Research Statement: Richard Akresh

1. Introduction

My research focuses on child health and education in Africa and spans the fields of development, health, and labor economics. Since almost half of the population is under 15 in many African countries, understanding the factors that influence investments in their health and education is critical for improving African growth. My work focuses on four main themes. First, I have examined the short and long-term impacts of war on child health and education. Second, I have studied how household structure and sibling rivalry affect parents' decisions about educational investments in their children. Third, I have conducted a randomized control trial of alternative ways to deliver cash transfers to poor households to improve their children's health and educational outcomes. Fourth, I have studied how intra-household bargaining influences family investment decisions. I describe each of these research areas below.

A key component of my research is using empirical identification strategies that allow me to estimate causal relationships. For each project, my first approach is to use existing data if available. Yet, for many questions in Africa, relevant data are unavailable, necessitating fieldwork data collection. Much of my work is based on two multi-year fieldwork projects described below ([24] and [25]). Fieldwork has the advantage that a survey can be designed to explore almost any hypothesis and can ensure that the information necessary to estimate causal relationships is collected. However, fieldwork projects are time-consuming, often taking up to five years to collect survey data before research papers can be written.

2. War and Children's Welfare

One strand of my research examines the impact of war on children's welfare. Almost three-fourths of all African countries have experienced a war since independence and these wars form a significant barrier to development. Most research on war focuses on the macroeconomic effects, finding that nations rebound quickly when the war ends and experience minimal long-term impacts. In contrast, my research focuses on the impact of war on individuals. I find that children exposed to a war suffer adverse long-term health and education effects that also lead to negative consequences for the next generation. Further, I find that war is systematically different from other stresses people face and merits unique policy responses.

In **"Health and Civil War in Rural Burundi" [1]** (*Journal of Human Resources*, 2009, with Tom Bundervoet and Philip Verwimp, cited 87 times in Google Scholar), we combine household survey data with event data on the timing and location of battles to examine the causal impact of Burundi's civil war on child health. The empirical identification strategy exploits exogenous variation in the timing of the fighting in each province and the related variation in which cohorts of children were exposed to the war. Studies by non-governmental organizations have found that children are often among the most affected by wars. We confirm and quantify the magnitude of this impact, finding that children exposed to the war are significantly shorter than non-exposed children. The negative impact of the war on an exposed child's health will subsequently lower their future schooling and reduce their adult wages.

I also explore how wars differ from other stresses families face. In **"Civil War, Crop Failure, and Child Stunting in Rwanda" [2]** (*Economic Development and Cultural Change*, 2011, with Tom Bundervoet and Philip Verwimp, cited 80 times in Google Scholar), we compare how a child's exposure to war has a different impact on health than exposure to crop failure. We use Rwandan household data from before the genocide and event data from reports by non-governmental organizations. We exploit the localized nature of the crop failure (limited to southern Rwanda) and the war (limited to northern Rwanda) and the exogenous timing of these events to capture a child's exposure and identify the causal effect of these events on child health. Both crop failure and war negatively impact child height. Yet, the roles of gender and poverty differ for each shock. We find that girls and boys (in poor and non-poor families) who are born during the war in a war region are significantly shorter due to the war. The war's onset was unexpected and parents could not protect the health of their children. Conversely, only girls born during a crop failure in the affected region are impacted, and the effect is worse for girls in poor families. We find

no evidence that crop failure impacts the health of boys or children in non-poor families. The results, which show gender discrimination during child exposure to crop failure but not war, offer evidence that policy organizations must target different children when responding to these unique stresses.

One of the limitations of previous research measuring the impact of war on child welfare is that internal displacement makes it difficult to accurately capture a child's exposure to the war. In **"Wars and Child Health: Evidence from the Eritrean-Ethiopian Conflict" [4]** (*Journal of Development Economics*, 2012, with Leonardo Lucchetti and Harsha Thirumurthy, cited 9 times in Google Scholar), we use household data from Eritrea to estimate the effect of exposure to the 1998-2000 Eritrea-Ethiopia border war on child health. As in paper [1] discussed above, the identification strategy exploits exogenous variation in the war's geographic extent and timing, and the subsequent exposure of different cohorts to the war. However, this is the first paper with data on each household's migration history, which allows us to determine a child's location during the war and correctly classify their exposure. By accurately measuring a child's location at the time of the war, the estimated negative impacts of war exposure are 13 percent larger than they would have been if we used the child's location at the time of the survey.

Much of the research on the impact of war on children uses extremely large geographic areas to delineate which children are defined as exposed to the war. In **"GPS Data, War Exposure, and Child Health" [6]** (with German Caruso and Harsha Thirumurthy, in progress), we extend our earlier work on the Eritrean-Ethiopian war [4] by using global positioning system (GPS) data on the location of the survey villages to address measurement error that would wrongly misclassify a child's war exposure. The survey data do not allow us to combine the GPS data with the migration data in paper [4]. Yet, by more accurately categorizing the geographic war exposure of each survey village, the estimated impacts of war exposure are 3 percent smaller in Eritrea and 23 percent smaller in Ethiopia. This is the first paper to use data from both countries involved in a war to measure the war's impact on child health in each nation. We find that war-exposed children in both countries are significantly shorter, with the children in the winning country, Ethiopia, suffering as much as the losing nation, Eritrea.

Besides the short-term effects of war on child welfare, I also examine the long-term effects. In **"War and Stature: Growing Up During the Nigerian Civil War" [3]** (*American Economic Review, Papers & Proceedings*, 2012, with Sonia Bhalotra, Marinella Leone, and Una Osili, cited 6 times in Google Scholar), we study the impact on adult height of exposure to the 1967-1970 Nigerian civil war, which was the first civil war in Africa. Using variation in war exposure across ethnicity and cohort, we find that children exposed to the war sometime between birth and adolescence exhibit reduced adult stature, and this impact is largest for those exposed during adolescence. This paper is related to the literature on the long-run impacts of fetal and childhood shocks and the idea of critical periods for investments in children. However, unlike previous studies that cannot compare the impact of shocks on older and younger children, we find significantly larger negative effects for children exposed to wars during adolescence.

In **"First and Second Generation Health Impacts of Nigeria's Biafran War" [7]** (with Sonia Bhalotra, Marinella Leone, and Una Osili, in progress), we extend our earlier work [3] to examine whether there are health impacts for the children of the mothers originally exposed to the war. This is the first paper to look at the intergenerational effects of exposure to war. We use variation across ethnicity and cohort (as well as region and cohort) to identify significant negative long-run intergenerational impacts on child mortality and child height for children whose mothers were exposed to the war during their adolescence.

In addition to war impacting child health, there are also substantial effects on education. In **"Armed Conflict and Schooling: Evidence from the 1994 Rwandan Genocide" [5]** (revise and resubmit at *Review of Economics and Statistics*, with Damien de Walque, cited 76 times in Google Scholar), we examine the impact of Rwanda's 1994 genocide on child education. During the genocide 800,000 people were killed in 100 days. However, the war was short and a well-organized regime took over the nation.

Macroeconomic indicators quickly returned to pre-war levels and, based on these, there appeared to be limited long-term effects. We use three distinct empirical identification strategies to measure the causal impact of the war on individuals. First, we use a difference-in-differences strategy, comparing the difference in enrollment rates between younger and older cohorts of children in one survey conducted prior to the war with the same difference from a second survey conducted after the war. No other study has data bracketing a war event. Second, we estimate a triple-differenced regression exploiting variation across regions in the war's intensity to confirm that impacts can be attributed to the war and not to other events that occurred between survey rounds. Third, we estimate an instrumental variables regression using the distance from each regional capital to the Ugandan border as our instrument to address the potential endogeneity of our war intensity measures. Results using all three identification strategies indicate that children who were of school age during the war received significantly less education. The negative impact of the war on education will have long-term welfare consequences for those exposed children by reducing their future productivity and subsequent wages.

In **"Civil War and Household Structure: Panel Data Evidence from Burundi" [8]** (with Philip Verwimp and Juan Carlos Muñoz, in progress), we combine the war research above with my household structure research described below to examine how war impacts household structure. We use panel data that extend the paper [1] data and contain information for whether each member of the original family left the household and for how long. We combine this individual migration data with data on the occurrence, timing, and intensity of the war in each village. Results show people migrate from war-exposed households, and the impact is mainly seen in poor households less able to cope with the negative shock.

3. Children's Welfare: Household Structure and Sibling Rivalry

A second strand of my research examines how household structure and sibling rivalry influence how families make education investment decisions for their children. The research is based on two extensive African fieldwork projects. I describe the first in this section and the second in Section 4 when I discuss my cash transfers research. The fieldwork project [24], **"Flexibility of Household Structure: Economic Motivations and Consequences of Child Fostering in Burkina Faso"**, was part of my dissertation and focused on the institution of child fostering, in which parents send a biological child to live temporarily with another family. Based on my data, in a given year, 15% of households send or receive a child, and 8% of children are fostered. Data from other African countries confirm similar foster rates. Many organizations strongly believe that living apart from the biological parents has negative consequences for a child. My research shows that a more balanced view of fostering requires understanding why a family adjusts its structure, the implications for the host family children and the biological siblings of the foster child, and what would have happened to the children in the absence of fostering.

To obtain data on children in both sending and receiving households, I adopted a methodology that involved locating and interviewing both households involved in each fostering exchange. If a household in the initial sample sent a child to another family, then the receiving household was found and interviewed in the survey's tracking phase. Similarly, if a household in the initial sample received a child, then the child's biological parents were located and interviewed. There were 316 paired households to be found during the tracking phase, with some located 1000 miles away in Cote d'Ivoire. The field research team and I located 95% of them. To fund this fieldwork data collection, I received six grants as a graduate student totaling $90,000. I hired, trained, and supervised a team of 35 members who conducted over 2400 interviews. I have written papers [9], [12], [14], [15], [16], and [23] using these data.

In **"Flexibility of Household Structure: Child Fostering Decisions in Burkina Faso" [9]** (*Journal of Human Resources*, 2009, cited 79 times in Google Scholar), I examine why households send or receive children. Due to data limitations, previous researchers could not consider critical factors that influence fostering. Fieldwork project [24] used a unique survey design to address these shortcomings. In particular, this is the first paper to examine the relationship between fostering and income shocks, household gender

imbalances, and social networks. I find that households are significantly more likely to send a child if they experience negative idiosyncratic income shocks or have more 'good' quality network members. They are also more likely to send a child if they live further from a primary school or have child gender imbalances that relate to labor demands. However, only the child labor and distance to school factors influence the decision to receive a child. I test and reject that these four factors correlated with the sending decision have an equal and opposite relationship with the receiving decision. Results show that fostering shields households from adverse shocks, provides them access to the benefits of social networks, and moves children to households where they are more productive. Thus, there could be negative welfare implications from restricting a household's ability to foster.

In **"School Enrollment Impacts of Non-traditional Household Structure" [14]** (cited 59 times in Google Scholar), I measure the impact of child fostering on education using fixed effects regressions to address the endogeneity of fostering. Due to the unique child foster tracking methodology, I have information on the sending and receiving households participating in each fostering exchange. This allows me to compare foster children with children in the host family and with their non-fostered siblings who remained with the biological parents. Foster children are less likely to be enrolled than host family children, supporting a negative view of fostering. However, for young foster children after they move away from their parents, enrollment actually increases. Even after accounting for how parents decide which child to send using child fixed effects regressions, I still find that after leaving their parents young foster children are not academically worse off. I also estimate the long-run fostering impact and find that adults who were fostered as children are more likely to be educated and less likely to be farmers or live in rural areas. Overall, these results contradict the views of development organizations who believe that growing up away from the biological parents is detrimental to children.

Sibling rivalry is the idea that siblings compete for parental investments. In **"Sibling Rivalry, Residential Rivalry, and Constraints on the Availability of Child Labor" [12]** (with Eric Edmonds, cited 3 times in Google Scholar), we examine how rivalry among biological siblings, some of whom may not be co-resident, differs from rivalry among co-resident children and how this rivalry affects school enrollment for children in Burkina Faso. We test the hypothesis that the value of child labor in home production contributes to this rivalry. To do so, we compare households that differ in their access to child fostering networks. Fostering moves child labor between residences, decoupling a child's location from the value of their time. We find that enrollment decisions are influenced by rivalry only in households that do not foster and are thus constrained in their ability to equalize child labor supply and demand. In these non-fostering households, the relative productivity of resident children impacts time allocation decisions and subsequently enrollment. We find no evidence of rivalry in unconstrained households that foster. Sibling rivalry is thus better understood as residential rivalry, stemming from constraints on the availability of child labor. By highlighting the distinction between sibling and residential rivalry, we also provide an explanation for boys' higher enrollment rates that focuses on household production and the availability of child labor rather than on parent preferences or higher male returns to education. This distinction is important because affirmative action programs to persuade parents to enroll girls may be less effective than interventions that allow for the substitution of girls' time in home production.

Parental decisions about whether and how much to invest in their children's education depend on many factors, and these decisions have long-lasting impacts on each child's future earnings, marital prospects, and overall welfare. In making these decisions, parents have information about a child's ability that is often not available to researchers. This is one reason why previous empirical research on the determinants of household investments in children's education focuses on easily observed demographic characteristics of the child such as gender, birth order, and family composition. In **"Child Ability and Household Human Capital Investment Decisions in Burkina Faso" [11]** (*Economic Development and Cultural Change*, 2012, with Emilie Bagby, Damien de Walque, and Harounan Kazianga, cited 16 times in Google Scholar), we examine the role that a child's cognitive ability plays in a resource-constrained household's

decision to invest in that child's education. We use Burkina Faso household data that we collected in fieldwork project [25] described below. We use a direct measure of ability for all primary school-aged children, regardless of current enrollment. We explicitly incorporate measures of the ability of each child's siblings to show how sibling rivalry with respect to ability impacts parental decisions about educational investments. We find that the child's own ability has a positive effect on educational outcomes, while having siblings with higher ability has a negative effect on one's own education.

While paper [11] is the first to study sibling rivalry focusing on ability, the econometric identification strategy only explores correlations between ability and enrollment. The difficulty with using cognitive ability measured at the same time as outcomes is that ability reflects the accumulation of prior investments and parental preferences throughout the child's life. In **"Child Labor, Schooling, and Child Ability" [13]** (with Emilie Bagby, Damien de Walque, and Harounan Kazianga, cited 2 times in Google Scholar), we measure the causal impact of ability on schooling and address the potential endogeneity of current child ability. We use historical rainfall shocks in the child's village that were experienced in utero or early childhood to instrument for cognitive ability. Most people in the survey region are rain-fed subsistence farmers, so negative rain shocks reduce agricultural output. These shocks experienced by the child when in utero lead to lower cognitive ability and correspond to a significant decrease in enrollment and an increase in the number of hours of child labor compared to their siblings. Negative education impacts are largest for shocks experienced in utero, diminished for shocks before age two, and have no impact for shocks after age two. The current paper links the literature on the fetal origins hypothesis with the literature on sibling rivalry by showing that shocks experienced in utero not only have direct negative impacts on the child's cognitive ability (fetal origins hypothesis) but also negatively impact the child through the effects on sibling rivalry resulting from these cognitive differences.

Building on my education and fostering research, in **"Risk and Schooling in Family Networks when Children are Mobile" [15]** (with Eric Edmonds), we evaluate the importance of child mobility and intra-family insurance in mitigating the impact of agricultural shocks on child schooling in Burkina Faso. We find that families linked by fostering provide significant risk-pooling for coping with shocks, and the data do not reject full insurance in these networks.

Household membership is dynamic but most surveys only collect information on those present at the time of the survey. However, these unique Burkina Faso foster data have information on every biological child of the household head (regardless of the child's residence status) and on all individuals who ever lived in the household during the three years prior to the survey. In a descriptive paper, **"The Analytical Returns to Measuring a Detailed Household Roster" [16]** (with Eric Edmonds, cited 1 time in Google Scholar), we use these data to examine which people are not observed in typical household rosters and how that omission affects income inequality measurements and the analysis of household composition impacts.

In **"Using Achievement Tests to Measure Language Assimilation and Language Bias among the Children of Immigrants" [10]** (*Journal of Human Resources*, 2011, with Ilana Redstone Akresh, cited 3 times in Google Scholar), we exploit the unique test language randomization (English or Spanish) on Woodcock Johnson child achievement tests to estimate the causal impact of language on test scores and to measure the degree and speed of language assimilation for children of Hispanic immigrants to the U.S. These standardized tests are an integral part of academic progress and students scoring poorly on them may be tracked into non-honors classes and less competitive post-secondary schools, with ensuing long-term implications. Foreign born children score higher on tests in Spanish; U.S. born children score higher on tests in English. This differs from results predicted by most language assimilation models, which posit that the U.S. born children of Hispanic immigrants would be bilingual. However, foreign-born children arriving at an early age or with several years in the U.S. do not benefit from testing in Spanish.

4. Cash Transfers

A third strand of my research examines what role cash transfers can play in improving child health and education. We conducted a randomized control trial of different types of cash transfers given to poor households in Burkina Faso, **"Gender and Social Protection Programs in Developing Countries: A Randomized Evaluation of Conditional and Unconditional Cash Transfers in Rural Burkina Faso"** [25] (with Damien de Walque and Harounan Kazianga). To fund the three-year panel data collection, we received eight external grants totaling $988,250. We received a University of Illinois Campus Research Board grant honored with an Arnold O. Beckman Award. The baseline survey was done in June 2008, cash transfers were delivered quarterly from October 2008 to June 2010, and follow-up surveys were done in June 2009 and June 2010. We use the baseline survey in papers [11] and [13] described above.

Conditional cash transfer (CCT) programs have become one of the most popular interventions in developing nations. Most cash transfer programs are conditional on compliance with certain requirements (enrolling children in school, maintaining their attendance, and taking them for regular health care visits) and always provide the resources to mothers. This makes it impossible to disentangle how much of any observed impact is due to the recipient's gender, how much is due to an income effect, and how much is due to a change in relative prices associated with a program's conditionality. This project is the first to use a random experimental design to evaluate conditional cash transfers given to the father or mother and unconditional cash transfers given to the father or mother. Results yield insight into the best way to deliver cash transfers and contribute to understanding the causal mechanism driving program impacts.

A key question about cash transfers is whether and how conditionality influences the outcomes they seek to improve. In **"Cash Transfers and Child Schooling: Evidence from a Randomized Evaluation of the Role of Conditionality" [18]** (with Damien de Walque and Harounan Kazianga), we use these randomized evaluation data to estimate the impact of alternative cash transfer delivery mechanisms on education. The two-year program randomly distributed cash transfers that were either conditional or unconditional. Families under the CCT scheme were required to enroll their children aged 7-15 in school and to regularly attend classes. There were no requirements under the unconditional (UCT) program. We find that UCTs and CCTs have similar beneficial impacts for increasing the enrollment of children who are traditionally prioritized by parents for school participation, including boys, older children, and higher ability children. However, CCTs are significantly more effective than UCTs for improving the enrollment of "marginal children", those who are initially less likely to go to school, such as girls, younger children, and lower ability children. Thus, conditionality plays a critical role to improve the outcomes of children in whom parents are less likely to invest. For policymakers, these results indicate that the choice between CCTs and UCTs needs to be influenced by the education policy objectives. If the policy objective is to increase overall enrollment, UCTs are more cost effective because enforcing conditionality makes CCTs more costly per recipient to administer. However, if the objective is to increase enrollment of children who are less likely to be part of the education system, then CCTs are likely to have larger impacts.

In an invited book chapter, **"Alternative Cash Transfer Delivery Mechanisms: Impacts on Routine Preventative Health Clinic Visits in Burkina Faso" [17]** (*NBER Africa Project Volume*, University of Chicago Press, 2013, with Damien de Walque and Harounan Kazianga), we use this randomized evaluation to estimate the impact of cash transfers on preventive health care. Families with CCTs had to have child growth monitoring at local health clinics for children under five. Nothing was required to receive UCTs. CCTs to the mother or father raise the number of preventive health care visits; UCTs to the mother or father have no impact. Thus, conditionality is more important than transfer recipient gender to increase children's health clinic utilization.

In **"Cash Transfers to Mothers or Fathers: Evidence of Child Health and Education Impacts from a Randomized Evaluation" [19]** (with Damien de Walque and Harounan Kazianga, in progress), we explore how the gender of the cash transfer recipient affects child health and education differentially.

Results show that cash transfers given to fathers have a larger positive impact on child health than transfers given to mothers. In contrast, transfers to mothers have a larger impact on education.

5. Intra-household Bargaining

A fourth strand of my research examines how intra-household bargaining between husband and wife influences household investment decisions. The unitary model of the household, which treats the family as a single decision-maker, has been extensively refuted. This has led economists to consider more general models that emphasize intra-household bargaining among family members. Most collective models of the household assume that individuals bargain over the allocation of resources but that the outcome remains Pareto efficient; numerous studies have found support for Pareto efficiency.

In **"(In) Efficiency in Intra-household Allocations" [22]** (cited 25 times in Google Scholar), I find evidence of Pareto inefficient intra-household resource allocation using agricultural data from Burkina Faso. I estimate household-year-crop fixed effects regressions to compare yields across female and male managed plots within a household for similar plots planted with the same crop in the same year. A Pareto efficient allocation of household resources would equalize yields across plots, but in practice if the costs to achieve this outcome are greater than the inefficiency loss, wives and husbands will not modify their behavior. However, I find that in bad years of negative rainfall shocks when inefficiency is more costly, households try to avoid those losses by being less inefficient.

Empirical studies showing that households fail to achieve efficiency in certain circumstances often cannot explain the factors that inhibit cooperation. Altruism towards others is thought to aid cooperation because the inter-dependence of utility functions helps align incentives. Thus, we should be more likely to see an efficient allocation of resources among family members since they are altruistic towards each other. In **"Productive Efficiency and the Scope for Cooperation in Polygynous Households" [20]** (*American Journal of Agricultural Economics*, 2012, with Joyce Chen and Charity Moore, cited 3 times in Google Scholar), we explore the incentives for cooperation among household members. We find evidence that altruism between husband and wife based on shared public goods actually inhibits cooperation, while selfish preferences between co-wives in polygynous households encourage it.

Building on the work above, in **"Altruism, Cooperation, and Efficiency: Agricultural Production in Polygynous Households" [21]** (with Joyce Chen and Charity Moore, cited 4 times in Google Scholar), we develop a theoretical model with three players having differing degrees of altruism for each other. Altruism among family members can actually inhibit cooperation by increasing the utility obtained in the non-cooperative equilibrium, thereby reducing gains to cooperation and threats of punishment. We test the model's implications using data on monogamous and polygynous households in Burkina Faso. We examine the yield variation due to the inefficient allocation of inputs across plots controlled by people in the same households planting the same crop in the same year. We find greater cooperation and more efficient production among co-wives in polygynous households than among husbands and wives because co-wives are less altruistic towards each other. The results are not due to selection into polygyny, greater propensity for cooperation among women, or household heads enforcing others' cooperative agreements.

In **"Intra-household Bargaining and Inter-Vivos Transfers" [23]** (with Veronica Alaimo, in progress), we use the fostering data from project [24] to examine the link between bargaining power and inter-vivos transfers. We develop a new measure of bargaining power using the residual from a regression of bride price on characteristics about the wife and her family. This residual captures unobserved factors that could provide the wife with additional bargaining power. Results show that wives with more bargaining power measured this way give larger transfers to their immediate family.

References

A. Wars and Children's Welfare

1. "Heath and Civil War in Rural Burundi" (with Tom Bundervoet and Philip Verwimp), *Journal of Human Resources*, 2009, 44(2): 536-563.

2. "Civil War, Crop Failure and Child Stunting in Rwanda" (with Tom Bundervoet and Philip Verwimp), *Economic Development and Cultural Change*, 2011, 59(4): 777-810.

3. "War and Stature: Growing Up During the Nigerian Civil War" (with Sonia Bhalotra, Marinella Leone, and Una Osili), *American Economic Review, Papers & Proceedings*, 2012, 102(3): 273-277.

4. "Wars and Child Health: Evidence from the Eritrean-Ethiopian Conflict" (with Leonardo Lucchetti and Harsha Thirumurthy), *Journal of Development Economics*, 2012, 99(2): 330-340.

5. "Armed Conflict and Schooling: Evidence from the 1994 Rwandan Genocide" (with Damien de Walque), February 2011. Revise and resubmit at *Review of Economics and Statistics.*

6. "GPS Data, War Exposure, and Child Health" (with German Caruso and Harsha Thirumurthy), in progress

7. "First and Second Generation Health Impacts of Nigeria's Biafran War" (with Sonia Bhalotra, Marinella Leone, and Una Osili), in progress

8. "Civil War and Household Structure: Panel Data Evidence from Burundi" (with Philip Verwimp and Juan Carlos Muñoz), in progress

B. Children's Welfare: Household Structure and Sibling Rivalry

9. "Flexibility of Household Structure: Child Fostering Decisions in Burkina Faso," *Journal of Human Resources*, 2009, 44(4): 976-997.

10. "Using Achievement Tests to Measure Language Assimilation and Language Bias among the Children of Immigrants" (with Ilana Redstone Akresh), *Journal of Human Resources*, 2011, 46(3): 647-667.

11. "Child Ability and Household Human Capital Investment Decisions in Burkina Faso" (with Emilie Bagby, Damien de Walque, and Harounan Kazianga), *Economic Development and Cultural Change*, 2012, 61(1): 157-186.

12. "Sibling Rivalry, Residential Rivalry, and Constraints on the Availability of Child Labor" (with Eric Edmonds), July 2012. NBER Working Paper 17165. Submitted to *Journal of the European Economic Association*.

13. "Child Labor, Schooling, and Child Ability" (with Emilie Bagby, Damien de Walque, and Harounan Kazianga), September 2012. World Bank Policy Research Working Paper 5965. In preparation for submission to *American Economic Journal: Applied Economics*.

14. "School Enrollment Impacts of Non-traditional Household Structure" November 2008. IZA Paper 1379. In preparation for submission to *Journal of Public Economics*.

15. "Risk and Schooling in Family Networks when Children are Mobile" (with Eric Edmonds), December 2009. In preparation for submission to *Journal of Development Economics*.

16. "The Analytical Returns to Measuring a Detailed Household Roster" (with Eric Edmonds), February 2010. IZA Discussion Paper 4759. In preparation for submission to *Journal of African Economies.*

C. Cash Transfers

17. "Alternative Cash Transfer Delivery Mechanisms: Impacts on Routine Preventative Health Clinic Visits in Burkina Faso" (with Damien de Walque and Harounan Kazianga), Invited paper, *NBER Africa Project Volume*, University of Chicago Press, 2013

18. "Cash Transfers and Child Schooling: Evidence from a Randomized Evaluation of the Role of Conditionality" (with Damien de Walque and Harounan Kazianga), September 2012. In preparation for submission to *American Economic Review.*

19. "Cash Transfers to Mothers or Fathers: Evidence of Child Health and Education Impacts from a Randomized Evaluation" (with Damien de Walque and Harounan Kazianga), in progress

D. Intra-household Bargaining

20. "Productive Efficiency and the Scope for Cooperation in Polygynous Households" (with Joyce Chen and Charity Moore), *American Journal of Agricultural Economics*, 2012, 94(2): 395-401.

21. "Altruism, Cooperation, and Efficiency: Agricultural Production in Polygynous Households" (with Joyce Chen and Charity Moore), July 2012. IZA Discussion Paper 6265. Submitted to *Journal of Development Economics.*

22. "(In) Efficiency in Intra-household Allocations" August 2008. IZA Discussion Paper 1858. In preparation for submission to *Review of Economics and Statistics*.

23. "Intra-household Bargaining and Inter-Vivos Transfers" (with Veronica Alaimo), in progress

E. Fieldwork Data Collection

24. "Flexibility of Household Structure: Economic Motivations and Consequences of Child Fostering in Burkina Faso" Ph.D. dissertation fieldwork in Burkina Faso and Cote d'Ivoire, 2000-2001.

25. "Gender and Social Protection Programs in Developing Countries: A Randomized Evaluation of Conditional and Unconditional Cash Transfers in Rural Burkina Faso" (with Damien de Walque and Harounan Kazianga), 2008-2011.