

# Using Technology to Repurpose and Expand Ethical Research on Vulnerable Populations

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Center for Advanced Studies  
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**MINN-Link**  
Minnesota-Linking Information for Kids

## MinnLink Overview

CASCW's Minn-Link project uses state administrative data from multiple agencies to answer questions about the impacts of policies, programs, and practice on the well-being of children in Minnesota. State agencies that provide data work in partnership with CASCW to discuss and address these issues. The project serves as a research support for faculty and students at the University of MN.

Minn-Link produces reports that have implications for practice, policy, or both, and builds upon the work of other state agencies and university researchers. Findings of Minn-Link studies are also used to create training for child welfare professionals and are disseminated to local and national audiences.

## Using Integrated Data in Minn-Link

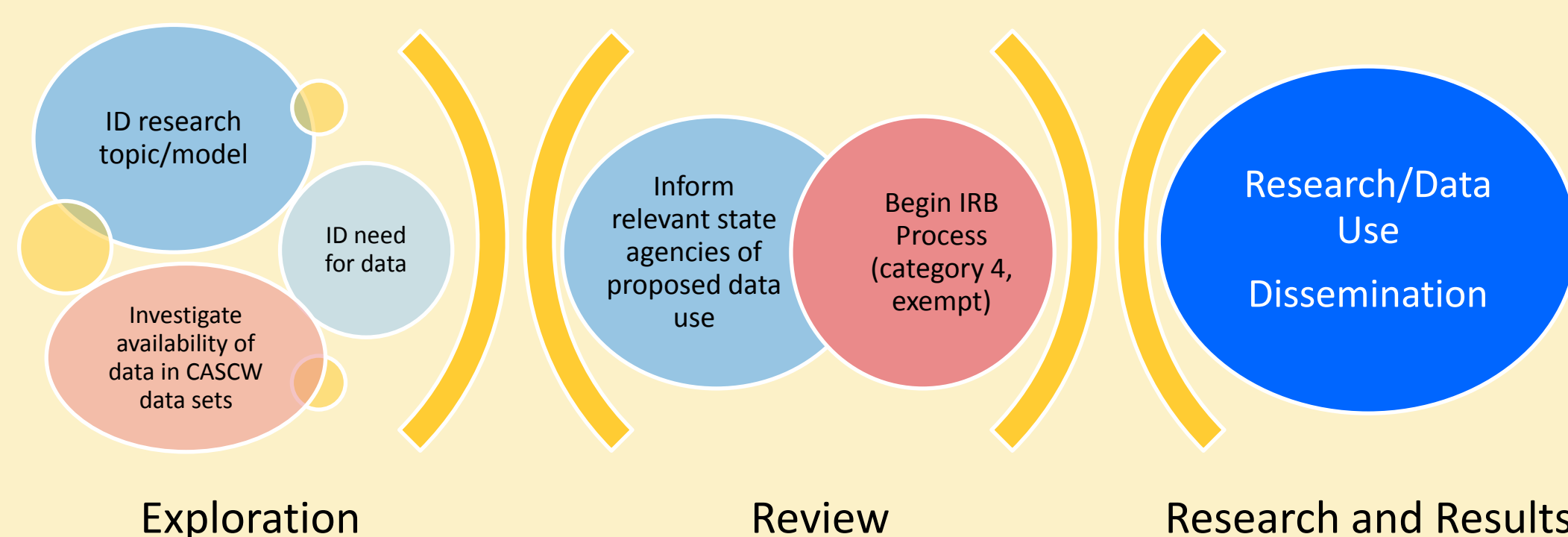
### Benefits:

- **Cost-effective Research**—Connecting existing databases can eliminate the need for collecting data from multiple sources (or developing multiple study-specific data sharing agreements) and recruiting participants, reduce research staff needed, and shorten project timelines
- **Systematic Protection of Privacy to Understand Issues Affecting Vulnerable Populations**—Data access is limited to de-identified data for study research personnel only
- **Statewide Data**—Use of existing statewide data allows for creation of matched comparison groups and state-level analysis

### Limitations:

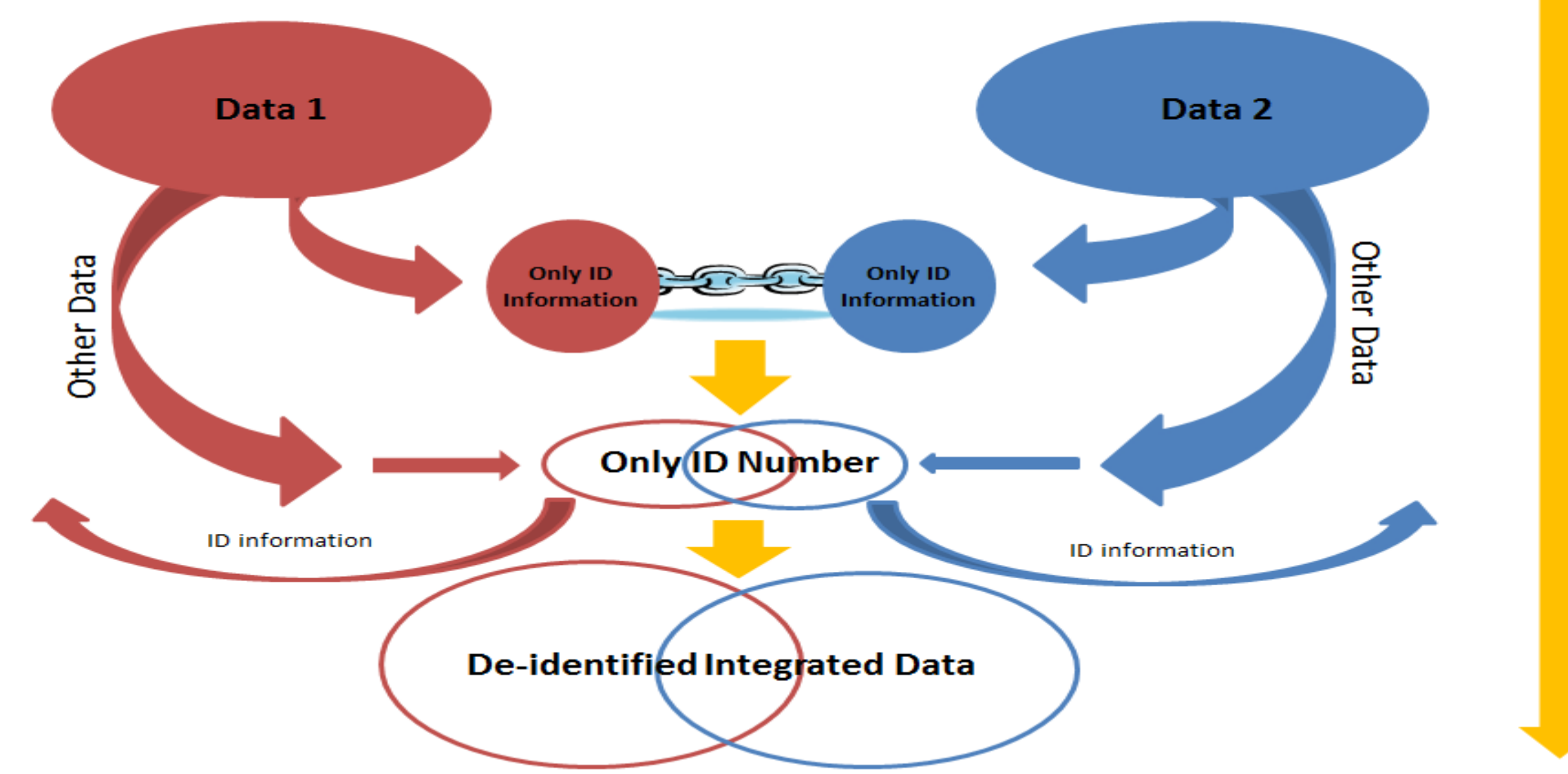
- **Secondary Data**—Data is limited to data collected by state agencies; data was not originally collected for research purposes and some data varies by jurisdiction
- **Complex Data**—Datasets are often very large and complex, requiring advanced data management and analysis skills

## Research Process



## Harnessing Technology

### Detailed Linking Process



### Linking Data Across Systems

The CDC's Division of Cancer Prevention and Control created LinkPlus software – a probabilistic record linkage program (open source)– for maintaining their National Program of Cancer Registries. Minn-Link utilizes this software for linking data across systems. Probabilistic matches are verified via hand matching to ensure data accuracy.

### Creating Comparison Groups

- Population level child data (via education data) allows for development of comparison groups via propensity score matching (i.e. Exact, sub-classification, nearest neighbor, optimal, and genetic matching)
- After matching, the balance diagnostics include examination on difference in means or the difference in means divided by the treatment group SD, and summaries based on quantile-quantile plots

### Utilization of Multiple Software Programs

Minn-Link uses several software programs to manage and conduct child well-being research, including LinkPlus, SPSS, SAS, R, Microsoft Office, and Google Calendar.

### Dedicated, Secure Server

In order to ease the process of conducting cross-systems research, Minn-Link staff worked with the UMN technology team to create a dedicated server for Minn-Link data. The development of this server included careful analysis of data security that upholds our data sharing agreements, FERPA, and HIPAA laws while allowing multiple researchers simultaneous data access to project-specific file.

## Access to MinnLink Data

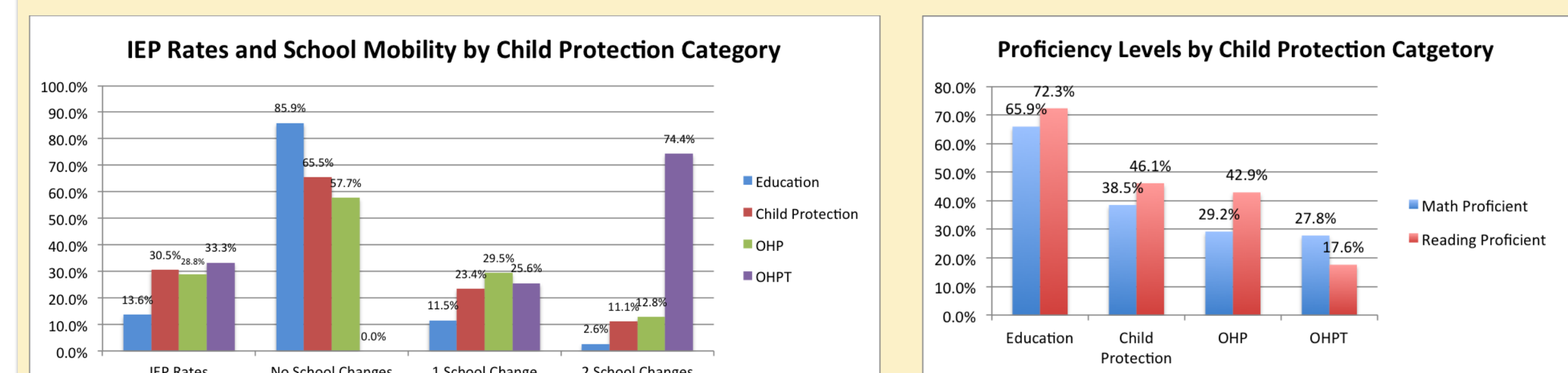
Interested in using MinnLink data in your research? Contact Kristine Piescher, PhD., CASCW's Director of Research & Evaluation, at [kpiesche@umn.edu](mailto:kpiesche@umn.edu) or 612-625-8169.

## Project Examples

Minn-Link's use of technology allows us to answer important questions at a more systematic level than previously possible. Some research questions we have addressed in the past include:

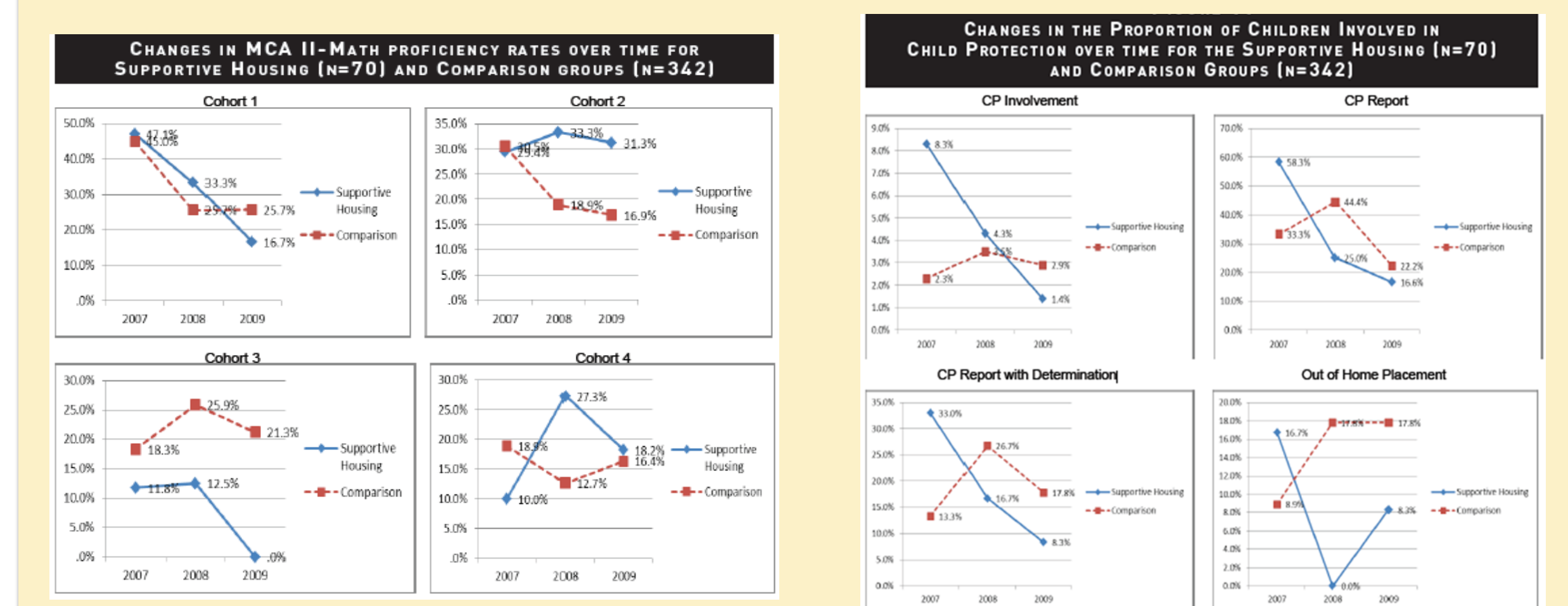
- How does exposure to intimate partner violence and child maltreatment impact academic outcomes for children?
- What are the economic outcomes of the cohort of former high school seniors who had contact with the child protection system two years after they left high school?
- How are school choice policies utilized by students who are involved in child welfare?
- What is the effect of high quality early education programs on the outcomes of child-welfare involved youth?

**Example 1: Education Outcomes for Children in Out-of-Home Placement**  
Research Purpose: To explore the associations between out-of-home placement and educational well-being via rates of individualized education plan (IEP) utilization, school mobility, and MCA II achievement scores.



Results: A disproportionate number of children involved in child protection, especially those with out-of-home placement, received IEPs, changed schools, demonstrated lower proficiency on standardized tests of achievement.

**Example 2: The Role of Supportive Housing in Homeless Children's Well-Being: An Investigation of Child Welfare and Educational Outcomes**  
Research Purpose: To explore how supportive housing impacts children's educational outcomes (i.e., proficiency on standardized tests of achievement) and child safety (e.g., accepted child maltreatment reports).



Results: Children in supportive housing had statistically higher math proficiency and a decreased level of accepted child maltreatment reports than their peers.