

**Sibship Size and Educational Attainment in Indonesia: A Cohort Perspective**  
(Extended Abstract)

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September 2003

Numerous studies of educational attainment in the United States have shown that education is negatively correlated with family size. That is, children with fewer brothers and sisters obtain more education than those with more siblings. Moreover, this negative relationship exists even after family socioeconomic characteristics are controlled (Featherman and Hauser 1978; Hauser and Sewell 1985; Mare and Chen 1986; Blake 1989). This finding is often explained using an argument of finite resources: parents have limited time, money, and patience to devote to the education of their children, and those with fewer children can invest more per child.

The evidence from the developing world, however, is mixed. In Thailand and Brazil, for example, there is a negative relationship between sibship size and educational attainment while in Vietnam the relationship is negative only for families with six or more children and effects are modest once other family characteristics are controlled (Psacharopoulos and Arriagada 1989; Knodel, Havanon and Sittitrai 1990; Anh et al. 1998). In Botswana and Kenya, on the other hand, the reverse is true: educational attainment has a positive relationship with family size (Gomes 1984; Chernichovsky 1985). These differences are explained, among other things, by differences in urbanicity and infrastructure, family production and wealth flows, and the relative strength of the nuclear family versus larger kinship networks in each context. The case of Israel fits well with these general patterns and explanations. Among Israeli Jews, sibship size has a negative relationship with educational attainment while among Israeli Muslims, who are less advantaged socioeconomically, live in less urban settings and have much higher fertility rates, family size and educational attainment are not negatively related (Shavit and Pierce 1991). The socioeconomic characteristics of the family are also more strongly related to educational attainment among Jews than among Muslims. The authors suggest that, unlike Jewish families, Muslim families draw on a large kinship network beyond the nuclear family, which mitigates the financial, emotional and time constraints associated with additional children.

Three ideas emerge from this array of evidence. First, the effect of family size on educational attainment is related to societies' level of development, modes of production, and access to schooling, which in turn shape the relative influence of the family on the education of

children. Second, context-specific factors such as family organization and cultural roles determine wealth flows between parents and children, whether the burden of child rearing is limited to the nuclear family or extended across broader kin networks, whether and how much school-aged children work inside and outside the home, and whether these factors change as societies become more developed or as overall levels of education increase. Thus, in societies in which parents bear most of the cost of schooling and where the costs are high, we might expect a negative relationship between family size and educational attainment while in societies with extended kinship networks and lower costs of schooling, the relationship may be neutral or positive. Third, the evidence highlights the interdependence of family size, family structure and educational attainment. Family size and organization and educational attainment are likely to be jointly determined with families choosing the level of fertility that is likely to produce children with the preferred level of education for a given family or society. The relationship between family size and children's educational attainment has demographic feedbacks as well. Small sibships may raise educational attainment, which in turn lowers fertility in the next generation. Moreover, if the effect of sibship size grows more negative or more positive over time, then these aggregate demographic relationships may intensify or accelerate as a result.

In this context, Indonesia is an interesting case study. Indonesia has the world's fourth largest population and is the largest predominantly Muslim nation. Indonesia has experienced dramatic demographic change in recent decades. Infant mortality has fallen from 145 per 1000 live births in early 1970s to 46 per 1000 in late 1990s. Over this same period, the total fertility rate per woman declined from 5.6 children to 2.6 children and life expectancy increased from 48 years in 1970 to 65 years in 1998 (UNICEF 2000; Indonesia Central Bureau of Statistics 2003). At the same time, literacy has increased dramatically, the gender gap in education has narrowed, participation in agriculture has declined and industry has grown. This setting provides a unique opportunity to examine the relationship between sibship size and education attainment in a society undergoing rapid development and to observe how this relationship changes over time as a society develops.

This paper examines the relationship between family size and composition and educational attainment in the context of Indonesia using a cohort perspective. Analyses show that earlier cohorts in Indonesia experienced a positive effect of larger sibships while more recent cohorts experience a negative effect of larger families. This finding is consistent with the notion that development changes family roles and influences, which in turn shape children's educational

attainment. The analysis explores: (1) how sibling effects have changed over time and how these vary by family structure, sibship composition, and birth spacing and (2) whether and how sibling effects vary at different levels of education. Models include parents' education and measures of family SES as independent variables as well as variables such as monetary transfers between family members, sibship composition by sex and age, and interactions between sibship size and children's sex. The analytic sample includes approximately 3,800 families with more than 15,500 living children. The analysis compares cohorts born between 1940 and 1997. By using a cohort perspective, the paper highlights the joint determination of family size and educational outcomes and the changing role of the family in the context of a dynamic society experiencing rapid and dramatic change.

The analysis is based on the 1993 and 1997 waves of the Indonesian Family Life Survey (IFLS), a comprehensive socioeconomic and health survey, containing detailed information on demographic and socioeconomic characteristics, household economy, health, fertility and marriage histories, and child cognitive and health assessments. The survey represents an area that includes 13 of Indonesia's 26 provinces and 83 percent of its population. The IFLS contains detailed information on family structure and composition, school enrollment and completion, parent's and children's employment, within household decision-making, and wealth flows between parents and children and among siblings. The sample is restricted to families with mothers who are ages 41 and older to capture completed fertility and full sibship size. Sibships include both living children and those who have died.

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