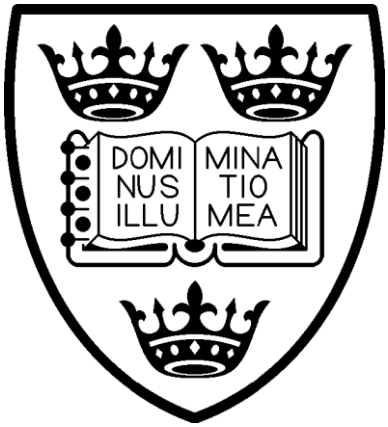

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LABOUR AND HEALTH IN COLONIAL NIGERIA

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ABSTRACT. We examine the determinants of time allocation and child labour in a year-long panel of time-use data from colonial Nigeria. Using quantitative and ethnographic approaches, we show that health shocks imposed time costs on individuals. Whether individuals could recruit substitutes depended on social standing, urgency of work, and type of illness. Child labour did not systematically respond to temporary parental illness, but could replace a permanently disabled adult. Child labour was coordinated with parental work, aided childcare, and allowed children to build skills and resources. These decisions can be understood within an endogenous bargaining power framework with labour complementarities.

1. INTRODUCTION

Time is one of the most valuable assets available to poor households. Time allocation is a crucial coping mechanism used by the poor in response to income and health shocks (Kochar, 1995). Much household time, however, is tied up in unproductive or strategic activities such as defending property (Field, 2007) or hiding income (Anderson and Baland, 2002). The decision to have children work is a particular challenge. Child labour may be one of the only strategies available to cope with poverty or adverse shocks (Beegle, Dehejia and Gatti, 2006). In this paper, we use a unique data source to examine the determinants of intra-household time allocation and child labour in a very poor country. In 1939 and 1940, the anthropologist Jack Harris visited the Igbo village of Amankwu, in colonial Nigeria. He collected information on the daily activities of a sample of villagers over the course of a year. We use these reports to create panel data on time use covering more than 6,000 person-days. The reports also provide a rich body of descriptive evidence on individuals' motivations.

We use these data to test the responsiveness of individual time allocation to own illness, others' illness, and others' time allocation. The format of the data allows us to study a broad range of activities, rather than enabling us to look at any one activity in depth. In particular, we ask whether adult labour reacts to own and others' illness, and whether it is strategically misallocated. Similarly, we

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ask whether child labour substitutes for the work of a sick parent, and whether it is coordinated with parental activities in production.

The behaviours we find can be understood using a collective household model in the spirit of Basu (2006), in which bargaining power is endogenous, and in which there are opposite-gendered and parent-child labour complementarities. We find that own illness imposes time costs that mirror the gender division of labour. The labour of other individuals in the household does not, as a rule, compensate for these losses. We find no quantitative evidence of systematically increased labour inputs by healthy members of the household. Women, in particular, reduce their labour inputs in some tasks when their husbands are ill, indicating complementarity in these activities.

The candid narratives in our data add further context. While individuals often rest when ill, this is less likely when work is pressing for economic or ceremonial reasons. For instance, individuals are especially eager to find others to trade on their behalf when they are ill on market days. The ability to recruit substitute labour depends on an individual's relationships and position within the household. Senior wives, in particular, are often able to find substitutes. The chronically ill, excepting those "too old to work," face greater difficulty replacing their lost time.

There is no quantitative evidence that individuals strategically reallocate their time to take advantage of a spouse's absence. The ethnographic evidence, by contrast, provides multiple examples of strategic time use. Men cultivate women's crops in order to preserve their bargaining power. Because contributing to production creates claims over consumption, tasks are often wastefully duplicated.

Quantitatively, child labour does not increase in response to temporary parental illness. In the narratives, by contrast, children take on adult tasks in response to a prolonged adult disability. Child work is coordinated with parental work. Children are more likely to work in farming and market production on days when their parents do the same. Individuals in the data do not view child labour as necessarily bad. Rather, it is a way for parents to look after children while accomplishing their work; for children to build human capital and earn small discretionary incomes; and for adopted wards to earn their keep.

Related Literature

Our results add to the existing understanding of labour as insurance in poor countries, of the strategic misallocation of assets, and of the causes of child labour. Poor households use labour as insurance, lessening their need to sell assets in order to smooth consumption (Kochar, 1999). The ability of households to reallocate time in response to illness shocks depends on the degree to which members' labour is substitutable (Adhvaryu and Nyshadham, 2011), the ability of women or children to work (Bhalotra and Umana-Aponte, 2012), and the technology of home production (Dinkleman, 2011). Most existing studies rely on cross-sections or very short panels of data, and must use instrumental variables

to remove unobserved heterogeneity. Our data, for contrast, allows us to look at day-to-day variations in individuals' responses to illness. Furthermore, the rich ethnographic data allow us to demonstrate that these responses vary by social status, disability, and the nature of the work to be completed.

Noteworthy in context of a larger literature on the efficiency of intra-household resource allocation (e.g. Bobonis, 2009), poor households also allocate resources towards unproductive activities for strategic reasons. These include free-riding on others' efforts (Alger and Weibull, 2010), defending property (Goldstein and Udry, 2008), and concealing assets (Ashraf, 2009). These incentives are particularly strong in West African households like those in our data, where income pooling is incomplete (Duflo and Udry, 2004). However, the misallocation of labour has not yet received comparable attention. Our panel data show that there are no systematic changes in labour allocation over time that depend on the absence of other household members. However, our narrative evidence reveals that individuals are constrained in their time allocation by how the fruits of their labour will be shared.

Child labour in our data occurs largely within the household, as in most countries (Edmonds, 2008). Households' child labour decisions respond to considerations such as the opportunity cost of parents' time (Akresh and Edmonds, 2011), parental and child illness (Adhvaryu and Nyshadham, 2012; Thirumurthy, Zivin and Goldstein, 2007), income shocks (Beegle, Dehejia and Gatti, 2006), and trade (Edmonds and Pavcnik, 2005). The returns to child labour in turn influence parental time allocation (Erjnæs and Pörtner, 2004). Our focus is on health shocks and coordination of child and parental activities. We are able to test for responses of child labour to parental illness and time allocation over a long, high-frequency panel. Further, the narrative evidence allows us to better understand participants' reasoning behind child labour, and the response of child work to less quantifiable pressures.

In section 2, we provide historical background and outline our conceptual framework. In section 3, we describe our data and our strategies for analysing it. In section 4, we describe our results concerning time allocation. These include the response of adult time to health, and evidence of strategic time misallocation. In section 5, we detail our results concerning the response of child labour to health and its coordination with parental involvement in farming and trade. In section 6, we conclude.

2. HISTORICAL BACKGROUND AND CONCEPTUAL FRAMEWORK

Historical background

The Igbo are Nigeria's third-largest ethnic group. The data we use come from the colonial period. During these years, the Igbo lived mostly in rural communities with populations ranging from a few hundred to a few thousand (Gailey, 1970: 23). The Igbo then practiced bush-fallow agriculture with a fallow rotation that typically ranged from one to four years (Uchendu, 1965). Igbo

agriculture was highly seasonal, with land clearing and preparation concentrated between January and March, planting during April, and harvests collected in October and November (Martin, 1988; Forde, 1937). Livestock were rare. For men, farming was centred on the cultivation of yams. Women planted several crops, including maize, cassava, and cocoyams (Harris, 1942). These crops were then owned separately by the husband and wife (Green, 1964). Women were responsible for the feeding the household, though husbands would help, particularly from September through November (Green, 1964). Women's control over food was cited by anthropologists at the time as a source of influence over men (Forde, 1950; Green, 1964).

The principal commercial products were palm oil and palm kernels. The Igbo were among the most significant exporters of palm oil in colonial West Africa. This was processed from the fruits of wild palm trees. These were harvested year-round, though the greatest yields were achieved between January and May (Martin, 1988). During the rainy season, when there was lull in farm tasks, extraction of palm kernels was women's principal work (Uchendu, 1965).

The gender division of labour in agriculture varied by place, but typically men were responsible for clearing, planting, training, harvesting, and storing yams. Women would plant their own crops, weed farms, and carry in the harvest (Forde, 1950). Clearing labour was typically performed by cooperative groups of men who would help each other in turn (Green, 1964). Children helped with farming from an early age; fathers gave boys yams to plant for themselves (Green, 1964). Men cut palm fruit, tapped and sold palm wine, and sold palm oil prepared by women. Women, in turn, reserved the palm kernels for themselves (Forde, 1950). Men made climbing ropes, mats, baskets, spoons, chairs, and bed-frames for sale (Green, 1964). The production and sale of pottery was overwhelmingly a female task (Forde, 1950). Petty trade was largely a woman's domain, while longer distance trade was a male pursuit (Green, 1964). Unlike Yoruba women, Green (1964) noted that Igbo women would leave their children at home while at market, often in their husbands' care.

Despite these divisions, there were complementarities between men's and women's tasks. Among the southern Igbo, men would make holes for planting, which women and children would then fill with topsoil and yam seedlings (Uchendu, 1965). Women would also plant their crops on or in between the slopes of the mounds created for yams (Uchendu, 1965). While women planted their crops, men staked the growing yams (Uchendu, 1965). Palm oil production, similarly, involved specialized tasks carried out by both men and women (Uchendu, 1965), and was described as "cooperative" (Green,1964).

Conceptual framework

Our approach here is similar to Adam et al. (2004) or Ligon (2002), in that we use insights from existing models of intra-household allocation to explain patterns from one society. Although several explanations may exist for any one stylized fact we find, a conceptual framework provides a parsimonious model

consistent with the full set of observed outcomes. Specifically, we find collective models of consumption and labour supply to be useful in understanding the data. These models do not specify the bargaining process, assuming that the household maximizes a weighted sum of its members' utilities (Chiappori, 1988). The collective approach has been extended to include household production (Cherchye et al., 2010), and has been empirically favoured over the unitary household model in several contexts (Browning et al., 1994; Cherchye and Vermeulen, 2008; Fortin and Lacroix, 1997; Duflo, 2003; Duflo and Udry, 2004; Schultz, 1990; Vermeulen, 2005).

The formulation given in Basu (2006) can account for many behaviours we observe, such as whether or not family members take up the work of a sick individual. In his framework, the utilities u_i of each individual i depend on a vector of choices x, which includes private goods, public goods and leisure. The household faces potential income Y and prices p. It maximizes:

$$\theta(z,x)u_1(x) + \big(1-\theta(z,x)\big)u_2(x)$$

subject to the budget constraint $px \leq Y$. As in traditional collective models, the Pareto weights θ depend on exogenous "distribution factors" z, such as divorce laws. Unlike traditional models, Basu (2006) allows θ to depend on x. For example, a woman's decision to work is both a function of and contributes to her influence on household decisions. By working, she may increase her bargaining power, and so the intra-household sharing rule may depend on household choices. Dynamically, it is possible for future power to depend on current choices, such that that $\theta_t = \theta(x_{t-1})$. In addition, we find it useful to assume that opposite-gendered labour is complementary in production, and that child labour is complementary with adult labour. This type of supermodularity can result from task specialization created by the gender division of labour.

We divide our discussion into questions of time allocation and child labour. Concerning time allocation, our quantitative and ethnographic results reveal several patterns that can be understood within this framework: we find that illness imposes time costs; spouses do not generally make up work of their ill partners; the ability to recruit substitutes depends on social standing; and, coordination of productive activities by spouses exists above what is predicted by the agricultural calendar.

Complementarities in labour inputs explain both the coordination of time use and the failure to make up the work of a sick spouse. Spouses would only be expected to replace work lost to illness if labour were substitutable (Adhvaryu and Nyshadham, 2011; Apps and Rees, 1997). Social standing, a determinant of whether a sick individual's work is replaced, is also a measure of past accumulated bargaining power.

Looking specifically at the strategic misallocation of time, we do not find that individuals take advantage of others' absence, but rather that they misuse their time in *visible* ways, duplicating effort and engaging in work in which they lack a comparative advantage. Within Basu's (2006) framework, individuals can over-

supply work in order to increase their bargaining power, or be prevented by a powerful spouse from undertaking activities that would increase their future power. This echoes findings from cooperative game theory concerning the over-provision of effort, and arises from limited commitment (Browning, 1982, 1983; Browning et al., 2011). For instance, individuals frequently help their spouses farm or prepare food even where the farms and foods in question belong explicitly to the spouse, in part to justify claim to a share of the proceeds later. For example, one man cites his help in preserving his wife's corn as a reason he should be able to eat it (Mba, 2/10/39). Behaviours such as this invalidate a simpler model with exogenous distribution factors, since distribution of output depends on choices. Basu's (2006) insight here extends theoretical and empirical results showing that increases in an individual's bargaining power generally increase that individual's leisure and shift consumption in that individual's favour (Blundell et al., 2005; Browning et al., 2011; Chiappori, 2002; Chiappori et al., 2002)

Our principal quantitative and ethnographic results concerning child labour are: children do not increase work in response to temporary parental illness, but may do so in response to permanent parental disability; children's time is coordinated with parental time; and children and their parents both view work as a way for children to earn their keep, build skills, and accumulate resources. These are again interpretable in the Basu (2006) framework. As above, the failure of child labour to respond to parental illness can be understood in terms of labour complementarity. Further, child labour will depend on parental bargaining power. Mothers may be less willing than fathers to encourage child work not only because they may more completely internalize the disutility to the child, but also because they may lack the bargaining power to fully appropriate its returns. One male household head, Ezeala, largely monopolizes the labour of his ward. He occasionally lends the boy's help to his wife, but more often he sets the ward to work for him in tasks such as farming and errands, even using the ward to fulfil his own labour obligations to others when he himself is too busy to go (17/3/39). Further, children may work in order to increase their own bargaining power (Moehling, 2005). Indeed, one child in the data, Cikia, uses money earned working on others' farms (22/2/39, 12/3/39) to secure the financial independence needed to disobey his father (5-6/3/39), and to run away indefinitely (14/5/39).

3. DATA AND ANALYSIS

Data

The data we use consists of the daily activities of the members of five male-headed Igbo households in the village of Amankwu. Each day, one person reports what the members of these households did during that day. Usually, it is the senior man Ezeala who makes these reports. These descriptions are frequently interrupted by explanations of why individuals engaged in these activities. We

use these testimonies as sources of both quantitative and ethnographic data. A sample record for one day (Monday, 10 July, 1939) is presented in the appendix.

The data were collected between February 1939 and February 1940 by Jack Harris, an anthropologist working in colonial Nigeria. These field notes have been deposited in the Melville J. Herskovits library at Northwestern University. Despite the richness of these data, Harris never made full use of them before leaving academia.[2] He produced five academic publications on the basis of his fieldwork, listed in the bibliography. None use the daily activities for statistical data, nor do they examine the response of time allocation to shocks, day-to-day changes in tasks, or the causes of child work.

Each household generally consists of a core group of adults and biological children, as well as wards and boarders related to the core family. Relatives and friends visit sporadically, often contributing their time to the household during their stay. While the households in our data are distantly related, they generally stand alone in terms of labour and resources shared. Although the sample contains time use details on over 60 distinct individuals, there are 37 key household members who appear consistently. Details on these individuals are given in the appendix. The households are named for the men who head them – Ezeala, Cikia, Mba, Uda, and Egwuonwu.

Analysis

We use both quantitative and ethnographic approaches to analyse the data. For our quantitative analyses, we keep the 23 individuals who appear at least once every three days in the record. There are 328 days during which reports are made for these individuals. We construct dummy variables for whether these individuals engaged in each of a set of common activities, such as farming, producing palm oil, caring for children, or being sick. Summary statistics for these activities are given in Table 1. We test whether time allocation for adults and children respond to health shocks or the time allocation decisions of other household members. Our generic regression specification is a linear probability model:

$$(1) \qquad outcome_{it} = \beta\, outcome_{jt} + \delta_i + \eta_t + \varepsilon_{it}.$$

Here, $outcome_{it}$ is a dummy variable equal to 1 if individual *i* experienced a particular outcome on day *t*. For example, this may be an indicator for having farmed, or for having been sick. Thus, $outcome_{jt}$ is an indicator for whether individual *j* experienced a particular outcome on the same day. This need not be the same outcome as for *i*. For example, we ask whether person *i* is more likely to engage in farm labour on days when person *j* is harvesting palm oil. *i* and *j* may

[2] http://www.independent.co.uk/news/obituaries/jack-sargent-harris-anthropologist-and-un-official-who-fell-foul-of-the-mccarthy-hearings-994819.html

be the same. We ask, for example, whether illness affects an individual's own time allocation decisions.

δ_i is an individual fixed effect. This captures the greater propensity of some individuals to engage in certain activities throughout the year. These absorb any time-invariant individual heterogeneity. For example, if a man who engages in farm labour less than other men, and has a wife who is sick unusually often, the δ_i will purge any spurious correlation arising from these two facts. Similarly, η_t are fixed effects for each day *t*. These will remove unobserved heterogeneity due to the cycle of work over the year. ε_{it} is random error. We estimate (1) using ordinary least squares, and cluster standard errors by the individual. In the appendix, we report estimates that include individual time trends; these are very similar to our baseline results. We also use the appendix to discuss missing data. Spouses tend to be missing on the same day. There is little evidence that the probability one spouse's activities are reported depend on what the other spouse is doing. Children, by contrast, are less likely to be reported when a parent is also missing from the data, or when a parent is engaged in beauty, recreation, going to market, or farm clearance.

We treat illness shocks as a random shock. In this case, β is the causal effect of *j*'s illness on *i*'s time allocation. Where $outcome_{jt}$ is a choice, we instead interpret β as a measure of the degree to which activities are coordinated within the household, beyond what would be predicted by the agricultural cycle.

Ethnographic evidence is central to our analysis. Narratives provide richness of detail that can be used to paint a more complete picture of household time use decisions. We clarify trends and relationships identified in the regressions, contextualize the behaviour of the individuals in the sample, and compare our findings to those in existing studies. Anecdotal data sheds light on the motivation behind certain decisions, often explaining the "custom" or circumstances prompting a given action. This is especially useful in identifying deviations from the everyday household dynamic.

4. TIME ALLOCATION

Quantitative results

We begin by testing whether individual health shocks alter intra-household time allocation. We estimate (1) asking whether the activities of adult men and women respond to their own illness or to their spouses' illness. In Table 2, we investigate how individual activities respond to "own" illness. We find that health shocks clearly impose time costs on affected individuals. Several types of labour are reduced in response to adverse health shocks—these include farming, gathering, and palm production. Further, the effects of these shocks differ according to the gender division of labour. Women reduce their market activity and fetch less water, while men are less likely to have made roofing mats. Sickness also leads to a loss of leisure and other non-productive uses of time. Men and women who are ill curtain their recreation and spend more time resting.

In Table 2, we estimate (1) in order to test how individual time responds to a spouse's illness. We find few significant effects. For women, significant effects are largely negative. Women are less likely to engage in certain farming activities, food preparation, or home repair when their husbands are sick. These patterns, combined with the spousal coordination we find below, are suggestive of complementarities in production; the loss of male labour in these tasks makes female labour less productive. For men, there does appear to be some compensating time use, and so some potential substitutability. Men are more likely to engage in harvesting or home repair while their wives are sick. For palm production, however, the effect of a wife's illness is negative, though insignificant. Results using the illness shocks of all other-gendered adults within the household are similar (not reported).

Expanding this to illness shocks affecting other adults in the household, there is only limited evidence of substitution in same-gendered labour. Results are reported in Table 2. Many responses here are statistically insignificant. Men are less likely to bathe, eat, harvest, host, rest, or be sick if another adult male is sick. They are more likely to be away, to fetch water, or go to market. Women are less likely to rest or be sick when another adult woman in the household is ill. They are more likely to be away, and to prepare food. The results on resting and illness for both genders suggest that the labour of other same-gendered members of the household intensifies in response to an illness shock. "Inactivity" falls. However, the results for positive activity do not tell the same story; men do not intensify male-gendered activities, and women do not intensify female-gendered activities, excepting food preparation.

We also extend the analysis of Table 2 by estimating (1) including both a dummy for whether person *j* is ill and the number of days that person *j* has been ill (not reported). When looking at other members of the household, we use the illness duration of the person who has been sick the longest. In the own-illness regressions for women, we find that for many activities, work resumes even as sickness drags on. For example, a woman is 34.8 percent less likely to farm on a day she is ill, but this effect diminishes by 2.4 percentage points each additional day she is sick. For men, this pattern is apparent for farming, but not for other activities. In the sample of women, we find no significant positive coefficients on the length of a husband's illness that would suggest they become more likely to make up for a husband's lost labour the longer he is sick. Indeed, for some activities such as farming and cooking, the effect of additional days of a husband's illness is negative. For men, there is a more mixed picture. As a wife's illness grows longer, men are less likely to farm, but they become more likely to be away, or to work at gathering, home repair, or road clearing. Turning to the illness of other same-gendered adult members of the household, there is no significant effect of days of illness on whether either a man or woman rests.

We have also tested whether the effects of illness vary over the agricultural cycle by interacting these shocks with month dummies (not reported). For women, the effects of own illness on farming are strongest between March and October, i.e. the period during which women are active in farm work. During

these same months, the effect of illness on childcare is almost nil. Similarly, the adverse effects of own illness on gathering and fetching water disappear over the March-December period. The effect of illness on palm production is strongest in April. For men, the effects of illness on farm work are more muted over the months June to November. Men's harvesting and home-repair responses to a wife's illness are weakest in the period from April to November. There are no significantly differential effects of a wife's illness on men's palm production by month. Husbands are not ill often enough for us to test for differential effects by month on wives.

As further evidence that complementarities in cross-gender production help explain this lack of labour substitution in response to illness, we show in Table 3 that there is evidence for substantial coordination of spousal time. Couples engage in the same activities in the same day. This includes several types of farm work, food preparation, gathering, making roofing mats, palm production, and recreation. Two exceptions are childcare, a strongly gendered activity, and going to market, since spouses tend not to sell goods on the same day.

We look for strategic time allocation by testing whether adults systematically alter their activities when a spouse is away from Amankwu. There is little evidence of this in Table 3. Women are more likely to go to market or to rest when their husbands are away, but these effects are statistically insignificant. They are more likely to care for their children and less likely to cook or to gather in their husbands' absence. Again, substitution into these solitary activities is suggestive of complementarities in other forms of productive labour. Men are more likely to engage in childcare (a typically female activity) when their wives are away. They also increase gathering, home repair, and mat-making.

Ethnographic results - Health

Narrative evidence confirms that individuals in the sample respond to their own illness most often by resting and postponing work. Similarly, no consistent pattern emerges in which others replace the work of the sick individual. Instead, this varies according to a number of factors, including the type of work going uncompleted, the type or severity of illness, who falls ill, how frequently they fall ill, and who can replace them. In some circumstances, they call upon members of the household. On rarer occasions, friends and hired help work on behalf of the sick. Individuals change their own schedule to compensate for another's illness only in special cases such as pregnancy, birth, old age, infant illness, or emergencies.

More often than not, individuals respond to their own illness by resting and postponing their work. For example, although he talks with Jack Harris that day, Ezeala feels too tired to farm and so decides not to work (20/4/39). This decision to postpone farming is contrasted with his earlier decision to hire a farm worker to make up for the lost labour of a sick helper (23/2/39). The difference was likely determined by the agricultural season; the time-bound act of farm clearing typically peaked in late February, as planting began in March. Later, Ezeala again

chooses not to farm due to a cold, but does not seek replacement labour. Furthermore, his relative Afoca and wife Alozia do not divert their activities to help him, and instead continue farming their own crops (15/5/39).

Although healthy household members do sometimes tend the sick by making remedies (Amabua 29/12/39), administering purges (Ezeala 14/5/39), and bathing them (Egwuonwu 7/8/39-31/8/39), treatment itself is often self-administered. Akaji is forced to gather leaves to bathe her eyes in treatment of a headache (15/8/39). In contrast to others, she is semi-independent of the household head and has only young children to help her. However, individuals frequently care for themselves even when healthy people in the household are available to nurse them (Ezeala 16-17/5/39). In Onwamini's case, sickness involves the burden of cooking himself food suitable to his tender stomach, even though Afoca and Alozia are available at that time (29/5/39).

Where work is pressing, it continues despite illness. Ezeala, for example, works through his sickness when his work is both time-bound and prestigious. Despite a sore in his eye, he fulfils his community obligations by making funeral arrangements for a Ndiagbo woman (26/8/39). After a long period of rest due to sickness from an injection to treat leprosy, Nwayem can no longer wait to collect food, and so goes to harvest cassava even while still sick (10/2/40). Ofruice, too, does what she can when she injures her leg badly. While she normally assists at the farm, during her convalescence, she instead watches her mother Ekodu's baby at home (14/9/39, 20/9/39, 23/9/39). Ofruice later takes ill with yaws, which disqualifies her from childcare duties. She spends the first period of this illness resting, during which time her mother finds another village woman to watch her baby while she is out gathering *acara* (elephant grass) (24/11/39). However, by 10/12/39, and again on 17/12/39, in desperate need of childcare, Ekodu leaves her child with Ofruice while off harvesting palm fruits, on the condition that Ofruice does not hold the child.

In rarer cases, sick individuals receive help or hire others to replace their missed work. Responses to both own and others' illness are heightened in periods critical to harvest, when weather or crop cycles call for urgent and timely action. Outside labour might be hired on these occasions. Apart from these times, very little work is revealed to be critical enough to prompt the healthy to work in place of the sick. The work of a sick individual tends to be replaced when they are infrequently ill, when the duration of the illness is short, and when the person is a central member of the household. Child illness draws adult time away from labour. Long-term disabilities are treated differently. A man might take on "women's work" for a long period while his wife is expecting, giving birth, and recovering. While other members of the household will work on behalf of those too old to work, the chronically ill often go without help.

On occasion, households look to outside help to replace a sick member's labour. Afoca usually helps Alozia, the wife of her relative Ezeala. However, when Afoca has a headache, Alozia enlists the help of a woman from a different household in cooking for Ezeala's many guests (25/1/40). Even hired help can be used to make up lost work: Ezeala hires a man to plant crops when his *dibia*

(healer) friend, who had come to help Ezeala, falls sick and cannot farm (23/2/39). In this particular case, the farm work was time-bound, as late February and early March are the peak of the clearing season before the first rains.

One type of work critical enough to be frequently addressed by the sick is trade. Sick individuals often have proxies trade on their behalf so as not to miss market days. When he feels too cold to leave the house, the aged Egwuonwu gives seven yams to his son, Cikia, to sell at market (21/2/39). Alozia similarly sends Onwamini to market with money to buy corn for resale when she is home resting with body pain (21/10/39). On another occasion, she herself makes it to market to sell *ahe* (a food product) and palm oil, despite being sick (3/10/39). Similar scenarios play out when Eleke (11/10/39), Ude (27/10/39), and Amabua (3/10/39) are ill. Commercial activities also tend to continue despite illness. Cikia taps his *ngwo* (wine palm) despite having a fever (29/1/40, 30/1/40), and goes to market the same day to sell the resulting wine (30/1/40). Trade-oriented tasks, which occur on a rigid external timetable governed by market days, and which offer immediate payoff, tend to be postponed less often than flexible, non-urgent household work and farming tasks with longer payoff horizons. For women, trade was the principal source of cash income that enhanced their bargaining power.

Those who suffer frequent and prolonged illness, such as Eleke, Ejere, Ude, Ugwade, and Nwayem, have limited bargaining power and rarely get help in replacing their labour when sick. Alozia, by contrast, does not face such problems. She is rarely sick, is the socially preeminent woman in her household, and has the ready help of Afoca and Onwamini, as well as Ezeala, to whom she is sole wife. When Alozia cuts her finger, her husband, Ezeala, and ward, Onwamini, perform the more strenuous task of clearing her field while she goes to market. Meanwhile, Afoca, who typically helps Alozia in return for room and board, takes up Alozia's cooking duties for the day, despite herself feeling tired and ill (1/5/39). A few days later, Afoca, Onwamini, and Eleke help Alozia make palm oil on her behalf, because Alozia's finger still troubles her (6/5/39). This task is not stated to be urgent, as Alozia is not mentioned as using or selling the oil in the following several days. Ezeala also harvests her cassava when his wife Alozia is ill (5/3/39). Rather than representing an act of goodwill, this is likely due to a more basic scarcity of food in the household. Ezeala explains that he cared for his wife's cassava only "because my wife is not well." He goes on to explain that "nobody can laugh at a man who does this," a defensive comment which suggests that the work was urgent, since otherwise he would not have needed to undertake this female-gendered work.

Child illness is one reason healthy individuals change their work schedules to accommodate a sick individual. When his son, Uce, takes very ill, Mba stays home to prepare food for, feed, and bathe the child (22-23 & 25/9/39). While he undertakes some market and farm work during this period, the majority of his time is spent at home caring for Uce. Although Ekodu is able to do the home-based work of cracking palm nuts for pay while staying home with her sick child

(3/1/40), women tend more often to cease all other work and stay home to care for sick infants (Ikoka 1, 4 & 16-18, 23, 25, 28, 30/6/39, 1/7/39, 13, 15, & 17/11/39; Ekodu 13 & 25-26/6/39; Akaji 27/6/39).

At times children and, more rarely, step-children, provide childcare for their younger siblings when the latter are well. In cases where the young child is ill, however, the mother stays home even while other household members—including co-wives, daughters, and other junior women—are available (Ikoka 1, 4, 16-18, 23, 25, 28, & 30/6/39, 1/7/39, 13, 15, & 17/11/39; Ekodu 13 & 25-26/6/39). In more than one case, Ikoka stays home caring for her sick child even while her junior co-wife, Ekeru, is already home caring for her own healthy child (1, 16, 23, & 25/6/39). In another, when her small child is sick, Ekodu makes do without the help of her usual babysitter, her daughter, Ofruice, who spends the day resting and playing (26/6/39). Parental effort in childcare, then, is work that is difficult to substitute in cases of child illness.

The responses discussed so far pertain to short-term illness. Responses to longer-term absence from the household workforce, such as those prompted by pregnancy, old age, chronic illness, or absence from the village, are different. Within these types of long-term disability, responses vary.

When his wife, Ahudiya, gives birth, Mba takes on her household tasks. Ahudiya, like Alozia, is the senior woman of the household, and is her husband's sole wife. When Ahudiya gives birth, Mba takes on Ahudiya's tasks wholesale. He cooks, cares for children, harvests women's crops such as corn, and ferments cassava (Mba 24/7/39-9/1/40; Harris 1943, p. 15). Even though these tasks are understood as women's work, the respondent makes it clear that this gender-reversal of typically female tasks is acceptable when a man's wife has just given birth (Ezeala 5/3/39).

The old and infirm are treated differently from the chronically ill. Mmeziri and Iheukwumere help Egwuonwu when he is ill (19/3/39), but they also do the lion's share of the work in Egwuonwu's household even when he is well, because he is repeatedly stated as being "too old" to work, especially in strenuous tasks or harsh weather (13/2/39, 13/17/39, 2/3/39). This stands in contrast to the treatment of others who are frequently or chronically ill. Although Ugwade is often unable to work due to severe flare-ups of venereal disease, her work remains postponed until she is well (12-27/7/39). When her lover, Okoro, beats her in a domestic dispute (7/5/39), Ugwade is unable to work for a week (14/5/39). Although she had been clearing her field (5/5/39) and going to market (6/5/39) immediately prior to her beating, there is no indication that anyone tended to her farm or went to market on her behalf during her recuperation. Similarly, Nwayem, who suffers from leprosy, and Ude, who suffers from gonorrhoea, have frequent and prolonged illness but go without help (Nwayem 6-8/11/39 & 23/12/39-6/2/40; Ude 21-23, 25, & 27-28/10/39 & 12-19 & 21-22/12/39). Their isolation in small and semi-independent sub-households means that they have few healthy helpers. Yet even those, like Eleke and Ejere, who hold prominent positions in larger households, rarely receive nursing care or help making up missed work during their long and frequent

illnesses (Eleke 22-25/4/39, 14-18/5/39, 2-5/1/40 & 7-10/1/40; Ejere 15-17, 19, 21, & 23-24/3/39, 18-20 & 22/5/39).

There are a number of reasons for this. First, the healthy members of their household often have other, more pressing responsibilities. For example, during Ejere's illness, Uda has political responsibilities that make it difficult for him to make up others' work (15/3/39). Alternately, the illness for which labour goes uncompensated may take place during the time of year during which men are responsible for feeding the household. In this season, the work missed by Ejere, a woman, is not seen as urgent. Further, the state of household relationships also governs who receives help. Uda has time to harvest the healthy Ekeru's coco yams while Ejere is sick, although he offers Ejere no such help (23/3/39). An analogous situation occurs when Eleke is sick; Cikia helps his relative Ekodu harvest her yams, while his mistress Eleke's work goes un-replaced (22/4/39). Last, Igbo society is gerontocratic. Many of the older persons in the sample are officially "elders" whose ceremonial and political duties accord them the respect of the younger household members.

As with long-term illness or incapacitation, long-term absence from Amankwu produces mixed responses dependent on personal relationships; the type, urgency, and scale of work missed; the duration and foreseeability of absence; and the centrality of the absent individual to the household. For instance, a severe, prolonged illness prompts Ekeru's mother to bring her back to her birth village to care for her (1/1/40). However, during Ekeru's nearly month-long absence, she receives no help in managing her farm or household chores (1-26/1/40). Similarly, when Ejere runs away to her parents' home at Mgbele following a marital dispute, no one attempts to retrieve her until over three months later (17/9/39, 6/1/40). There is no note of anyone tending Ejere's farm during her absence, and the household makes no mention of missing her labour.

By contrast, when Ugwade, following bouts of venereal disease, runs away indefinitely to become, in Ezeala's words, a "harlot," her sister Ude is summoned to Amankwu to manage Ugwade's farm in her absence (2/10/39). For the rest of the period of the study, Ude lives off of a share of the proceeds of Ugwade's farm, while farming and going to market on Ugwade's behalf. In this case, Ugwade was able to call on the help of a close relative, Ude, whose particular circumstances made her more disposed to help. Ude, too, had left a husband who did not "feed her well," was mother to a small daughter, and also suffered from venereal disease (2/10/39). A similar mechanism is used to cope with Iheukwumere's planned absences from Amankwu. Given Egwuonwu's advanced age, Iheukwumere's intended wife, Mmeziri, is brought to Amankwu earlier than is usual for a bride, in order that she may do the household's chores and farm work during her husband's travels (Introductory section – File C).

Ethnographic results – Strategic misallocation

Though we have found no systematic evidence that individuals in the sample take advantage of a spouse's absence to work on their own account, there are

exceptions. Wives sometimes make out-of-town visits while their husbands are away at court, at market, making social visits of their own, or home resting (Uda & Ejere 5/3/39, 18/4/39, & 29/4/39; Ezeala & Alozia 1/6/39; Uda & Ekeru 10/5/39).

Other narrative evidence reveals that individuals do misallocate their time to tasks that make inefficient use of the household's labour in order to meet other aims. For example, Cikia, like "most men," grows the women's crops of coco yam and pepper in order to increase his bargaining power. By growing these, he is no longer at his mistress Eleke and relative Ekodu's "mercy as regards food" (28/3/39). Resources are not pooled and shared fully; ideas of "yours" and "mine" are enforced within households, and disputes about food often hinge on the degree to which someone has contributed to its production and therefore has a right to its consumption (Mba & Ahudiya 1-2/10/39; Afoca 7/5/39). The sharing of resources within the household is often described as a kindness or favour, and not a basic expectation of intra-household resource distribution (Ekodu 28/3/39; Ezeala 15/6/39, 8/7/39, & 9/9/39; Alozia 25/6/39).

As a result, households miss opportunities to streamline, consolidate, or divide tasks to economize on available labour. For instance, individuals are seen preparing their own food—often due to illness—even when the task is opposite-gendered or another individual in the household is already cooking for the rest of the family (Onwamini 29/5/39; Ezeala 16/5/39 & 14/2/40). Furthermore, in many cases, a woman will forego other work to care for her sick child, even when another co-wife is already home caring for her own child (Ikoka & Ekeru 1, 16, 23, & 25/6/39). This siloed approach to the affairs "matrifocal units", even where these units are part of a larger household, is a feature in anthropological work on Igbo polygamy (Uchendu, 1965, pp. 55 & 188; Okere, 1979, p. 68; Henderson and Henderson, 1966, p. 48; Henderson, 1972, p. 412). Illness, disagreements, and individualistic attitudes towards the sharing of household resources thus lead to strategic misallocation of labour.

In polygamous households, bargaining power varies with social status and influences time use. Senior wives (or senior women more generally), such as Ikoka, command greater respect, compliance, and assistance, and have fewer instances of intra-household conflict than do junior ones such as Ejere (Ikoka 24/4/39 & 20/5/39; Ejere 29/7/39 & 10/9/39). Early scholarship on the Igbo confirms the position of deference and control accorded senior wives (Leith-Ross, 1978, p. 126; Basden, 1921, pp. 97-8). Dominance over junior women is also evident in the case of Alozia, who exercises power over adult ward Afoca's time use, (1/5/39), likely due both to Alozia's seniority and Afoca's dependence. Similarly, in Cikia's household, whether his mistress Eleke's high status relative to his brother's widow Ekodu is a function of the former's status as mistress or her husband's preference for her, the labour of Ekodu's children, Kalu and Ofruice, is more frequently commandeered to aid Eleke than their own mother (Kalu 8/5/39, 13/5/39, & 6/6/39).

Women's bargaining power also depends on their position versus the men in their household, and varies in response to past actions. That is, it is endogenous

in the sense of Basu's model. In acknowledgment that the market is the primary place where women can earn cash incomes, and in retaliation for his wife, Alozia, accidentally spilling palm wine, Ezeala refuses to let her go to market, calling it "a great punishment not to let a woman go" (17/3/39, 14/3/39). However, he worries that because of his punitive action, he will spur Alozia to run away to her parents' home in Ovim (14/3/39), indicating that just as controlling household income share matters, so too does assessing another's social networks and outside options. Harris highlights Igbo women's successful claims over household assets following divorce, and their use of lovers as proxies in land deals in order to circumvent their husbands' interference. These patterns reinforce the importance of women's options and support networks as sources of leverage. Given the fragility of marriages and the variety of options available to a woman seeking to "frustrate her husband's control over her", Harris finds that the posturing of the sort employed above by Ezeala rarely moved past threat into action (Harris, 1940, pp. 144-6).

5. CHILD LABOUR

Quantitative results

We treat individuals aged 16 or below in the data as "children." We begin by asking whether child labour substitutes for adult labour when a child's parents are sick. We estimate (1) on the sample of children, using parental illness as the right-hand-side variable. There are not enough children in the data to estimate these regressions separately for boys and girls. In Table 4, we find little evidence that children replace their parents when they are ill. Children are more likely to rest and less likely to care for other children on days when at least one parent is sick, though neither pattern is significant. The only evidence we find of additional labour is that children are more likely to hunt on these days. This again suggests labour within the household is complementary, rather than substitutable.

By contrast, parents in the data do appear to coordinate their labour with that of their children; they tend to engage in the same tasks on the same days. In Table 4, we show that children are more likely to engage in farming or palm production on the days their parents also perform these tasks, while there are few changes in activities besides resting and childcare. In addition to the complementarity between adult and child labour, children are easier to supervise if they are brought along while their parents work. Light child work in farming and palm production is thus a form of disguised childcare. The need for supervision of child work also explains why we do not see them replace the labour of a sick parent. When children cannot be brought to farm, Table 4 shows that older siblings care for younger ones. We expand this to all tasks of interest in column (4). Again, it is apparent that parents and children do many of the same tasks together; these include farming, gathering, home repair, hunting, making roofing mats, and palm production. As between spouses, there is substitution rather than coordination in childcare, though this is marginally insignificant. Not all child work is supervised; children are more likely to harvest or prepare palm

oil on days their parents are resting, even excluding observations where their parents are sick.

Ethnographic results - Illness

When women are sick, their children are rarely employed in making up lost work. Most frequently, children's activities are not explicitly reported on days their mother is ill, as is the case with Ude during her prolonged bouts of illness in October and December. In other cases, the child is reported as pursuing their own activity, such as hunting or buying items for themselves (Ikoka & Akoma 11/30/39 & 20/1/40), or as farming on behalf of an individual other than their mother (Akaji & Mbanta 18/9/39). This is despite the fact that these same children are capable of working, and are found assisting heads of household during the course of everyday work—in the case of Mbanta, even helping his uncle Uda farm on the same day as his sick mother's work goes uncompleted (18/9/39).

There is one prominent case in the data in which child labour exists as strategy for coping with parental illness and infirmity. This is, however, a long-term rather than a short-term response. Mmeziri, the intended wife of Iheukwumere, is brought to live with Iheukwumere's father Egwuonwu before puberty, earlier than is typical for a new bride, because Egwuonwu is too old to work much. His wife has recently died, his daughter Nwangras has recently gone into the fatting house, and his son Iheukwumere is frequently away, leaving no one to cook and work for the household (Introductory/family tree section – File C; 5/7/39). Mmeziri is described as working "harder than anyone else in Ndi Akwu," (Introductory section – File C) and the data bears this statement out. At the age of 8-10, Mmeziri "actually does all the work for the family of Egwuonwu" (5/7/39). Performing even strength-intensive household and farming tasks on her own sets her apart from the children of similar age in the data, such as Akoma, Omenyenya, and Ofruice, who rarely spearhead their household's work. Later, even when Nwangras emerges from the fatting house and Iheukwumere returns from his travels, Mmeziri isdescribed as leading the work while the other two assist (Nwangras 30/9/39, 4/2/40).

Ethnographic results - Coordination

Child labour appears more frequently in farming than in other tasks. Children brought to the farm typically help in whatever way they can. This is most often in low-strength or auxiliary tasks such as gathering stakes, tending yam tendrils, placing cuttings in dug heaps, or carrying the harvest home (Omenyenya 18/12/39, Akoma 11/7/39, Onwamini 30/8/39 & 8/3/39). Older children tend to pursue activities for their own benefit, such as hunting, trade, and recreation only when they have fulfilled their farming and gathering responsibilities (Ofruice 16/2/39 & 30/8/39, Omenyenya 9/7/39 & 21/10/39, Mmeziri 1/8/39 & 31/10/39, Onwamini 30/3/39 & 10/11/39). In one instance, Mba bars his

half-brother Omenyenya from going to church so that he may help Mba make palm roof mats all day (11/2/40). In another, Uda prevents his son Akoma from going to church so that he may instead farm on Uda's behalf, scornfully adding that he "only sent Akoma to school to learn books and not to go to church" (10/12/39).

Parents cite disobedience and failure to cooperate with farming and household help as grounds for non-payment of school fees and related expenses, as is the case with Cikia and his adoptive son Kalu. Ezeala notes that Kalu "still has not gone to school," and elaborates that he doesn't "think Cikia wants to buy him uniform bec[ause] Kalu is disobedient to him. Even if Cikia had no money, he would try to borrow it to buy his son a uniform and he has not done so" (22/3/39). Earlier it is mentioned that Kalu was compelled to quit school for two months when his father "refused to pay his school fees because Kalu refused to work for him" (Introductory section – File C).

Respondents' testimonies suggest that these tasks were as much a matter of child supervision as of labour necessity. There are, admittedly, few instances in which children are explicitly described as being brought to the farm purely for supervisory purposes, as in the case of the 6-year-old Uce and the 3-year-old Mary. The entry for Mba's and Ahudiya's yam planting on 18/3/39 states that "Uce and Mary went alone, to sleep and cry. They do not work but the parents like to have them there so that they can keep their eye on them." Nevertheless, the alternatives were undesirable. In one instance, new mother Ahudiya is chastised by the townspeople for leaving her crying baby in the house while out harvesting (10/1/40). In other cases, mothers are forced to leave infants in the care of their young and often unreliable siblings. For example, when Elebe is left to care for her infant sister, she instead locks the child in the house and leaves to apply *uri* (a beauty product). Her mother, Ikoka, later beats her for this (26/10/39). Where childcare was scarce and children's opportunities for schooling were few, bringing children to farm was the best available option, and while they were there, it was thought, they might as well work. For example, although it is stated on 18/3/39 that Uce and Mary are only really brought to the farm for supervisory purposes, three days later, it is stated that they accompanied Mba, and while at the farm, helped him "to put yams in the heaps" (21/3/39).

Further, help in farm work and household errands were means by which children contributed to the household and earned their keep. For example, Akoma cuts palm fruits for his mother, "who helps in his school needs" (13/1/40), and the ward Onwamini is frequently sent on errands by Ezeala (25/1/40, 7/1/40, 11/9/39). Parents express anger and frustration when children refuse to help, which suggests that such chores are expected as a basic household contribution. (Introductory section– File C, Cikia 5-6/3/39, Ofruice 25/5/39, 21/6/39, 11/7/39, & 30/1/40, Uce 9/11/39, Omenyenya 28/12/39, Onwamini 18/1/40).

Due to a combination of these motivations, the majority of child labour is found in children accompanying their parents to the farm to assist in weeding,

planting, and harvesting. Older children, wards, and children of frequently sick or absent parents worked in different tasks. These children work independently on behalf of their parents, doing the full work of adults, rather than the peripheral tasks they tend to perform when accompanying adults. They plant, harvest, and supervise hired workers (Onwamini 5/2/40, Ezeala 11/4/39, Mmeziri 18/3/39, 21/3/39, & 15/5/39). Wards like Onwamini were especially seen as needing to earn their keep, since the social obligation of household heads to support them was not as strong as with biological children (Ugwade & Akaji 9/9/39). Such children can be seen managing other smaller children in the performance of farming tasks. During the month when Uda is serving as a member of court, his son Akoma is put in charge of managing his younger siblings and cousins (18, 25, 27, & 29/11/39; 10, 12, 15, 21, 23, & 29/12/39; 6/1/40). Similarly, Ezeala's ward and adopted son Onwamini frequently farms and runs errands on Ezeala's behalf while the latter is away at Ndiagbo negotiating bride price with his future in-laws (22/9/39, 19/10/39, 25/7/39). He also works on behalf of Alozia, primarily doing errands, while she stays home preparing *ahe* (a food product) for sale at market (8/9/39, 10/12/39).

Trade provides an outlet for child labour. Unlike their work in farming and other household tasks, children's labour is not indispensable to their parents' trading activities. There are many instances of children helping parents prepare for or carry goods to and at market (Akoma 22/12/39, Ofruice 13/2/39, Onwamini 18/4/39, Kalu 21/6/39). However, this work is neither systematic nor necessary; parents more often than not do without their children's help in these tasks (see Table 4). Although help at market was one reason for children to accompany parents, as evidenced by one instance during which Cikia chases Ofruice around the market for refusing to carry his kerosene can (21/6/39), children accompanying their parents on trips to market was an opportunity to engage in a supervised outing more than it was necessary assistance. In many cases, mentions of a child accompanying their parent to market do not indicate that the child performed any specific auxiliary task (Uce 13/2/39; Kalu 28/5/39, 10 & 26/6/39 & 4/7/39). Instead, the child is described as merely walking around the market, as Kalu frequently does when he accompanies his father, Cikia (12/5/39 & 21/6/39). Sometimes there is also mention of parents buying treats such as *nnama* (intestine), ground nuts, and *acara* (elephant grass) for the children accompanying them (Mba 21/6/39, Cikia 12/5/39 & 21/6/39).

Children do play a significant role in palm preparation. Girls such as Ofruice, Nwangras, and Elebe often help the senior woman in their household as she cracks and pounds palm nuts for the production and subsequent sale of palm oil (Elebe 14/2/39 & 21/1/40, Ofruice 22 & 24-25/8/39, 17 & 19/1/40). At other times, these girls perform these same activities and keep the proceeds for themselves (Mmeziri 31/5/39 & 17-19/1/40; Nwangras 7/10/39, 13/1/40, 18/1/40, & 7/2/40). The gender division of labour for children followed that for adults; boys such as Onwamini and Omenyenya participate more often in palm oil preparation through their role in the harvesting of palm fruits. Here too, this work was sometimes performed for the household, and sometimes for their own

benefit. Boys often cut fruits for the woman of the house (either for household use or for eventual sale) (Omenyenya 21/4/39, Onwamini 22/4/39, Kalu 4/3/39, Akoma 13/1/40), but also cut them for their own sale at market (Akoma 13/4/39, Kalu 24/4/39, Onwamini 15/5/39, Omenyenya 28/8/39). Children frequently go to market alone, engaging in trade for their own profit.

Palm production was the central commercial activity in colonial Igboland. Since children were instrumental in palm production and marketing, the prominence of this trade made child labour more important generally. For example, Nwangras and Mmeziri participate in trade indirectly by cracking palm nuts for a village man to sell at market. For this, the man pays them a set fee, which they keep as their own income (3-4/10/39). The boys in the data take a more entrepreneurial approach, as in the case of Onwamini, who buys groundnuts at one market for resale at another, roasts them, sells them, and reinvests his profits in this resale business (17-18/10/39, 12-14/11/39).

Trade-oriented activities like these engage children in labour on a voluntary basis. They allow children to earn independent and discretionary income, and to learn trade and business basics important in adult life. Children are found engaging in activities such as mat-making and palm harvesting in return for their school fees, or as a "token of appreciation" for their parents' help with fees. Children like Omenyenya and Akoma perform farm work, palm harvesting, and mat-making for this reason (Omenyenya 5/8/39, Akoma 13/1/40). This does not, however, imply that all child work was voluntary. Children in the data are sometimes “dragged” to work when disobedient (Mba & Omenyenya 28/12/39). Refusal to work is punished in many ways, including beatings and refusal by parents to pay school fees (Eleke & Ofruice 26/5/39; Mba & Omenyenya 28/12/39; Kalu 22/3/39).

6. Conclusion

In this paper, we have used anthropological data to add to our understanding of time-use decisions in poor households. Together with complementarities in labour, Basu’s collective model of the household with endogenously determined bargaining power explains the lack of labour substitution in response to illness, the coordination of labour between spouses and between parents and children, and the strategic misallocation of labour that we observe. Intra-household labour allocation is found to be a poor source of insurance against shocks. There is little evidence in the data that households compensate for these events by reallocating the time of other adults or children.

The features that make our data unique also limit our ability to generalize our conclusions. Although we are able to track respondents over a very long panel, the sample of individuals is small. We have, then, interpreted our results in the context of the ethnographic literature on the Igbo and in light of existing studies of other societies. Similarly, we only observe our respondents over a year during which the global context was largely unchanged; we are unable to trace out responses to any structural breaks.

Our results indicate that adult and child work have little use as insurance in societies such as ours, that face strong seasonality and thin markets for labour. The reallocation of labour in response to illness shocks is highly context-dependent, and is mediated by the technology of production, seasonality, social status, household composition, and the causes of illness. Similarly, children in our sample gained skills, resources, and bargaining power through work. Where they could be supervised while their parents worked and the opportunities for formal schooling were limited, children's work made sense.

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Table 1: Means

	(1) Full Sample	(2) Men	(3) Women	(4) Children
Away	0.062	0.077	0.060	0.046
Bathing	0.010	0.025	0.004	0.002
Care for own child	0.077	0.012	0.146	0.000
Cared for child	0.096	0.028	0.148	0.069
Cooking	0.065	0.011	0.096	0.070
Eating	0.046	0.135	0.007	0.009
Farmed	0.302	0.282	0.327	0.270
Farm work - clearing	0.028	0.050	0.016	0.025
Farm work - harvesting	0.129	0.083	0.154	0.134
Farm work - other	0.092	0.111	0.088	0.074
Farm work - planting	0.064	0.046	0.083	0.043
Fetching water	0.019	0.003	0.029	0.016
Food preparation	0.047	0.017	0.071	0.032
Gathering	0.111	0.094	0.112	0.135
Hosting	0.022	0.059	0.007	0.002
Hunting	0.020	0.042	0.001	0.034
Went to market	0.137	0.153	0.143	0.098
Palm production	0.049	0.041	0.055	0.045
Recreation	0.035	0.044	0.017	0.065
Religious duties	0.012	0.026	0.004	0.009
Resting	0.263	0.315	0.222	0.288
Road clearing	0.012	0.025	0.008	0.001
Visiting	0.070	0.133	0.049	0.025
Sick	0.054	0.042	0.066	0.042
Beauty	0.017	0.002	0.030	0.009
Home repair	0.026	0.046	0.017	0.015
Making mats	0.019	0.049	0.001	0.019
N	6,266	1,893	3,134	1,239

All variables are binary 0/1 indicators.

Table 2: Responses to illness

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Own illness		Spousal illness		Same-gender illness		Child illness
	Men	Women	Men	Women	Men	Women	Men
Away	-0.060 (0.038)	-0.088 (0.074)	-0.009 (0.019)	0.145 (0.109)	0.106 (0.079)	0.042 (0.050)	-0.004 (0.006)
Bathing	0.320 (0.062)***	-0.003 (0.001)*	0.019 (0.015)	-0.005 (0.002)**	-0.075 (0.069)	-0.001 (0.002)	0.005 (0.019)
Beauty	0.001 (0.001)	-0.021 (0.012)	-0.001 (0.001)	-0.011 (0.007)	0.002 (0.002)	-0.000 (0.014)	-0.010 (0.011)
Care for own child	0.008 (0.005)	-0.168 (0.116)	0.003 (0.005)	-0.082 (0.099)	0.006 (0.005)	0.024 (0.052)	0.036 (0.021)
Cared for child	-0.000 (0.010)	-0.170 (0.115)	0.019 (0.013)	-0.104 (0.111)	-0.003 (0.013)	0.022 (0.054)	-0.022 (0.044)
Cooking	0.010 (0.014)	-0.034 (0.017)*	-0.001 (0.006)	0.092 (0.051)	0.011 (0.011)	0.013 (0.027)	0.040 (0.028)
Eating	-0.057 (0.056)	0.000 (0.002)	-0.015 (0.024)	0.076 (0.019)***	-0.035 (0.032)	0.000 (0.003)	0.001 (0.021)
Farmed	-0.209 (0.025)***	-0.266 (0.079)***	0.033 (0.034)	-0.152 (0.120)	-0.011 (0.057)	0.010 (0.039)	0.039 (0.033)
Farm work - clearing	0.005 (0.018)	-0.020 (0.011)	-0.023 (0.016)	-0.010 (0.003)**	0.005 (0.020)	-0.000 (0.008)	0.016 (0.017)
Farm work - harvesting	-0.063 (0.018)**	-0.135 (0.022)***	0.062 (0.008)***	-0.020 (0.099)	-0.064 (0.026)**	-0.011 (0.021)	-0.027 (0.018)
Farm work - other	-0.154 (0.017)***	-0.085 (0.038)**	-0.011 (0.014)	-0.110 (0.075)	0.024 (0.051)	0.018 (0.011)	0.033 (0.028)
Farm work - planting	-0.000 (0.013)	-0.036 (0.034)	0.009 (0.016)	-0.069 (0.064)	0.016 (0.030)	0.007 (0.019)	0.019 (0.020)
Fetching water	0.004 (0.003)	-0.040 (0.019)*	0.001 (0.005)	-0.058 (0.036)	0.005 (0.005)	0.001 (0.010)	0.000 (0.000)
Food preparation	0.009 (0.010)	-0.037 (0.018)*	0.003 (0.009)	-0.209 (0.055)**	0.005 (0.007)	0.014 (0.014)	-0.012 (0.021)
Gathering	-0.097 (0.018)***	-0.103 (0.025)***	0.014 (0.012)	-0.007 (0.011)	-0.002 (0.015)	0.015 (0.020)	-0.047 (0.017)*
Home repair	-0.014 (0.017)	-0.004 (0.006)	0.044 (0.019)*	-0.032 (0.006)***	0.001 (0.013)	-0.003 (0.005)	-0.003 (0.017)
Hosting	-0.007 (0.013)	0.000 (0.003)	0.047 (0.013)**	-0.007 (0.002)**	-0.033 (0.019)	0.004 (0.004)	-0.009 (0.022)
Hunting	-0.014 (0.014)	-0.001 (0.001)	0.001 (0.023)	0.000 (0.000)	0.022 (0.018)	0.001 (0.002)	0.005 (0.019)
Making mats	-0.047 (0.010)***	0.004 (0.004)	0.005 (0.014)	0.070 (0.032)*	-0.012 (0.013)	0.003 (0.003)	-0.034 (0.008)**
Went to market	-0.032 (0.017)	-0.095 (0.025)***	0.000 (0.019)	-0.060 (0.047)	0.055 (0.032)	0.010 (0.019)	0.014 (0.027)
Palm production	0.010 (0.028)	-0.047 (0.014)***	-0.035 (0.031)	-0.026 (0.015)	-0.031 (0.025)	-0.013 (0.013)	0.022 (0.011)
Recreation	-0.029 (0.009)**	-0.007 (0.003)*	0.015 (0.014)	-0.004 (0.004)	-0.006 (0.013)	-0.001 (0.003)	-0.000 (0.012)
Religious duties	-0.034 (0.019)	-0.001 (0.006)	0.014 (0.014)	-0.005 (0.002)	-0.002 (0.022)	0.003 (0.002)	-0.028 (0.015)
Resting	0.358 (0.030)***	0.696 (0.026)***	-0.030 (0.022)	-0.054 (0.088)	-0.129 (0.089)	-0.129 (0.062)*	-0.012 (0.042)
Road clearing	-0.014 (0.004)**	-0.002 (0.004)	0.004 (0.005)	-0.007 (0.002)***	0.013 (0.017)	0.002 (0.003)	-0.001 (0.004)
Sick			0.017 (0.009)	0.149 (0.054)**	-0.207 (0.190)	-0.145 (0.078)*	0.002 (0.019)
Visiting	-0.100 (0.020)***	-0.026 (0.011)**	0.064 (0.028)*	0.045 (0.091)	0.058 (0.034)	-0.014 (0.018)	0.043 (0.027)
N	1,888	3,127	1,385	1,781	1,891	3,133	1,079

Notes: *** Significant at 1%, ** Significant at 5%, * Significant at 10%. Each entry in the table is the coefficient obtained from an OLS regression of the row variable (e.g. "Farmed") on the column variable (e.g. "Own illness"), person fixed effects, and day fixed effects. Standard errors clustered by person are reported in parentheses.

Table 3: Coordination between spouses

	(1)	(2)	(3)	(4)
	Spouse: Away		Spouse: Same activity	
	Men	Women	Men	Women
Away	0.047 (0.061)	0.013 (0.057)	0.047 (0.061)	0.013 (0.057)
Bathing	0.037 (0.025)	-0.002 (0.001)	0.164 (0.052)**	0.051 (0.011)***
Beauty	-0.003 (0.002)	-0.073 (0.024)**	-0.006 (0.008)	-0.010 (0.009)
Care for own child	0.040 (0.005)***	0.127 (0.089)	-0.053 (0.031)	-0.185 (0.125)
Cared for child	0.067 (0.018)**	0.092 (0.069)	-0.051 (0.033)	-0.102 (0.079)
Cooking	0.024 (0.017)	-0.088 (0.069)	-0.003 (0.005)	-0.012 (0.041)
Eating	-0.115 (0.084)	-0.004 (0.002)	0.142 (0.050)**	0.018 (0.005)**
Farmed	-0.036 (0.062)	-0.116 (0.062)	0.065 (0.058)	0.023 (0.057)
Farm work - clearing	-0.013 (0.015)	-0.004 (0.004)	0.345 (0.104)**	0.168 (0.068)*
Farm work - harvesting	0.028 (0.065)	-0.106 (0.059)	0.055 (0.039)	0.032 (0.046)
Farm work - other	-0.039 (0.013)**	-0.026 (0.025)	0.098 (0.029)**	0.068 (0.030)*
Farm work - planting	-0.021 (0.023)	0.013 (0.074)	0.253 (0.038)***	0.335 (0.105)**
Fetching water	0.005 (0.003)	-0.000 (0.005)	-0.004 (0.009)	-0.028 (0.068)
Food preparation	-0.035 (0.018)	0.058 (0.036)	0.033 (0.040)	0.165 (0.191)
Gathering	0.110 (0.025)**	-0.061 (0.037)	0.066 (0.030)*	0.056 (0.030)
Home repair	0.075 (0.021)**	0.122 (0.024)***	0.117 (0.054)*	0.017 (0.009)
Hosting	0.023 (0.055)	-0.035 (0.025)	0.110 (0.058)	0.020 (0.004)***
Hunting	-0.046 (0.050)	0.000 (0.000)	0.095 (0.041)*	0.000 (0.000)
Making mats	0.074 (0.013)***	-0.002 (0.001)	0.564 (0.070)***	0.029 (0.019)
Went to market	-0.049 (0.035)	0.148 (0.080)	0.010 (0.049)	-0.060 (0.041)
Palm production	0.020 (0.015)	-0.054 (0.108)	0.329 (0.093)**	0.522 (0.032)***
Recreation	0.022 (0.013)	-0.003 (0.002)	0.137 (0.094)	0.044 (0.027)
Religious duties	-0.007 (0.003)*	-0.002 (0.001)	-0.034 (0.166)	0.048 (0.031)
Resting	-0.083 (0.052)	0.188 (0.142)	-0.007 (0.019)	-0.010 (0.031)
Road clearing	0.022 (0.004)***	-0.002 (0.001)	0.046 (0.048)	0.014 (0.020)
Sick	0.017 (0.017)	-0.051 (0.091)	0.017 (0.009)	0.149 (0.054)**
Visiting	-0.046 (0.026)	0.018 (0.022)	-0.020 (0.023)	-0.004 (0.022)
N	1,388	1,786	1,388	1,786

Notes: *** Significant at 1%, ** Significant at 5%, * Significant at 10%. Each entry in the table is the coefficient obtained from an OLS regression of the row variable (e.g. "Farmed") on the column variable (e.g. "Own illness"), person fixed effects, and day fixed effects. Standard errors clustered by person are reported in parentheses.

Table 4: Child labor

	(1) Parent: Sick	(2) Parent: Farmed	(3) Parent: Palm Prod.	(4) Parent: Same	(5) Parent: Resting
Away	-0.000 (0.001)	0.018 (0.011)	0.001 (0.005)	-0.008 (0.004)	0.014 (0.010)
Bathing	-0.000 (0.000)	-0.011 (0.005)	-0.002 (0.001)	-0.005 (0.002)*	0.012 (0.006)
Beauty	-0.000 (0.000)	-0.010 (0.005)	-0.003 (0.001)	-0.008 (0.004)	-0.010 (0.010)
Care for own child					
Cared for child	-0.156 (0.154)	0.068 (0.030)	-0.032 (0.033)	-0.185 (0.084)	-0.027 (0.022)
Cooking	-0.050 (0.045)	0.007 (0.006)	0.001 (0.001)	-0.000 (0.000)	-0.001 (0.001)
Eating	-0.000 (0.000)	0.006 (0.006)	-0.002 (0.001)	0.471 (0.239)	-0.008 (0.009)
Farmed	0.020 (0.079)	0.118 (0.031)**	-0.097 (0.050)	0.118 (0.031)**	-0.024 (0.033)
Farm work - clearing	-0.001 (0.002)	-0.036 (0.011)**	0.036 (0.019)	0.062 (0.065)	0.005 (0.013)
Farm work - harvesting	-0.049 (0.044)	0.082 (0.006)***	-0.124 (0.035)**	0.132 (0.019)***	0.030 (0.006)**
Farm work - other	0.112 (0.061)	0.041 (0.003)***	0.048 (0.032)	0.205 (0.034)***	-0.018 (0.009)
Farm work - planting	-0.042 (0.040)	0.037 (0.015)*	-0.066 (0.051)	0.307 (0.032)***	-0.032 (0.023)
Fetching water	-0.001 (0.000)	0.004 (0.006)	-0.003 (0.002)	-0.003 (0.002)	0.000 (0.001)
Food preparation					
Gathering	-0.051 (0.053)	-0.009 (0.009)	0.020 (0.006)**	0.111 (0.029)**	0.044 (0.029)
Home repair	0.003 (0.003)	0.003 (0.023)	0.009 (0.008)	0.157 (0.045)**	-0.043 (0.015)*
Hosting					
Hunting	0.152 (0.082)	-0.006 (0.016)	-0.037 (0.031)	0.088 (0.018)**	-0.002 (0.015)
Making mats	0.003 (0.002)	0.016 (0.011)	-0.001 (0.013)	0.219 (0.069)*	-0.003 (0.014)
Went to market	-0.044 (0.051)	0.027 (0.026)	-0.021 (0.014)	-0.020 (0.023)	-0.019 (0.025)
Palm production	-0.053 (0.051)	0.010 (0.022)	0.117 (0.021)**	0.117 (0.021)**	0.045 (0.009)**
Recreation	-0.051 (0.045)	-0.001 (0.029)	-0.021 (0.037)	0.034 (0.048)	-0.008 (0.002)**
Religious duties	-0.000 (0.000)	-0.000 (0.001)	-0.004 (0.002)	-0.130 (0.075)	-0.001 (0.016)
Resting	0.302 (0.170)	-0.169 (0.076)	-0.001 (0.067)	0.042 (0.010)**	0.014 (0.022)
Road clearing					
Sick	0.023 (0.075)	-0.038 (0.023)	-0.028 (0.015)	0.023 (0.075)	0.026 (0.005)**
Visiting	0.001 (0.001)	0.014 (0.012)	0.005 (0.003)	0.045 (0.017)*	-0.005 (0.021)
N	662	662	662	662	646

Notes: *** Significant at 1%, ** Significant at 5%, * Significant at 10%. Each entry in the table is the coefficient obtained from an OLS regression of the row variable (e.g. "Farmed") on the column variable (e.g. "Own illness"), person fixed effects, and day fixed effects. Standard errors clustered by person are reported in parentheses. Observations in which parents are sick are removed from column (5).

APPENDIX FOR "LABOUR AND HEALTH IN COLONIAL NIGERIA"

Vellore Arthi and James Fenske[1]

APPENDIX A: LIST OF INDIVIDUALS WHO APPEAR REGULARLY IN THE DATA

Household 1: Ezeala

- Ezeala (Male, 35-38) is the head of household and husband of Alozia. He is in the process of marrying a young second wife in Ndiagbo.
- Alozia (Female, 34-36) is the wife of Ezeala. She has been infertile during her marriage to Ezeala, but bore three children with her previous (deceased) husband.
- Afoca (Female, 23-25) is a relative of Ezeala. He treats her as his daughter. She helps and works for Alozia in return for room and board.
- Onwamini (Male, 12-14) is a half-brother and informally adopted son of Ezeala.

Household 2: Cikia

- Cikia (Male, 42-45) is the head of household and lover of Eleke.
- Eleke (Female, 35-37) is Cikia's mistress. Her husband is deceased.
- Ekodu (Female, 30-33) is a relative of Cikia who has lived with him since her husband's death. She is the mother of Kalu, Ofruice, and a small baby.
- Kalu (Male, 12-14) is the son of Ekodu and an informally adopted son of Cikia.
- Ofruice (Female, 8-10) is the daughter of Ekodu and an informally adopted daughter of Cikia.
- Ada (Female, age unknown) is the daughter by another wife of Ekodu's deceased husband.

Household 3: Mba

- Mba (Male, 24-26) is the head of household and husband of Ahudiya.
- Ahudiya (Female, 22-24) is the wife of Mba. She is mother of Mary, Uce, and a newborn baby.
- Amabua (Female, age unknown) is mother of Mba and Omenyenya. She lives semi-independently near Mba. She is the village elder among women.
- Omenyenya (Male, 10) is son of Amabua and half-brother of Mba.
- Mary (Female, 3) is a daughter of Mba and Ahudiya.
- Uce (Male, 6) is a son of Mba and Ahudiya.
- Nwayem (Female, 30-32) is a sister of Mba, a mother of a young son, and is a leper.

Household 4: Uda

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- Uda (Male, 50-53) is the head of household and husband of Ikoka, Ekeru, and Ejere. He is a village elder and court member.
- Ikoka (Female, 32-35) is a wife of Uda. She is mother of Akoma, Wankem, Elebe, and Sunday.
- Ejere (Female, 30-32) is a wife of Uda. She is mother of an infant or young child.
- Ekeru (Female, 24-26) is a wife of Uda. She is mother of the infant Onukafo.
- Elebe (Female, 13-14) is a daughter of Uda and Ikoka. She is recently out of the fattening house, in which she rested and gained weight before marriage.
- Wankem (Female, 6-7) is a daughter of Uda and Ikoka.
- Obasi (Male, 24-26) is a son of Uda. He is a trader at Uzuakoli who returns frequently to help Uda.
- Akoma (Male, 10-12) is a son of Uda and Ikoka.
- Ugwade (Female, 39-41) is a daughter of Uda who has run away from her husband in Isiegbu.
- Ugoma (Female, 35-39) is a wife of Uda's deceased brother. She is fed by Uda, and is mother of a young son.
- Akaji (Female, 30-32) is a wife of Uda's deceased brother. She is mother of Mbanta and another young child.
- Mbanta (Male, 8-10) is a son of Akaji.
- Asehoro (Female, 6-8) is a young granddaughter or niece of Uda.
- Ude (Female, 25) is a daughter of Uda and full sister of Ugwade. She returns to Uda's household to manage Ugwade's farm in Ugwade's absence.
- Onoghare (Female, 5) is a daughter of Ude and her lover.

Household 5: Egwuonwu

- Egwuonwu (Male, 57-60) is the head of household. His wife is deceased. He is the village's religious elder.
- Iheukwumere (Male, 22-24) is a son of Egwuonwu. He is in the process of marrying Mmeziri.
- Mmeziri (Female, 8-10) is the intended wife of Iheukwumere. She is the de facto manager of the household.
- Cikia (Male, 16-18) is a son of Egwuonwu.
- Nwangras (Female, 13-14) is a daughter of Egwuonwu. She is recently out of the fattening house, and a bride price is currently being paid on her.

APPENDIX B: SAMPLE RECORD

Mon. July 10
Afonso.

Ezeala - 7 to 7:30, to bush to cut sticks to rebuild our okoro house. All the man of Amankwu from age grade of about 45-50 years down to 13 -15 years worked on this. Then we continued to work building the house until 2p.m. Then I slept until 6p.m.
Meals:
(1) 9 a.m. Otara stockfish in ofo
(2) 1 p.m. boiled yam with Ihenduri (no meat or fish) also Otara - stockfish in ofo.
(3) 2 p.m. Otara - stockfish in ofo. 1 ear of roasted corn.
(4) 8 p.m. Otara - nnama meat in ofo.
Many showers during day, but no continuous rain.
Alozia - 7 to 4, to Court Farm IIA to plant odudu. Went with Afoca.
Afoca - See Alozia.
Onwamini - Att Ibeku.

Cikia Worked with us until 2 p.m. Then walked around with dibia visiting people.
Ekodu - 8 to 2, to Oboko where her ogo died 3 days ago. This ogo was her dead hsbd's dau (by another wife) hsbd's mother. Brought nothing with her,
just went to sympathise. Then rested.
Eleke - 8 to 2, cracked palm. Then rested.
Kalu - Worked for you all day.
Ofruice - Held Ekodu's child.

Mba Worked on okoro house until 2. Then came to court to listen to case of a friend unti 5 p.m.
Ahudiya - Home all day. 6 or 8 months pregnant, so she feels ill.
Amabua - 7 to 11, to dibia for divining because Uce's fowl has been stolen and she wanted to find out who stole the fowl. Later I saw her with things for sacrifice (I don't know which agbara) so that the thief can be killed. For a case like this she paid 3d.

Uda 7 to 9, directed us in building ikorso house. Then 8 to 3, he went someplace; I know not where.
Ikoka - 7 to 11, to Ako Farm I to plant odudu. Then rested.
Ejere - Still at Mgbele.
Ekeru - Home - child.
Ugwuade - Not seen all day.
Akaji - 7 to 2, lto wee her share of Ako Farm I. Went alone. Then rested.

Egwuonwu Home all day, resting.

Mmeziri - 8 to 12, to Farm I to get leaves for ofo. Then cooked.
Iheukwumere - 7 to 8, put mats on roof of his house, then came to work with us. Then rested.

APPENDIX C: MISSING DATA

In Table A5, we estimate (1) with a dummy variable for whether no activities are reported for individual *i* as the dependent variable. Column (1) tests whether men are more likely to be missing from the record depending on the activities of their wives. Though there are significant correlations for hunting and home repair, these are driven by the small numbers of observations for which women engage in these activities. The correlation with whether a wife is missing is large albeit insignificant. Column (2) performs the same exercise for women. They are less likely to be in the data when their husbands are missing.

Whether children are missing does depend on a parent's activity. There is a large correlation with whether the parent is also missing. Children are less likely to be reported when a parent is engaged in beauty, eating, recreation or going to market, and are less likely to be missing when a parent is working in farm clearance or, unsurprisingly, caring for the child.

Table A2: Responses to illness with trends

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Own illness		Spousal illness		Same-gender illness		Child illness
	Men	Women	Men	Women	Men	Women	Men
Away	-0.056 (0.036)	-0.059 (0.041)	-0.026 (0.021)	0.063 (0.070)	0.155 (0.037)***	0.000 (0.014)	-0.004 (0.006)
Bathing	0.312 (0.066)***	-0.004 (0.002)*	0.009 (0.014)	-0.011 (0.004)**	-0.072 (0.068)	-0.001 (0.002)	0.010 (0.021)
Beauty	0.001 (0.002)	-0.015 (0.008)*	-0.000 (0.001)	-0.005 (0.009)	0.002 (0.002)	0.002 (0.013)	-0.010 (0.011)
Care for own child	0.009 (0.005)	-0.072 (0.053)	-0.001 (0.005)	-0.024 (0.080)	0.005 (0.005)	0.017 (0.025)	0.039 (0.022)
Cared for child	-0.001 (0.010)	-0.074 (0.051)	0.015 (0.014)	-0.046 (0.096)	-0.004 (0.013)	0.015 (0.026)	-0.021 (0.047)
Cooking	0.007 (0.011)	-0.066 (0.023)**	-0.002 (0.009)	0.072 (0.051)	0.008 (0.009)	0.023 (0.030)	0.040 (0.027)
Eating	-0.015 (0.024)	-0.003 (0.002)*	0.031 (0.031)	0.074 (0.018)***	-0.035 (0.028)	0.002 (0.003)	0.010 (0.018)
Farmed	-0.188 (0.030)***	-0.375 (0.022)***	0.061 (0.025)*	-0.216 (0.131)	-0.041 (0.049)	0.025 (0.029)	0.037 (0.031)
Farm work - clearing	0.002 (0.020)	-0.026 (0.007)***	-0.018 (0.020)	-0.015 (0.006)**	0.004 (0.025)	0.004 (0.007)	0.030 (0.016)
Farm work - harvesting	-0.043 (0.022)*	-0.190 (0.041)***	0.067 (0.025)*	-0.048 (0.103)	-0.077 (0.023)**	0.004 (0.022)	-0.022 (0.013)
Farm work - other	-0.133 (0.015)***	-0.100 (0.036)**	0.013 (0.016)	-0.117 (0.074)	0.001 (0.039)	0.024 (0.015)	0.015 (0.029)
Farm work - planting	-0.019 (0.011)	-0.071 (0.017)***	0.004 (0.024)	-0.102 (0.070)	0.023 (0.025)	-0.004 (0.015)	0.015 (0.013)
Fetching water	0.003 (0.003)	-0.028 (0.009)**	0.000 (0.005)	-0.038 (0.042)	0.005 (0.005)	-0.003 (0.004)	0.000 (0.000)
Food preparation	0.016 (0.012)	-0.036 (0.019)*	0.015 (0.014)	-0.179 (0.056)**	0.005 (0.007)	0.027 (0.017)	-0.011 (0.022)
Gathering	-0.087 (0.020)***	-0.131 (0.028)***	-0.018 (0.021)	-0.000 (0.024)	-0.009 (0.013)	0.024 (0.021)	-0.034 (0.018)
Home repair	-0.010 (0.015)	-0.003 (0.008)	0.000 (0.008)	-0.029 (0.005)***	-0.003 (0.012)	-0.003 (0.006)	0.019 (0.025)
Hosting	0.011 (0.010)	-0.000 (0.003)	0.050 (0.025)	-0.006 (0.002)**	-0.037 (0.017)*	0.004 (0.005)	0.000 (0.016)
Hunting	-0.012 (0.018)	-0.001 (0.001)	0.011 (0.017)	0.000 (0.000)	0.018 (0.017)	0.001 (0.001)	-0.009 (0.017)
Making mats	-0.043 (0.012)**	0.005 (0.004)	-0.018 (0.009)	0.074 (0.033)*	-0.016 (0.015)	0.003 (0.003)	-0.024 (0.014)
Went to market	-0.012 (0.021)	-0.102 (0.024)***	0.022 (0.017)	-0.038 (0.052)	0.045 (0.026)	0.012 (0.019)	0.000 (0.033)
Palm production	0.003 (0.031)	-0.054 (0.015)***	-0.046 (0.030)	-0.034 (0.015)*	-0.032 (0.023)	-0.010 (0.015)	0.022 (0.011)
Recreation	-0.026 (0.005)***	-0.007 (0.004)*	0.022 (0.015)	-0.004 (0.003)	-0.007 (0.012)	-0.001 (0.003)	-0.002 (0.012)
Religious duties	-0.039 (0.020)*	-0.000 (0.006)	0.019 (0.013)	-0.001 (0.001)	0.000 (0.022)	0.003 (0.002)	-0.033 (0.015)
Resting	0.306 (0.036)***	0.678 (0.024)***	-0.010 (0.020)	-0.048 (0.068)	-0.132 (0.075)	-0.099 (0.049)*	-0.000 (0.043)
Road clearing	-0.024 (0.004)***	-0.001 (0.005)	-0.013 (0.005)*	-0.005 (0.002)**	0.014 (0.015)	0.002 (0.003)	0.007 (0.006)
Sick			0.013 (0.009)	0.134 (0.029)***	-0.201 (0.186)	-0.119 (0.065)*	0.010 (0.012)
Visiting	-0.087 (0.022)***	-0.032 (0.011)**	0.088 (0.038)*	0.072 (0.091)	0.051 (0.029)	-0.011 (0.024)	0.047 (0.033)
N	1,888	3,127	1,385	1,781	1,891	3,133	1,079

Notes: *** Significant at 1%, ** Significant at 5%, * Significant at 10%. Each entry in the table is the coefficient obtained from an OLS regression of the row variable (e.g. "Farmed") on the column variable (e.g. "Own illness"), person fixed effects, person-specific trends, and day fixed effects. Standard errors clustered by person are reported in parentheses.

Table A3: Coordination between spouses with trends

	(1)	(2)	(3)	(4)
	Spouse: Away		Spouse: Same activity	
	Men	Women	Men	Women
Away	0.049 (0.064)	0.012 (0.049)	0.049 (0.064)	0.012 (0.049)
Bathing	0.014 (0.022)	0.001 (0.001)	0.139 (0.046)**	0.045 (0.010)***
Beauty	-0.003 (0.002)	-0.072 (0.029)*	-0.005 (0.008)	-0.009 (0.013)
Care for own child	0.041 (0.007)***	0.150 (0.107)	-0.088 (0.034)*	-0.157 (0.109)
Cared for child	0.075 (0.020)**	0.115 (0.093)	-0.084 (0.036)*	-0.085 (0.067)
Cooking	0.024 (0.017)	-0.082 (0.072)	-0.001 (0.006)	-0.014 (0.036)
Eating	0.018 (0.021)	-0.001 (0.001)	0.215 (0.099)*	0.049 (0.015)**
Farmed	-0.013 (0.054)	-0.102 (0.057)	0.081 (0.045)	0.051 (0.043)
Farm work - clearing	-0.016 (0.016)	-0.006 (0.005)	0.321 (0.097)**	0.160 (0.066)*
Farm work - harvesting	0.014 (0.050)	-0.098 (0.062)	0.074 (0.029)*	0.055 (0.037)
Farm work - other	0.016 (0.019)	-0.017 (0.024)	0.098 (0.030)**	0.067 (0.027)*
Farm work - planting	-0.040 (0.012)**	0.014 (0.069)	0.246 (0.036)***	0.312 (0.088)**
Fetching water	0.004 (0.005)	-0.006 (0.007)	-0.003 (0.008)	-0.018 (0.062)
Food preparation	-0.016 (0.010)	0.039 (0.025)	0.035 (0.038)	0.177 (0.175)
Gathering	0.049 (0.029)	-0.057 (0.036)	0.069 (0.031)*	0.061 (0.029)*
Home repair	-0.037 (0.018)	0.122 (0.024)***	0.116 (0.054)*	0.019 (0.010)
Hosting	0.044 (0.025)	-0.035 (0.025)	0.104 (0.052)	0.020 (0.004)***
Hunting	-0.031 (0.048)	0.000 (0.000)	0.098 (0.033)**	0.000 (0.000)
Making mats	0.031 (0.015)	-0.004 (0.002)	0.570 (0.069)***	0.031 (0.020)
Went to market	-0.007 (0.034)	0.130 (0.089)	0.024 (0.048)	-0.047 (0.048)
Palm production	-0.002 (0.021)	-0.050 (0.111)	0.329 (0.093)**	0.524 (0.033)***
Recreation	0.057 (0.010)***	-0.004 (0.002)	0.139 (0.093)	0.044 (0.028)
Religious duties	0.003 (0.006)	-0.005 (0.002)*	-0.032 (0.168)	0.048 (0.030)
Resting	-0.078 (0.061)	0.192 (0.144)	-0.006 (0.018)	-0.007 (0.029)
Road clearing	-0.021 (0.013)	-0.003 (0.002)	0.038 (0.052)	0.015 (0.020)
Sick	0.008 (0.018)	-0.042 (0.087)	0.013 (0.009)	0.134 (0.029)***
Visiting	-0.002 (0.035)	0.012 (0.019)	-0.035 (0.031)	-0.013 (0.025)
N	1,388	1,786	1,388	1,786

Notes: *** Significant at 1%, ** Significant at 5%, * Significant at 10%. Each entry in the table is the coefficient obtained from an OLS regression of the row variable (e.g. "Farmed") on the column variable (e.g. "Own illness"), person fixed effects, person-specific trends, and day fixed effects. Standard errors clustered by person are reported in parentheses.

Table A4: Child labor with trends

	(1) Parent: Sick	(2) Parent: Farmed	(3) Parent: Palm Prod.	(4) Parent: Same	(5) Parent: Resting
Away	0.002 (0.004)	0.016 (0.011)	-0.002 (0.007)	-0.019 (0.008)*	0.006 (0.007)
Bathing	0.001 (0.001)	-0.010 (0.005)	0.000 (0.000)	-0.013 (0.006)	0.014 (0.006)
Beauty	-0.000 (0.000)	-0.010 (0.005)	-0.003 (0.001)*	-0.008 (0.004)	-0.011 (0.011)
Care for own child					
Cared for child	-0.159 (0.154)	0.067 (0.030)	-0.039 (0.032)	-0.182 (0.087)	-0.033 (0.026)
Cooking	-0.050 (0.045)	0.008 (0.006)	0.002 (0.001)	0.000 (0.000)	-0.001 (0.000)
Eating	-0.001 (0.001)	0.007 (0.006)	-0.003 (0.002)	0.470 (0.240)	-0.008 (0.008)
Farmed	0.026 (0.077)	0.133 (0.025)**	-0.085 (0.045)	0.133 (0.025)**	0.011 (0.029)
Farm work - clearing	-0.001 (0.003)	-0.041 (0.011)**	0.031 (0.019)	0.054 (0.067)	-0.009 (0.019)
Farm work - harvesting	-0.032 (0.043)	0.097 (0.010)***	-0.097 (0.038)*	0.134 (0.011)***	0.061 (0.017)**
Farm work - other	0.102 (0.059)	0.039 (0.007)**	0.040 (0.039)	0.192 (0.033)**	-0.020 (0.019)
Farm work - planting	-0.045 (0.033)	0.043 (0.011)**	-0.070 (0.047)	0.291 (0.028)***	-0.016 (0.025)
Fetching water	0.002 (0.001)	0.005 (0.005)	-0.001 (0.000)*	0.001 (0.003)	0.000 (0.003)
Food preparation					
Gathering	-0.043 (0.057)	-0.003 (0.010)	0.024 (0.007)**	0.109 (0.028)**	0.061 (0.024)*
Home repair	0.006 (0.003)	0.005 (0.022)	0.014 (0.010)	0.154 (0.047)**	-0.041 (0.014)*
Hosting					
Hunting	0.153 (0.082)	-0.006 (0.017)	-0.035 (0.033)	0.092 (0.020)**	-0.001 (0.017)
Making mats	0.008 (0.005)	0.022 (0.012)	0.008 (0.010)	0.213 (0.066)**	0.010 (0.009)
Went to market	-0.043 (0.050)	0.026 (0.028)	-0.030 (0.010)*	-0.029 (0.034)	-0.024 (0.025)
Palm production	-0.057 (0.053)	0.006 (0.022)	0.116 (0.020)***	0.116 (0.020)***	0.038 (0.008)**
Recreation	-0.052 (0.045)	0.002 (0.028)	-0.014 (0.033)	0.054 (0.046)	-0.003 (0.003)
Religious duties	-0.000 (0.000)*	-0.000 (0.001)	-0.004 (0.002)	-0.132 (0.076)	-0.001 (0.016)
Resting	0.301 (0.170)	-0.169 (0.078)	0.013 (0.061)	0.048 (0.013)**	0.014 (0.021)
Road clearing					
Sick	0.021 (0.074)	-0.038 (0.022)	-0.032 (0.014)	0.021 (0.074)	0.030 (0.003)***
Visiting	0.002 (0.001)	0.013 (0.012)	0.005 (0.005)	0.044 (0.016)*	-0.008 (0.020)
N	662	662	662	662	646

Notes: *** Significant at 1%, ** Significant at 5%, * Significant at 10%. Each entry in the table is the coefficient obtained from an OLS regression of the row variable (e.g. "Farmed") on the column variable (e.g. "Own illness"), person fixed effects, person-specific trends, and day fixed effects. Standard errors clustered by person are reported in parentheses. Observations in which parents are sick are removed from column (5).

Table A5: Determinants of missing data

	(1)	(2)	(3)
	Spouse		Parent
	Men	Women	Children
Away	-0.060 (0.041)	-0.011 (0.046)	-0.022 (0.150)
Bathing	-0.036 (0.034)	-0.069 (0.059)	-0.063 (0.302)
Beauty	0.020 (0.048)	0.000 (0.074)	0.215 (0.073)*
Care for own child	-0.016 (0.023)	0.006 (0.035)	-0.078 (0.032)*
Cared for child	-0.003 (0.012)	0.010 (0.019)	-0.045 (0.022)
Cooking	-0.027 (0.025)	-0.062 (0.257)	-0.078 (0.063)
Eating	0.065 (0.047)	0.063 (0.045)	0.174 (0.047)**
Farmed	0.014 (0.016)	-0.002 (0.009)	-0.006 (0.023)
Farm work - clearing	-0.036 (0.030)	0.003 (0.155)	-0.119 (0.037)**
Farm work - harvesting	0.064 (0.042)	0.010 (0.100)	-0.089 (0.058)
Farm work - other	-0.028 (0.032)	0.008 (0.101)	0.094 (0.066)
Farm work - planting	-0.047 (0.026)	-0.049 (0.141)	0.039 (0.105)
Fetching water	-0.020 (0.020)	-0.033 (0.450)	-0.014 (0.041)
Food preparation	-0.010 (0.025)	0.002 (0.214)	-0.026 (0.087)
Gathering	-0.016 (0.026)	0.022 (0.087)	-0.051 (0.055)
Home repair	0.098 (0.044)*	0.031 (0.113)	-0.206 (0.113)
Hosting	-0.040 (0.031)	0.029 (0.123)	-0.309 (0.134)
Hunting	0.147 (0.020)***	0.014 (0.012)	-0.050 (0.053)
Making mats	0.031 (0.020)	-0.006 (0.127)	-0.080 (0.096)
Went to market	-0.011 (0.009)	0.003 (0.015)	0.155 (0.062)*
Palm production	0.003 (0.027)	-0.006 (0.154)	-0.036 (0.061)
Recreation	-0.028 (0.022)	-0.022 (0.035)	0.084 (0.026)**
Religious duties	-0.078 (0.074)	0.004 (0.243)	-0.038 (0.110)
Resting	0.042 (0.043)	0.010 (0.072)	-0.042 (0.034)
Road clearing	0.177 (0.119)	0.100 (0.226)	0.018 (0.191)
Sick	0.024 (0.047)	-0.103 (0.340)	0.099 (0.067)
Visiting	-0.005 (0.024)	0.004 (0.084)	-0.028 (0.054)
Missing	0.214 (0.106)	0.204 (0.074)**	0.257 (0.036)***
N	1,507 (1,640)	1,895 (1,968)	1,245 (1,312)

Notes: *** Significant at 1%, ** Significant at 5%, * Significant at 10%. Each entry in the table is the coefficient obtained from an OLS regression. The dependent variable is an indicator for whether the individual is missing. The coefficient is reported for a right hand side variable that combines the column header with the row variable (e.g. "spouse" is "sick"). The regressions also include person fixed effects and day fixed effects. Standard errors clustered by person are reported in parentheses. Sample sizes without parentheses are for all regressions except the row labeled "missing". Sample size in parentheses is for the row labeled "missing."

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