The Pennsylvania State University The Graduate School College of the Liberal Arts

ANTICIPATORY CHILD FOSTERING AND HOUSEHOLD SOCIOECONOMIC SECURITY IN MALAWI

A Thesis in Sociology and Demography by Lauren Kate Bachan

© 2012 Lauren Kate Bachan

Submitted in Partial Fulfillment of the Requirements for the Degree of

Master of Arts

The thesis of Lauren Kate Bachan was reviewed and approved* by the following:

Jenny Trinitapoli Assistant Professor of Sociology, Religious Studies, and Demography Thesis Advisor

David Johnson Professor of Sociology, Human Development and Family Studies, and Demography

Kevin Thomas Assistant Professor of Sociology and Demography

John Iceland Professor of Sociology and Demography Head of the Department of Sociology

^{*}Signatures are on file in the Graduate School.

Abstract

Child fostering is practiced throughout much of sub-Saharan Africa and is often used by families to offset economic risk and insecurities. While there is a rich literature on the practice of child fostering, we have a limited understanding of how absorbing a foster child impacts a household. The AIDS epidemic in the region has added new complexities to the practice of child fostering, making it more imperative to understand the relationship between fostering and household outcomes. Using data from 1,959 respondents enrolled in a longitudinal survey in Balaka, Malawi, this paper empirically explores the relationship between receiving a foster child and changes in household socioeconomic status (SES) over a two-year period of time. Placing particular emphasis on the role of anticipation, the results show that those who correctly anticipate their care giving responsibilities experience a greater increase in household SES than those who do not.

Table of Contents

| List of | Figures | V |
|----------------------|--|-----|
| List of | Tables | vi |
| Ackno | wledgments | vii |
| Chapte | er 1 | |
| Ant | ticipatory Child Fostering and Household Socioeconomic Se- | |
| | curity in Malawi | 1 |
| 1.1 | Introduction | 1 |
| | 1.1.1 Child fostering in sub-Saharan Africa | 2 |
| | 1.1.2 Child fostering in the context of the AIDS epidemic | 5 |
| | 1.1.3 Current study and setting | 7 |
| 1.2 | Data and Methods | |
| | 1.2.1 Dependent variable | |
| | 1.2.2 Independent variables: child fostering | 11 |
| | 1.2.3 Control variables | |
| | 1.2.4 Analytic approach | |
| 1.3 | Results | |
| | 1.3.1 Multivariate Analysis | |
| 1.4 | Summary and Discussion | |
| Appen | dix A | |
| Sup | oplementary Tables | 24 |
| Biblios | graphy | 26 |

List of Figures

| 1.1 | Distribution of Household SES at Baseline (Wave 2) for Analytic | |
|-----|---|----|
| | Sample | 1. |
| 1.2 | Level of Anticipation of Future Fostering, Full Analytic Sub-Sample | 12 |
| 1.3 | Structure of the Panel Data and Coding of the Anticipatory Fos- | |
| | tering Variable | 13 |
| 1.4 | Proportion of Sample that Fostered a Child in Wave 2 by Wave 1 | |
| | Anticipation Level | 18 |

List of Tables

| 1.1 | Fostering Characteristics and Descriptive Statistics for | |
|-----|---|----|
| | Pooled Time-Series Data | 16 |
| 1.2 | Anticipation Categories of Fosterers within | |
| | Pooled Time-Series Data | 16 |
| 1.3 | Fixed Effects Regression Models of the | |
| | Effect of Time and Fostering on Household SES | 17 |
| 1.4 | Fixed Effects Regression models of the Effect on Household | |
| | Socioeconomic Status by Anticipatory Fostering Status | 20 |
| A.1 | Comparison of Full and Analytic Sub-Sample for Key Variables | 24 |
| A.2 | Cross-sectional Description of Sample at the Beginning of the | |
| | Observed Interval (Wave 2) | 25 |
| A.3 | Wave 1 Predictors of Fostering in Wave 2 | |

Acknowledgments

In addition to the committee members, the author would like to thank Michelle Frisco, Emily Smith Greenaway, Adam Lippert, Angella Campbell, and Erin Powell, Mumuni Abu and Stella Apo for their invaluable comments on early drafts of this manuscript.

A special thanks to Aviv Bachan for his unconditional support and motivation.

Data: This research uses data from Tsogolo la Thanzi, a research project designed by Jenny Trinitapoli and Sara Yeatman, and funded by a grant (R01-HD058366) from the National Institute of Child Health and Human Development. Persons interested in obtaining TLT data files should contact Tsogolo la Thanzi, Population Research Institute, Penn State University, 601 Oswald Tower, University Park, PA 16802.

Dedication

In memory of Mary Libruk.

| | 1 | |
|--------------|---|--|
| l Chapter | 1 | |

Anticipatory Child Fostering and Household Socioeconomic Security in Malawi

1.1 Introduction

A recent source of controversy in research on African society is whether or not the strength of kinship ties is being undermined by the demographic consequences of the AIDS epidemic. Of particular concern is the increasing number of orphans in the region. Tribal and extended kinship structures endow much of sub-Saharan Africa with a strong tradition of child fostering (Bledsoe 1990; Bledsoe and Isiugo-Abanihe 1989; Goody 1982; Madhavan 2004; Monasch and Boerma 2004; Urassa et al. 1997). Thus, much of the mushrooming childcare responsibilities for orphans fall on households who may already be fostering non-orphaned children. Before we can begin to draw conclusions about whether or not an influx of orphans is challenging Africa families, we must first understand how absorbing a foster child impacts households. Furthermore, the nuance with which we approach this question has bearings on the study of child fostering more broadly.

Although the practice varies from region to region, the research on child fostering has historically shown that the practice is a mutually beneficial arrangement between sending and receiving families as well as for the foster children themselves. More recent work continues to recognize child fostering as a means for African families to distribute the cost and benefits of childrearing as well as offset economic insecurities (Akresh 2005; Caldwell 1997; Eloundou-Enyegue and Shapiro 2004; Isiugo-Abanihe 1985). However, despite our knowledge of the benefits for communities, children, and sending families, there is a paucity of research on the extent to which child fostering is beneficial to receiving households.

In this paper I explore how fostering a child changes the socioeconomic status (SES) of receiving households in Malawi, using two years of longitudinal data from a new study. In addition to testing whether or not hosting a foster child affects households, this empirical research also considers how prior anticipation of fostering moderates these changes. This approach acknowledges that child fostering is part of a larger negotiation process that takes place among extended family networks and that receiving a foster child may or may not be an unanticipated shock to a household. The results suggest that receiving a foster child is neither a net drain nor net benefit on family resources. However receiving a foster child as part of an anticipated arrangement can improve a households SES over time. Despite the limited geographical context, these findings have implications that reach far beyond rural Malawi. By demonstrating the role of anticipation in outcomes for foster families, this research makes the case for treating fostering as an event where the impact is conditioned by the circumstances that surround it.

1.1.1 Child fostering in sub-Saharan Africa

"Child fostering" refers to a broad, semi-formal institution where children are voluntarily fostered-out (sending ones children to live with another family) and fostered-in (absorbing a child into ones household) as needed. Child fostering typically falls into two categories: crisis and purposive. The former type of fostering happens when "... the natal family of orientation is unable to fulfill [parental] roles due to illness, death, or divorce." (Goody 1982:23). Purposive, or "voluntary", fostering is an elective process by which children are sent to live with non-natal family members as part of a decisive arrangement. Although much of the classical fostering literature focuses on purposive fostering in West Africa, it is important to note that the practice of purposive and crisis fostering is common in other regions

of Africa as well (Bicego et al. 2003; McDaniel and Zulu 1996; Madhavan 2004; Monasch and Boerma 2004; Urassa et al. 1997).

There is a rich literature detailing the functions of child fostering in the sub-Saharan African context. Fostering is used to strengthen kinship ties (Goody 1982) as well as to smooth out demographic inequalities, such as childlessness or gender composition of existing children (Bledsoe and Isiugo-Abanihe 1989; Isiugo-Abanihe 1985; Lloyd and Desai 1992). Additionally, child fostering expands childrens opportunities for upward social mobility, particularly in the form of access to education and training (Ainsworth and Filmer 2006; Akresh 2009; Bledsoe 1990; Isiugo-Abanihe 1985). By sending children to wealthier families who become responsible for the childs basic needs (i.e. health care, food, and education), natal parents avoid much of the costs associated with these opportunities and childrearing more generally (Goody 1982).

While typically applied to theories of fertility decline, Caldwel's wealth flow theory (1976; 1983) also has relevance for understanding the incentives for households to take in foster children. According to wealth flow theory, children are uniquely valuable to both parents and communities in sub-Saharan Africa, where the flow of wealth from younger to older generations is socially normative (Caldwell and Caldwell 1987). Furthermore, children in high-fertility areas, such as sub-Saharan Africa, serve as social insurance to parents and communities, thus elevating their economic value and the incentives to have them.

In some key ways, foster children have the same value and utility as biological children. Foster children (especially girls) can be sources of cheap domestic labor within fostering households (Ainsworth and Filmer 2006; Goody 1982). Fostering also gives couples who have few or no children access to the labor and companionship that children provide (Bledsoe and Isiugo-Abanihe 1989; Isiugo-Abanihe 1985; Lloyd and Desai 1992). In some communities, child fostering—even of very young children—is used as a way to ensure old-age support and provide foster parents with future social security (Bledsoe 1990; Bledsoe and Isiugo-Abanihe 1989; Ntozi 1995). For example, people in the Mende community of Sierra Leone believe that caring for children—regardless of biological ties—is an investment in one's old-age support (Bledsoe and Isiugo-Abanihe 1989). Mende "Grannies" (older women) who foster receive incentives, such as food and money, from the natal par-

ents while they are fostering (Bledsoe and Isiugo-Abanihe 1989). A similar system of incentives occurs among Nigerian Igbo women who foster their grandchildren (Isiugo-Abanihe 1985). In other contexts, people who take in children from outside their kin group do so with the explicit expectation of receiving material compensation (Dahl 2009).

Of course, wealth flow theory can also be used to make an argument against natal families sending children to be fostered. That is, because children are significant sources of social insurance, sending families may be reluctant to voluntarily foster out their children. However, fostering is not a zero-sum game, where only one family can claim the benefits of a child. Unlike child fostering in many Western contexts, voluntary fostering in sub-Saharan Africa does not imply that the natal family has given up any rights to the child (Goody 1982). In other words, natal families still expect to receive future benefits from their children, regardless of whether or not that child spent time living with other families. Additionally, fostering is a strategic decision on part of the sending family, where the benefits of sending the child to be fostered outweigh that of keeping the child. Evidence suggests that the decision to foster out children is largely a risk-coping strategy for sending families who are faced with an external shock (Akresh 2005). Furthermore, the decision to send a child to a foster family may be made to offset demographic imbalances (i.e. age and gender composition) within the sending household (Akresh 2005).

The research outlined above supports the general consensus that African families use child fostering to distribute the cost and benefits of childrening as well as to offset economic insecurities (Akresh 2005; Eloundou-Enyegue and Shapiro 2004; Isiugo-Abanihe 1985). Yet, while the motivations to foster in and foster out children have been extensively documented in previous research, we have a limited understanding of how absorbing a foster child affects (or does not affect) household wellbeing. The ongoing AIDS epidemic in the region lends increasing urgency to this question.

1.1.2 Child fostering in the context of the AIDS epidemic

Between 1990 and 2009, the number of children in sub-Saharan Africa who were orphaned due to AIDS increased from less than one million to 14.8 million (UN-AIDS 2007, 2010), creating what some refer to as an "orphan crisis" in the region. While scholars remain divided on whether or not families in Africa will be able to meet the fostering demands of a growing number of orphans (Foster and Germann 2002; Heuveline 2004; Madhavan 2004; Monasch and Boerma 2004; Urassa et al. 1997), most agree that the practice of fostering, as it has been historically understood, is in flux, with evidence indicating that fostering responsibilities are expanding to new types of households.

Early ethnographic work on child fostering suggests that children were often fostered to wealthier families when possible (Goody 1982; Isiugo-Abanihe 1985). In contrast to this, recent studies show that poorer households play a large role in child fostering, particularly of orphans. This is especially true in areas hit hardest by the AIDS epidemic (Bicego et al. 2003). The rise in young-adult mortality has also disproportionately placed the burden of fostering on grandparents (Beegle et al. 2010a), leading to an increase in "skipped generation" households in some parts of the continent (Merli and Palloni 2006). Such trends may be indicative of two things: first, other extended family members are becoming less viable foster family options; and second, fostering may increasingly be taking place in poorer households. There are also indications that the orphan crisis has prompted child fostering to extend further beyond kinship networks than it has in the past (Howard et al. 2006; Nyambedha et al. 2003). For example, in western Kenya, Nyambedha et al. (2003) report that "culturally inappropriate" caregivers looked after nearly a third of orphans in their study.¹

Since the onset of the AIDS epidemic, a sizeable body of research has also emerged on children's wellbeing and the consequences of orphanhood. Despite regional variation, these studies generally show that orphans face educational disadvantages compared to their non-orphaned counterparts (Beegle et al. 2010a; Case et al. 2004; Deininger et al. 2003; Monasch and Boerma 2004; Ainsworth and Filmer 2006, provide a notable exception) and that orphans are at greater

¹In this context, the "Culturally inappropriate" category included matrilineal kin and strangers.

risk of health-related deficiencies (Beegle et al. 2010b; Cluver et al. 2007; Cluver and Orkin 2009; Deininger et al. 2003; Subbarao et al. 2001). Evidence that non-biological foster children face greater disadvantages has given the impression that households have been struggling to meet the demands of fostering.

Despite the evidence outlined above, there are good reasons to believe that childcare in the form of fostering is not overwhelming families. First, orphans continue to constitute only a small proportion of foster children (Grant and Yeatman 2012). Second, since the AIDS epidemic, households have shown remarkable ability to absorb both orphaned and non-orphaned foster children (Caldwell 1997; Monasch and Boerma 2004; Grant and Yeatman 2012; Hosegood et al. 2007), with the majority of orphan fostering taking place within households rather than institutionalized foster homes.

It is impossible to draw any firm conclusions about how families are coping with increased childcare responsibilities without first considering how fostering impacts households. Yet, standing in stark contrast to the wealth of literature on orphan fostering and orphan outcomes, there is a dearth of research on foster families themselves. A notable exception is a case study in Uganda conducted by Deininger and colleagues (2003). In this study the researchers used two waves of panel data to show that receiving a foster child was associated with a significant reduction in household investment (as measured by agricultural, structural, and transport equipment) over an eight year period, suggesting that foster children took up resources that would otherwise have gone towards asset investment.

Deininger and colleagues focus on the negative impacts of fostering on household well-being and conceptualize fostering as an "unanticipated shock" (2003:1207) to the household. However, we know from research on decision-making and networks in Africa, that fostering a child is likely *not* an unanticipated shock. Rather, fostering is part of a process of constant negotiation and risk-assessment strategy, where social networks and extended family play an integral role (Akresh 2005; Caldwell 1997). Fostering caregivers often volunteer to take children (Bledsoe and Isiugo-Abanihe 1989) or, at minimum, expect that they will be called upon to do so at some point in the future (Johnson-Hanks 2006; Ntozi 1995).

To a certain extent, AIDS has disrupted this process by increasing the number of orphans, but the epidemic has probably not produced more unanticipated fostering shocks. It is more likely that AIDS has elongated the fostering negotiation/expectation process, as the disease has a long latent period and the manifestation of symptoms are almost certainly diagnosed as AIDS among family members and close friends. It has been documented that HIV-positive parents make contingency plans for their children in preparation for their own impending mortality (Klaits 2010). When parents' have knowledge of infection or perceive their risk of infection as high, they safeguard their children's future in the form of education (Grant 2008). In rural Malawi, people recognize AIDS as a "profound danger" to children (Watkins 2004:694) and often evoke child wellbeing into the discourse on prevention strategies (Smith and Watkins 2005; Watkins 2004), placing children at the forefront of AIDS-related decision making and conversations (Dahl 2009).

On the other hand, evidence that less-preferred types of caretakers (i.e. poor or non-traditional families) are beginning to play a larger role in fostering children, may indicate that the normative hierarchy of fostering has been altered. In some African communities, people's perceptions of this change is very real (Dahl 2009). As the delegation of fostering responsibilities broadens, families' capability to foresee future fostering responsibilities may be compromised, leading to an increase in unanticipated fostering. Either way, anticipation of fostering responsibilities is a pertinent dimension along which to evaluate if and how receiving a foster child impacts household wellbeing.

1.1.3 Current study and setting

Despite the wealth of knowledge on the practice of child fostering, our understanding of how households are affected by absorbing a foster child remains limited. Motivated by this, and acknowledging that fostering is part of a larger anticipatory process, the current study aims to answer two primary research questions. First, does fostering a child affect the socioeconomic status of receiving households? This question emphasizes change and moves beyond comparing absolute differences in the types of household that fosters children (a la Beegle et al. 2010a; Bicego, Rutstein, and Johnson 2003).

Second, does the level of anticipation of the fostering event moderate the effects of fostering? To date, the literatures key distinction of fostering is drawn along the line of whether or not a household is fostering a child. However, the act of fostering happens under a range of circumstances, with families likely having a certain degree of anticipation before actually fostering a child. Fostering as a true "unanticipated shock" may be indicative of an unexpected crisis. Low levels of anticipation may also represent that the foster family is either less preferred or non-traditional. Thus, various levels of anticipation may act to distinguish fostering households and uncover distinct fostering experiences.

To answer these research questions, the current study focuses on Malawi, a country in Southern Africa. Malawi is experiencing one of the most severe AIDS epidemics in sub-Saharan Africa, with a prevalence rate of 11%, and AIDS alone has orphaned more than half a million children in the country (UNAIDS 2010). This, in combination with Malawi's strong tradition of child fostering (Bandawe and Louw 1997) and acute poverty, make the research questions particularly salient to the setting.

1.2 Data and Methods

The data used in this paper are from Tsogolo la Thanzi (TLT), a panel study in Balaka, Malawi. Balaka is a semi-urban area situated in the southern district of Malawi, but many respondents come from rural villages. TLT collected data at four-month intervals from 1,500 female and 600 male respondents who were randomly selected from a sampling frame of 15 to 25 year olds living in census enumeration areas within seven kilometers of Balaka. The short intervals between data collection allows for the examination of economic fluctuations over brief periods of time, something that researchers are often unable to examine in panel studies where years pass between data collection waves.

While TLT primarily focuses on individual-level characteristics, the study also gathers household-level information including ownership of household goods, which is reported by the respondent at every wave. *De jure* household and child rosters are also updated at every interview. These data, in combination with the longitudinal nature of TLT allow for the examination of how respondents' households change over time.

This paper uses data from waves one through seven of TLT, which were col-

lected between May 2009 and September 2011. The multivariate analysis uses pooled data from waves two through seven of the TLT study, converting the analytic sample into person-waves. The sample includes all respondents who completed at least two waves within that time period (the average number of waves per respondents is 5.3) and for whom complete information was available on the measures used in this analysis. Missing data are rare (<10%) and employing list-wise deletion results in a final study sample of 1,959 individuals who contribute 10,351 person-waves. As shown in Appendix A.1, the analytic sample and full TLT sample are quite comparable, suggesting that sample selection bias is not introduced by the use of complete case analysis.

Like other family transitions, the full effects of fostering on households may not be instantaneous. To account for this, the pooled data are restructured to lag fostering one wave before the wave in which household SES is assessed, which is the reason why, with the exception of the fostering variables, wave one data are omitted from the pooled dataset. This approach ensures that exposure to fostering precedes changes in household SES, allowing for the assessment of the impact of fostering a child on future changes in SES rather than detecting a contemporaneous change.

The data are structured so that once a respondent's household has taken in a foster child it is considered a foster family in each subsequent wave. This approach is adopted primarily due to the relatively short observed interval (two years) and time between interview waves (four months).² Treating fostering as such compares household SES pre- and post-fostering, rather than estimating the effect of adding a foster child at one point in time.

1.2.1 Dependent variable

The outcome measure is change in the socioeconomic standing (SES) of respondents' households. The SES measure is a linear index comprised of two household assets and nine durable goods. Unlike more traditional wealth indices that include

²Accounting for respondents who skipped an interview or interviewed at an unscheduled time, the time between interviews ranges from one to seven months for the analytic sample. However, the average length of time between interviews was four months, with 80% respondents interviewing consistently at that interval.

a variety of structural assets (flooring material, water supply, sanitation, etc.), the majority of the index used in this analysis is comprised of durable goods. This was done in order to better capture economic fluctuation over a relatively short span of time. Assets used in this index include whether or not the household has electricity and a metal roof (the latter of which is a distinct marker of household wealth in rural Malawi). Durable goods include a bed with a mattress, television, radio, landline or mobile phone, refrigerator, bicycle, motorcycle, animal-drawn cart, and an automobile.

Weights are assigned to each asset and good using principal-components analysis in accordance with the same procedure used to construct Demographic Health Surveys' wealth index. Television and electricity hold the largest weights and the lowest weights are assigned to an animal-drawn cart and bicycle.³ The resulting index places households on a continuous scale that is relative to the sample population (Rutstein and Kiersten Johnson 2004). This approach to measuring SES, something difficult to accurately estimate in developing countries, has been validated by previous researchers (Filmer and Pritchett 2001; Howe et al. 2008).

Constructing an SES scale at the community level can increase the risk of grouping, particularly in rural communities where the majority of people tend to be poor (Vyas and Kumaranayake 2006). To help alleviate this problem Houweling and colleagues (2003) advise using indicators that are salient to the setting. This is a distinct advantage of the TLT data, as the study was designed specifically for Balaka, and thus the indicators used were selected based on local knowledge of what would differentiate households. While the scale constructed with the TLT data is skewed to the right (see Figure 1.1), it is relatively moderate compared to other studies that use country-level wealth indicators to examine localized communities.⁴ Nonetheless, to be conservative, extreme values in the SES measure used here were recoded to the 95th percentile.⁵

 $^{^3}$ To ensure factorial invariance, the weights were kept consistent across waves. No item received a negative weight.

⁴For comparison examples, see Howe, Hargreaves, and Huttly (2008) and Vyas and Kumaranayake (2006) who find extreme positive skewness in Malawi and Rural Ethiopia, respectively, when using DHS data.

⁵This change had a very limited effect on the results of the multivariate analysis.

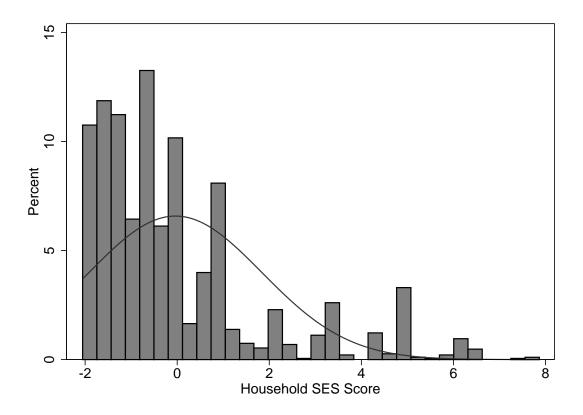


Figure 1.1: Distribution of Household SES at Baseline (Wave 2) for Analytic Sample

1.2.2 Independent variables: child fostering

The primary independent variable is whether or not a respondent's household fostered a child between waves. I take two approaches to measuring fostering. First, a dummy variable (0-1) is used to indicate whether or not the respondent is fostering a child. The second measure is a four-category variable that takes into account the respondents' anticipation of fostering. At each wave, TLT interviewers ask respondents the following question: "In the next year, how likely is it that you will foster a new child into your household?". Responses are measured through an interactive technique wherein the respondent is given a set of 10 beans and is asked to shift the number of beans that represents the likelihood of an event onto a small plate, with a greater number of beans indicating a higher likelihood.⁶

⁶The interviewer introduces this method of questioning by asking respondents simple questions about frequent events. The interviewer and gradually moves to more complex questions in order to ensure the respondent understand the interactive nature of the questioning. This approach has previously been used and validated by Delavande and Kohler (2009) and is described in detail

Cross-sectional distributions of this variable for each wave utilized are shown in Figure 1.2.

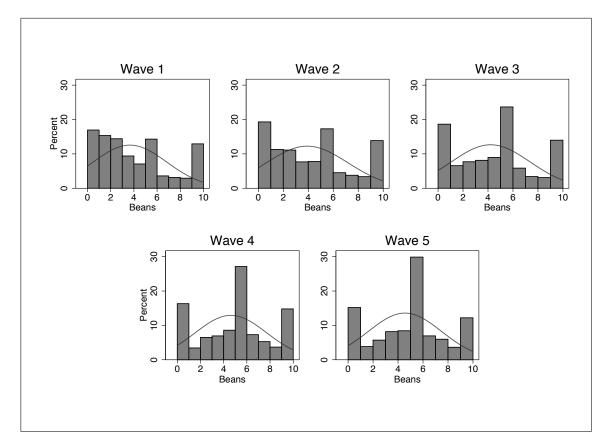


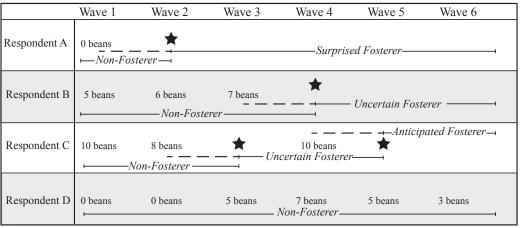
Figure 1.2: Level of Anticipation of Future Fostering, Full Analytic Sub-Sample

Combining the information on anticipation with reports of whether or not respondents had a non-biological child join their household in the successive wave, respondents are grouped as follows: 1) respondents who did not foster between waves (reference group); 2) those who fostered a child but indicated in the previous wave that there was no likelihood of future fostering (0 beans at previous wave); 3) those who fostered and correctly anticipated those responsibilities (10 beans at previous wave); and 4) respondents who fostered a child but were uncertain about whether or not they would foster in the future (1-9 beans at previous wave). These cut-points for the categories were not determined empirically to ensure any specific distribution or results. Rather, they were chosen from a conceptual standpoint.

in Trinitapoli and Yeatman (2011).

Isolating the extreme values (0 beans and 10 beans) to categorize surprise and anticipation is a conservative approach that reduces ambiguity.

Figure 1.3 illustrates how the longitudinal data are leveraged to place those who foster into the anticipation categories described above. In Figure 1.3, hypothetical Respondents A, B, and C all foster at least one child during the six-wave interval, while hypothetical Respondent D remains a non-fosterer throughout that time period. Respondent A reported fostering a child at wave two after indicating at wave one that there was a "0 beans" chance of doing so, thus he remains a "surprised fosterer" from wave two onward. At wave three, Respondent B reported that there was a "7 beans" chance of fostering within the next year. When Respondent B reported fostering a child at wave 4, her status changed from a non-fosterer to an uncertain fosterer. Respondent C reported fostering twice—once at wave three and again at wave five. This respondent was initially categorized as an uncertain fosterer in wave three based on her level of anticipation at wave two. After the second fostering event in wave five, she entered the "anticipated" fostering category based on her level of anticipation at wave four.



★ Respondent reported fostering.

Italics reflects coding of anticipatory fostering category.

Figure 1.3: Structure of the Panel Data and Coding of the Anticipatory Fostering Variable

1.2.3 Control variables

I use fixed-effects regression models to estimate the effect of fostering on socioe-conomic status over time. The fixed effects approach measures within-individual differences, effectively controlling for all observed and unobserved time-invariant variables such as gender, tribe, and static personality characteristics (Allison 1994). Accordingly, background variables that are time invariant, or nearly so, are excluded from these models. However, I include time-varying sociodemographic variables that the literature establishes as important predictors of socioeconomic status. These include:

- (a) Marital status: This is a binary measure distinguishing respondents who are single from those who are married or cohabiting.
- (b) Educational attainment: This variable reflects the highest year of education ever completed by the respondent and is treated as a continuous variable.
- (c) School enrollment: In addition to educational attainment, I include a dummy variable that signifies whether or not the respondent was enrolled in school at the time of the interview.
- (d) *Income*: The amount of money the respondent reported making in the month preceding his or her interview. Measured in thousands of Malawian Kwacha.
- (e) Household Size: A continuous measure representing the respondents de jure household size. To measure the effect of adding additional household members other than the foster child, one household member was subtracted from households that fostered a child.
- (f) *Time*: A continuous variable representing the survey wave is included in each model to estimate the effects of change over time and control for a maturation effect as individuals move through the life course.

In addition to the sociodemographic variables, the multivariate analyses also control for various shocks that the respondent could have experienced between survey waves and that would also influence household socioeconomic status. These include dummy variables for whether the respondents lost their job, got a better job, or moved houses between interviews.

1.2.4 Analytic approach

As noted above, I use fixed-effects pooled time series models to estimate the effect of fostering on changes in socioeconomic status. For interpretation purposes, coefficients for fixed effects models can be interpreted similarly to those in ordinary least squares (OLS) regression. Because this analysis looks at change over time, all independent variables should be interpreted as changes experienced by respondents.

Fixed effects models have several advantages for estimating the effects of events on continuous outcomes in panel data, two of which are particularly salient for the present study (see Allison 1994 and Johnson 1995 for a detailed description of the costs and benefits of this modeling strategy). First, this approach allows for the inclusion of respondents who have not contributed information to every wave. This is especially appropriate for intensive longitudinal studies, such as TLT, where respondents may miss waves due to labor migration or illness without attriting from the sample entirely. Second, this technique offers the ability to obtain unbiased estimates of change over time. That fixed-effects procedures control for both observed and unobserved time-invariant characteristics ensures that the models estimates are independent of selection bias and all other time-invariant differences between respondents.

1.3 Results

Table 1.1 provides a descriptive overview of the pooled time series data. The statistics in the pooled data highly reflect the cross sectional description of the sample taken from the first wave of our analysis (see Appendix A.2), with the expected variation (e.g. increasing educational attainment and a higher percentage of marriage as respondents move through the life course, which is reflected in the pooled data).

Within each wave analyzed, between 6 and 12 percent of respondents fostered a child. Twenty percent of individuals in our sample had a child join their house at some point during the observed interval. However, after pooling the data and accounting for attrition, exposure to fostering represents 17 percent of all person-

Table 1.1: Fostering Characteristics and Descriptive Statistics for Pooled Time-Series Data

| Variable | Mean | S.D. | Range |
|---|-------|------|--------------|
| Household SES | -0.08 | 1.74 | -2.05 - 4.77 |
| % Fostered a child | 17.6 | 0.38 | 0 - 1 |
| Educational Attainment (years) | 7.37 | 2.72 | 0 - 13 |
| % Married | 42.1 | 0.49 | 0 - 1 |
| % Student | 36.1 | 0.48 | 0 - 1 |
| Monthly Income (in thousands of Kwacha) | 2.22 | 6.56 | 0 - 250.00 |
| Household Size | 5.11 | 2.23 | 1 - 17 |
| % Moved household | 12.8 | 0.33 | 0 - 1 |
| % Lost Job | 0.5 | 0.07 | 0 - 1 |
| % Better Job | 1.7 | 0.13 | 0 - 1 |
| | | | |

N=10,351 person-waves representing 1,959 individuals

Table 1.2: Anticipation Categories of Fosterers within Pooled Time-Series Data

| Fostering Category | | |
|--|---------------------|-----------------------|
| Variables | N | Percent of Sample |
| Never Fostered | 8,533 | 82.44 |
| Fostered | 1,818 | 17.56 |
| By Prior Anticipation Surprised Anticipated Uncertain | 266 252 1,300 | 2.57 2.43 12.56 |

N=10,351 person-waves representing 1,959 individuals

waves analyzed. Table 1.2 divides people who fostered according to their respective anticipation (as measured four months prior to fostering a child). As expected, the majority (three-quarters) of respondents who fostered a child fall into the uncertain category. Interestingly, the rest of the fosterers were nearly evenly split between correctly anticipating the fostering event and not anticipating the event at all.

1.3.1 Multivariate Analysis

I take multiple steps in evaluating the effects of fostering on respondents' household SES. I start by assessing the general pattern of wealth over time for respondents. I then estimate the effects of fostering as a binary status by comparing those whose household fosters a child to those who do not. Before examining the role of anticipation, I establish the validity of TLT's measure of anticipation. Finally, to understand if and how anticipation of fostering may produce differential outcomes for foster families, I estimate models that treat fostering as a circumstance-specific event conditioned by anticipation.

Research question one: does fostering a child affect the socioeconomic status of receiving households?

Model A in Table 1.3 contains the results of the first fixed-effect time series model, which simply evaluates how household SES changed over the observed interval. In the absence of any controls, respondents experienced an increase in SES over time. This finding is indicative of a maturation effect and is in accordance with what we would expect for young people moving through the life course. That all respondents experience a general increase in SES over time is important to note as we evaluate the impact of other events.

Table 1.3: Fixed Effects Regression Models of the Effect of Time and Fostering on Household SES

| | Model A | Model B |
|----------------------------------|-----------|-----------|
| Time | 0.028*** | 0.027*** |
| | (0.004) | (0.004) |
| Fostering | | 0.011 |
| | | (0.031) |
| Constant | -0.148*** | -0.149*** |
| | (0.012) | (0.012) |
| | | |
| Person-waves | 10,351 | 10,351 |
| Individuals | 1,959 | 1,959 |
| Within individual \mathbb{R}^2 | 0.006 | 0.006 |
| | | |

Standard errors in parentheses.

^{*} p<0.05, ** p<0.01, *** p<0.001

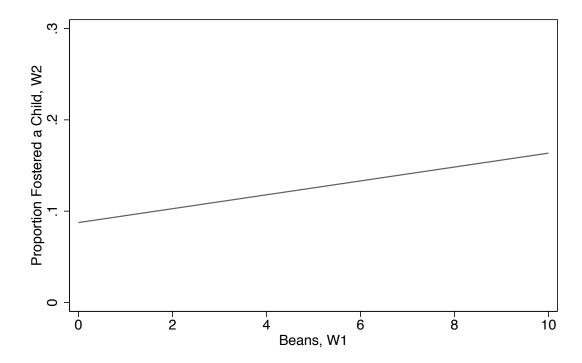


Figure 1.4: Proportion of Sample that Fostered a Child in Wave 2 by Wave 1 Anticipation Level

Model B in Table 1.3 reveals that people who foster a child do not experience a differential change in SES compared to non-fosterers. Taken at face value, we may be led to conclude that fostering a child does not have any impact on households SES. However, as argued previously, conceptualizing fostering as a purely binary status may mask an important relationship between fostering and household outcomes. Because of the evidence that fosterers are a heterogeneous group, I move on to examine the second research question.

Research question two: does anticipation of fostering matter?

Before considering the role of anticipation in outcomes for foster families, I establish the validity of the anticipation measure by determining its ability to predict future fostering. To do this, I use data from the first two waves of the TLT study to capture the initial cohort of individuals who fostered a child (i.e. those who reported receiving a foster child at wave two). Using logistic regression, I regress whether or not respondents fostered at wave two (1=yes, 0=no) on their level of

anticipation at wave one. I also control for basic sociodemographic characteristics such as gender, age, household SES, and marital status, which were also measured at wave one (see Appendix A.3 for full model). While not the strongest relative to other factors, the measure of anticipation is revealed to be a statistically significant predictor of future fostering. Substantively, a persons odds of fostering a child at wave two increased by six percent for every additional bean he or she shifted to the positive side of the table in wave one. Figure 1.4 shows the relationship between level of anticipation at wave one and fostering at wave two.

Despite the strong relationship between anticipation of fostering responsibilities and subsequent fostering, surprised fostering does exist within our sample. Thirteen percent of people who reported fostered at wave two indicated at wave one that there was no chance of their household fostering a child within the next year. Likewise, slightly less that fifteen percent of those reporting fostering at wave two accurately anticipated doing so during their wave one interview.

Model C in Table 1.4 considers fostering as an event categorized by prior anticipation. This model reveals that people who correctly anticipate their fostering responsibilities differ significantly from non-fosterers. Specifically, anticipating fostering responsibilities is associated with a .139 gain in household SES score over respondents who do not foster. The temporal order of events allows us to interpret these results as an actual gain in SES rather than a selection effect. In other words, the fostering event precedes the differential gain in SES for these families. While not shown in this model, change in anticipation of future fostering from wave to wave (i.e. independent of actually fostering) has no main effect on socioeconomic standing.

While surprised and uncertain fosterers experience neither a significant increase nor decrease in SES in comparison to non-fosterers, rotating the reference categories to examine pairwise relationships show that those who anticipate fostering are significantly different from their surprised counterparts (p=0.045). Anticipated fosterers experience a .187 increase in SES over those households that foster by surprise (model available upon request).⁷

⁷Supplementary analyses explored the effect of anticipation using different cut-points to define surprised and anticipated fostering. Expanding the definition of surprised fostering to include those who selected either zero or one-bean chance of fostering and anticipated fostering to include those who selected either a nine or ten-bean chance of fostering produced similar results. These

Table 1.4: Fixed Effects Regression models of the Effect on Household Socioeconomic Status by Anticipatory Fostering Status

| | Model C | Model D |
|---|-----------|-----------|
| Time | 0.027*** | 0.029*** |
| | (0.004) | (0.005) |
| $Prior\ Anticipation\ (ref. = non-fosterers)$ | | , |
| Surprised Fostering | -0.048 | 0.009 |
| | (0.066) | (0.066) |
| Anticipated Fostering | 0.139* | 0.174* |
| | (0.071) | (0.071) |
| Uncertain Fostering | 0.000 | 0.043 |
| | (0.035) | (0.035) |
| $Sociode mographic\ controls$ | | |
| Educational Attainment | | 0.018 |
| | | (0.020) |
| Student | | 0.077* |
| | | (0.034) |
| Marital Status | | 0.065 |
| | | (0.038) |
| Income | | 0.006*** |
| | | (0.002) |
| Household Size | | 0.057*** |
| | | (0.007) |
| Shocks | | |
| Household move | | 0.065** |
| | | (0.024) |
| Lost job | | 0.130 |
| | | (0.102) |
| Found a better job | | 0.034 |
| - | | (0.061) |
| Constant | -0.149*** | -0.649*** |
| | (0.012) | (0.149) |
| D | 10.051 | 10.051 |
| Person waves | 10,351 | 10,351 |
| Individuals | 1,959 | 1,959 |
| Within individual R^2 | 0.006 | 0.017 |

Standard errors in parentheses.
* p<0.05, ** p<0.01, *** p<0.001

Including sociodemographic controls and accounting for shocks (Model D in Table 1.4) does not explain the ways in which anticipatory fostering acts to further increase household SES. Rather, after controlling for a host of other changes, the significant effect of anticipated fostering on household SES remains. Other variables operate as we would expect, with the exception of changing jobs, which has no impact on household SES. Being enrolled in school and an increase in monthly income acts to increase SES. Also, the addition of a household member above and beyond the foster child increases household SES, likely because the addition of an adult is accompanied by that individual's capital. Changing households is also associated with an increase in SES. In order to rule out the possibility that moving to a new household is driving the relationship we observe between anticipated fostering and SES, I have tested for the presence of an interaction effect between the fostering categories and moving, but found no evidence of such an interaction (model available upon request).

1.4 Summary and Discussion

Child fostering has long been regarded as being beneficial to households, communities, and children alike. However, little empirical work has explored the impact of fostering a child for receiving families. This study attempts to gain a greater insight into how fostering households cope with extra childcare responsibilities over time by using socioeconomic standing as a proxy for household wellbeing. I take an approach that accounts for the heterogeneity of fostering experiences. Treating child fostering as conditioned by prior anticipation acknowledges the reciprocal nature of decision-making among African kin networks. The results of this analysis also lend support for more nuanced examinations of family processes generally.

The empirical results show that when fostering is treated simply as an event

newly defined anticipated fosterers continued to experience a significantly larger increase in SES than their non-fostering counterparts (coefficient=0.197; p=0.002). Households that fostered out of anticipation under this expanded definition continue to show a significantly greater increase in SES than their surprised counterparts (p=0.026). Expansion of the surprised and anticipated categories and reduction the uncertain categories (to include those who selected between two and eight beans) also significantly distinguished uncertain fosterers from anticipated fosterers (p=0.005), with anticipated fosterers exhibiting a greater increase in SES compared to uncertain fosterers.

that either happened or did not happen, fostering seems not to impact a household's SES over a two year time period. However, disaggregating fostering according to prior anticipation, reveals that households that anticipate fostering responsibilities experience significant SES gains over surprised fosterers as well as non-fostering households. This finding is robust when accounting for the effect of other variables explored in this research.

This study was unable to explain the process by which anticipation acts to increase SES among fostering households. When receiving a foster child is anticipated, a household may increase its resources through ways that are not measured in the TLT data. Drawing from previous research, these may include child labor or domestic work (Ainsworth 1996; Andvig et al. 1999; Goody 1982). However, if this is the case, I find no evidence that such labor allows other members of the household to get a new or improved form of employment. One alternative explanation may be that anticipation represents other qualities that make fostering households more likely to experience an increase in wealth. For example, anticipation could represent greater stability within a household, or, at minimum be indicative of good relations among extended family members. Nonetheless, more work is needed to flush out the meaning of anticipation as it relates to the process of child fostering.

Results also indicate that foster families who do not completely anticipate fostering responsibilities may not experience the gains associated with anticipatory fostering. However, the fact that these fostering households are not significantly worse-off than their non-fostering counterparts in terms of change in SES is encouraging, especially considering that these households—particularly the "surprised" ones—have likely experienced fostering as a true "shock". Still, more research is needed on the prevalence of surprised and unanticipated fostering to truly flush out the implications of such events.

The findings presented in this paper yield new results that are empirically robust and theoretically coherent. Nevertheless, this study has several limitations. First, by using a young sample, "skipped generation" households containing only foster children and grandparents are not likely captured in this analysis. Thus, caution should be taken in generalizing the findings to these types of households. Second, this study uses the anticipation of one household member as a proxy for

the level of anticipation of the household. However, given the collective nature of fostering decisions, it is likely that all household members are aware of potential future fostering, at least to a certain extent. The significant predictive ability of the anticipation measure within TLT data also lends support to the validity of the anticipation of one household member. Third, the geographical scope of this study is limited. Yet, given the poverty and high HIV prevalence in the study region, we would expect detrimental effects of fostering to be manifest among this sample. The fact that we observe positive outcomes for some fostering households in such a setting is encouraging.

Finally, anticipation is but one aspect that characterizes a fostering experience. To ascertain a fuller picture of the experience for fostering households, future research should consider characteristics of the foster child, such as age and gender. Likewise, socioeconomic status is only one measure of household wellbeing. Research in this area would benefit greatly from specialized studies focused on fostering households to understand other ways in which households undergo change upon fostering a child.

While the orphan crisis is certainly impacting the sub-Saharan Africa, additional caretaking responsibilities may not be as detrimental to the African family as some have suggested. Child fostering does not seem to damage the socioeconomic standing of host households. In fact, under some circumstances, households that absorb a foster child may experience net economic benefits over time.



Supplementary Tables

Table A.1: Comparison of Full and Analytic Sub-Sample for Key Variables

| | Full Sample | | Analytic Sample | |
|--------------------------------|-------------|------|-----------------|------|
| Variable | Mean | S.D. | Mean | S.D. |
| Household SES | -0.03 | 1.78 | -0.08 | 1.74 |
| %Fostered a child | 17.4 | 0.38 | 17.6 | 0.38 |
| Educational Attainment (years) | 7.43 | 2.73 | 7.37 | 2.72 |
| % Married | 41.4 | 0.49 | 42.1 | 0.49 |
| % Student | 37.0 | 0.48 | 36.1 | 0.48 |
| Monthly Income (in Kwacha) | 2.20 | 6.49 | 2.22 | 6.56 |
| Household Size | 4.92 | 2.22 | 4.92 | 2.22 |
| Moved house | 13.0 | 0.34 | 12.8 | 0.33 |
| %Lost Job | 0.60 | 0.07 | 0.50 | 0.07 |
| % Found Better Job | 1.70 | 0.13 | 1.70 | 0.13 |
| Person-waves | 10,838 | | 10,351 | |
| Individuals | 2,064 | | 1,959 | |

Table A.2: Cross-sectional Description of Sample at the Beginning of the Observed Interval (Wave 2)

| Variable | Mean | S.D. | Range |
|---|-------|------|--------------|
| Household SES | -0.07 | 1.79 | -2.05 - 4.77 |
| Educational Attainment | 7.22 | 2.72 | 0 - 13 |
| % Married | 37.6 | 0.48 | 0 - 1 |
| % Student | 44.1 | 0.50 | 0 - 1 |
| Monthly Income (in thousands of Kwacha) | 2.30 | 8.04 | 0 - 250.00 |
| Household Size | 5.15 | 2.23 | 1 - 17 |

(N=1,878 individuals)

Table A.3: Wave 1 Predictors of Fostering in Wave 2

| | 0.11 D +: |
|--------------------|------------|
| | Odds Ratio |
| Anticipation level | 1.062** |
| | (0.024) |
| Household SES | 1.226*** |
| | (0.049) |
| Marital Status | 1.843** |
| | (0.357) |
| Gender | 1.059 |
| | (0.196) |
| Age | 0.978 |
| | (0.027) |
| Observations | 1,812 |

Standard errors in parentheses;

all predictor variables measured at wave 1.

* p<0.05, ** p<0.01, *** p<0.001

Bibliography

- Ainsworth, Martha. 1996. "Economic Aspects of Child Fostering in Cote d'Ivoire." Research in Population Economics 8:25–62.
- Ainsworth, Martha and Deon Filmer. 2006. "Inequalities in Childrens Schooling: AIDS, Orphanhood, Poverty, and Gender." World Development 34:1099–1128.
- Akresh, Richard. 2005. "Risk, Network Quality, and Family Structure: Child Fostering Decisions in Burkina Faso." IZA Discussion Paper 1471, University of Illinois at Urbana-Champaign.
- Akresh, Richard. 2009. "Flexibility of Household Structure." *Journal of Human Resources* 44:976–997.
- Allison, Paul D. 1994. "Using Panel Data to Estimate the Effects of Events." Sociological Methods & Research 23:174 –199.
- Andvig, Jens Chr., Sudharshan Canagarajah, and Sudharshan Kielland. 1999. "Child labor in Africa: The issues." *Unpublished mimeo. World Bank, Social Protection Sector*.
- Bandawe, Chiwoza R. and Johann Louw. 1997. "The Experience of Family Foster Care in Malawi: A Preliminary Investigation." *Child Welfare* 76:535–47.
- Beegle, Kathleen, Deon Filmer, Andrew Stokes, and Lucia Tiererova. 2010a. "Orphanhood and the Living Arrangements of Children in sub-Saharan Africa." World Development 38:1727–1746.
- Beegle, Kathleen, Joachim De Weerdt, and Stefan Dercon. 2010b. "Orphanhood and Human Capital Destruction: Is There Persistence Into Adulthood?" Demography 47:163–180. Volume 47, Number 1, February 2010.
- Bicego, George, Shea Rutstein, and Kiersten Johnson. 2003. "Dimensions of the Emerging Orphan Crisis in sub-Saharan Africa." Social Science & Medicine 56:1235–1247.

- Bledsoe, Caroline. 1990. "The Politics of Children: Fosterage and the Social Management of Fertility Among the Mende of Sierra Leonne." In *Births and Power: Social Change and the Politics of Reproduction*, edited by W.P. Handwerker, pp. 81–100. Boulder, CO: Westview Press.
- Bledsoe, Caroline and Uche Isiugo-Abanihe. 1989. "Strategies of Child-Fosterage Among Mende Grannies in Sierra Leone." In *Reproduction and Social Organization in Sub-Saharan Africa*, edited by Ron J. Lesthaeghe, pp. 443–475. Berkley, CA: University of California Press.
- Caldwell, J.C. 1997. "The Impact of the African AIDS Epidemic." *Health Transition Review* p. 169–188.
- Caldwell, John C. 1976. "Toward A Restatement of Demographic Transition Theory." *Population and Development Review* 2:321–366.
- Caldwell, John C. 1983. "Direct Economic Costs and Benefits of Children." In *Determinates of Fertility in Developing Countries*, edited by Rodolfo A. Bulatao and Ronald D. Lee, volume 1, pp. 458–493. New York: Academic Press.
- Caldwell, John C. and Pat Caldwell. 1987. "The Cultural Context of High Fertility in sub-Saharan Africa." *Population and Development Review* 13:409–437.
- Case, Anne, Christina Paxson, and Joseph Ableidinger. 2004. "Orphans in Africa: Parental Death, Poverty, and School Enrollment." *Demography* 41:483–508.
- Cluver, Lucie, Frances Gardner, and Don Operario. 2007. "Psychological Distress Amongst AIDS-Orphaned Children in Urban South Africa." *Journal of Child Psychology and Psychiatry* 48:755–763.
- Cluver, Lucie and Mark Orkin. 2009. "Cumulative Risk and AIDS-Orphanhood: Interactions of Stigma, Bullying and Poverty on Child Mental Health in South Africa." Social science & medicine 69:1186–1193.
- Dahl, Bianca. 2009. "The "Failures of Culture": Christianity, Kinship, and Moral Discourses about Orphans during Botswana's AIDS Crisis." *Africa Today* 56:23–43. Volume 56, Number 1, Fall 2009.
- Deininger, K., M. Garcia, and K. Subbarao. 2003. "AIDS-Induced Orphanhood as a Systemic Shock: Magnitude, Impact, and Program Interventions in Africa." World Development 31:1201–1220.
- Delavande, Adeline and Hans-Peter Kohler. 2009. "Subjective Expectations in the Context of HIV/AIDS in Malawi." *Demographic research* 20:817–874.

- Eloundou-Enyegue, Parfait and David Shapiro. 2004. "Buffering Inequalities: The Safety Net of Extended Families in Cameroon." Technical report, SAGA Working Paper.
- Filmer, Deon and Lant H. Pritchett. 2001. "Estimating Wealth Effects Without Expenditure Data—Or Tears: An Application to Educational Enrollments in States of India." *Demography* 38:115–132.
- Foster, Geoff and Stephan Germann. 2002. "The Orphan Crisis." In AIDS in Africa, edited by Max Essex, pp. 664–675. Springer, second edition.
- Goody, Esther N. 1982. Parenthood and Social Reproduction: Fostering and Occupational Roles in West Africa. Cambridge: Cambridge University Press.
- Grant, Monica J. 2008. "Children's School Participation and HIV/AIDS in Rural Malawi:." Demographic Research 19:1603–1634.
- Grant, Monica J. and Sara Yeatman. 2012. "The relationship between orphanhood and child fostering in sub-Saharan Africa, 1990s 2000s." *Population Studies* pp. 1–17.
- Heuveline, P. 2004. "Impact of the HIV Epidemic on Population and Household Structure: The Dynamics and Evidence to Date." AIDS 18:S45–S53.
- Hosegood, Victoria, Sian Floyd, Milly Marston, Caterina Hill, Nuala McGrath, Raphael Isingo, Amelia Crampin, and Basia Zaba. 2007. "The effects of High HIV Prevalence on Orphanhood and Living Arrangements of Children in Malawi, Tanzania, and South Africa." *Population Studies* 61:327–336.
- Houweling, Tanja AJ, Anton E Kunst, and Johan P Mackenbach. 2003. "Measuring Health Inequality Among Children in Developing Countries: Does the Choice of the Indicator of Economic Status Matter?" *International Journal for Equity in Health* 2:8.
- Howard, B., C. Phillips, N. Matinhure, K. Goodman, S. McCurdy, and C. Johnson. 2006. "Barriers and Incentives to Orphan Care in a Time of AIDS and Economic Crisis: A Cross-Sectional Survey of Caregivers in Rural Zimbabwe." BMC public health 6:27.
- Howe, Laura D, James R Hargreaves, and Sharon RA Huttly. 2008. "Issues in the Construction of Wealth Indices for the Measurement of Socio-economic Position in Low-Income Countries." *Emerging Themes in Epidemiology* 5:3.
- Isiugo-Abanihe, Uche C. 1985. "Child Fosterage in West Africa." *Population and Development Review* 11:53–73.

- Johnson, David R. 1995. "Alternative Methods for the Quantitative Analysis of Panel Data in Family Research: Pooled Time-Series Models." *Journal of Marriage and Family* 57:1065–1077.
- Johnson-Hanks, J. 2006. *Uncertain Honor: Modern Motherhood in an African Crisis*. University of Chicago Press.
- Klaits, Frederick. 2010. Death in a Church of Life: Moral Passion during Botswana's Time of AIDS. University of California Press, 1st edition.
- Lloyd, Cynthia and Sonalde Desai. 1992. "Children's Living Arrangements in Developing Countries." *Population Research and Policy Review* 11:193–216.
- Madhavan, Sangeetha. 2004. "Fosterage Patterns in the Age of AIDS: Continuity and Change." Social Science & Medicine 58:1443–1454.
- McDaniel, Antonio and Eliya Zulu. 1996. "Mothers, fathers, and children: Regional patterns in child-parent residence in sub-Saharan Africa." African Population Studies 11:1–28.
- Merli, M. Giovanna and Alberto Palloni. 2006. "The HIV/AIDS Epidemic, Kin Relations, Living Arrangements, and the African Elderly in South Africa." In *Aging in Sub-Saharan Africa: Recommendations for Futhering Research*, edited by Barney Cohen and Jane Menken, pp. 117–165. Washington, D.C.: The National Academies Press.
- Monasch, Roeland and Ties J Boerma. 2004. "Orphanhood and Childcare Patterns in sub-Saharan Africa: An Analysis of National Surveys from 40 Countries." *AIDS* 18:S55–S65.
- Ntozi, James. 1995. High Fertility in Rural Uganda: The Role of Socioeconomic and Biological Factors. Kampala: Fountain Publishers.
- Nyambedha, Eric Otieno, Simiyu Wandibba, and Jens Aagaard-Hansen. 2003. "Changing Patterns of Orphan Care Due to the HIV Epidemic in Western Kenya." Social Science & Medicine 57:301–311.
- Rutstein, Shea and Kiersten Johnson. 2004. "DHS Wealth Index." Technical Report DHS Comparative Report No. 6, ORC Macro, Calverton, MD.
- Smith, Kirsten P. and Susan Cotts Watkins. 2005. "Perceptions of Risk and Strategies for Prevention: Responses to HIV/AIDS in Rural Malawi." Social Science & Medicine 60:649–660.
- Subbarao, K., A. Mattimore, K. Plangemann, and World Bank. Africa Regional Office. 2001. Social protection of Africa's orphans and other vulnerable children: Issues and good practice program options. World Bank, Africa Region.

- Trinitapoli, Jenny and Sara Yeatman. 2011. "Uncertainty and Fertility in a Generalized AIDS Epidemic." American Sociological Review 76:935–954.
- UNAIDS. 2007. "Report on the Global AIDS Epidemic." Technical report, United Nations, Geneva.
- UNAIDS. 2010. "Report on the Global AIDS Epidemic." Technical report, United Nations, Geneva.
- Urassa, Mark, J. Ties Boerma, Japheth Z. L. Ng'weshemi, Raphael Isingo, Dick Schapink, and Yusufu Kumogola. 1997. "Orphanhood, Child Fostering and the AIDS Epidemic in Rural Tanzania." *Health Transition Review* 7 (Suppl. 2):141–153.
- Vyas, S. and L. Kumaranayake. 2006. "Constructing Socio-economic Status Indices: How to Use Principal Components Analysis." *Health Policy and Planning* 21:459.
- Watkins, Susan Cotts. 2004. "Navigating the AIDS Epidemic in Rural Malawi." *Population and Development Review* 30:673–705.