The Early Childhood Longitudinal Survey (Encuesta Longitudinal de la Primera Infancia) in Chile

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This presentation

I. Inequality in Chile: earnings and labor market; educational achievement.

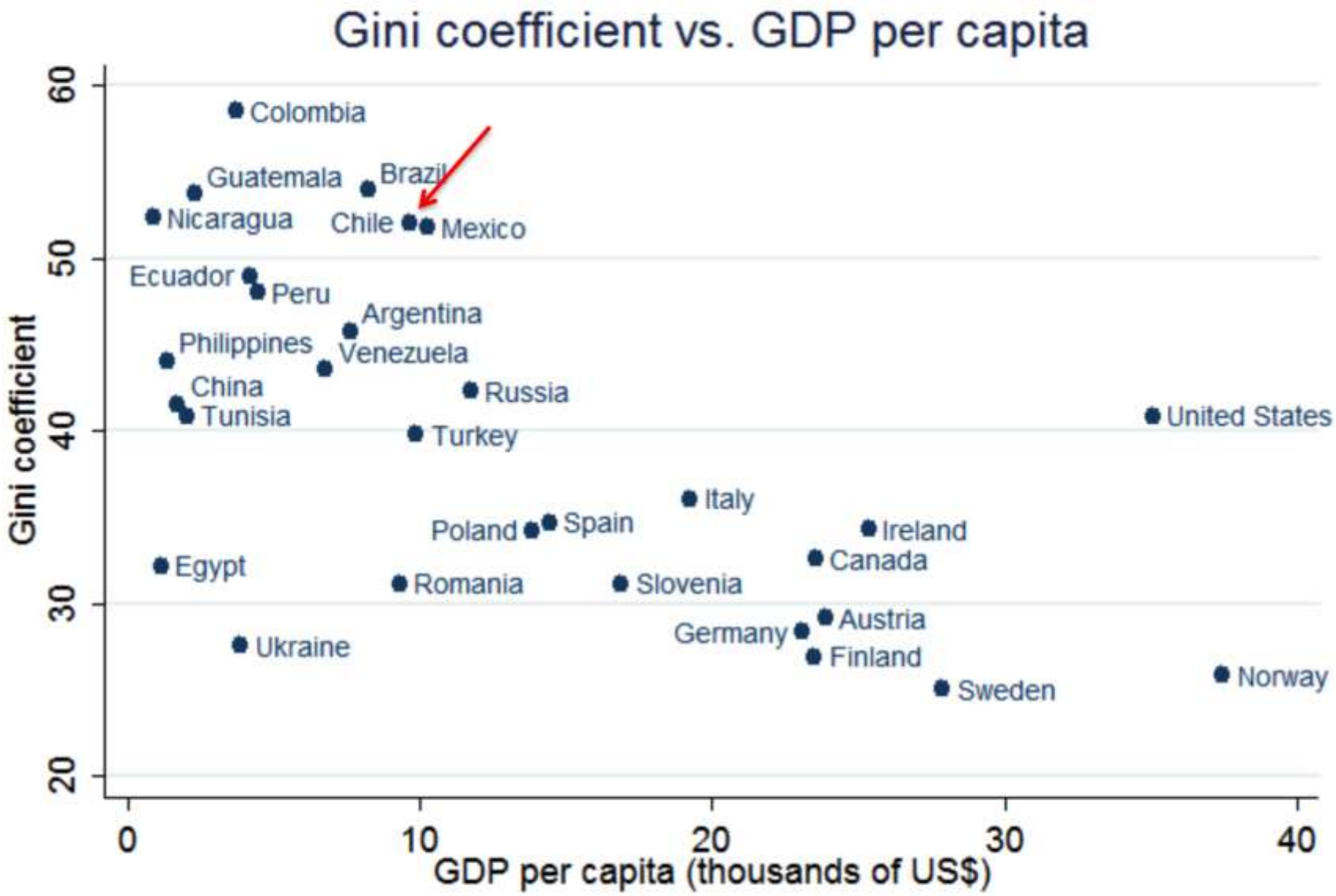
II. Early Childhood Research and Public Policy Agenda

III. Chile ECD policies and Child Care attendance

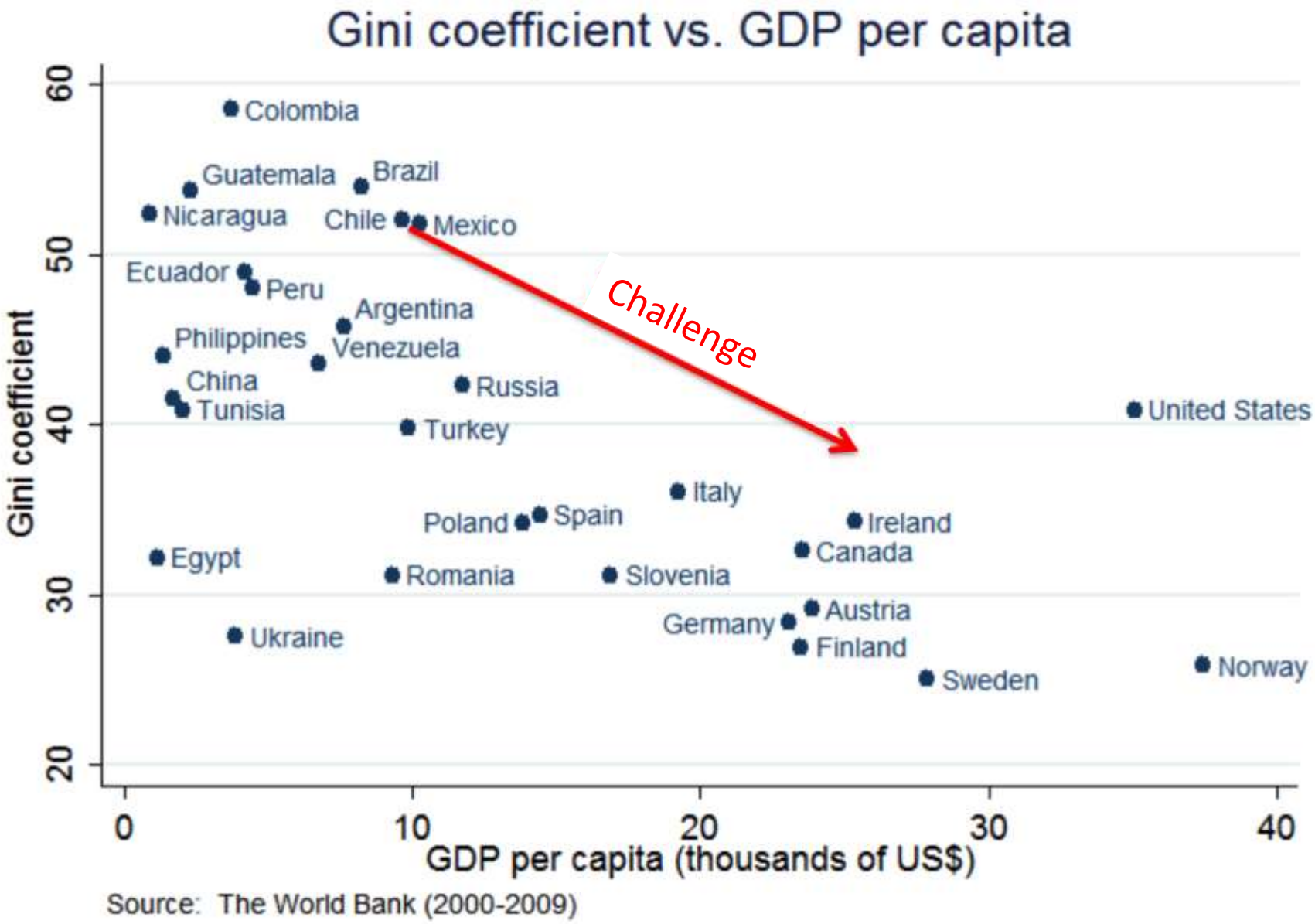
IV. ELPI (Early Childhood Longitudinal Survey)

V. Some results from ELPI

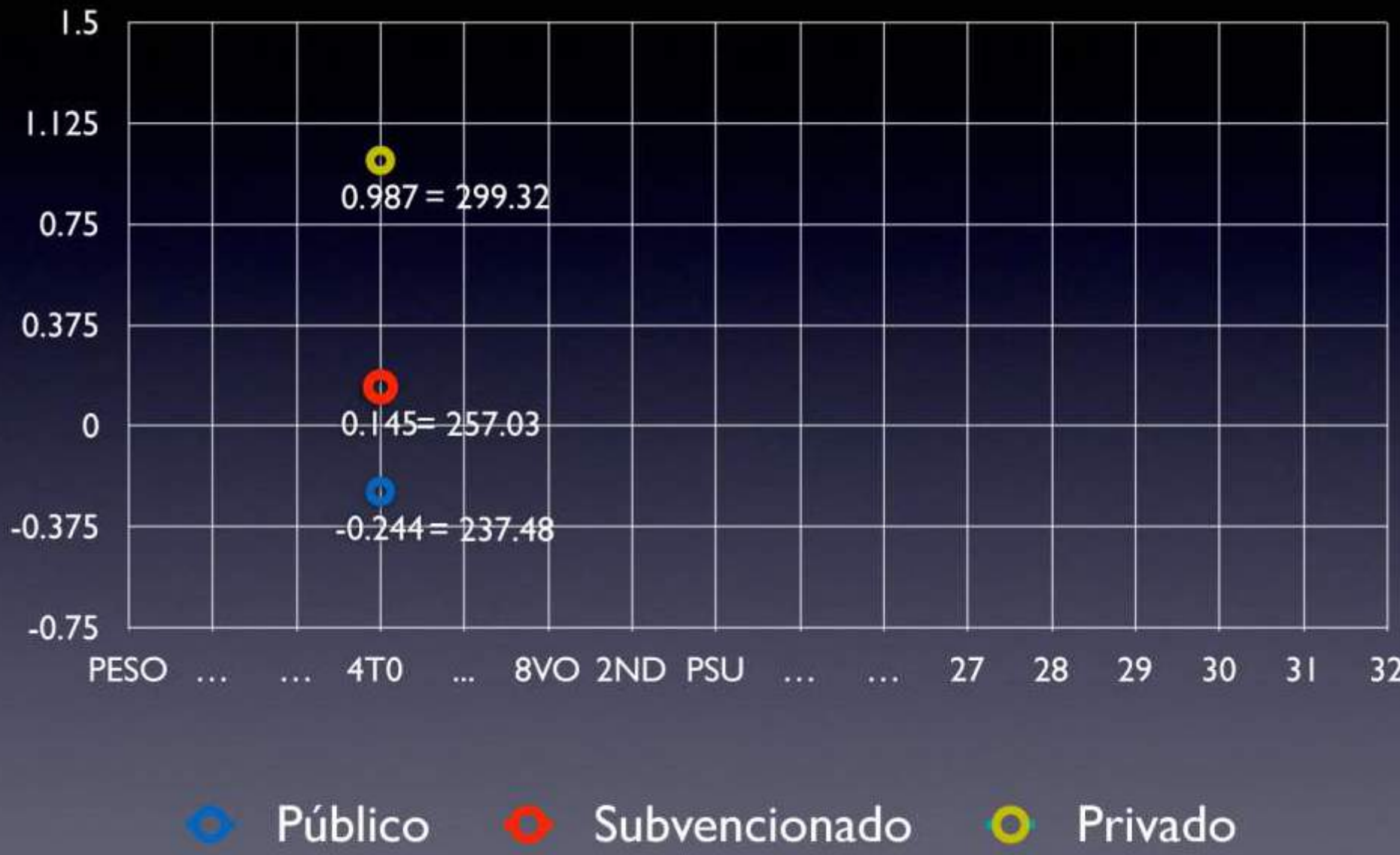
I. Inequality in Chile



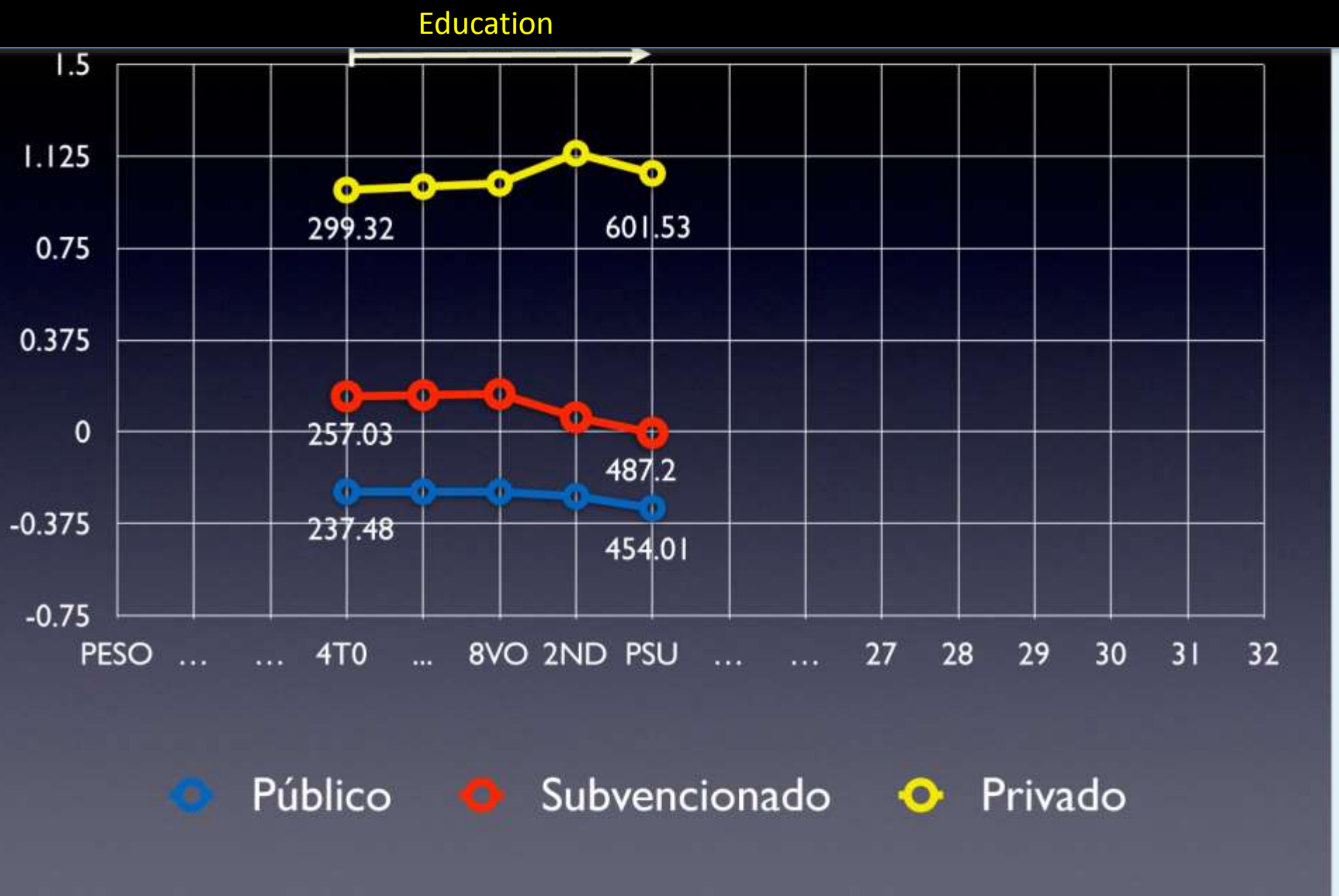
Source: The World Bank (2000-2009)


Gini coefficient vs. GDP per capita
Gini coefficient
GDP per capita (thousands of US$)
60
50
40
30
20
0
10
20
30
40
Colombia
Guatemala
Brazil
Nicaragua
Chile
Mexico
Ecuador
Peru
Argentina
Philippines
Venezuela
China
Russia
Tunisia
Turkey
United States
Italy
Poland
Spain
Ireland
Canada
Egypt
Romania
Slovenia
Austria
Germany
Finland
Ukraine
Sweden
Norway
Challenge
Source: The World Bank (2000-2009)

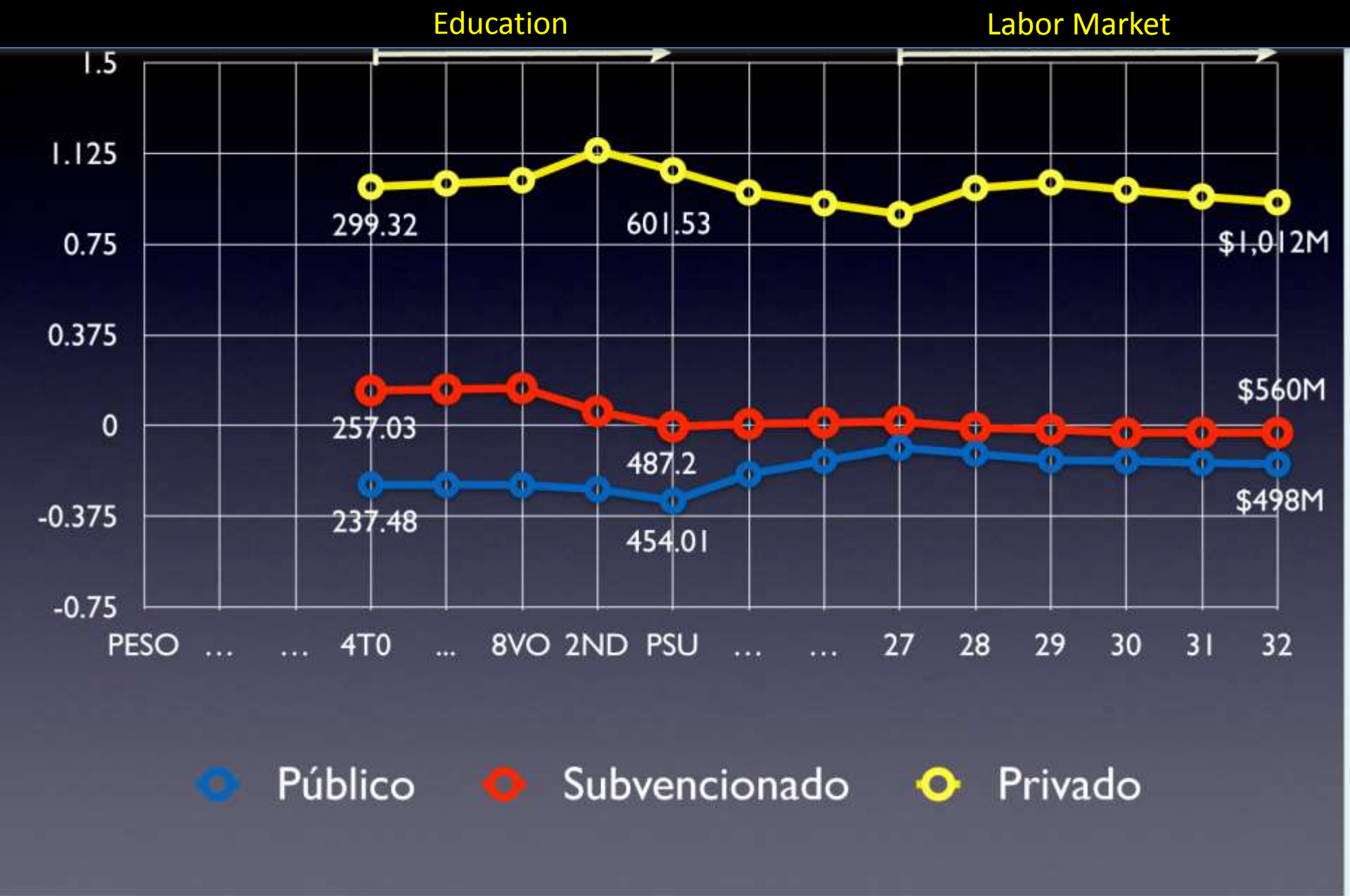
Socioeconomic Gap: 4th grade



Socioeconomic Gap: 4th-12th grade



Socioeconomic Gap:



II. Early Childhood Research and Public Policy Agenda

Early Childhood

- International evidence suggests positive effects of ECD interventions (Engle et al 2007; Bouillon y Tejerina, 2007; Schady, 2006; Behrman et al 2004; Noboa y Urzúa 2010; Heckman, 2010), but can we extrapolate?

- We are just learning about the underlying mechanisms (is it trough cognitive or/and socio-emotional traits?, parents?, quality?, how to intervene? When? For how long?

- Limitations of the available studies:
  - Small samples not nationally representative
  - Usually static models;
  - ECD programs limited in scale;
  - Correlation vs causality;
  - Few studies looking at cost-benefit analysis

Early Childhood: Research and Public Policy Agenda

- To generate a substantial increase in critical knowledge of ECD in Chile (but also in the world), we need:

  - **DATA**: A weill designed collection of data;

  - **ECONOMETRICS/IDENTIFICATION STRATEGY**: To take advantage of ECD programs already implemented and recent developments, we need a clear identification strategy: using quasi-experimental methods and modeling explicitly endogenous choices and potential outcomes (but we need policy variations and good data);

  - **EXPERIMENTS**: To develop some random controlled experiments providing some useful variation for policy design (Information, Curriculum, Staff Incentives, Vouchers, Extra Staff)

Human Development

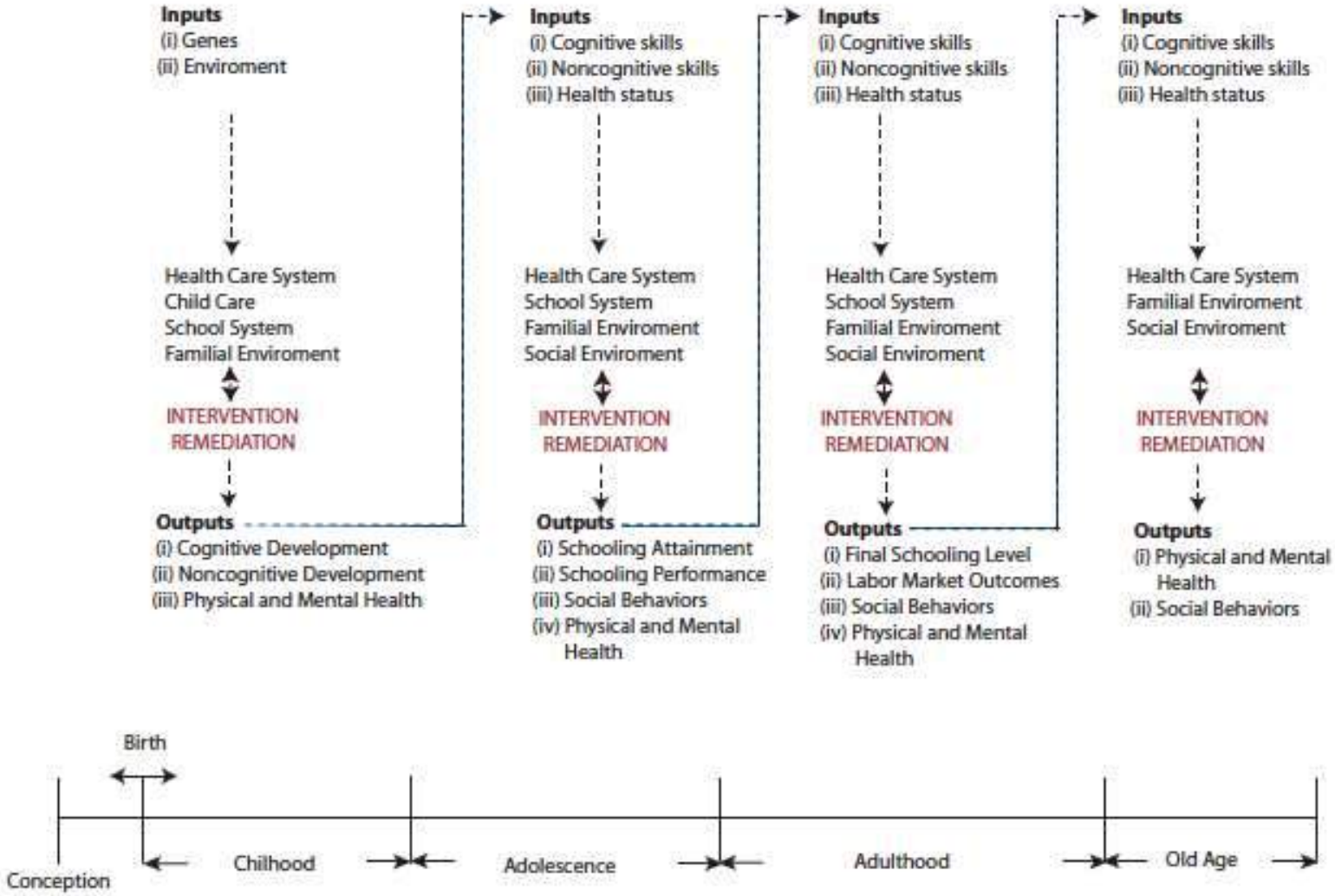


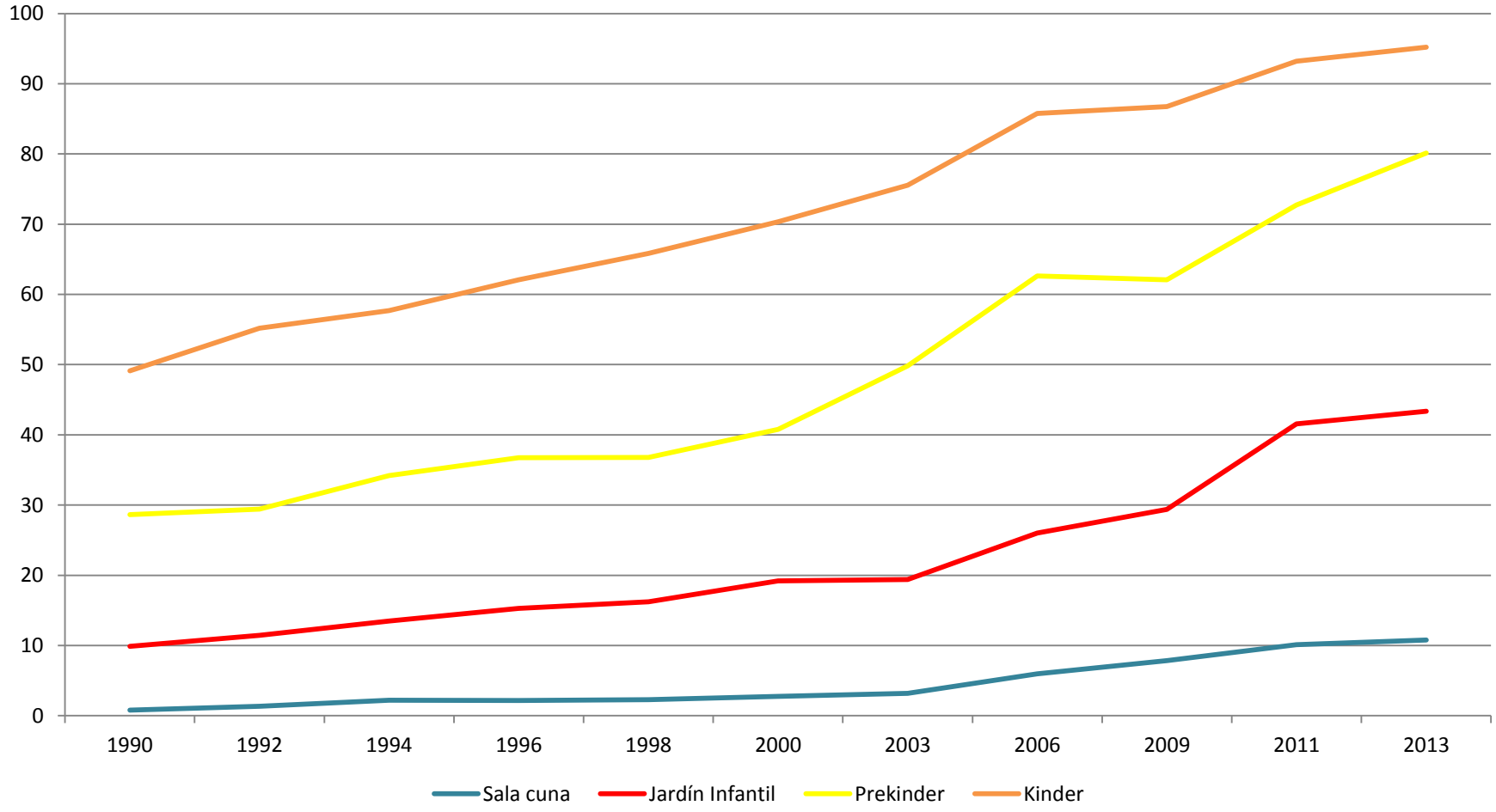
Figure 2. Human Development at Each Stage (inputs/ouputs)

III. Chile ECD Policies and Child-Care Attendance

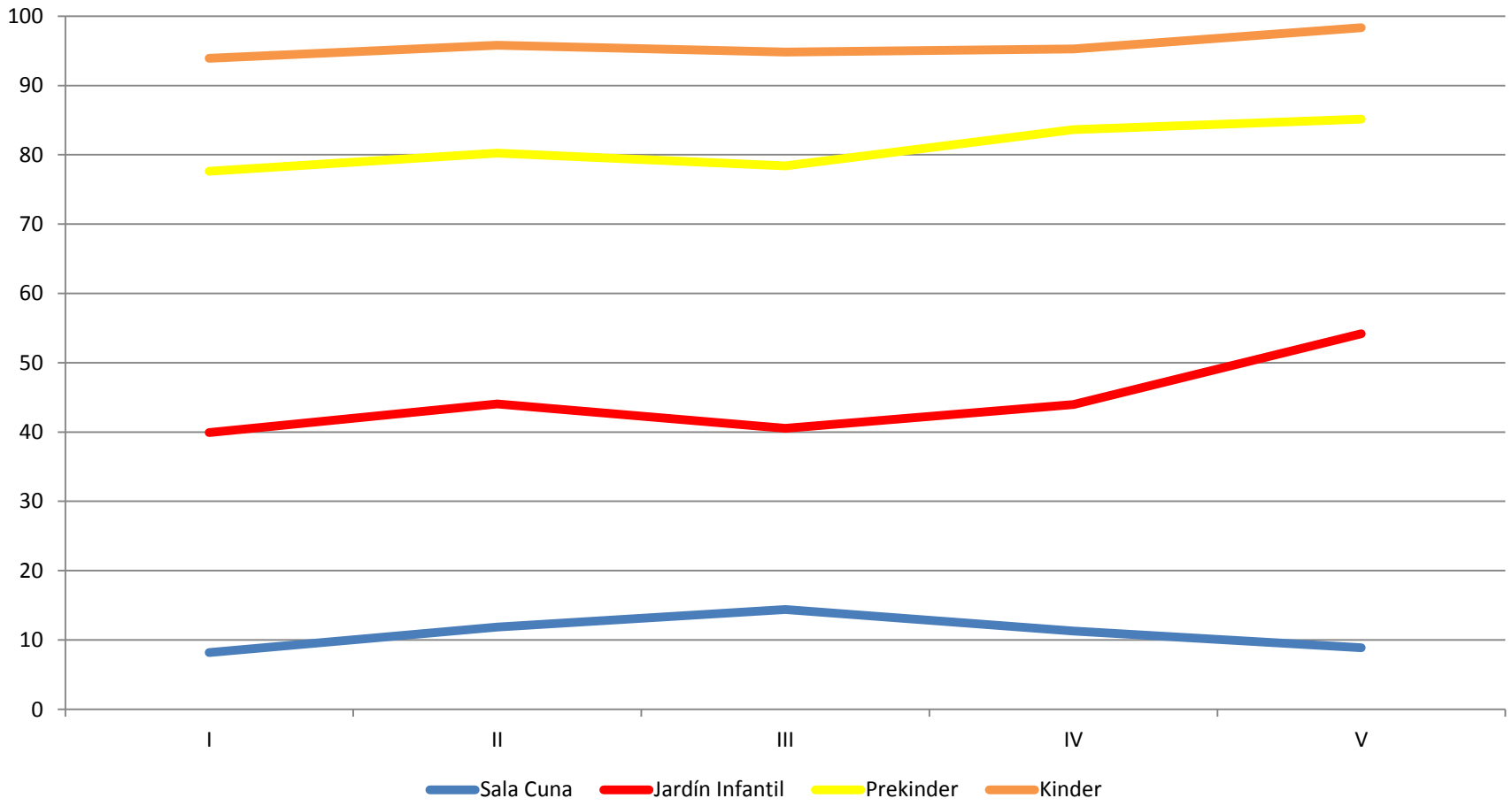
Chile ECD Policies

- Chile has taken serious steps to improve the situation of young children, particularly the most vulnerable.
- National ECD policy established in 2006: Chile Crece Contigo (Chile Grows with You)
- Coveragy by public providers nearly tripled between 2005-2009 and continue increasing.

Enrollment Rates by year



Enrollment Rates by Income (2013)



IV. ELPI (Early Childhood Longitudinal Survey)

Encuesta Longitudinal de la Primera Infancia (ELPI)

- Designed in 2008-2009. Important support from the Ministry of Finance. First round applied en 2010 funded by the Ministry of Education.
- Sample Size: a national representative sample of about 15,000 niños under 5 years old.
- Sample Frame: all the births between January 1st, 2006 and August 31st, 2009 (877.000 niños en el país).
- International Academic Board.
- Second Wave applied in 2012 funded by the Ministry of Labor. Other 3,000 children were added to the panel, sampled out of births between September 2009 and December 2011.

Sample

The first wave was conducted in 2010. The target population are children who were born between January 1, 2006 and August 31, 2009 (44 months).

Representative sample of Chilean urban and rural areas.

Target sample 15,000 households.

Final sample:
Household Questionnaire: 15,100
Instruments: 14,160

The sample includes different cohorts of children, distinguished by year of birth.

ELPI 2012

Sample

The second wave was conducted in 2012. The target population are children who were born between January 1, 2006 and December 31, 2011 (72 months).

Representative sample of Chilean urban and rural areas.

Target sample 18,000 households.

Final sample:

Panel Sample:
Household Questionnaire: 12,800
Instruments: 11,650

Refresher Sample:
Household Questionnaire: 3,100
Instruments: 2,700

The sample includes different cohorts of children, distinguished by year of birth.

Encuesta Longitudinal de la Primera Infancia (ELPI)

- Tests applied in both Early Childhood Longitudinal Surveys measured the development of children in different areas, such as:
  - Motor
  - Cognitive
  - Language
  - Executive Function
  - Emotional

- Evaluate the *Overall Development* of children allows us to identify the areas in which they have higher and lower achievements ➔ relevant information for social and educational policies.

Encuesta Longitudinal de la Primera Infancia (ELPI)

- One of the major limitations for evaluating childhood development in Latin America and particularly in Chile is the lack of high quality and detailed data on children under 7 years old.

- Goal ➔ New data that allows researchers to assess the impact of early childhood policies and to provide valuable information for the evaluation and design of social policies in this field.

- What do we need? A survey that contains not only socio-economic information but also information about children's cognitive and non-cognitive abilities, and it would be even better if we have longitudinal information.

Encuesta Longitudinal de la Primera Infancia (ELPI)

- The survey contains two major areas:

  - The first is a questionnaire divided into two main sections. The first one contains questions designed for each of the household members, while the second part contains questions that apply only to the person that answer the questions, i.e., the mother or the caregiver of the selected child.

  - In addition, the second area of the survey collects a set of cognitive, language and socio-emotional test for both the children and the mothers or caregivers, executive function for children (2012), anthropometric information for mothers or caregivers and children at the time of the interview, and about home assessment using an Adaptation of the Home Observation for Measurement of the Environment (HOME) inventory.

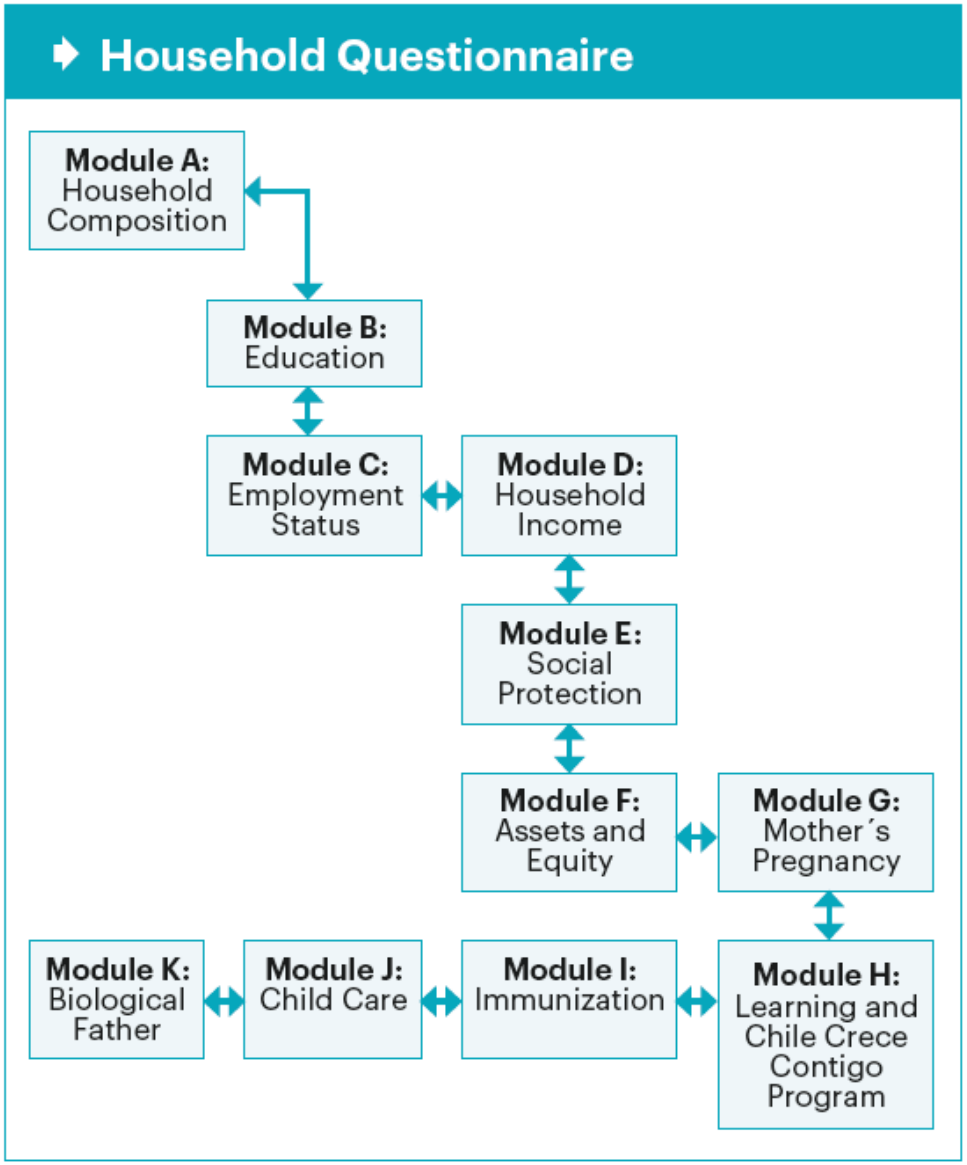
Encuesta Longitudinal de la Primera Infancia (ELPI)

- Household survey: data is collected in household by interviewer.
- Household survey includes:
  - Household composition
  - Each member's education
  - Health care status
  - Labor participation status
  - Household income
  - Type and syze of home
  - Datailed questions on pre-natal and post-natal care
  - Newborn data and health history
  - Deteiled retrospective history of child-care
  - Vaccination records
  - Availabre resources for children
- Psychologists return to home to apply instruments on abilities and health

ELPI 2010

Module	Description
A	*Household Composition*: It contains information that identifies whether the person that answers the survey is the biological mother or not, and if the selected child has a twin-brother. It also contains the most important socio-economic characteristics of the household's members, which includes the relationship with the selected child, age, gender and marital status, among others.
B	*Education*: It contains information on the education level and the administrative characteristics of the child-care establishments of each household's members.
C	*Employment Status*: It contains information on the occupational status and job characteristics for of each household's members that are more than 15 years old.
D	*Household Income*: It contains information on the income and salary for each family member (which also includes subsidies, pensions and rent, among others).
The following questions are made only for the interviewee (usually the child's mother or caregiver)	
E	*Social Protection*: It contains data on access to the health system.
F	*Assets and Equity*: It contains characteristics of the home as artefacts and/or services, type of housing, predominant construction material and the number of rooms, among others.
G	*Mother's pregnancy*: It contains information (twelve questions) on biological mother's health status during pregnancy (pregnancy control, diseases, medical conditions, nutritional status, certain circumstances that may have occurred during pregnancy, etc.). The nexr questions include information about birth (birth establishment and condition, complications during birth, months that the child was breastfed, etc.).
H	*Learning and Chile Grows with You*: It contains information about activities, games, learning materials used by the child, and about the participation in the Chile Grows with You program.
I	Immunization: It contains information from the child's immunization (vaccination information).
J	*Child Care*: The module is performed for 8 time periods for the child, starting when he/she is 0-3 months old to 5 years old of age. It contains information related to child-care centres and mother's employment.
K	*Selected Child's Biological Father*: It contains information about the biological father in terms of educational, occupational and socioeconomic status.

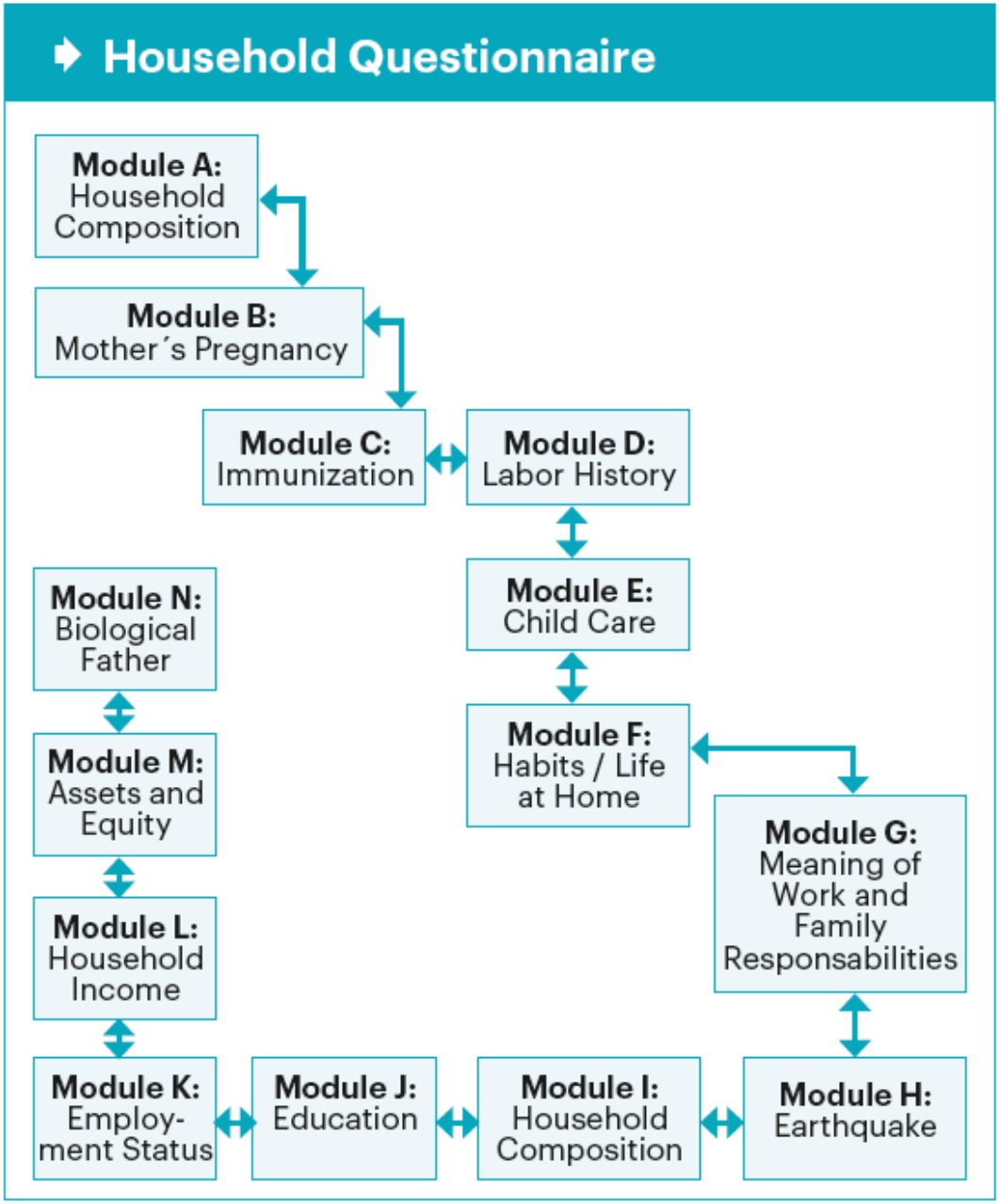
ELPI 2010


Household Questionnaire
Module A: Household Composition
Module B: Education
Module C: Employment Status
Module D: Household Income
Module E: Social Protection
Module F: Assets and Equity
Module G: Mother´s Pregnancy
Module H: Learning and Chile Crece Contigo Program
Module I: Immunization
Module J: Child Care
Module K: Biological Father

ELPI 2012

Module	Description
A	*Household Identification:* It contains information that identifies whether the person that answers the survey is the biological mother or not, and if the selected child has a twin-brother.
B	*Mother's pregnancy*: It contains information (twelve questions) on biological mother's health status during pregnancy (pregnancy control, diseases, medical conditions, nutritional status, certain circumstances that may have occurred during pregnancy, etc.). The nexr questions include information about birth (birth establishment and condition, complications during birth, months that the child was breastfed, etc.).
C	*Immunization*: It contains information from the child's immunization (vaccination information).
D	*Labor History of the primary caregiver*: It contains information about the employment history of the primary caregiver since January 2004 until the date of the interview, such as occupational status, type of work, among others.
E	*Child Care*: The module is performed for 10 time periods for the child, starting when he/she is 0-3 months old to 5 years old of age. It contains information related to child-care centres and mother's employment.
F	*Habits / Life at Home*: Contains information on sleep habits, eating habits, habits of hygiene and child's gaming habits. It also contains information about the *"Chile Grows with You"*.
G	*Meaning of Work and Family Responsibilities*: Contains information on women's perceptions about the role of women, work and family.

ELPI 2012


Household Questionnaire
Module A: Household Composition
Module B: Mother´s Pregnancy
Module C: Immunization
Module D: Labor History
Module E: Child Care
Module F: Habits / Life at Home
Module G: Meaning of Work and Family Responsabilities
Module H: Earthquake
Module I: Household Composition
Module J: Education
Module K: Employ-ment Status
Module L: Household Income
Module M: Assets and Equity
Module N: Biological Father

ELPI 2012

Module	Description
H	*Earthquake*: Identify the impact of destruction suffered by the houses of the children and contains information about the child's residence at the time of the earthquake.
I	*Household Composition*: It also contains the most important socio-economic characteristics of the household's members, which includes the relationship with the selected child, age, gender and marital status, among others.
J	*Education*: It contains information on the education level and the administrative characteristics of the child-care establishments of each household's members.
K	*Employment Status*: It contains information on the occupational status and job characteristics for of each household's members that are more than 15 years old.
L	*Household Income*: It contains information on the income and salary for each family member (which also includes subsidies, pensions and rent, among others).
M	*Assets and Equity*: It contains characteristics of the home as artefacts and/or services, type of housing, predominant construction material and the number of rooms, among others.
N	*Selected Child's Biological Father*: It contains information about the biological father in terms of educational, occupational and socioeconomic status.

Instruments: Toolkit

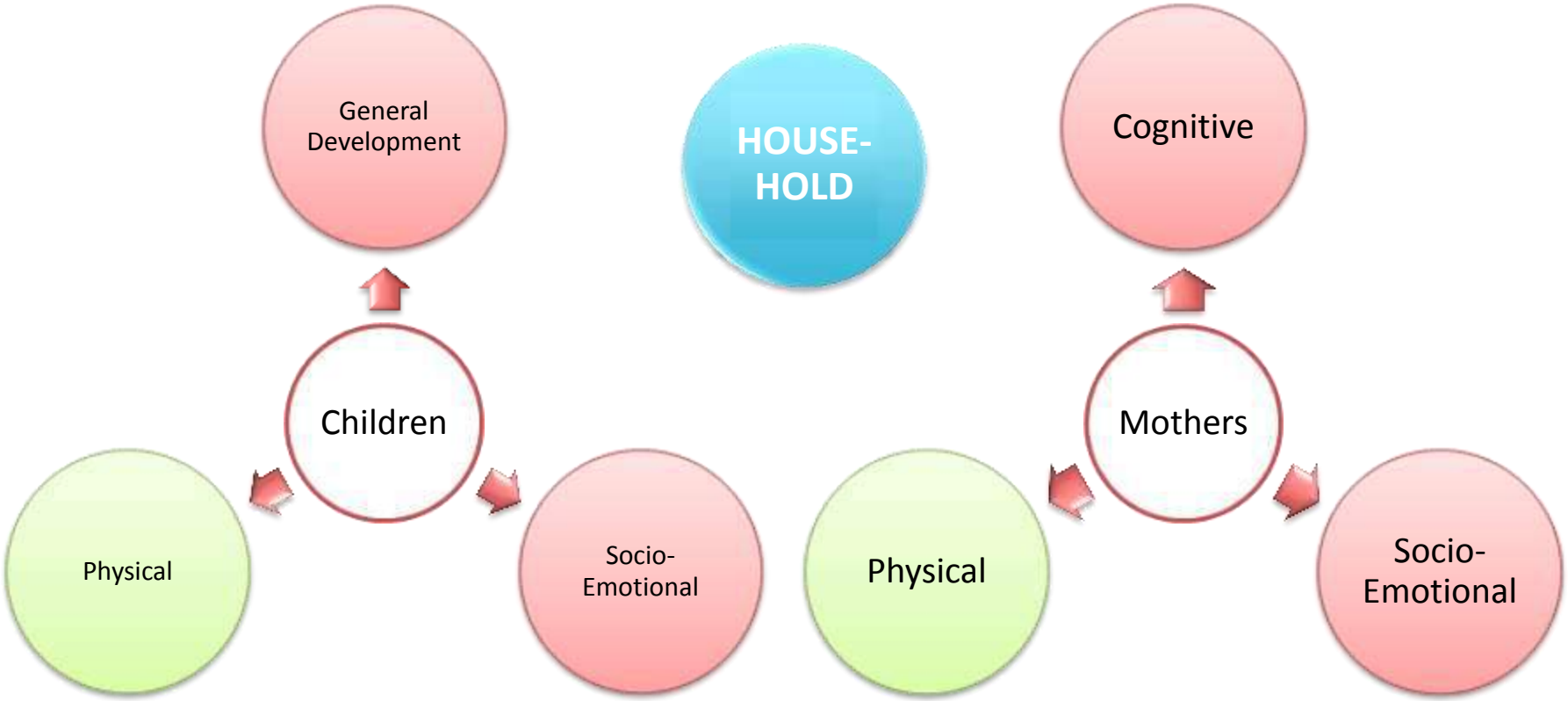
- Set of tools for the assessment of children in the first five years of life(Fernald et al 2009).

- Domains of development to be measured: i) Cognitive, ii) Language, iii) Motor, iv) Executive funcion/self-regulatory and v) social/emotional.

- Steps
    1. Define purpose of assessment ➔ goals/dimensions ✔
    2. Determine type of assessment ➔ screening vs abilities ✔
    3. Determine mode of assessment ➔ direct, reports, observation ✔
    4. Determine which assessment to use ➔ instruments ✔
    5. psychometrically adequate➔ validity and reliability

- Step 5: instruments should be **adapted** to the Chilean social and cultural reality from a linguistic and semantic point of view for those who have not previously been adapted into Spanish.

Evaluation: Dimensions



Instruments applied: children

Area	ELPI 2010	ELPI 2012
General Development	EEDP	
	TEPSI	
		TADI
	BDI - Complete Version	**BDI-2**
	TVIP	**TVIP**
Executive Function		SDT (Snack Delay Task)
		PTT (Pencil Tapping Task)
		BDS (Backward Digit Span Task)
		HTKS (Head Toes Knees Shoulders Task)
Socioemotional	ASQ:SE. 6 months	ASQ:SE. 6 months
	ASQ:SE. 12 months	ASQ:SE. 12 months
	ASQ:SE. 18 months	ASQ:SE. 18 months
	CBCL 1	**CBCL 1**
		CBCL 2
Anthropometric Measures	**Height**	**Height**
	Weight	**Weight**
	Cranial Circumference	**Cranial Circumference**

Evaluations 2010: children

Area	Age Group	ELPI 2010
General Development	6 – 23 months 30 days	EEDP
	6 – 23 months 30 days	TEPSI
	24 months- 60 months 0 days	BDI - Complete Version
	30 months- 60 months 0 days	TVIP
Socioemotional	6 – 8 months 30 days	ASQ:SE. 6 months
	9 – 14 months 30 days	ASQ:SE. 12 months
	15 –17 months 30 days	ASQ:SE. 18 months
	18 - 60 months	CBCL 1
Anthropometric Measures	0 - 60 months	Height
	0 - 60 months	Weight
	0 - 60 months	Cranial Circumference

Evaluations 2012: children

Area	Age Group	ELPI 2012
General Development	6 -83 months, 30 days	TADI
	24 months- 60 months 0 days	BDI-2
	30 months- 60 months 0 days	TVIP
Executive Function	24 -35 months, 30 days	SDT (Snack Delay Task)
		PTT (Pencil Tapping Task)
	36 - 83 month, 30 days	BDS (Backward Digit Span Task)
		HTKS (Head Toes Knees Shoulders Task)
Socioemotional	6 – 8 months 30 days	ASQ:SE. 6 months
	9 – 14 months 30 days	ASQ:SE. 12 months
	15 –17 months 30 days	ASQ:SE. 18 months
	18 - 60 months	CBCL 1
		CBCL 2
Anthropometric Measures	0 - 60 months	Height
	0 - 60 months	Weight
	0 - 60 months	Cranial Circumference

Evaluations 2010 and 2012: mothers

Area	ELPI 2010	ELPI 2012
Socioemotional		Edinburgh Postnatal Depresssion Scale
		Parent Stress Index (PSI)
	Big Five Inventory (BFI)	Big Five Inventory (BFI)
Cognitive	Digit Scale WAIS	Digit Scale WAIS
	Vocabulary Scale WAIS	Vocabulary Scale WAIS
Anthropometic Measures	Weight	Weight
	Heigh	Heigh

General Development 2010

Scale of Psychomotor Development Evaluation (EEDP): Rodríguez, Arancibia and Undurraga (2008).

•EEDP is a Chilean instrument. The test measures the performance and the reaction of the child to certain situations to be resolved for which a certain level of psychomotor development is required. A child whose psychomotor development is in accordance with what is expected for their age should get a ratio close to the average development (100) to a standard deviation (85).

•Four relatively independent and specific operating areas have distinguished themselves within the process of psychomotor development: Motor, Language, Social and Coordination.

General Development 2010

Psychomotor Development Test (TEPSI): Haeussler, I. M and Marchant, T, 1994, 5th Edition

•TEPSI is a Chilean screening instrument that allows to know the level of performance in terms of psychomotor development of children between two and five years relative to a statistical norm established by age group, and determine whether this performance is normal, or is under expected through the observation of the child's behavior in situations proposed by the examiner.

General Development 2010

Psychomotor Development Test (TEPSI): Haeussler, I. M and Marchant, T, 1994, 5th Edition

•It measures three basic areas of child development:

➢Subtest Coordination: It evaluates the ability of child to take or manipulate objects and draw, through behaviors such as build towers with cubes, threading a needle, recognize and copy geometric figures, draw a human figure among others.

➢Subtest Language: It evaluates aspects of understanding and expression of this, through behaviors such as naming objects, defining words, verbalize or describe actions scenes depicted in films.

➢Subtest Motricity: It evaluates the childs ability to manage their own bodies through behaviors like picking up a ball, hopping, walking on tiptoe or stand on one foot for a while.

General Development 2010

Battelle Developmental Inventory (BDI): De la Cruz and Gonzalez, 1998.

•It defined as a battery to evaluate basic cognitive abilities in children. The BDI contains 341 items across five developmental domains: personal-social, adaptive, motor, communication, and cognition.

•These five domains are further divided into twenty-two separate sub-domains. The **personal-social** domain is composed of: adult interaction, expressions/feelings/affect, self-concept, peer interaction, coping, and social role. The **adaptive** domain includes: attention, eating, dressing, personal responsibilities, and toileting. The **motor** domain is composed of: muscle control, body coordination, locomotion, fine muscle, and perceptual motor. The **communication** domain includes: receptive and expressive. Finally, the **cognitive** domain is composed of: perceptual discrimination, memory, reasoning/academic skills, and conceptual development.

General Development 2012

INSTRUMENT	WHAT IT MEASURES	SUITABLE FOR ELPI
Battelle Developmental Inventory Screening Test version 2 (BDI-ST2)	General Development Domains: Personal-Social, Adaptative, Motor, Communication and Cognitive.	International comparability; possitive psychometric behaviour; continuity with ELPI 2010.
Test de Aprendizaje y Desarrollo Infantil (TADI)	Development domains: Language, Cognition, Motor and Social-emotional.	It is suitable for mass application in a non-clinical context as ELPI, in terms of administration time, ease of administration, scoring, low number of manipulatives, etc., which reduces the risk of measurement error. The test presents adequate psychometric indicators (reliability and validity); being a new test, TADI does not present discrimination problems. The test is a culturally sensitive to the Chilean context and it covers the entire age range ELPI 2012.
Test de Vocabulario en Imágenes de Peabody (TVIP)	Receptive and expressive vocabulary.	A vocabulary test is proposed as the best index of school success and problem solving skills; moreover, this is a test that has worked well in the Chilean population.

Executive Function 2012

INSTRUMENT	WHAT IT MEASURES	SUITABLE FOR ELPI
Snack Delay Task (SDT)	Inhibitory control	Snack Delay Task It's a feasible test to be applied with toddlers and it's being used in other Chilean program assessments such as Un Buen Comienzo and Futuro Infantil Hoy
Pencil Tapping Task (PTT)	Working memory and inhibitory control	This test measures working memory in young children, who have not even spoken language developed and is being used in different Chilean assessments such as Un Buen Comienzo, Futuro Infantil Hoy.
Backward Digit Span Task (BDS)	Working memory	Working memory tasks include the ability of keeping information in the memory, as well as the ability to process that information (Zelazo, Müller, Frye, & Marcovitch, 2003). The test it's both easy and quick to administrate.
Head Toes Knees Shoulders Task (HTKS)	Working memory, cognitive flexibility and inhibitory control	It is a test of simple application and requires no equipment. This test is used in other Latin American countries as part of PRIDI.

Socioemotional 2010 and 2012

INSTRUMENT	WHAT IT MEASURES	SUITABLE FOR ELPI
Ages & Stages Questionnaire: Social Emotional (ASQ:SE)	Problems in social and emotional development (self-regulation, directions follow, communication, adaptation, autonomy, affection and interaction.	The test worked properly in ELPI 2010 and it's easy and quick to administrate.
Child Behaviour Checklist (CBCL)	Behavior and social-emotional issues	The test worked properly in ELPI 2010 and it's easy and quick to administrate.

Cognitive 2010 and 2012: Mothers

INSTRUMENT	WHAT IT MEASURES	SUITABLE FOR ELPI
Weschler Adult Intelligence Scale (WAIS) Dígitos	Working memory, with processing speed, short-term listening memory, sequencing, regardless of the distraction, ease with numbers and mental alertness.	Interest to administrate to the 3.000 new cases and mothers who were not assessed or were younger than 20 year in the first wave, as it is a intelligence measure used in 2010.
Weschler Adult Intelligence Scale (WAIS) Vocabulario	Cultural level and capacity to receive new information, store and use them properly.	Interest to administrate to the 3.000 new cases and mothers who were not assessed or were younger than 20 year in the first wave, as it is a intelligence measure used in 2010.

Socioemotional 2010 and 2012: Mothers

INSTRUMENT	WHAT IT MEASURES	SUITABLE FOR ELPI
Big Five Inventory (BFI)	5 broad personality traits: Neuroticism, Extraversion, Openness to Experience, Agreeableness, Conscientiousness	Interest to administrate to the 3.000 new cases, and mothers who were not assessed or were younger than 20 year in the first wave, as it is a personality measure used in 2010.
Edinburgh Postnatal Depression Scale (EPDS)	Presence of mother depressive symtomatology after her child's birth	Differentiate the mother's depressive symptomatology level according to the type of parental leave they took and those that did not have access to none
Parent Stress Index: Short Form (PSI:SF)	Magnitud of stress in mother-child dyad	It has been used in several international studies (Britner, Morog, Pianta, & Marvin, 2003; Button, Pianta, & Marvin, 2001) and national (Juguemos con Nuestros Hijos, Universidad Católica). It is expected to inform public policies, especially those referred to parental leave and parent psychoeducation

HOME Adaptation 1 y 2

- Elaboration of an adaptation of the HOME scale to exclude questions that needed interpretation and to include questions of mother sensibility. Also to include children over 36 months.
  - Family educative environment;
  - Mother or caregiver emotional and verbal response;
  - Cancellation of restriction and punishment;
  - Maternal commitment with child; and
  - Home

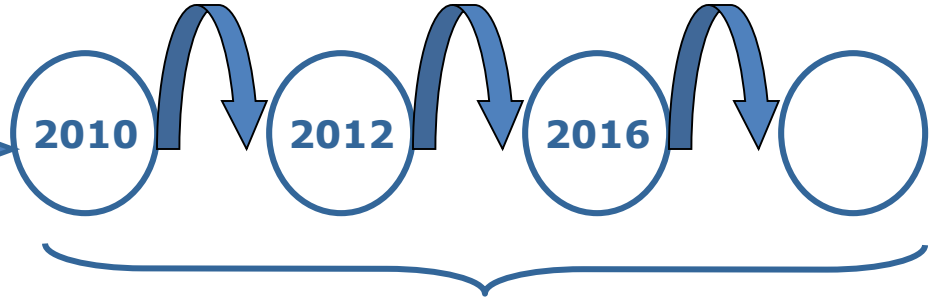
Anthropometric Measures

- Information about physical variables will be compared with growth and normal development proposed by W.H.O.

- These measures are important as they are key instrument to promote, administrate and evaluate health objectives and indicators.

A System of Information

ENCUESTA LONGITUDINAL DE LA PRIMERA INFANCIA



Longitudinal Survey & Assessment

SELF-REPORT OF MOTHER'S LABOR HISTORY

Covering period before 2012

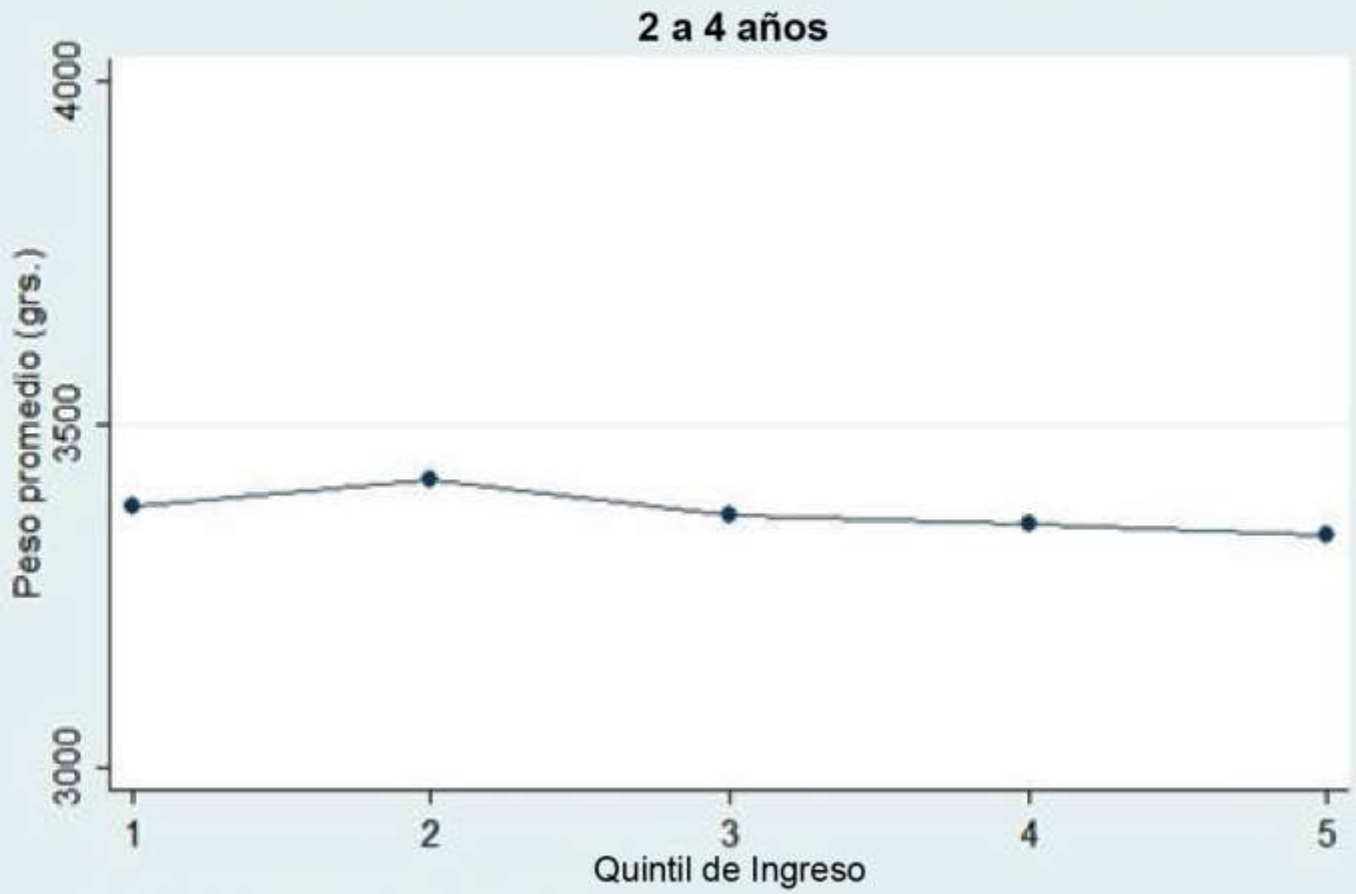
LINKAGE WITH ADMINISTRATIVE RECORDS

Social Security Records: employment and wages of parents.
Health Records (in process)

Public Data Bases with protection of confidentiality

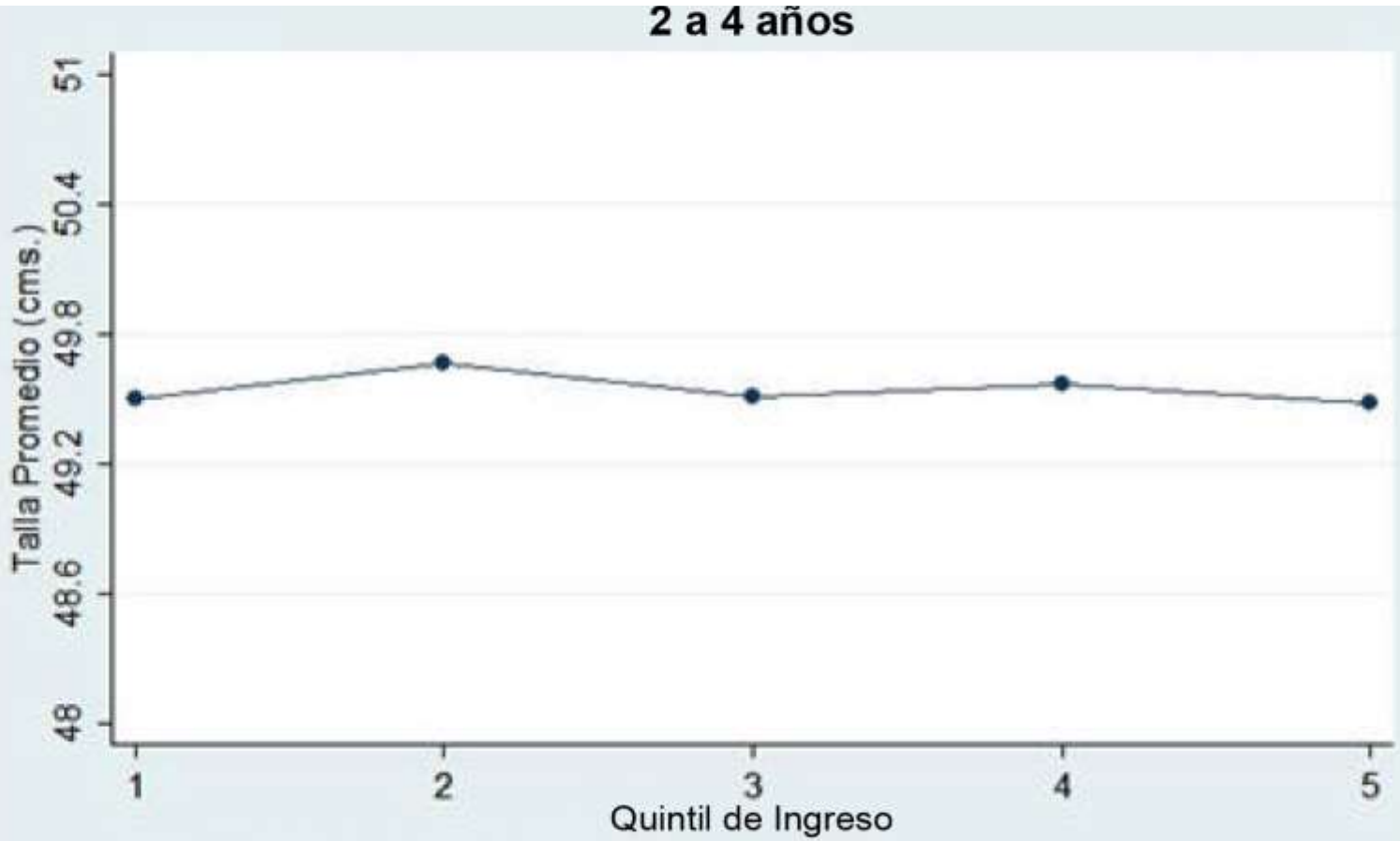
V. Some Results from ELPI

No differences in weight at birth by socioeconomic group



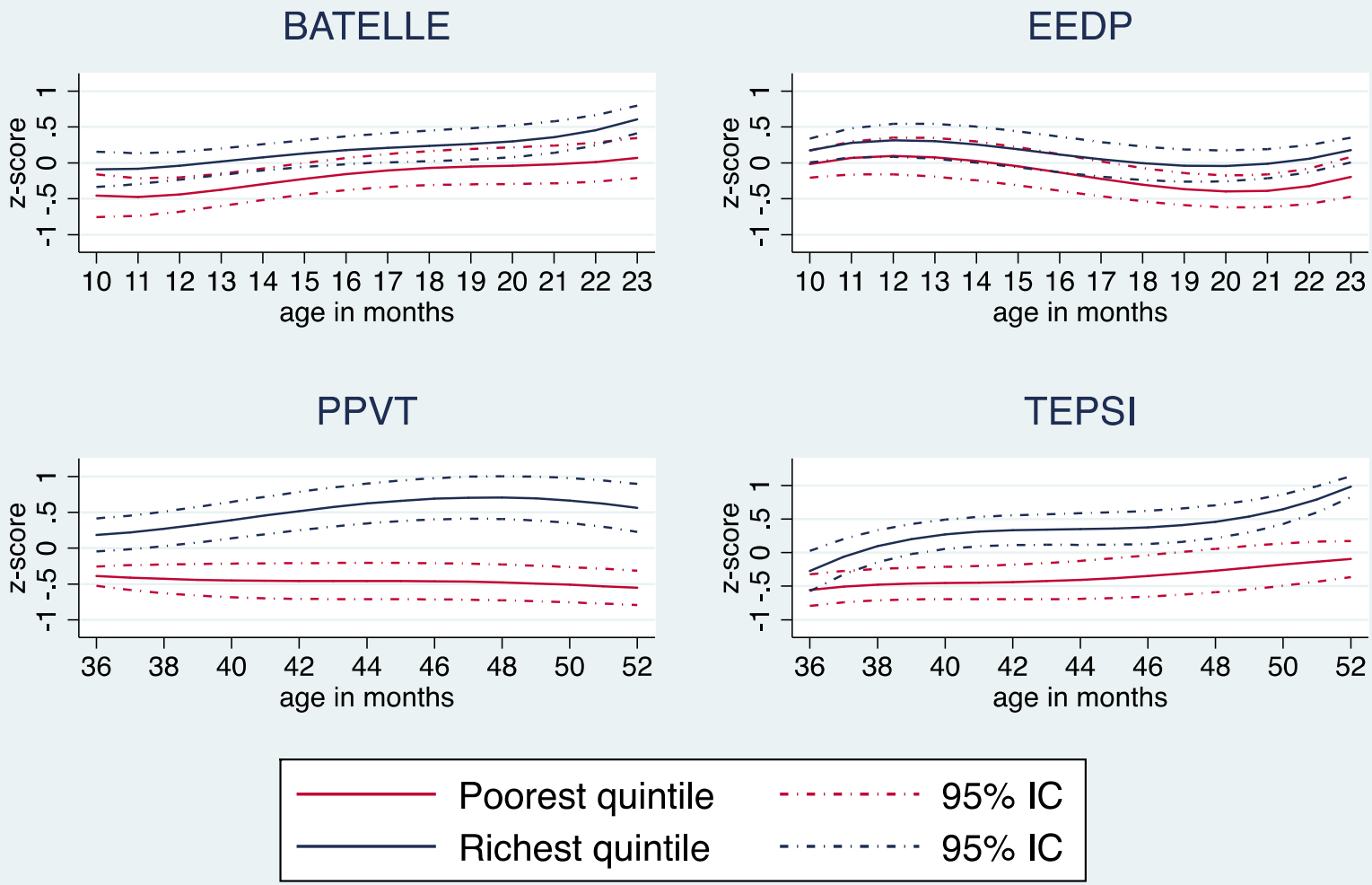
Fuente: Elaboración Propia. ELPI 2010

No differences in height at birth by socioeconomic group



Fuente: Elaboración Propia. ELPI 2010

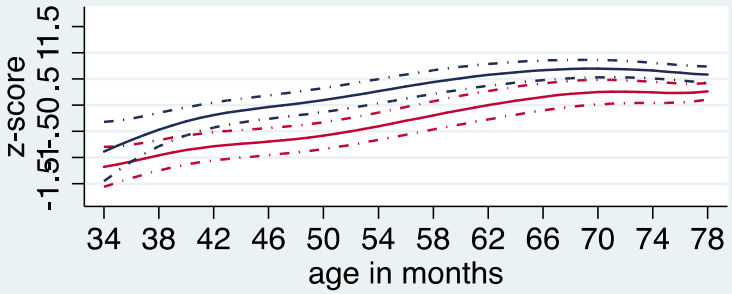
Wealth Indexes



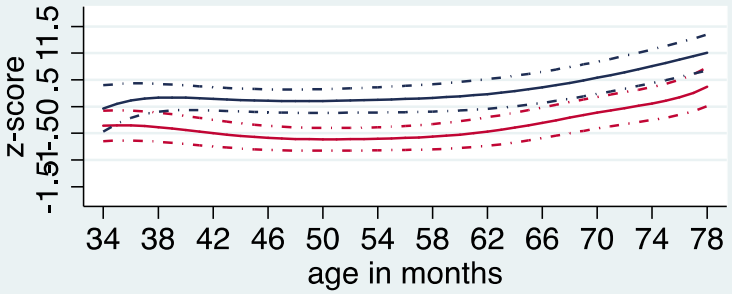
Source: ELPI2010.

Wealth Indexes

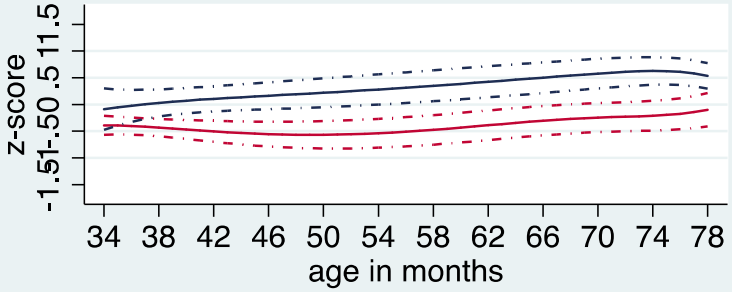
BATELLE



TADI



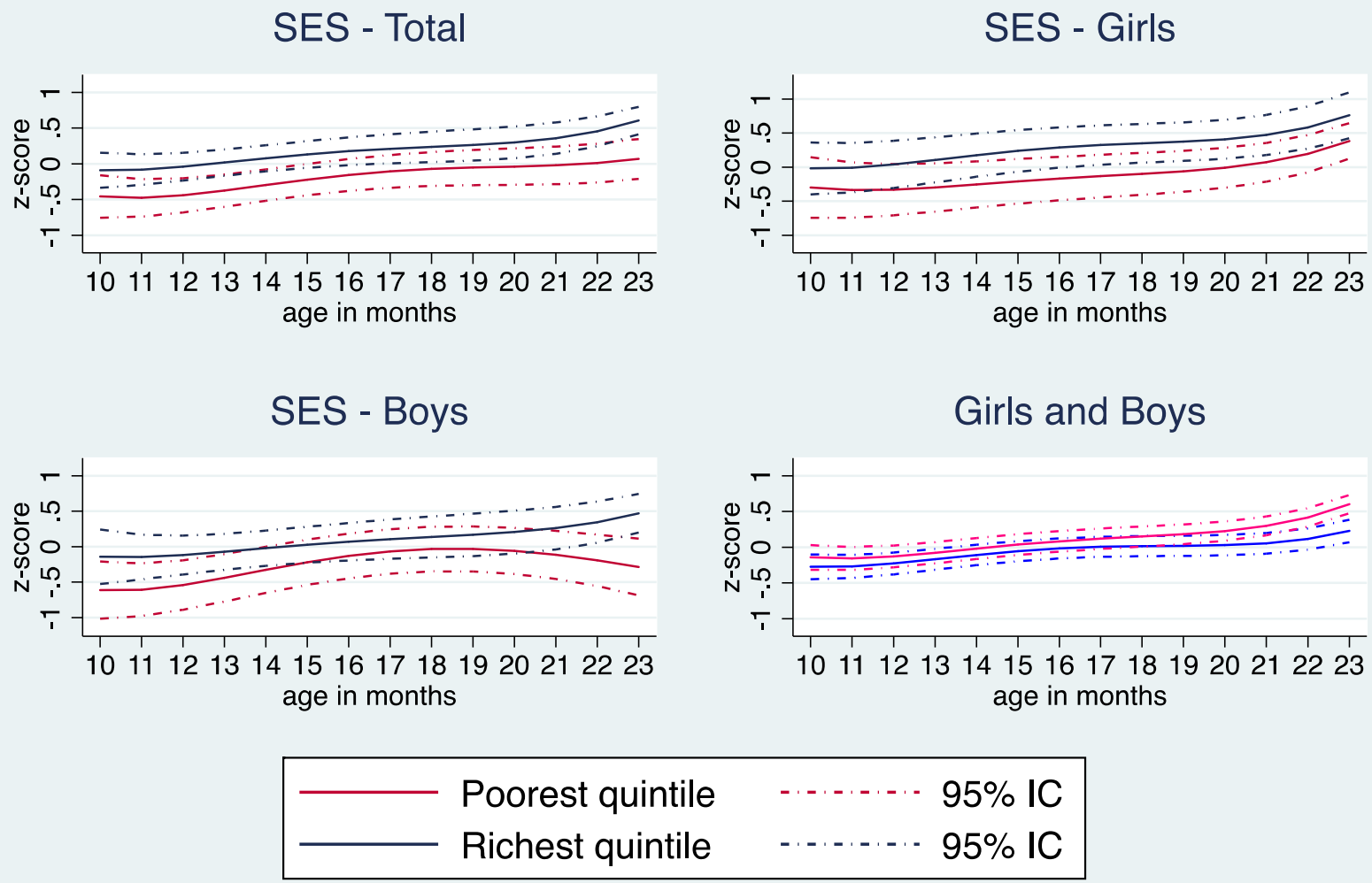
PPVT



Poorest quintile	95% IC
Richest quintile	95% IC

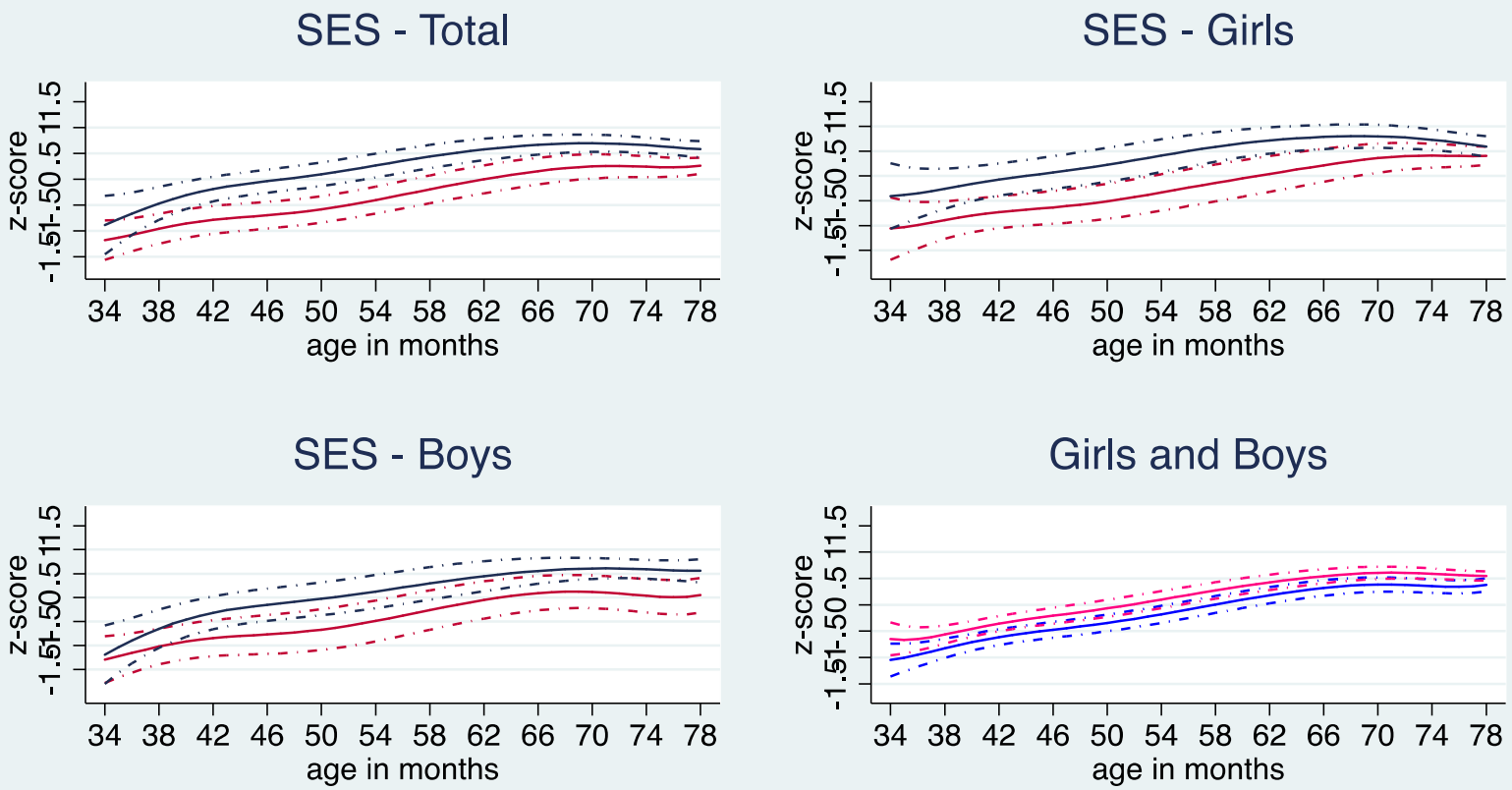
Source: ELPI2012.

General Development (BATELLE)



Last graph: Pink (girls) and Blue (boys). Source: ELPI2010.

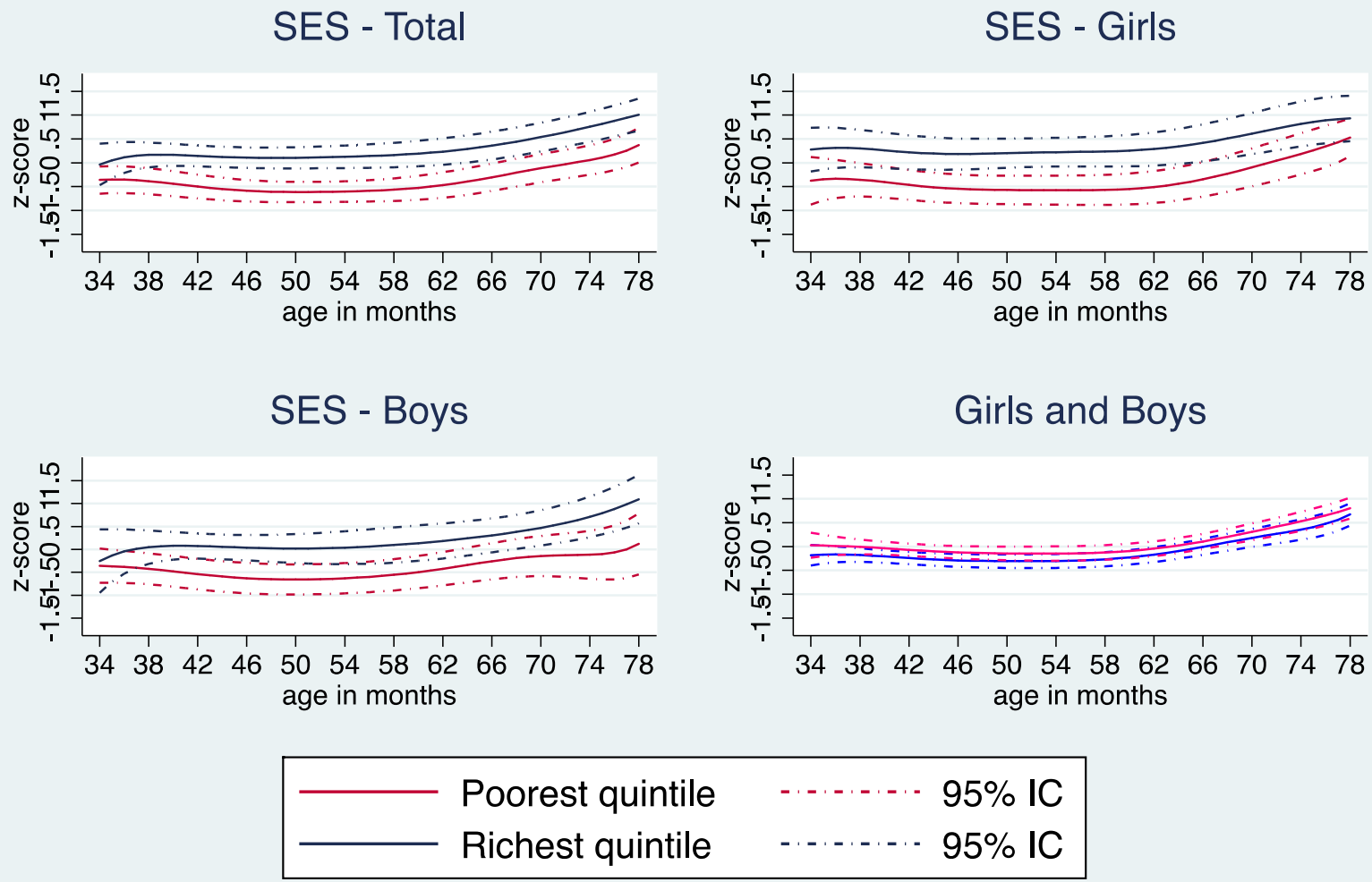
General Development (BATELLE)



Poorest quintile		95% IC	
Richest quintile		95% IC	

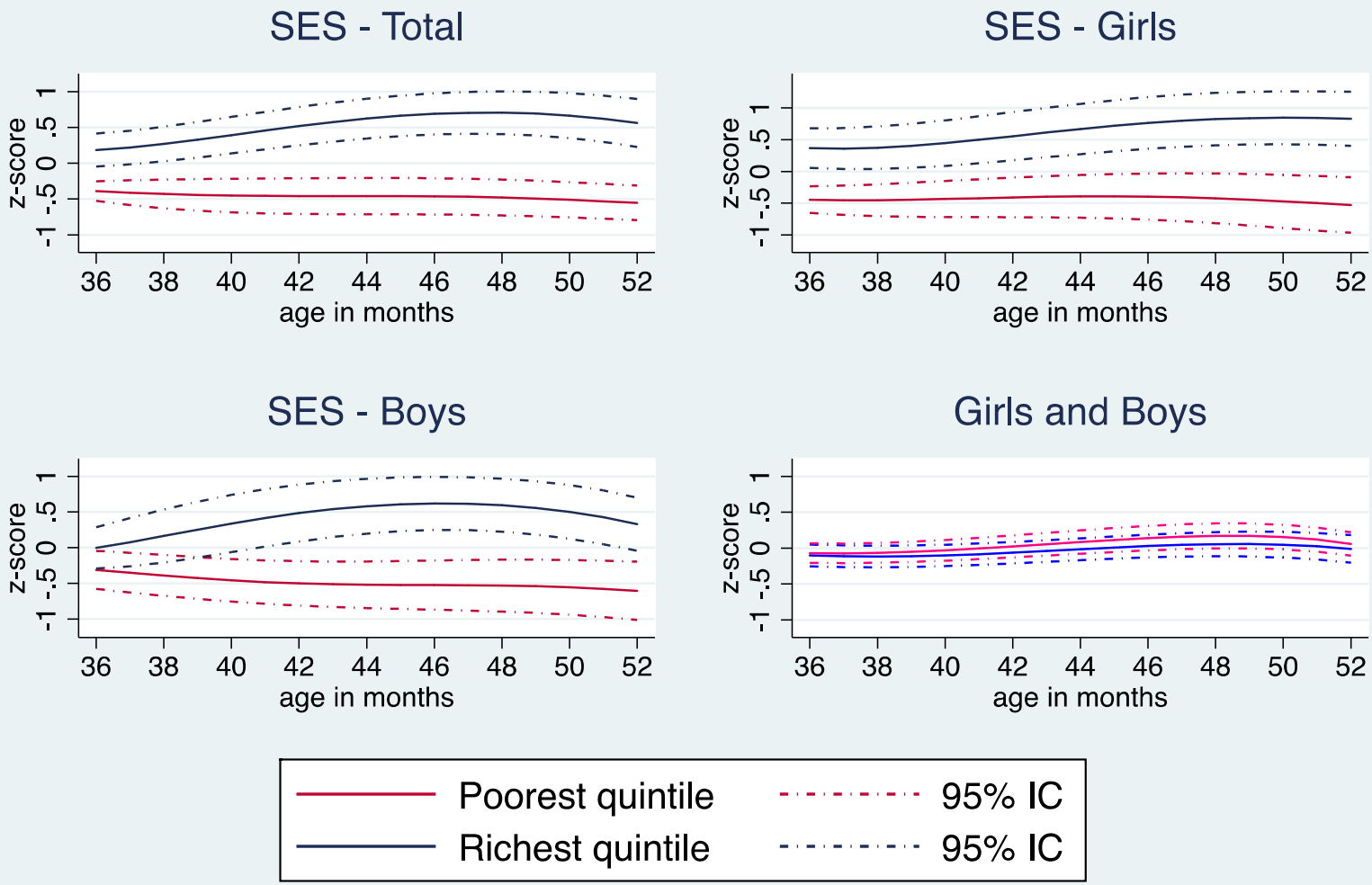
Last graph: Pink (girls) and Blue (boys). Source: ELPI2012.

General Development (TADI)



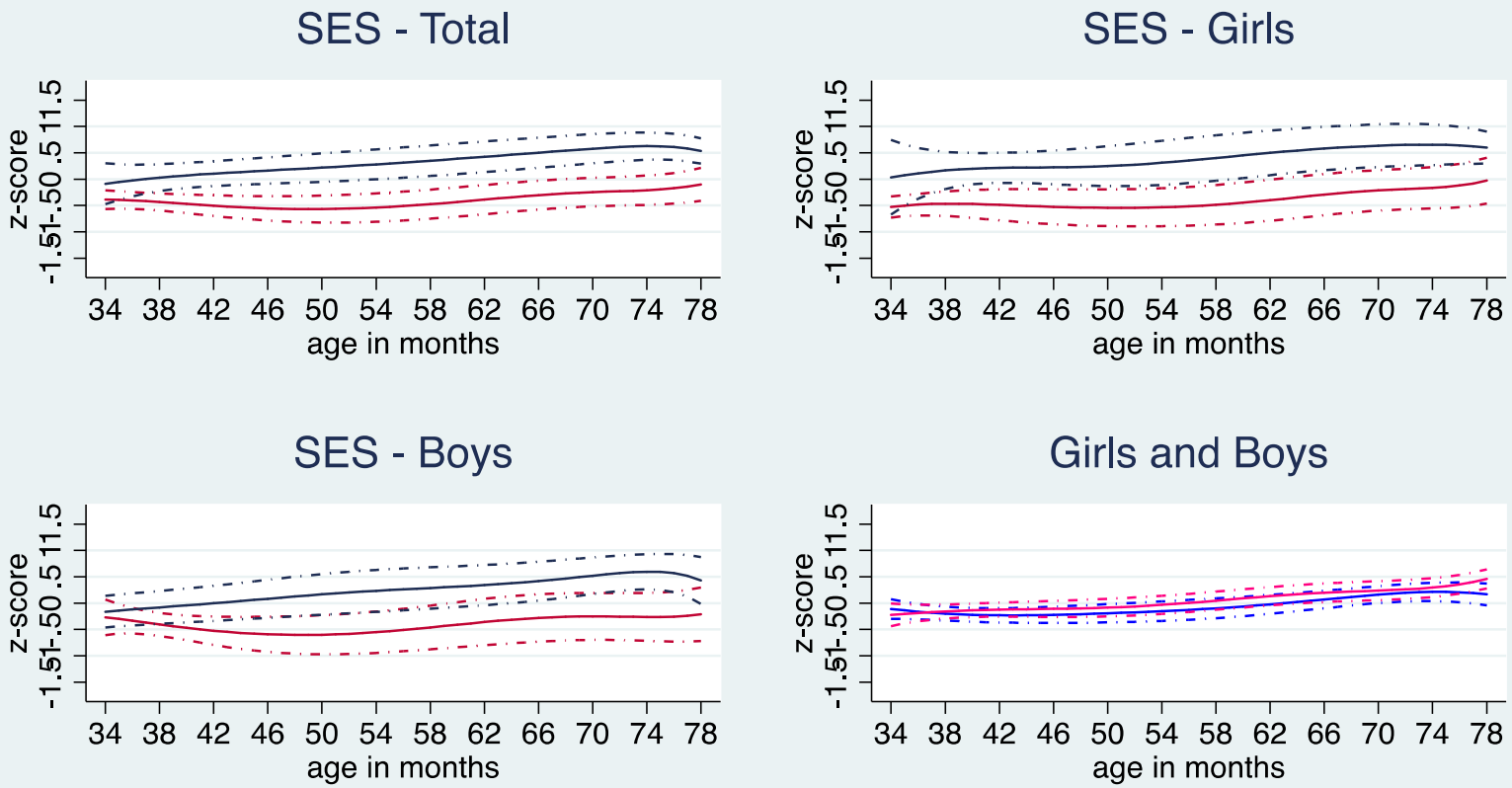
Last graph: Pink (girls) and Blue (boys). Source: ELPI2012.

Language Skills (PPVT)



Last graph: Pink (girls) and Blue (boys). Source: ELPI2010.

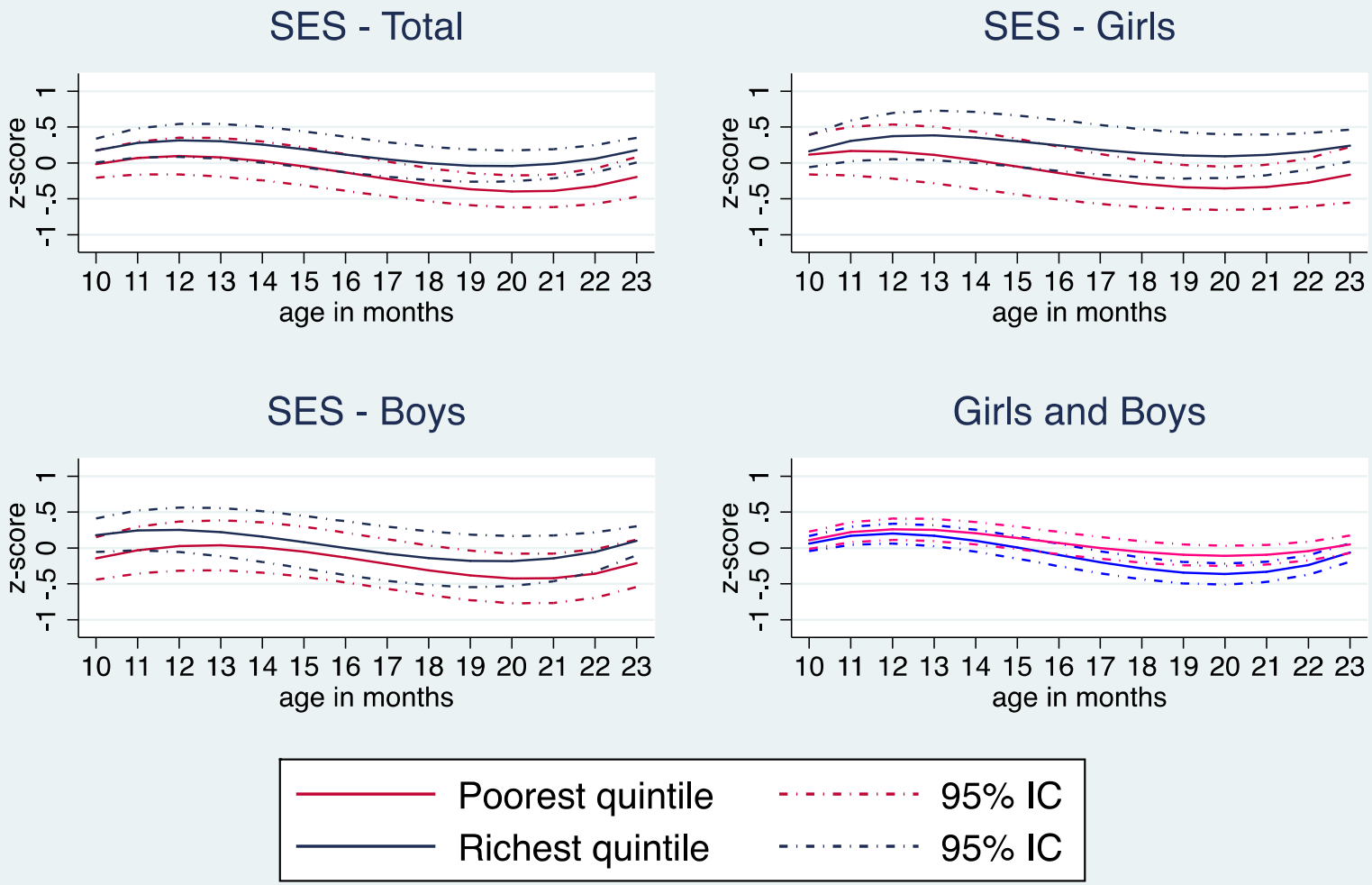
Language Skills (PPVT)



Poorest quintile	95% IC
Richest quintile	95% IC

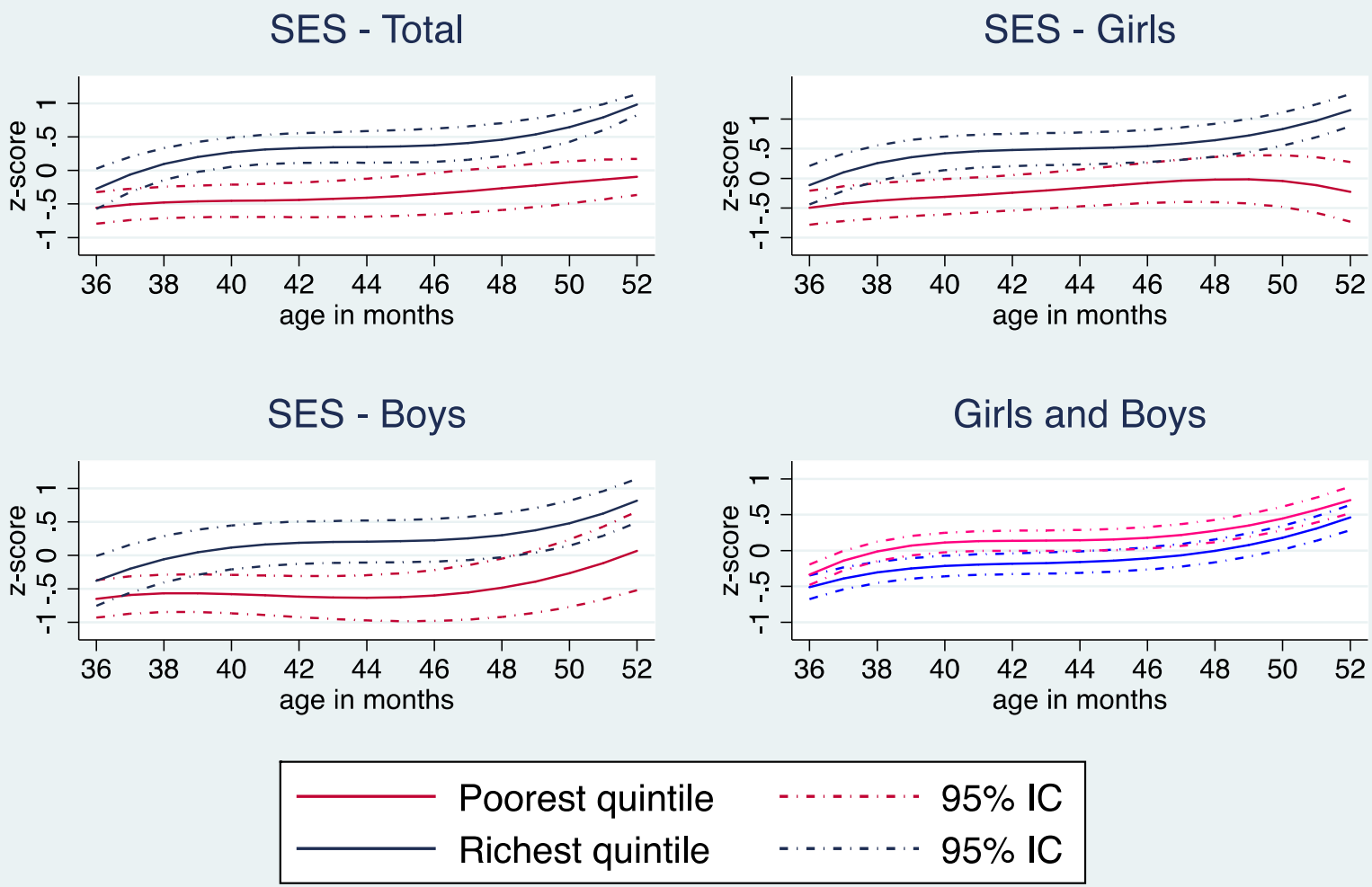
Last graph: Pink (girls) and Blue (boys). Source: ELPI2012.

General Development (EEDP)



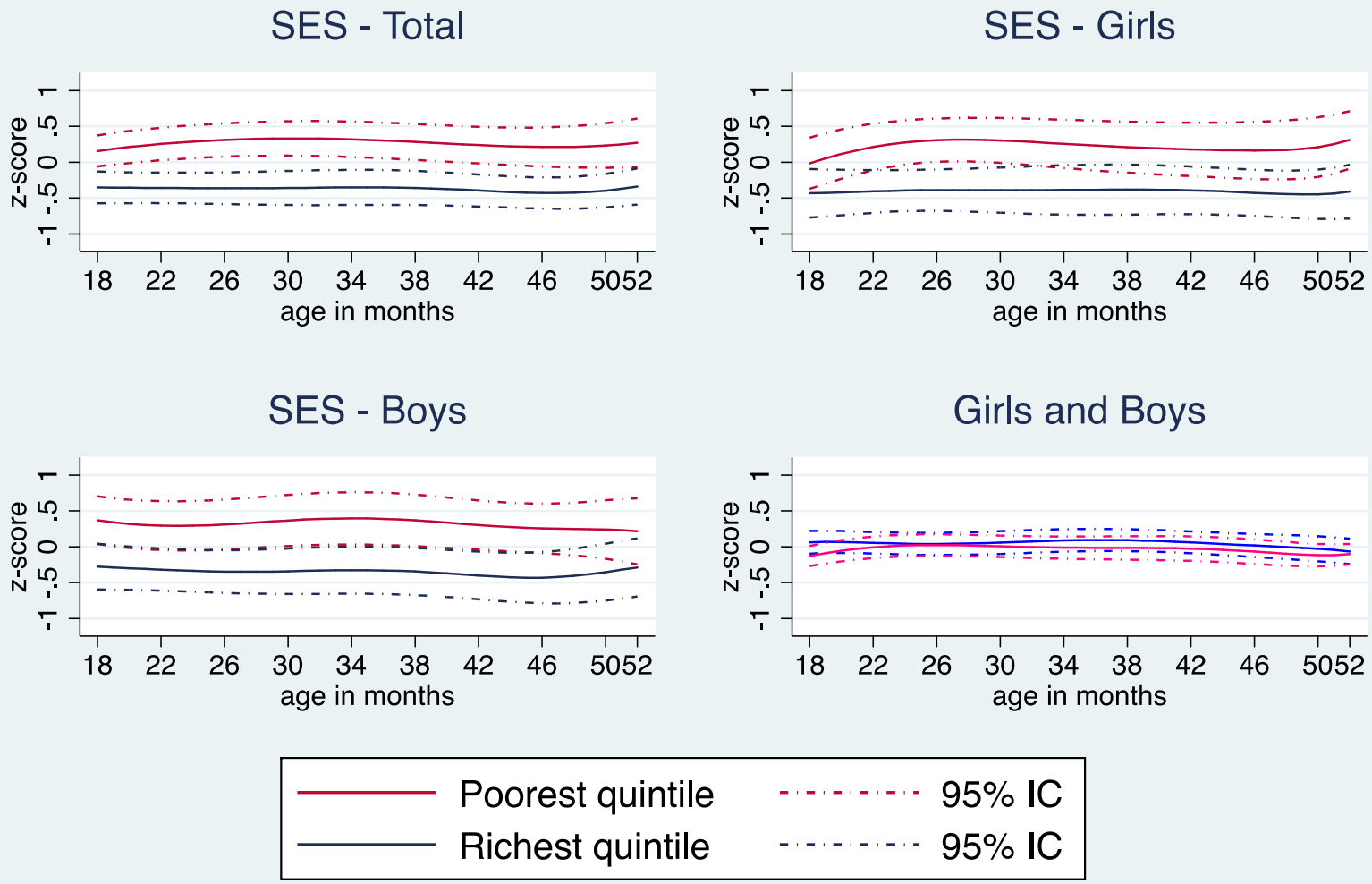
Last graph: Pink (girls) and Blue (boys). Source: ELPI2010.

General Development (TEPSI)



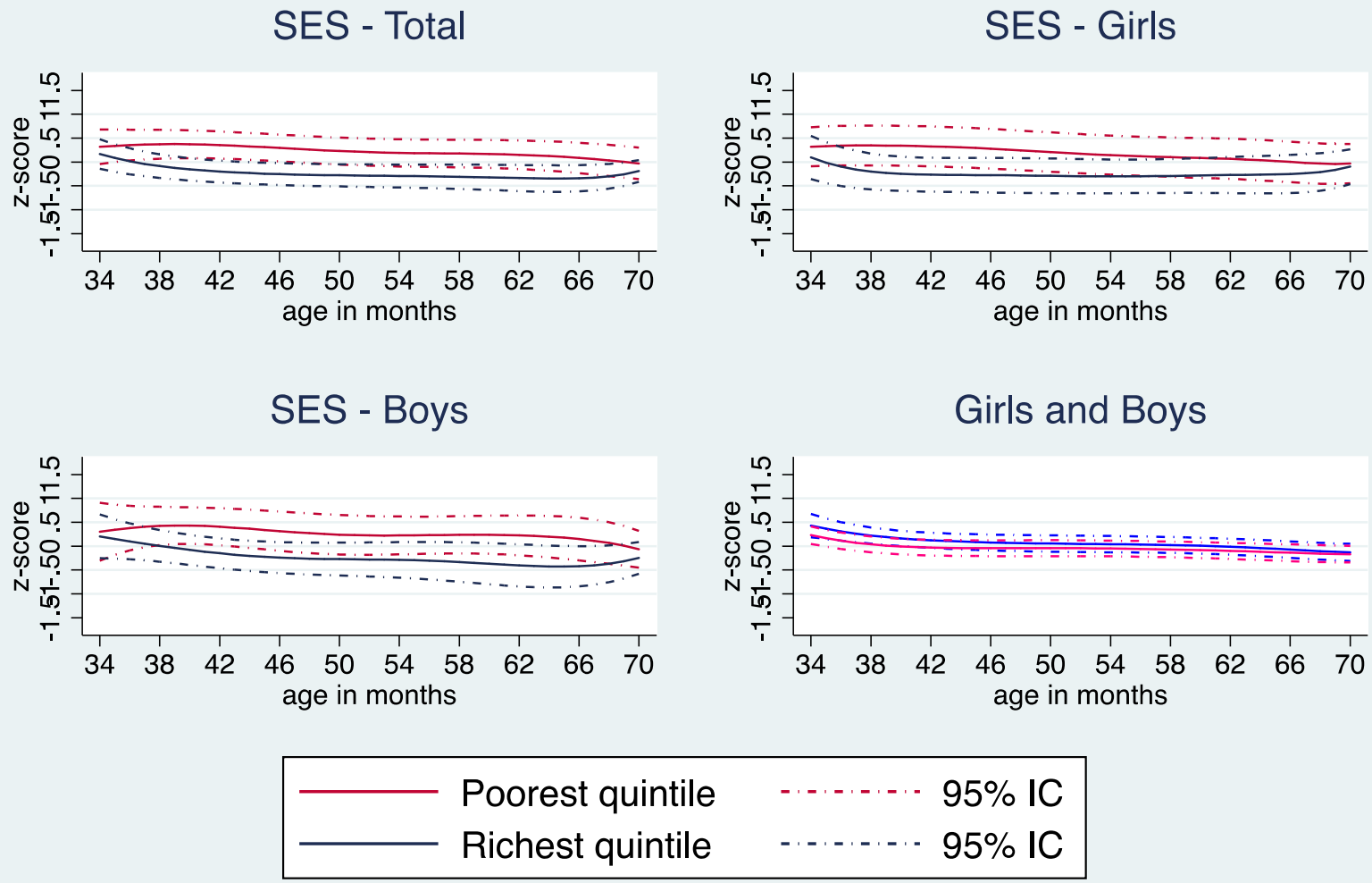
Last graph: Pink (girls) and Blue (boys). Source: ELPI2010.

Socioemotional Development (CBCL)



Last graph: Pink (girls) and Blue (boys). Source: ELPI2010.

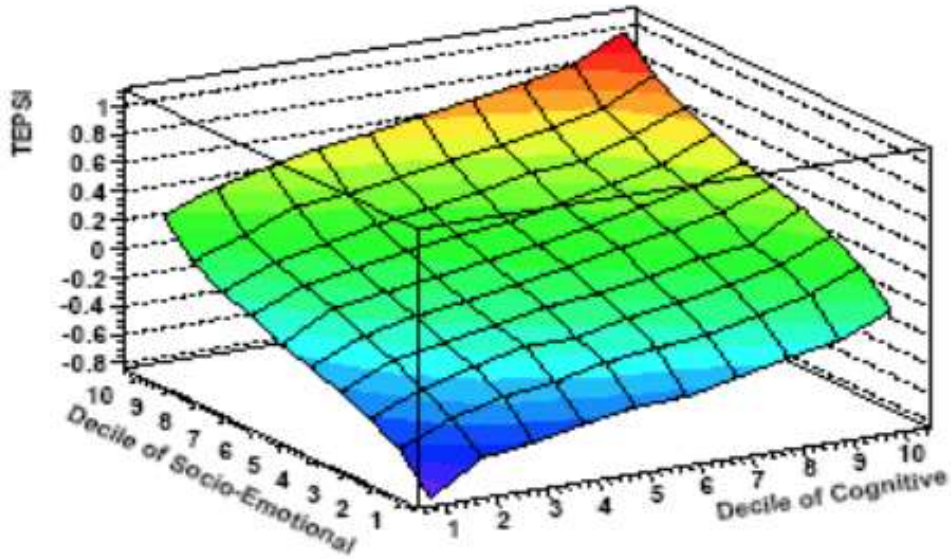
Socioemotional Development (CBCL)

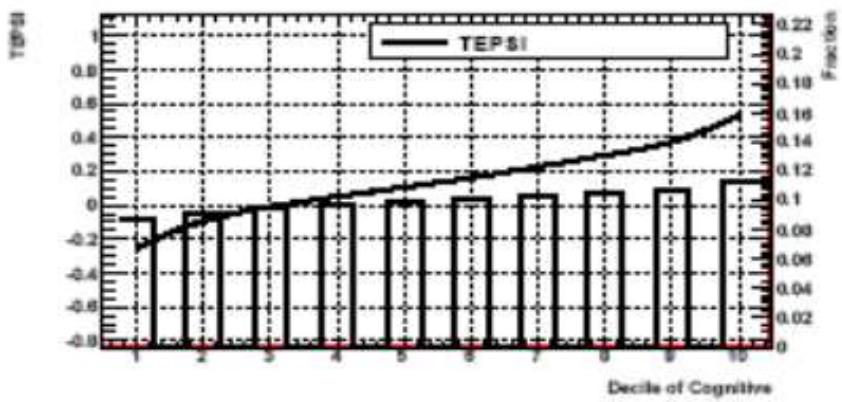


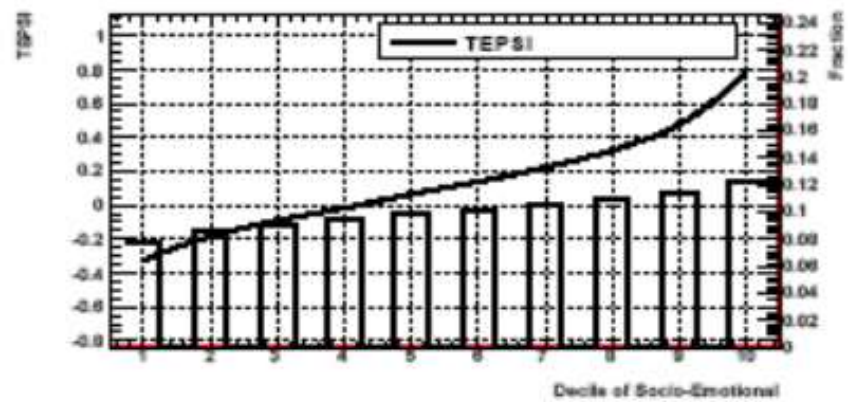
Last graph: Pink (girls) and Blue (boys). Source: ELPI2012.

FigurE 8. Average TEPSI score for Children that Enrolled in Childcare (Treatment Group) as a Function o

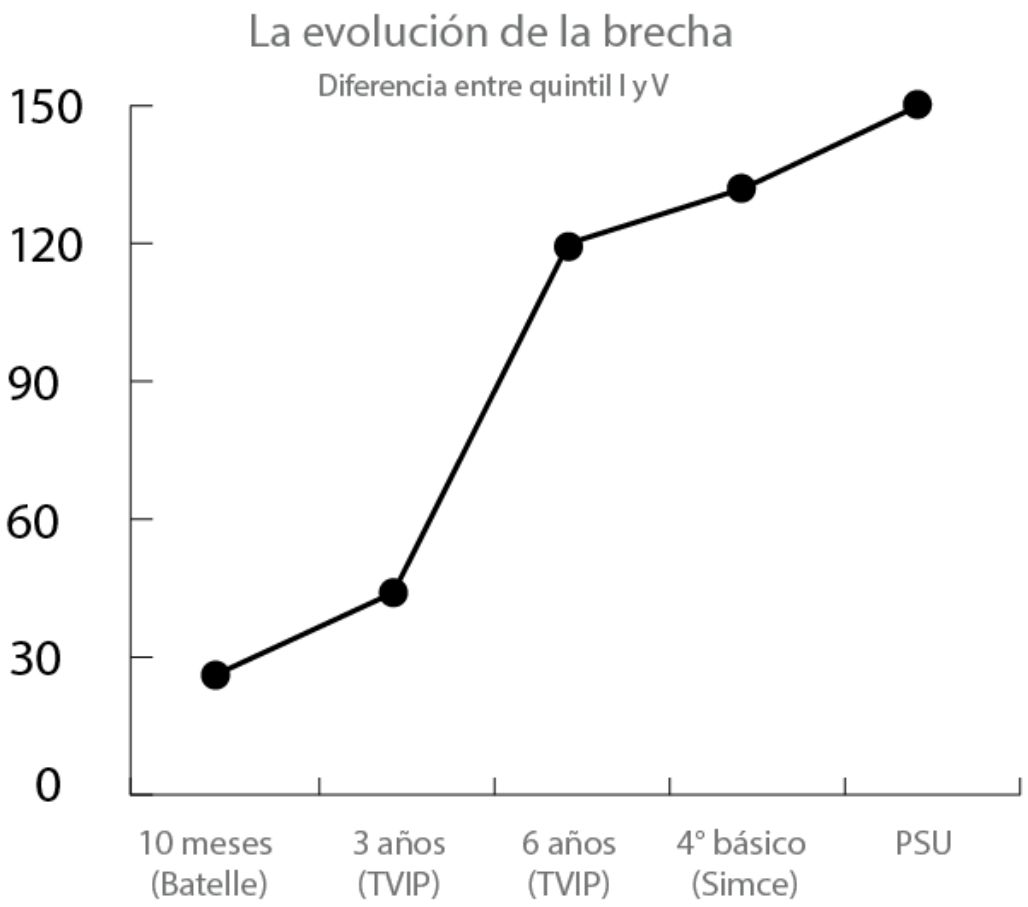
Mother's cognitive and socio-emotional unobserved abilities.







Socioeconomic gaps (110=1 standard deviation)



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Encuestas y Estudios
Longitudinales