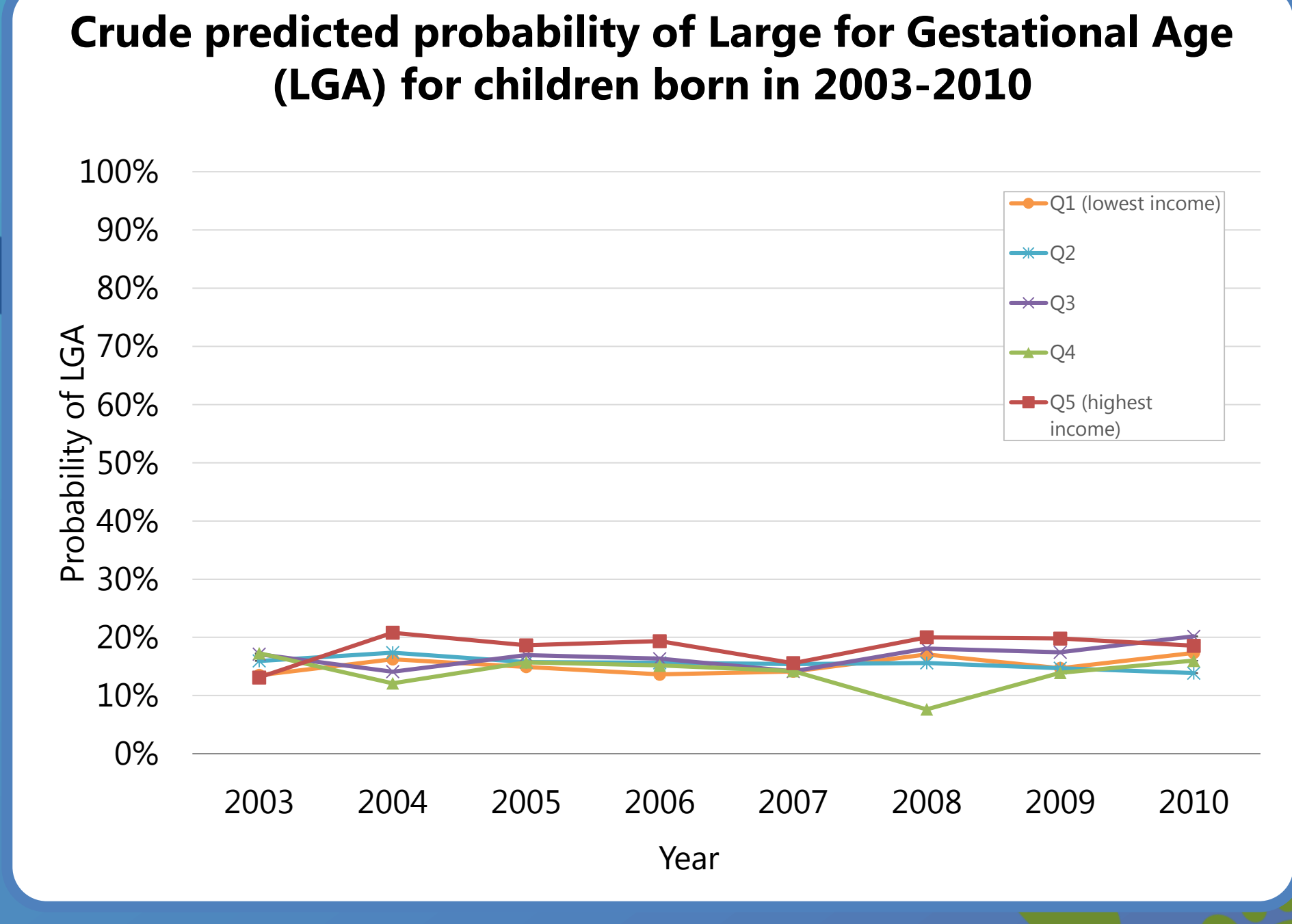
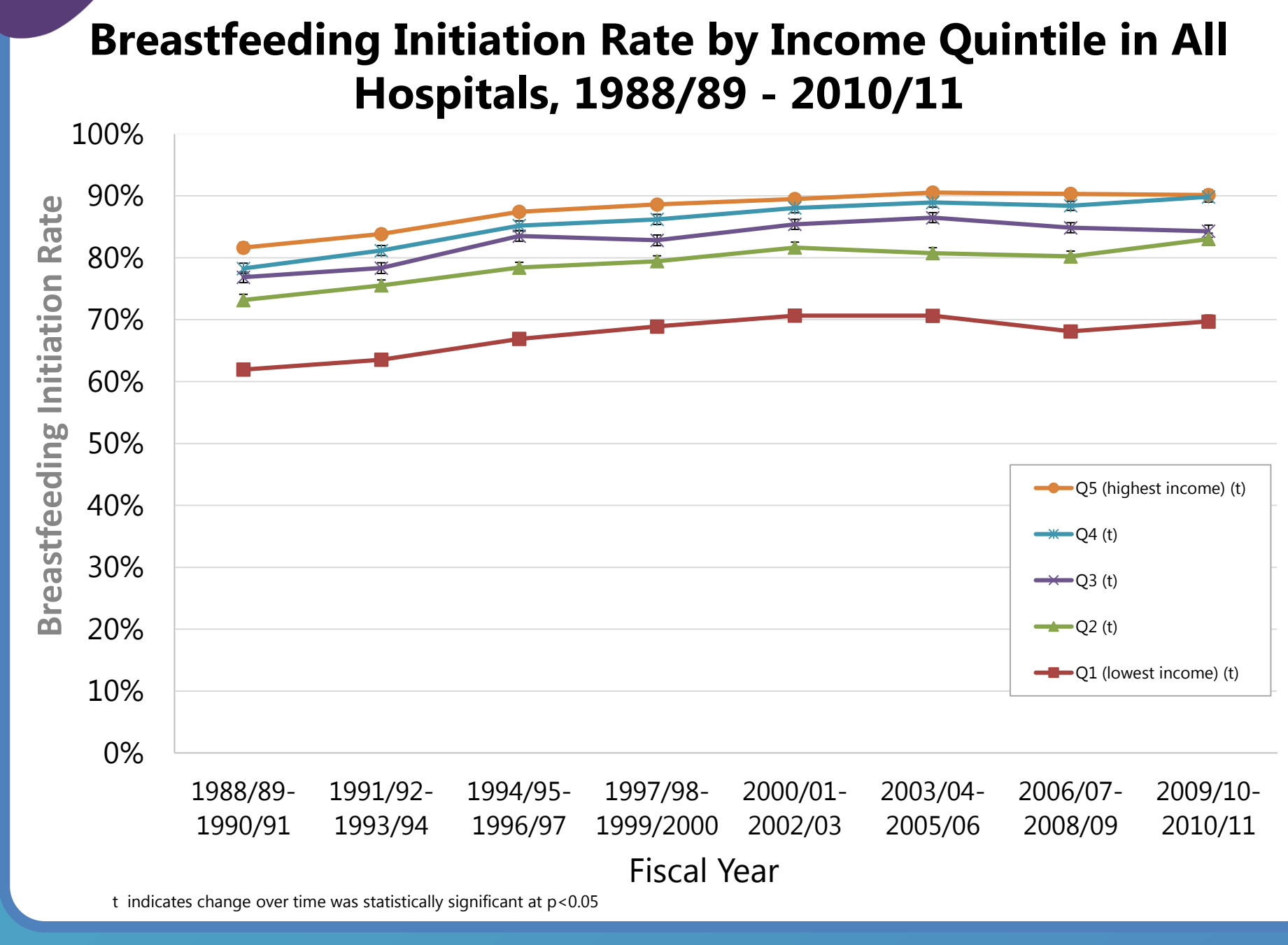
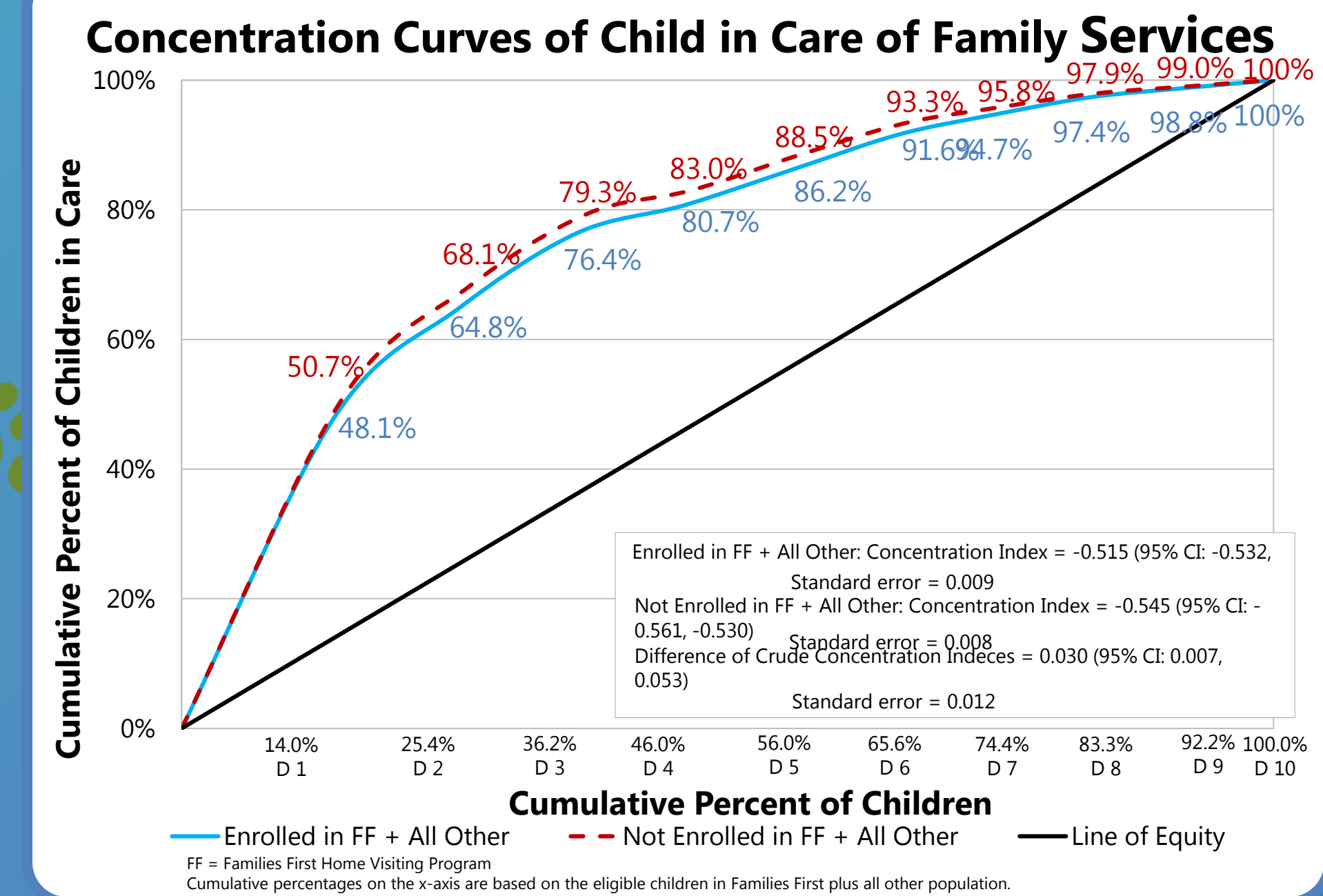
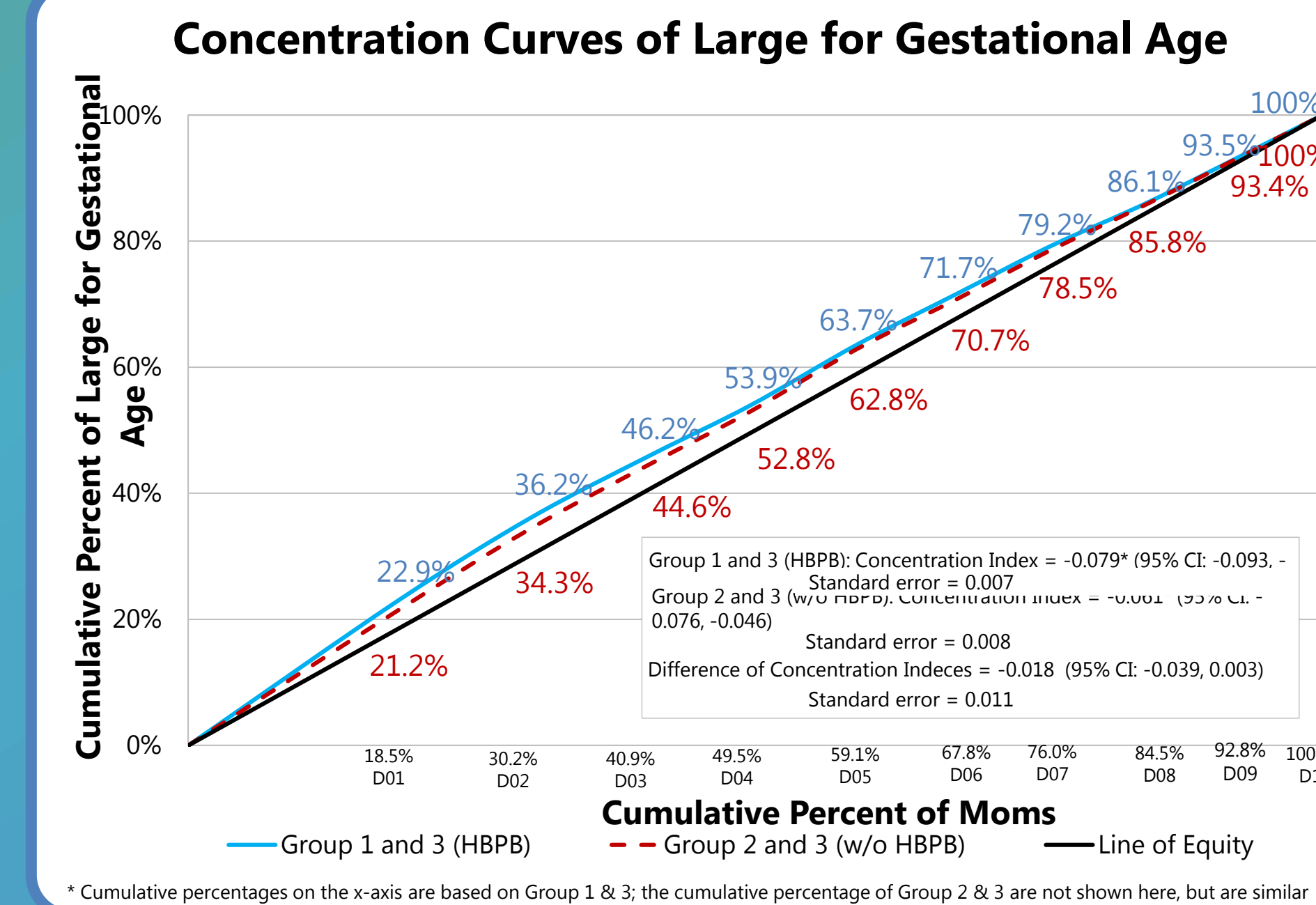
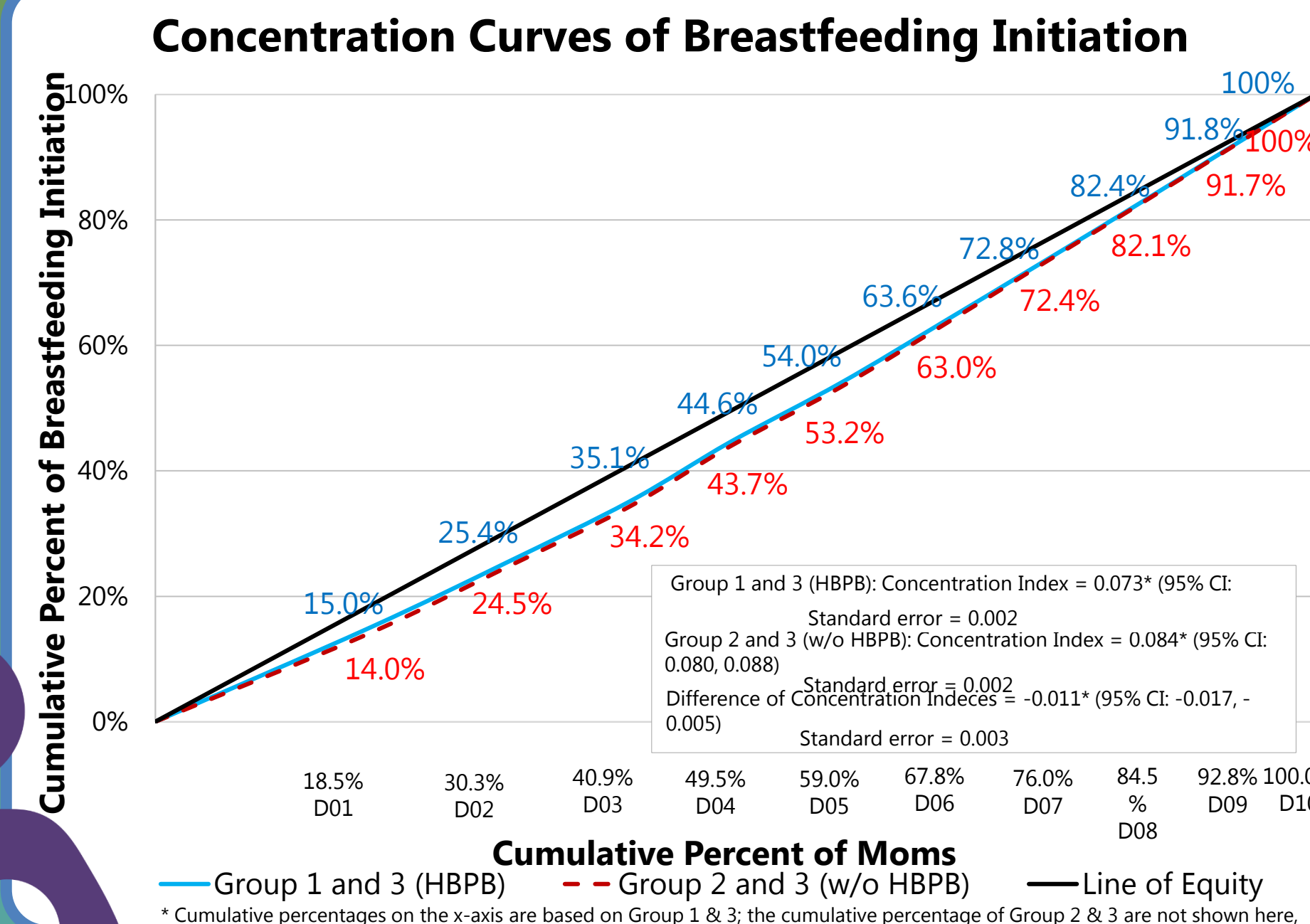
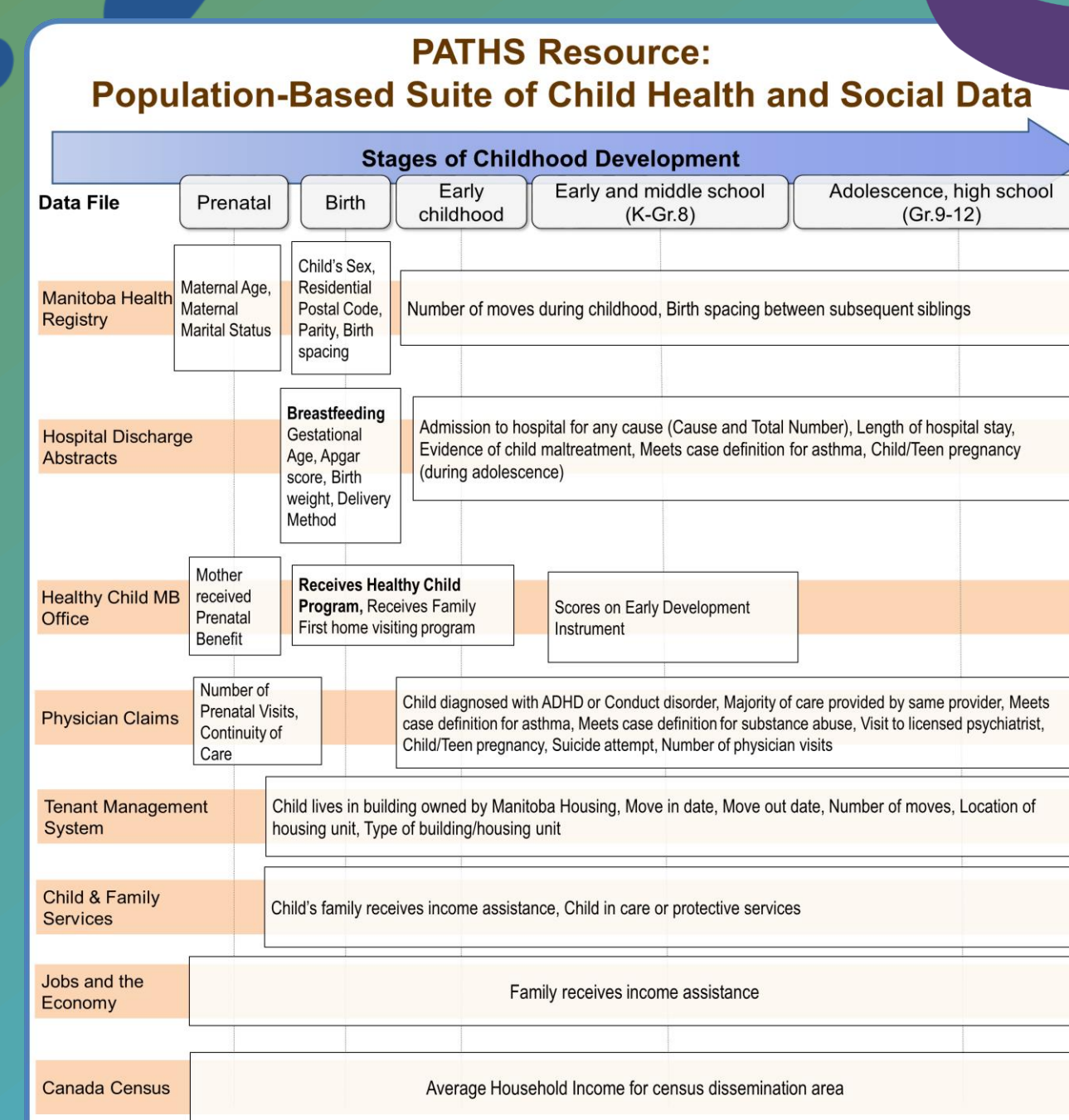
- Pathways to Health and Social Equity for Children (PATHS)** is a research program focused on identifying programs that both improve child health and well-being and reduce inequities.
- PATHS** researchers are currently evaluating a variety of Manitoba-based interventions.
- This poster focused on equity measures used for evaluating three of these interventions:
  - Baby Friendly Hospital Initiative
  - Healthy Baby Prenatal Benefit
  - Families First Home Visiting Program

### Objective

The objective of this poster is to illustrate the use of these measures in health equity research.

## APPROACH

- In **PATHS** we evaluated the impact of several interventions on indicators of child health / well-being.
- We used population-based data from the Population Health Research Data Repository: The PATHS Data Resource
- We needed to track changes in overall health and health inequities, over time.
- We used two general approaches to measuring health inequities:
  - Methods that summarize across the entire SES-gradient
    - Concentration Curve
    - Concentration Index
    - Income Quintile-Specific Rates / Risk
  - Measures that make pair-wise comparisons at either end of the SES-spectrum
    - Relative Comparisons: Rate Ratios and Risk Ratios
    - Absolute Pairwise Comparisons: Rate Differences and Risk Differences



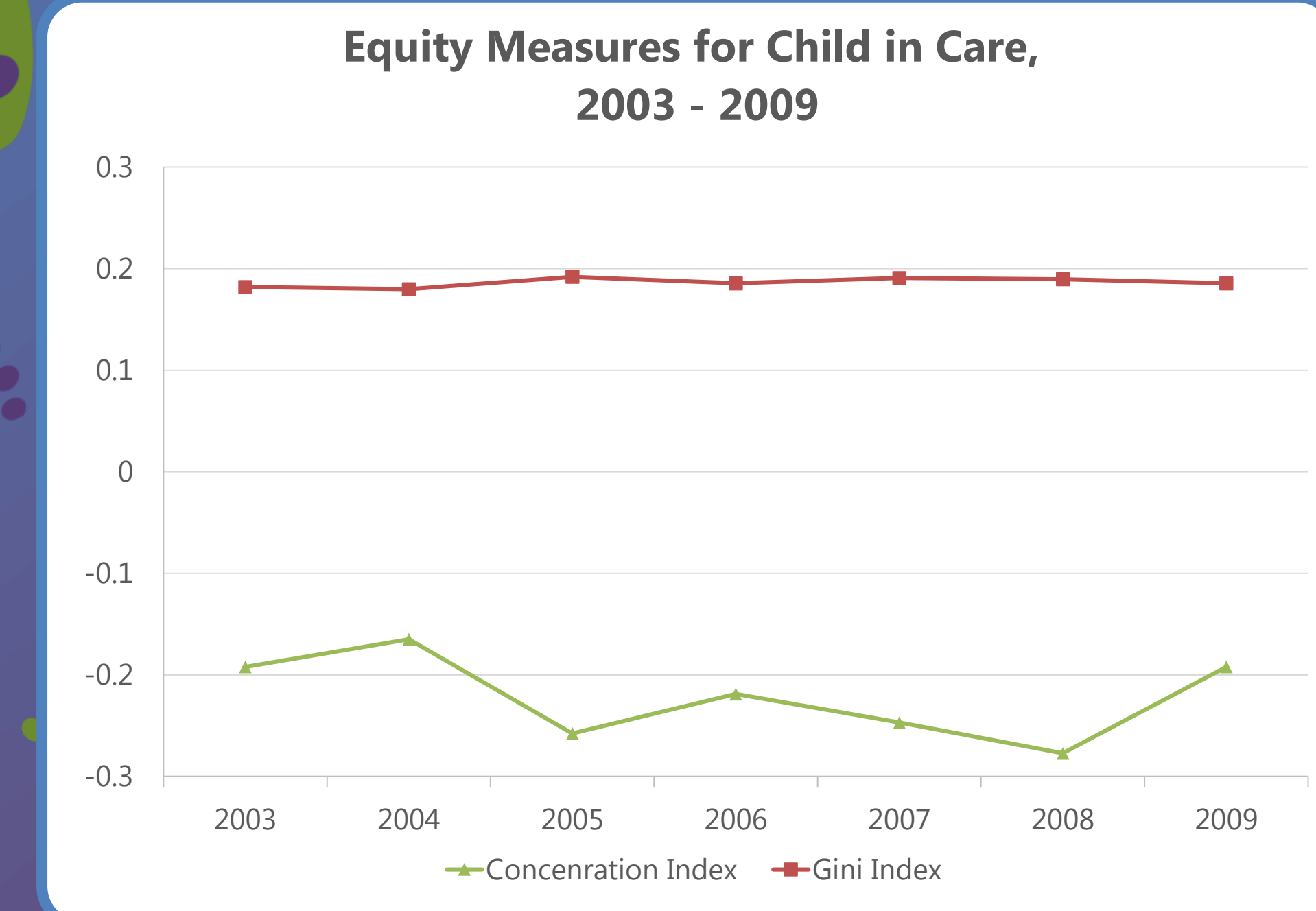
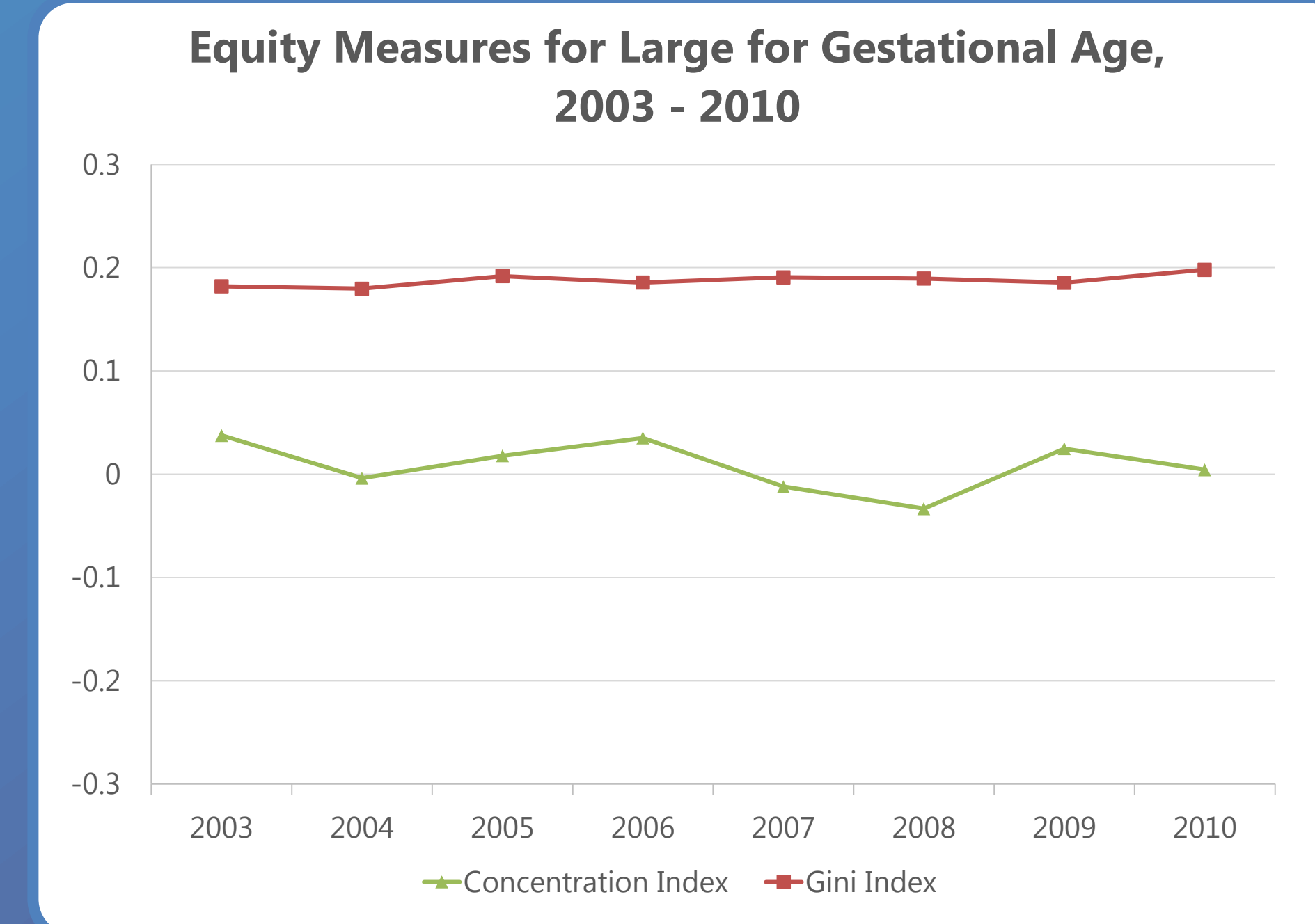
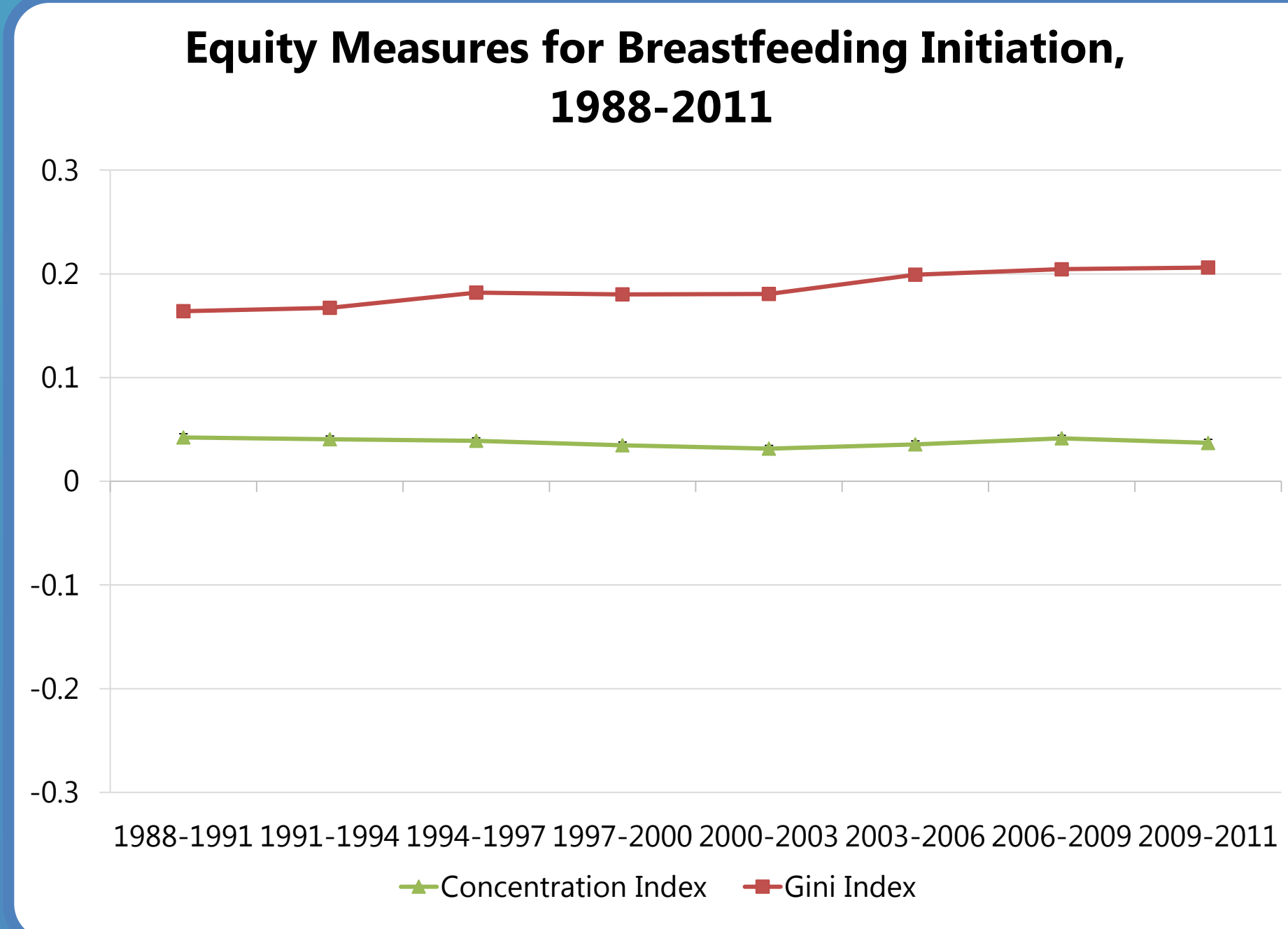
Breastfeeding Initiation		Fiscal Year	88/89-90/91	91/92-93/94	94/95-96/97	97/98-99/00	00/01-02/03	03/04-05/06	06/07-08/09	09/10-10/11
Rate Ratio			0.81	0.81	0.83	0.85	0.87	0.86	0.83	0.85
Rate Difference			-15.20	-14.96	-14.24	-12.71	-11.23	-12.36	-14.92	-13.41

Large for Gestational Age		Birth Year	2003	2004	2005	2006	2007	2008	2009	2010
Risk Ratio			0.97	1.28	1.25	1.42	1.10	1.17	1.35	1.07
Risk Difference			0.00	0.05	0.04	0.06	0.01	0.03	0.05	0.01

Child in Care		Birth Year	2003	2004	2005	2006	2007	2008	2009
Risk Ratio			0.10	0.57	0.34	0.34	0.17	0.17	0.38
Risk Difference			-0.11	-0.05	-0.13	-0.11	-0.17	-0.18	-0.13



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## DISCUSSION

### Concentration Curve and Concentration Index

- They summarize the distribution of health across entire SES gradient.
- Using grouped data (e.g., income quintiles) to calculate the Concentration Index will underestimate health inequity.
- The prevalence of the health outcome being studied can impact the depicted magnitude of health inequity.
  - When the prevalence is high, both measures can suggest minimal health inequities even when the gap between the least- and most-advantaged is rather large; e.g., breastfeeding rates.
  - When the prevalence is low, both measures can suggest rather large health inequities.

### Using Quintile Specific Rates / Risk

- Using quintile-specific rates / risk allows for a useful visual illustration of health inequities over time.
- Can highlight if one population group is statistically different from the rest.
- Using quintile-specific rates / risk can make it difficult to *numerically* describe what is happening vis-à-vis health inequities across the entire population.
- Often, analyses focus on comparing the most- versus least-advantaged.
  - Rate Ratio / Risk Ratio
  - Rate Difference / Risk Difference

