Family Size, Birth Order, Gender, Child Outcomes
Evidence from the NLSCY and other sources

Graphs
• This lecture includes some graphs that will not be visible in the notes posted to the Web forum
• The graphs will be visible in the version of the notes that are in Acrobat format and are posted to my Web site
• www.chass.utoronto.ca/~cjones/teaching

Genes & Environmental Factors: Parenting, Peers, Schooling
• Many justify families as the primary social institution for child-rearing
• So, when studying families, we have to look at children and child outcomes.
• Children’s behaviour & health depends on genetic endowments, nutrition & environmental factors: family size, structure, parenting, peers & schooling.
Age, Gender & Child Outcomes

- Children grow over time. Some see this as mostly the unfolding of genetic endowments. Others see it as response to factors such as family/neighbourhood environment and parenting practices.
- On average boys & girls are different. Some see this as genetically determined. Others see it as response to cultural patterns. We have seen that gender roles are rigid in many societies.

Early Years May be Most Important

- If family structure and parenting practices have important effects on child outcomes they may have most of their influence in pre-school years (before age 5). Many experts think this is true.
- If so, then the alleged ill-effects of family tension & divorce upon children may be most apparent for those who were pre-schoolers at the time of tension/divorce.

Some North American Stereotypes

- [stereotypes may have some truth to them]
- Boys more physically aggressive than girls
- Boys more likely to be hyperactive than girls
- Boys better at mathematics and science than girls
- Girls more prone to anorexia & other internalizing disorders than boys
Evidence from Big Surveys

- GSS. General Social Surveys (in Canada: also in USA). These are cross-sectional & ask questions of people aged 15 and over.
- NLSCY. National Longitudinal Survey of Children and Youth. This includes a longitudinal follow-up of kids first sampled in 1994 (up to age 25) as well as some subsequent follow-ups of kids up to age 5.

Why Use Big Surveys

- Large and nationally representative samples provide scientifically defensible facts that can be used as a basis for making evidence-based policies about children and families.
- Anecdotes and "exploratory" research are not an appropriate foundation for policymaking.

Measuring Child Outcomes

- The National Longitudinal Survey of Children and Youth (NLSCY) measures many child outcomes by asking the Person Most Knowledgeable (the PMK).
- Health outcomes including body mass index
- Internalizing disorders (anxiety etc.)
- Externalizing disorders (aggression etc.)
- Cognitive outcomes usually measured by tests
Child Outcomes

- Physical Health
  - General health, health utility index, body mass index
- Cognitive Development
  - School Readiness, Reading, Mathematics
- Conduct
  - Direct and indirect aggression, property offences
- Emotional or Mental Health
  - Hyperactivity or inattention. Feelings or behaviors such as sadness or depression, fear, anxiety, worrying, crying, acting distressed, having trouble enjoying themselves or being highly strung

Direct & Indirect Aggression, Hyperactivity, etc.

- Based on reports by the Person Most Knowledgeable (PMK) for children under 11
- Based on reports by children (children aged 10 and over only)
- Based on reports by teachers (children in school only)

Hyperactivity/inattention

- In the extreme this leads to ADD. Many experts see extreme hyperactivity as linked to birth traumas or to certain genes or to genetic-environmental interaction.
- Measured by questions about whether the child:
  - Was frequently unable to sit still,
  - Was easily distracted or restless,
  - Had trouble sticking to an activity or concentrating,
  - Fidgeted, acted impulsively, or could not wait their turn during games or group activities.
Aggression

• Physical aggression is measured by multiple item scales concerned with displays of physical violence.
• Indirect aggression ("social aggression") also measured by multiple item scales, this time concerned with social methods of hurting others: excluding them from activities, spreading rumours about them, etc. Some have said that girls in certain age groups are more prone to indirect aggression than boys.

Outcomes for Younger Children

• Motor and Social Development (MSD) Scale.
• For children 0-47 months of age
• Consists of 15 questions that measure dimensions of motor, social and cognitive development of young children from birth through 3 years; the questions vary by age of the child. Each item asks whether or not a child is able to perform a specific task.

More Outcomes for Younger Children

• For two and three-year olds
• Hyperactivity-inattention
• Pro-social behavior
• Emotional disorder – anxiety
• Physical aggression – opposition
• Separation anxiety
Outcomes for Older Children

• Cultural & Recreational Participation
• Sexual activity (self-completion)
• Drinking, smoking, etc. (self-completion)
• Part-time work while in school. (self-completion)

Some skewed outcome measures

• Some measures for child outcomes are highly skewed
• Health utility index
  – 65 per cent of children had the highest (healthiest) score on the Health Utility Index (in Cycle 1)
• Physical aggression as judged by PMK
  – 45 per cent of children aged 4-11 scored zero.
• Property offences as judged by PMK
  – 53 per cent of children aged 4-11 scored zero.

Effects of Gender

• Most societies have highly gendered expectations of even very young boys & girls
• The onset of puberty is important and girls are, on average, two years ahead of boys in the pubertal growth spurt, development of body hair, etc.
• The “peri-pubertal period” is when many girls are developmentally ahead of boys of the same calendar age; usually in the same school grade and expected to perform on average at the same cognitive level
**NLSCY 4-Year Follow-Up**

- We looked at four years of development for each of three age groups.
- 2 & 3 year olds followed up until they were 6 & 7 at the third wave of the survey.
- 4, 5 & 6 year olds followed up until they were 8, 9 & 10 ("elementary school")
- 10 & 11 year olds followed up until they were 14 & 15 (over the "peri-pubertal period")

**Gender and Hyperactivity**

- Gender differences in Hyperactivity-Inattention start to emerge between two and seven years of age where boys have a highly significant upward trajectory while that for girls is essentially flat.

**Gender & Hyperactivity in Kids 10-15**

- During the peri-pubertal stage, where the data are based upon self-reports, girls remain less hyperactive than boys but their developmental trend is significantly upward while that for boys is on the decline, to such an extent that the trend lines for boys and girls cross.
- So it’s misleading to say that boys are more hyperactive than girls in all age groups.
Gender & Physical Aggression

- Gender differences in physical aggression are non-significant at the earliest stage (4-7 years). Significant differences (boys higher) occur among school age children (4-11 years) as well as in the peri-pubertal period.
- Important to bear in mind that physical aggression is significantly on the decline for both genders in all age groups,
Gendered trends in Indirect Aggression

- Both boys and girls significantly increase their scores on indirect aggression as judged by the PMK, but girls have a higher growth rate that leads them to have higher indirect aggression scores than boys around ages 9 to 11
- By the peri-pubertal period (age 10 to 15) boys and girls are on average equivalent

Physical Aggression Declines: Indirect Aggression Goes Up

- The declining developmental trajectories of Physical Aggression and the rising trajectories of Indirect Aggression suggests that parents, teachers and peer groups are quite effective at discouraging physical aggression but that both genders, and particularly girls, learn to express their aggression indirectly ("social aggression")
Pro-Social Behaviour

- At the earliest stage (2-7) both boys and girls show upward trends in pro-social behaviour but the trend for girls is significantly steeper.
- By school age (4-11) the trends are still upward but are essentially the same for genders.
- The trend becomes negative during the peri-pubertal period, as the pro-social behaviour scores for both boys and girls decline over the period 10-15. This downward trend is significantly steeper for boys than for girls.
Girls Have Better Academics

- There is a feminist literature on the ways in which parents and teachers disadvantage girls relative to boys, BUT girls seem to do better than boys on tests administered in high school.
- Results from PISA study (OECD, 2001) show that 15-year old girls in Canada have higher verbal test scores than comparable boys and roughly equivalent scores in mathematics.
- OECD is Organization for Economic Cooperation and Development.

Parent & Teaching Ratings of School Performance

- NLSCY data from children aged four to eleven shows that both parents and teachers rate girls' overall school performance higher on average than that of boys.
- There are parallel declining trends over time for both genders

Parental View of Math Performance

- Longitudinal analysis of NLSCY shows that parent-judged mathematics performance declines significantly for both genders but has a significantly steeper decline for boys
Gender Differences in Anxiety and Self-Image

• There are no gender differences in anxiety until adolescence, when girls are on average more anxious than boys.
• Adolescent girls have poorer self-image than adolescent boys.
• Yet girls on average do better than boys in verbal and mathematics tests and are also perceived to be better students by parents and teachers.
Anxious Teenage Girls

- Girls – even though performing better on many outcome measures – continue to become more anxious during adolescence while boys’ anxiety on average levels off.

Summary

- Boys are more hyperactive than girls but only at certain stages of development.
- Girls display higher scores than boys on measures of indirect aggression but only around the ages 9-11.
- Girls have higher average scores on pro-social behaviour than boys.
Summary (cont.)

• Both genders have declining trajectories in physical aggression scores and increasing ones on pro-social behaviour.
• Both genders show gradually increasing levels of anxiety as they get older but boys level off in the peri-pubertal period while girls just keep on getting more anxious.

Effects of Family Size & Birth Order

• Birth order is linked to family size. You can't be the middle child unless there are at least three children ("sibship size" of 3).
• Birth order is also linked to child spacing. Some children are firstborn for several years until a second child comes along.
• Remarriage of parents and pooling of household resources can suddenly increase family size by adding step-sibs.

Small families work differently from large ones.

• Single or first-born children grow up different from later-born children.
• The more children in a family, the less their educational attainment and average tested intelligence. Many studies show this.
• Social commentators used to have genetic or social class based explanations for these patterns since, during 20th century, middle class families tended to be small while agricultural and working class families tended to be large.
Harmful Effects of Large Families

• “Harmful” effects of family size on educational attainment are still there, even after controlling other factors (ethnicity, religion, social status)
• On average, firstborn children have higher intelligence and achievement scores than second born who, in turn, perform better than later born.

Sweetman’s results from Canadian GSS 9 & 10

• Effects of sibling size & birth order on educational attainment, employment, wage-rates.
• Preliminary points:
  – Family size may be responsive to parental resources & gender preferences (“at least one of each” is a common preference)
  – Fathers work more hours when they have more children (more overtime etc.)

Sibling size affects educ. attainment

• Sibling size has a large effect on child’s educational attainment; almost as large as that of parental education, previously seen as the most important determinant of children’s education.
• Difference between sibling size of 6 or more and only children has an effect comparable to the effect of a difference between having a father with only high school graduation and having a father who was a university graduate.
Sibling size affects adult employment status

- Sibling size affects adult employment status at the date of the survey, particularly among women.
- Probability of being employed in the previous year differs by up to 6% to 7% across range of sibling sizes for men: a bit more for women.

Sibling size affects adult wage-rates

- Sibling size affects adult wage rates, partly through its impact on educational attainment.
- Wage differences of up to 10% to 20% can be observed across sibling sizes (10% peak to trough if education is controlled: 20% if it is not controlled.)

Fewer but higher quality children

- Why?
  - Judith Blake. Maybe a large number of children dilutes parental resources
  - Implication - that chances of upward social mobility are increased by fertility control ("Social capillarity")
  - Implication - large-scale fertility reduction produces a different kind of family
Zajonc & Markus: time allocation and parental practices

• As family size increases, parents must spread their time between more children. With a fixed amount of time and money, 2n children will get only half the parental time as n children.
• Assumption: the greater the amount of attention a child receives from adults, the likelier that child will learn to perform at a mental age in advance of his or her chronological age.

Zajonc & Markus cont.

• So one child in a household with two or more adults available most of the time would be in best situation for maximizing child's mental age.
• Zajonc & Markus don’t think of possibility that well-socialized older children might be as effective as adults in raising mental age of younger kids.

Zajonc & Markus (cont.)

• Several children in a household with only one adult, only occasionally available would in worst situation. This is classic portrayal of “bad” single parenting.
• Spacing important - 3 or 4 children born close together in worse situation than same number of children with several years between them
• This predicts that only children would be the best off of all.
Eldest children higher quality than only children

• But on average, only children score lower than eldest children who have one or two younger brothers or sisters.
• Why? Maybe because parents often make eldest child into "deputy parent."
• Some cultures formalize this in traditional respect for "elder brother", "elder sister".

Speculations re: why this happens

• We assume that people learn from experience of taking responsibility for / tutoring younger siblings.
• "only child" or "youngest child" will never have this experience except with pets.

Who gets to play the role of older sibling?

• Other children can only take "older sibling" role after younger siblings have been born
• many children are youngest in their family for only a short time. They cease to be the "baby of the family" once birth, adoption or formation of a blended family brings in someone younger than themselves.
• spacing important here too: being one year older not same as being five years older.
The odds of getting new siblings

- The chances that your mother will bear another child depend basically on her age: how close she is to her forties.
- But you may end up with one or more half-siblings in the household if your custodial parent forms a new live-in relationship after divorce or bereavement.

Summary so far

- Sibship (family) size operates essentially by diluting parental resources. It affects parental time allocation and parental practices, given the structural constraints of household size, composition and child-spacing by age.

Summary of Lecture

- Many debates about family forms and family policy use child outcomes as ammunition. ("We should make divorce more difficult because it’s bad for the kids")
- Child outcomes, in fact, depend on many factors other than family form (genetic endowment, age, gender, family size, birth order). The effects of experiences such as divorce or bereavement very likely depend on the age at which the child experiences such stressors.