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Early years studies

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Early years studies

Abstract

Keynote address at the MRC Population Health Sciences Research Network/MRC Methodology Research Panel Workshop, 21 January 2010, London, United Kingdom

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Early Years Studies

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Effective Pre-School and Primary Education EPPE



Kathy Sylva – University of Oxford
Pam Sammons – University of Nottingham
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EPPE STUDY

(3+ yrs)



School starts



6yrs

7yrs

10yrs

11yrs

25 nursery classes
590 children

34 playgroups
610 children

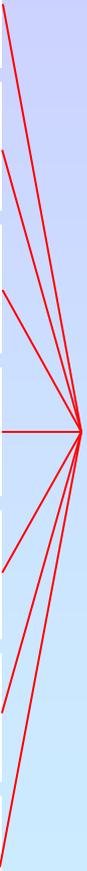
31 private day nurseries
520 children

20 nursery schools
520 children

24 local authority day care nurseries
430 children

7 integrated centres
190 children

home
310 children



Key Stage 1
600 Schools
approx. 3,000 chd

Key Stage 2
800 Schools
approx. 2,500 chd



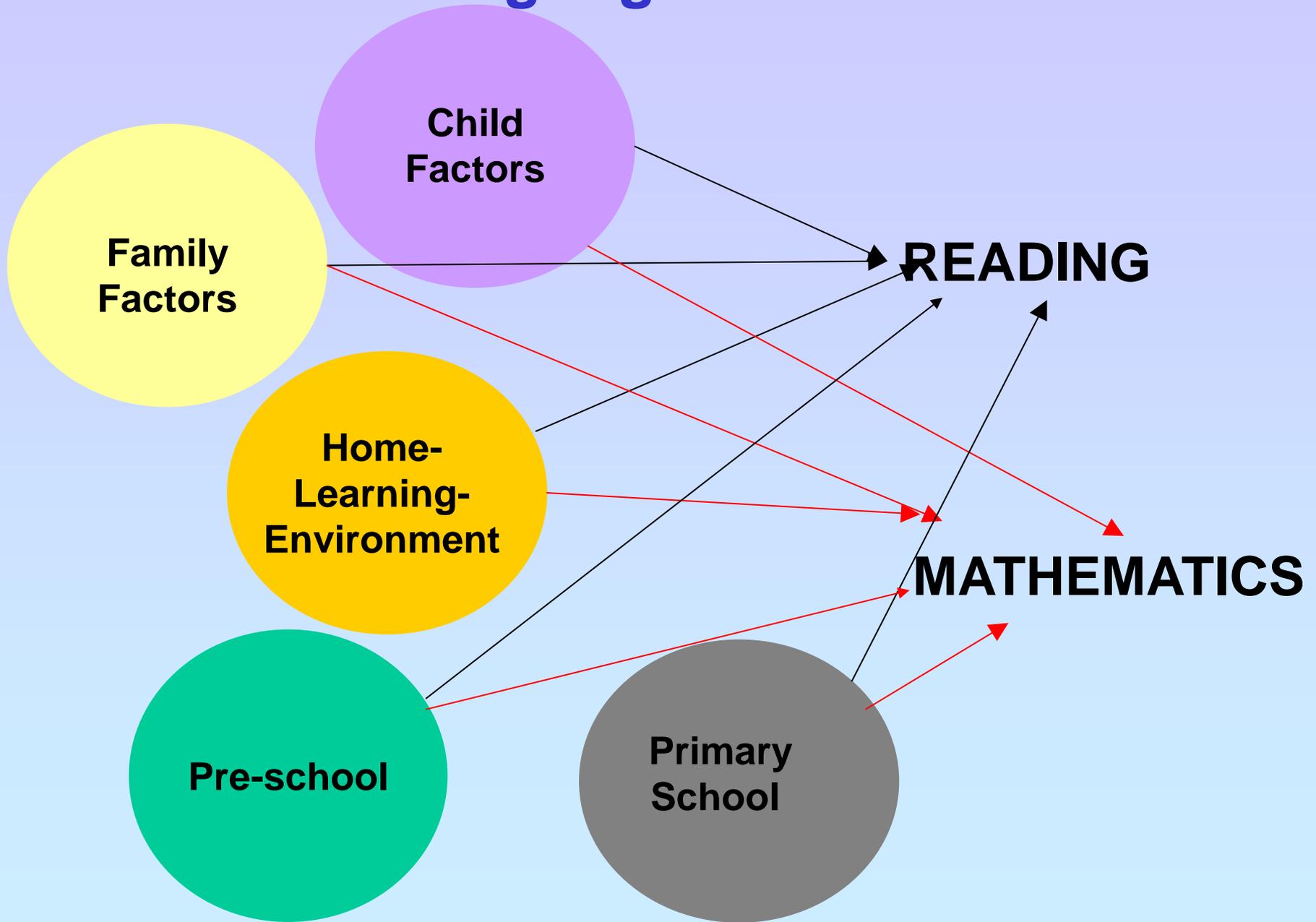
- **Preschools/Schools where children make greater progress than predicted on the basis of initial attainment and background characteristics - *more effective.***
- **Preschools/Schools where children make less progress than predicted - *less effective.***

Case studies of Effective Pre- schools

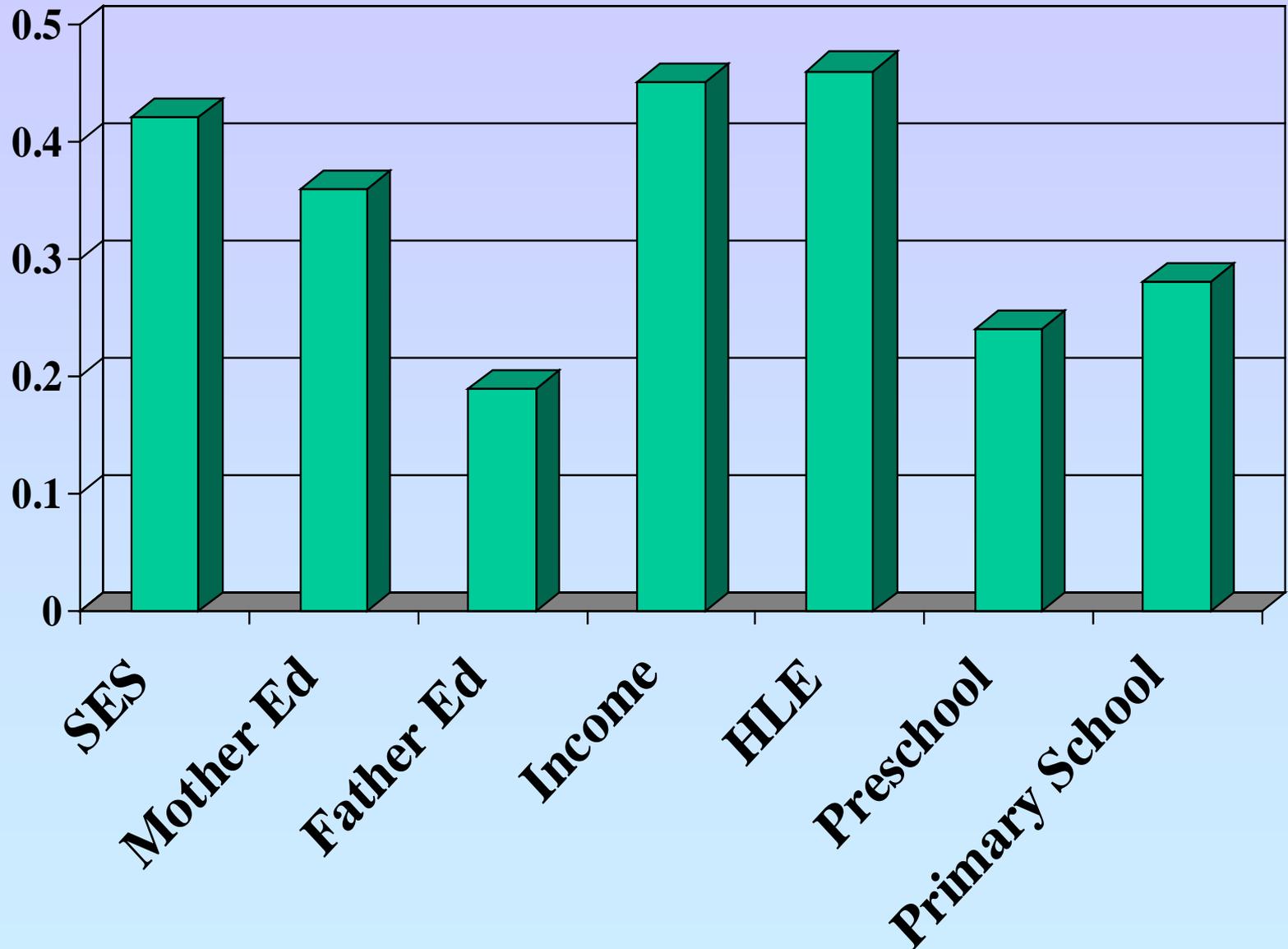
Five areas were particularly important:

- **Quality of the adult-child verbal interaction.**
- **Knowledge and understanding of the curriculum.**
- **Knowledge of how young children learn.**
- **Adults skill in supporting children in resolving conflicts.**
- **Helping parents to support children's learning at home.**

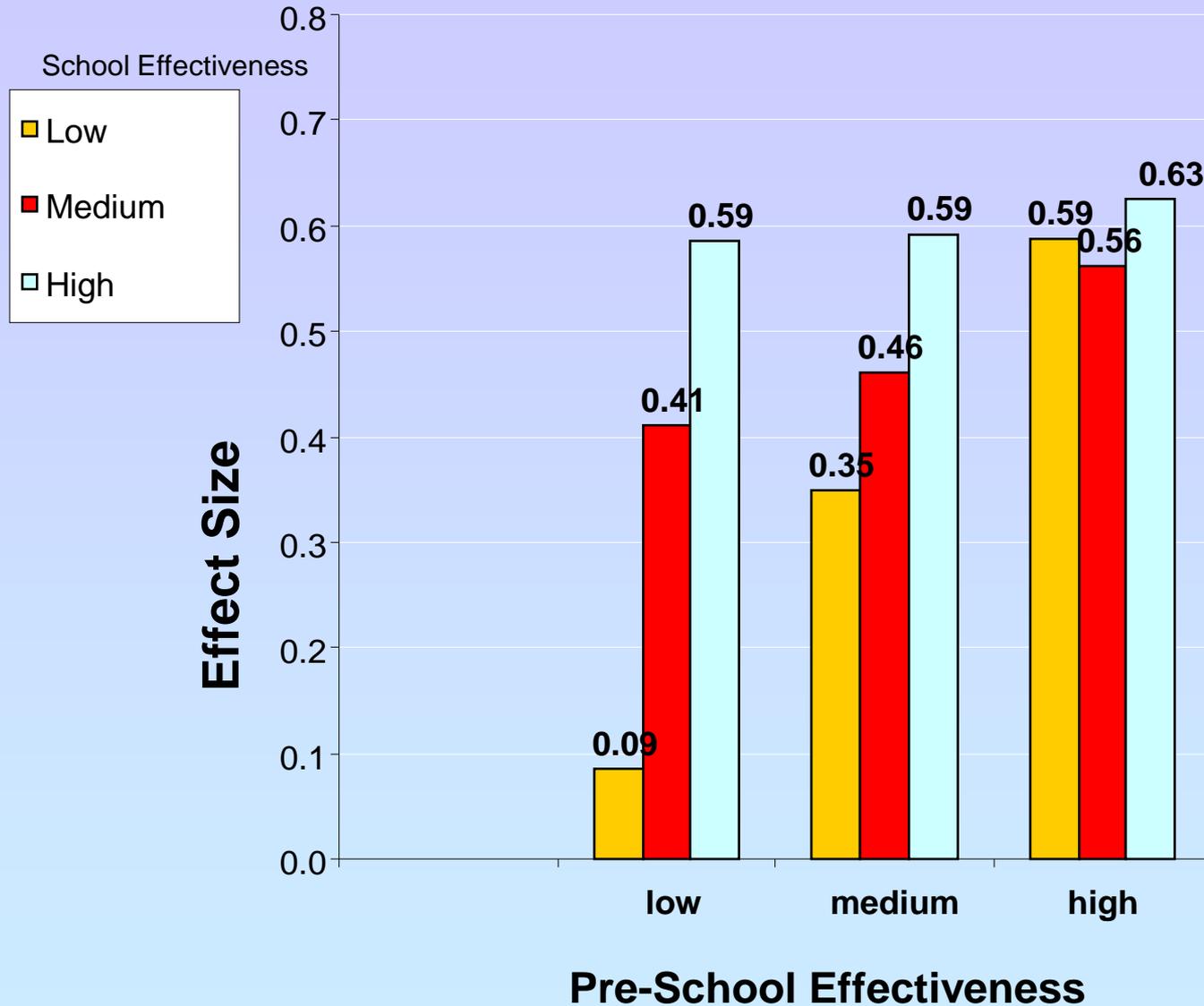
Modelling Age 11 outcomes



Effects upon child achievement -age 11



Combined Impact of Pre- and Primary School - Maths



Reference Group: No Pre-School and low Primary School Effectiveness

National Evaluation of Sure Start Impact study

Aim:

- To evaluate impact upon children and families

Three components

- First phase
 - 9 and 36 month olds and their families
 - in SSLP and SSLP-to-be areas
- Programme variability
 - investigates links between implementation and impact
- Longitudinal study
 - 9000 children seen at 9 months, 3 years, 5 years
 - comparison group from Millennium Cohort Study

As RCT ruled out we used a quasi-experimental design.

Who should be the control group?

Cross-sectional phase,

controls= Sure Start-to-be -waiting list controls

Longitudinal Phase,

Propensity matching to select control group from
Millennium Cohort Study (MCS)

INTENTION TO TREAT DESIGN

All children and families in an area are the targets of Sure Start

so random sample in an area chosen

Sample chosen from Child Benefit records

2005: Cross-sectional results

Sub-group findings (3-year-olds)

Among non-teenage mothers (86% of total):

- greater child social competence in SSLP areas
- fewer child behaviour problems in SSLP areas
- less negative parenting in SSLP areas

2005: Sub-group findings (3-year-olds)

Among teenage mothers (14% of total):

- less child social competence in SSLP areas
- more child behaviour problems in SSLP areas
- poorer child verbal ability in SSLP areas

Among lone parent families (40% of total):

- poorer child verbal ability in SSLP areas

Among children in workless h/hlds (33%):

- poorer child verbal ability in SSLP areas

Also large variation amongst SSLPs

Key question:

Why are some SSLPs more effective in achieving outcomes than others?

Programme variability provides some answers

Impact study uses multi-level modelling

Data clustered by Sure Start areas

Effective - better than expected outcomes based on covariates

Ineffective - worse than expected outcomes based on covariates

Therefore we have a continuum of
"effectiveness"

What predicts “effectiveness”?

We use all our data on implementation to construct 18 dimensions of proficiency.

Key dimensions related to effectiveness:

- Effective governance and management / leadership
- Informal but professional ethos of centre
- Empowerment of service providers and users
- Recruiting / training staff – qualifications
- Good multi-agency teamwork

Longitudinal Study

The impact of well-established SSLPs on
3-year-olds and their families

How to find comparison group?

Millennium cohort study – random sample of children in UK

Using post codes for sample in England

- Create clusters resembling neighbourhoods

- Select MCS neighbourhoods not receiving Sure Start

- Using propensity matching on 85 area variables find areas that resemble Sure Start areas

- Use the MCS sample in those areas as comparison group

Options for selection of a comparison group from MCS

1. Use entire MCS cohort and statistically control for potentially confounding factors
2. Use children from economically disadvantaged families in the MCS
3. Use children residing in economically disadvantaged areas in the MCS
4. Use children from economically disadvantaged families residing in economically disadvantaged areas

Disadvantages of using entire MCS cohort

- It may be necessary to control for several contextual confounds, losing degrees of freedom (at the area level)
- Areas dissimilar to Sure Start areas add nothing to the analysis (and can confound it)
- Even individual relationships with an outcome may be context-specific (cross-level interactions)

“propensity scoring”, -addresses selection bias

—that is, the possibility that those who experience a treatment (i.e., Sure Start) may differ in unmeasured ways from those who did not. The term propensity refers to “a conditional probability of an individual being in a treatment group, given a set of background variables for that individual”.

In this study whether a child is in the treatment group is determined by whether or not the child lives in a SSLP area; the problem therefore reduces to identifying those areas that have a greater or lesser propensity of having populations that are similar to those of SSLP areas.

In propensity matching we used **85** area-level variables measured for Sure Start and non-Sure Start areas derived from the Index of Multiple Deprivation (IMD) and Census

Area characteristics

% lone parent families
% inflow households with children
% outflow households with children
% Europe
% Asian Bangladeshi
% Asian Indian
% Asian Pakistani
% Black African
% Black Caribbean
% Chinese
% mixed
% other
% white british
% white other
% of all people LLTI
% of people working or seeking with LLTI
% no working parents with children
% unemployed
% econ. active ft student
% long term unemployed
% all manageria
% lower manageria
% intermediate
% small employers

% lower supervisory/technical
% all routine
% never worked and long term unemployed
% not classified
% vacant households
% unshared
% of all households owned
% all households social and council rented
% over 1.5 persons per room
% of all hholds with no dependent children
% Christian
% Buddhist
% Hindu
% Jewish
% Muslim
% Sikh
% any other religion
% no religion
% religion not stated
% no qualifications
% of under 24 with no qualifications
standardised LLTI males (per 100)

standardised LLTI females (per 100)
% of people aged 0-4
% of people aged 65+
% hholds all pensioners
% people in hholds with no car or van
% of aged 16+ ft students
% age 15-24 in ft educ
Weighted paycheck mean
% income < 60%median
IMD score 2004
IMD crime score
IMD education score
IMD employment score
IMD environment score
IMD health score
IMD housing score
IMD IDAC score
IMD IDAOP score
IMD income score

SSLP populations more disadvantaged than MCS. This necessitated dividing the NESS and MCS samples into five strata reflecting the degree of propensity to be chosen as an SSLP area.

Stratum 1 - lowest propensity to be chosen as SSLP area

Stratum 5 - highest propensity to be chosen as a SSLP area.

Propensity	SSLP areas	<i>MCS areas</i>
Stratum	N	<i>N</i>
1	2	<i>53</i>
2	15	<i>40</i>
3	33	<i>22</i>
4	45	<i>10</i>
5	55	<i>1</i>
TOTAL	150	<i>126</i>

To accommodate different distributions by strata a two-stage analysis plan was implemented

1. We restricted the main Sure Start- non-Sure Start comparisons to Strata 2-4.
2. Are children/families in strata 2, 3, 4 and 5 functioning similarly.

If they scored similarly on outcome measures, this would suggest that any detected effects of SSLPs should generalise to all Sure Start children/families.

We compare

- 5883 children / families in 93 SSLP areas, and
- 1879 children / families in 72 non-SSLP areas

Results

Controlling for child, family and area characteristics we test for SSLP vs. non-SSLP differences

Of 14 outcomes 7 showed a significant difference between SSLP and non-SSLP areas, i.e. a SSLP effect

Results

Of 14 outcomes 7 showed a significant difference i.e. a SSLP effect

5 outcomes indicated beneficial effects for SSLPs. These were:

- child positive social behaviour (cooperation, sharing, empathy)
- child independence / self-regulation
(works things out for self, perseverance, self-control)
- Parenting Risk Index (observer rating + parent-child relationship, harsh discipline, home chaos)
- home learning environment
- total service use

In addition there were better results in SSLPs for:

- child immunisations
- child accidents

But these 2 outcomes could have been influenced by timing effects

Methodological Issues

Timing – 2 year gap between Sure Start and comparison data – we test for effects of timing

Different teams collecting data – we coordinated with MCS – but inevitable differences

Unmeasured variables – always a problem with quasi-experimental studies (but also RCTs) – large number of covariates to reduce the likelihood of unmeasured effects.

-linked to how adequate is control group.

Do SSLP effects vary by subgroups?

We looked at subgroups by 6 demographics

- gender
- ethnic group
- teen / not teen mother
- lone parents
- workless households
- income (below poverty line or not)

We concluded that the SSLP effects do not vary substantially for the different sub-populations

Do Sure Start areas included (strata 2,3,4) differ from those **not** included in comparisons (strata 5).

We analysed for significant differences in models of the 14 outcomes between these 2 groups.

The models applied equally well to all Sure Start areas i.e. similar child and family functioning in Sure Start areas across strata

Why are results now so different to the earlier report?

We acknowledge methodological differences between the first phase and the current phase

However there are good substantial reasons for why the results are different now

Reasons for differing results

1. Amount of exposure

It takes 3 years for a programme to be fully functional. Therefore

a. in the first phase children / families were not exposed to fully functional programmes for much of the child's life

b. in the second phase children / families are exposed to fully functional programmes for all child's life

2. Quality of services

a. SSLPs have been reorganised as SSCCs with clearer focus to services following lessons from earlier years, and from NESS

b. early on staff had a lot to learn. As knowledge and experience have been acquired over 7 years, SSLPs have matured in functioning and staff skill shortages have reduced

c. hence it is likely that children / families are currently exposed to more effective services than in the early years of Sure Start

Further information:-

EPPE - www.eppe.ioe.ac.uk

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