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The Tradeoff between Number of Children and Child Schooling

Evidence from Côte d'Ivoire and Ghana

The Living Standards Measurement Study

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The Tradeoff between Number of Children and Child Schooling

Evidence from Côte d'Ivoire and Ghana

Mark Montgomery

Aka Kouamé

Raylynn Oliver

LSMS Working Paper

Number 112

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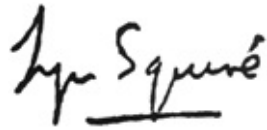
Foreword

A well known feature of fertility declines in many developing countries is that parents begin to have fewer children but invest more, in the health, education, and support of each child. The factors that induce parents to realize this "tradeoff" is of great policy interest, since they simultaneously encourage slower population growth and higher quality of population. The two papers in this volume examine the determinants of fertility and of child schooling in Côte d'Ivoire and Ghana to assess evidence of a tradeoff between the number of children born and levels of child schooling. In Côte d'Ivoire, there is evidence of such a tradeoff in urban areas, but not in rural areas. Female schooling, higher income, and improved child survival are associated with lower fertility and higher child schooling. In both urban and rural areas of Ghana, there is evidence of a tradeoff between fertility and child schooling with higher incomes and, in rural Ghana, with increases in mothers schooling.

These papers are two of several products of the World Bank research project on "The Economic and Policy Determinants of Fertility in Sub-Saharan Africa", sponsored by the Poverty and Human Resources Division of the Africa Technical Department (AFTHR) and managed by Martha Ainsworth, principal investigator. It is part of a broader research effort in the Poverty and Human Resources Division of the Policy Research Department (PRDPH) that examines the role of human resources in economic development. The data used are from the Côte d'Ivoire and Ghana Living Standards Surveys, which are two of many Living Standards Measurement Study (LSMS) household surveys implemented in developing countries with the assistance of the World Bank.



KEVIN CLEAVER
DIRECTOR
AFRICA TECHNICAL DEPARTMENT

A handwritten signature in black ink that reads "Lyn Squire". The signature is written in a cursive style with a horizontal line underlining the name.

LYN SQUIRE
DIRECTOR
POLICY RESEARCH DEPARTMENT

Paper Number 1

Fertility and Child Schooling in Côte d'Ivoire: Is There a Tradeoff.

Mark R. Montgomery
Aka Kouamé

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Abstract

This research explores the relationship in Côte d'Ivoire between fertility and the investments made by parents in the schooling of their children. One expects that families with many children will tend to invest less in each, and that families with fewer children will make greater human capital investments per child. The "tradeoff" of quantity for quality is vividly illustrated in the recent economic development of Southeast Asia and Latin America. In respect to Sub-Saharan Africa, however, the existence of a tradeoff has not yet been established. The few studies conducted to date either suggest no particular association between family size and schooling in Africa, or hint at a positive relationship wherein higher fertility is linked to greater schooling per child. This paper weighs the evidence concerning the quantity-quality tradeoff in Côte d'Ivoire, using data drawn from the three rounds of the Côte d'Ivoire Living Standards Measurement Survey (LSMS) conducted from 1985 to 1987.

The evidence suggests that two very different relationships link fertility and child schooling. In the rural areas of Côte d'Ivoire, there is no tradeoff: higher fertility is associated with higher child schooling. This finding is consistent with much of the early research on fertility and schooling in Africa. Urban areas, by contrast, are characterized by the tradeoff that appears in Southeast Asia and elsewhere in the developing world. Female education, which lowers fertility and raises investments in child schooling, is an important factor producing the tradeoff in urban areas, and the results also imply that improved child survival may be important. One possible explanation for the absence of a tradeoff in rural areas is less access to family planning services, which are available from private sources in urban areas.

Acknowledgments

This paper was prepared for the research project on "The Economic and Policy Determinants of Fertility in Sub-Saharan Africa." The authors are, respectively, Associate Professor of Economics, SUNY-Stony Brook, and Assistant Professor, Institut de Formation et de Recherche Demographiques. We would like to thank Martha Ainsworth, Paul Glewwe, Hannan Jacoby, Tom LeGrand, Robert Prouty and participants in Stony Brook's Applied Workshop in Econometrics for helpful comments. We would also like to acknowledge with appreciation the Institut National de la Statistique of Côte d'Ivoire for assistance in linking census variables to the household data set. The opinions expressed in this paper are those of the authors and do not necessarily reflect policy of the World Bank or its members.

Introduction

This research explores the relationship between fertility in Côte d'Ivoire and the investments made by parents in the schooling of their children. One expects that families with many children will tend to invest less in each, and that families with fewer children will make greater investments per child. This negative association between fertility and human capital investment per child, evident in economies as diverse as those of the United States (Hanushek, 1992) and Thailand (Knodel et al., 1987, 1990), has been termed the "quantity-quality tradeoff." The tradeoff is so ubiquitous as to seem one of the stylized facts of economic development. Yet at present, it is not at all clear that a quantity-quality tradeoff exists in Sub-Saharan Africa. The few studies conducted to date (DeLancey, 1990) either suggest no particular association between family size and schooling in Africa, or hint at a positive relationship wherein higher fertility is linked to greater schooling per child. In this paper we will weigh the evidence concerning the quantity-quality tradeoff in Côte d'Ivoire, using data drawn from the three rounds of the Côte d'Ivoire Living Standards Measurement Survey (LSMS) conducted in 1985 to 1987.

We should begin by emphasizing the importance of the quantity-quality tradeoff to the prospects for long term economic growth. In Côte d'Ivoire as elsewhere in Africa, fertility levels will likely remain the principal determinant of the future rate of labor force growth. The human capital invested in children will be the principal determinant of the skills possessed by that labor force.¹ Moreover and this is particularly clear for women the levels of schooling attained by the current cohort of children will shape their future fertility and influence the health and survivorship of the next generation of children (Benefo and Schultz, 1992).

Aggregate, cross-national data show a clear tradeoff between quantity and quality, as is evident in Figures 1 and 2. The figures present data from all developing countries with per capita income levels of \$3000 and below in 1989. Total fertility rates are arrayed on the vertical axes; primary and secondary gross enrollment levels are placed along the horizontal. The countries of Sub-Saharan Africa (SSA) are distinguished in the diagrams from their counterparts elsewhere. A regression line provides a descriptive summary of the relationship.

1. A small body of research seeks to quantify the economic benefits of schooling through the estimation of aggregate production functions; see Glewwe (1991) who cites work of Lau, Jamison and Louat in this regard. This work suggests that in Latin America and East Asia, an increase of one year in average adult educational attainment is associated with an increase of some 35 percent in real GDP. Curiously, however, no such beneficial effect is detectable in aggregate data for Sub-Saharan Africa. Individual-level data for African populations usually show a strong association between education and incomes in urban areas (some of this may be due to credentialism rather than to real productivity enhancement) and weak or mixed results in rural areas.

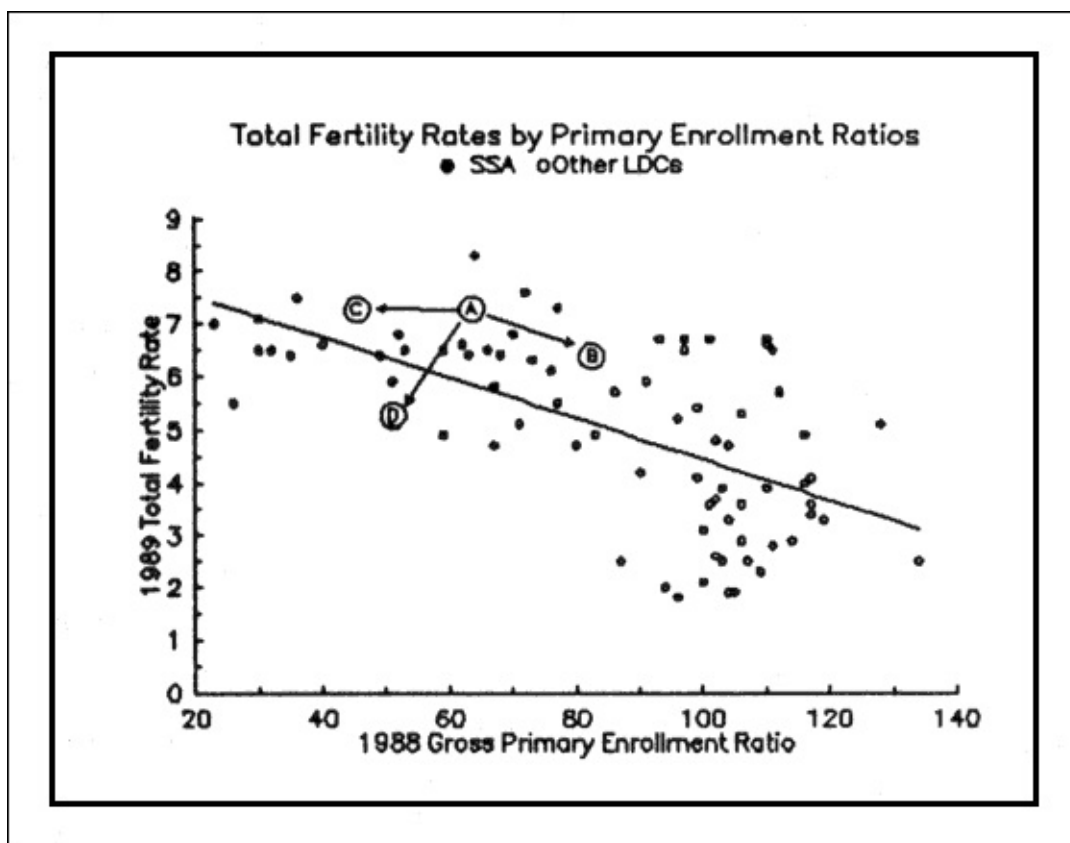


Figure 1
Source: 1991 World Development Indicators.