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Intrahousehold Labor Reallocation after Health Shocks: Evidence from Weekly Panel Data in Rural Zambia*

Haruto Takeyama† Ken Miura‡ Takeshi Sakurai§

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Abstract

While intrahousehold labor reallocation can mitigate illness-induced labor supply losses, its effectiveness depends on labor complementarities within the household and seasonal variations in labor demand. Using four years of weekly panel data from rural Zambia, this paper examines intrahousehold labor responses to adult illness by gender, season, and activity. The results reveal period-specific patterns of labor reallocation between spouses during the main agricultural season, potentially reflecting differences in the nature of farm activities across different stages of the production cycle. In particular, wives reduce their farm labor hours in response to husbands' illness-induced work absences in December and January, suggesting complementarities in spousal labor during planting and fertilizer application. Overall, intrahousehold labor substitution is insufficient to fully offset illness-induced labor shortages. We also document reductions in boys' and girls' schooling time after illness-induced work absences by their fathers and mothers, respectively, during the rainy season, highlighting the negative spillovers of parental illness on children's education.

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1 Introduction

Seasonal illness can substantially disrupt labor supply schedules in agrarian households, with important consequences for crop production because many farm activities are highly time-sensitive.[1] This issue is particularly salient in rural Africa, where flexible adjustments to unexpected health shocks are challenging due to limited access to hired labor (Dillon and Barrett, 2017). Furthermore, when credit constraints make borrowing difficult, seasonally liquidity-constrained households often engage in casual piece-rate activities to secure cash income (Fink et al., 2020); however, illness can impair their ability to participate in such activities. In such settings, intrahousehold labor substitution may play a significant role in offsetting temporary labor shortages (Sauerborn et al., 1996). Therefore, understanding how labor is reallocated within the household after health shocks is essential for designing policies that mitigate crop losses and potential negative spillover effects on other family members (e.g., declines in schooling (Zivin et al., 2009)).

Given the sequential nature of farming, a key feature of agrarian economies is temporal variations in farm labor demand. Because returns to joint work reflecting labor complementarities differ across economic activities, including farming practices, and over time, the effectiveness of labor reallocation among family members in compensating for labor loss due to illness would be period-specific. Thus, incorporating seasonality in labor demand is indispensable for empirical investigations of intrahousehold labor responses to family health shocks. However, most previous studies rely either on annual data or short reference periods around the survey date, failing to capture potentially varying labor responses to health shocks across different stages of the agricultural cycle (d'Adda et al., 2009; Adhvaryu and Nyshadham, 2017; Lim, 2017; Dureja and Negi, 2022). As a result, little is known about intrahousehold labor reallocation patterns within the agricultural season and their effectiveness as coping strategies against family illness.

In addition, one member's illness affects other members' time allocations through various channels. Potential channels include income losses from reduced working hours, changes in other household members' labor productivity, increased caregiving demands, and higher medical expenditures. Understanding the relative importance of each mechanism is crucial for informing policies to mitigate the negative consequences of family illness. In this regard, existing studies have indirectly examined these mechanisms by distinguishing between different types of labor and testing heterogeneity in household composition (e.g., Dureja and Negi, 2022). However, empirical attempts to directly unpack these channels remain scarce.

This study fills these important lacunae using unique weekly panel data from 48 agri-

[1]For example, Conservation Farming Unit (2007) shows that a one-day delay in planting after the first rainfall can reduce maize yields by about 1.5% in Zambia. Shimono et al. (2012) also demonstrate, through an agricultural trial conducted in the same study area as the present research, that delayed sowing reduced yield.

cultural households in rural Zambia. The dataset records each household member's health status and time allocation by activity weekly over four years, from November 2007 to November 2011. The data's high-frequency nature allows us to identify which types of labor are substituted, who substitutes for whom, and how this varies across seasons. We also exploit our study setting, in which households spend little on medical expenditures because healthcare is free, to gauge the relative importance of income and labor substitution effects by using illness and illness-related work absence as explanatory variables.

To guide our empirical strategy, we first develop a simple theoretical framework that illustrates how illness-induced reductions in labor supply lead to intrahousehold time reallocation. The loss of labor supply due to illness affects the time use of non-ill family members through two channels: substitution and income effects. Crucially, the model predicts that when a health shock reduces labor supply and increases leisure among non-ill members, it reflects underlying complementarities in family labor.

Our empirical analysis examines intrahousehold labor reallocation in response to the husband's and wife's work absence due to illness, by season (rainy vs. dry), gender (male vs. female), and age group (parents vs. children). To separately identify the elasticity of time in reaction to health shocks, we categorize economic activities into agricultural work, non-agricultural work, domestic work, grazing, natural resource collection, schooling, and leisure. The empirical specifications control for unobserved individual heterogeneity, common shocks, and period-specific labor demand by including individual and site–time fixed effects.

The results reveal three main findings. First, while an individual's own illness significantly reduces their working hours in most activities, adjustments in other household members' time allocation in response to the illness are less common. Moreover, even when such adjustments are statistically significant, their magnitudes are insufficient to fully compensate for the labor lost due to illness. These findings suggest that households often cannot fully offset illness-induced labor shortages through intrahousehold labor substitution. We also find little evidence that households compensate for these shortages through intertemporal labor adjustments (e.g., increasing working hours after recovering from illness) or the temporary use of external labor.

Second, our empirical results reveal period-specific patterns of labor reallocation between spouses during the main agricultural season. In particular, wives increase their farm labor hours in response to their husbands' illness-induced work absences in November, but they reduce their farm labor hours in December and January. Based on the local farming calendar, we conjecture that these period-specific patterns of labor reallocation may partly reflect differences in the nature of agricultural activities across different stages of the production cycle. In November, the main activities are land preparation and plowing. Land preparation using hand hoes can generally be undertaken individually, with relatively limited gains from spouses working together. This may make it easier for wives to

substitute for their husbands' labor. Moreover, the time-sensitive nature of these activities may create an additional incentive for wives to compensate for their husbands' absences to ensure that the work is completed without delay. In contrast, the main activities in December and January are planting and fertilizer application, which may offer greater scope for task specialization and coordination between spouses. Such labor complementarities may limit wives' ability to compensate for their husbands' work absences. Estimates using pooled data for the main agricultural season indicate that, overall, spouses' farm labor is complementary rather than substitutable. Taken together, these findings suggest that labor complementarities between spouses in agricultural production amplify the adverse consequences of illness for household labor supply.

Third, parental health shocks affect children's time allocation. Among boys in the upper grades, fathers' illness-induced work absences are associated with reduced time spent at school during the rainy season. Conversely, among girls in the lower grades, mothers' illness-induced work absences are associated with reduced time spent at school during the rainy season. Thus, children's time allocation is particularly responsive to health shocks experienced by same-gender parents. Overall, our empirical results underscore the importance of accounting for intraseasonal labor demand and intrahousehold labor reallocations when assessing the welfare consequences of health shocks in rural agricultural settings.

This study contributes to the existing literature in several ways. First, we examine intrahousehold labor reallocation using a four-year weekly panel dataset. While previous studies have investigated labor supply responses to health shocks, they have largely relied on annual data or short reference periods, which may mask immediate labor adjustments and seasonal heterogeneity (e.g., Adhvaryu and Nyshadham, 2017; Lim, 2017). While Dureja and Negi (2022) exploit monthly panel data from rural India and account for seasonal variation using village-by-month fixed effects, empirical investigation of seasonal heterogeneity remains limited. Moreover, Das et al. (2012) point out that longer recall periods in health surveys lead to substantial underreporting of illness and healthcare utilization, particularly among poor households. Although Heath et al. (2022) document compensatory labor supply responses by male household members to other members' illness-induced work absences using weekly data from Ghana, their analysis covers only 10 weeks and focuses on urban areas, where seasonal variation in labor demand is relatively limited. By exploiting a unique four-year weekly panel dataset from a rural setting, our study advances the literature on health shocks and household coping mechanisms by documenting period-specific patterns of labor reallocation between spouses and providing suggestive evidence of labor complementarities in certain agricultural activities. This empirical finding is consistent with Adhvaryu and Nyshadham (2017), who highlight the importance of joint labor in household production for farm households. However, our results further suggest that differences in the degree of labor complementarity across agricultural activities over the farming cycle give rise to period-specific patterns of intra-

household labor reallocation within the agricultural season, a dimension that would likely be obscured in lower-frequency data.

The second contribution of this study is to provide new empirical evidence on intra-household labor adjustments in rural sub-Saharan Africa, where evidence remains more limited than in Asia (e.g., Lim (2017) for Indonesia; Dureja and Negi (2022) for India). Labor market structures differ substantially between Asia and Africa. In particular, employment in many Asian countries is more likely to involve formal wage work, especially in manufacturing. By contrast, wage employment opportunities remain limited in much of rural Africa, where livelihoods rely predominantly on subsistence agriculture, self-employment, and other informal economic activities (Fox et al., 2017). These differences in labor market structure may shape households' ability to reallocate labor in response to health shocks, underscoring the need for context-specific evidence to understand household coping strategies and inform policy.

Third, this study also speaks to the literature on how parental health shocks affect children's time allocation. Previous studies have reported reductions in children's schooling time in response to parental illness (Bratti and Mendola, 2014; Alam, 2015; Dinku et al., 2018; Mendolia et al., 2019). Consistent with this literature, our results provide similar but more nuanced evidence regarding the conditions, gender, and timing of these effects. Furthermore, Edmonds (2007) notes that studies narrowly focused on activities may yield misleading conclusions, as children engage in a wide variety of activities and tend to switch between them easily. Our data allow us to examine children's time allocation across seven activities—agricultural work, non-agricultural work, domestic work, grazing, natural resource collection, schooling, and leisure. We therefore estimate separate regressions for each activity to examine how parental illness affects children's time allocation in more detail.

The remainder of this paper is organized as follows. Section 2 presents the theoretical framework. Section 3 describes the data and presents descriptive statistics of key variables. Section 4 outlines the empirical strategy, and Section 5 presents the empirical results. Section 6 reports the robustness checks. Section 7 concludes with policy implications.

2 Theoretical Framework

This section develops a simple theoretical framework to guide the empirical analysis. Building on Pitt and Rosenzweig (1986) and Singh et al. (1986), we derive the optimal labor adjustments by other household members in response to a member's illness. The model predicts the directions of labor adjustments, depending on whether family labor is complementary or substitutable.

We model a decision-making problem faced by the household consisting of one husband (H), one wife (W), and one child (C). In this model, the household lives for two

periods: childhood and adulthood. We assume that while the household receives utility from consumption c_1 and each member's leisure time l_1^i for i=$\{H, W, C\}$ in the first period, the second-period utility only comes from household consumption c_2. Under the unitary household model, a single decision-maker chooses parental labor supply—L_1^H for the husband and L_1^W for the wife—and the child's time allocation between schooling and work in the first period. While schooling costs S in the first period, it improves the child's productivity in adulthood through human capital accumulation; thus, the returns to schooling are realized only in the second period. To focus on the first-period decision-making, we abstract second-period labor supply decisions by treating working hours as exogenous. We further assume that no labor market for hired labor exists and that earnings from income-generating activities are a function of adult and child labor, $F(L_t^H, L_t^W, L_t^C)$. To abstract dynamic consumption decisions, we do not allow intertemporal resource transfers via borrowing and saving.

Given this setup, we formalize the household's maximization problem as:[2]

$$\max_{l_1^H, l_1^W, l_1^C, S} u_1(c_1, l_1^H, l_1^W, l_1^C) + u_2(c_2)$$

subject to:

$$p_1 c_1 + S = F(L_1^H, L_1^W, L_1^C)$$

$$p_2 c_2 = F(L_2^H, L_2^W, L_2^C(S))$$

$$L_1^H + l_1^H = T_1^H$$

$$L_1^W + l_1^W = T_1^W$$

$$L_1^C + S + l_1^C = T_1^C$$

The first-order conditions for maximization are given as follows:

$$\frac{\partial u_1}{\partial l_1^H} = \frac{1}{p_1} \frac{\partial u_1}{\partial c_1} \frac{\partial F}{\partial L_1^H} \tag{1}$$

[2]Since the household makes no decisions in the second period, this model is essentially static. Therefore, the objective function can be simplified as:

$$\max_{l_1^H, l_1^W, l_1^C, S} u(c_1, l_1^H, l_1^W, l_1^C, S)$$

$$\frac{\partial u_1}{\partial l_1^W} = \frac{1}{p_1}\frac{\partial u_1}{\partial c_1}\frac{\partial F}{\partial L_1^W} \tag{2}$$

$$\frac{\partial u_1}{\partial l_1^C} = \frac{1}{p_1}\frac{\partial u_1}{\partial c_1}\frac{\partial F}{\partial L_1^C} \tag{3}$$

$$\frac{\partial u_1}{\partial c_1}\frac{1}{p_1}(1 + \frac{\partial F}{\partial L_1^C}) = \frac{\partial u_2}{\partial c_2}\frac{1}{p_2}\frac{\partial F}{\partial L_2^C}\frac{\partial L_2^C}{\partial S} \tag{4}$$

Equations (1)-(3) imply that, at the optimum, the marginal rate of substitution between consumption and leisure equals the price ratio for each family member. Equation (4) shows that, at the optimum, the cost of education in the first period, including its opportunity cost from forgone child labor, equals the marginal return to education in the second period.

To examine the implications of a member's labor supply decline, we now consider the case in which the husband becomes ill in the first period. As Pitt and Rosenzweig (1986) discuss, if labor markets are well-functioning, households can compensate for lost labor through market employment. However, in our setting, where no external market for hired labor exists, households may need to react to a member's health shocks by adjusting other members' labor supply patterns.

In general, health shocks increase medical expenditures and reduce household income due to declines in labor supply (Schultz and Tansel, 1997; Gertler and Gruber, 2002; Lindelow and Wagstaff, 2005). Health shocks may also generate the demand for domestic work due to caregiving needs (Heath et al., 2022). However, we focus exclusively on reductions in labor supply and use the corresponding variables in our empirical analysis, because the other channels play a relatively minor role in our empirical context.[3] Specifically, we introduce an illness shock, D_1^H, affecting the husband, and relate it to his time endowment, $T_1^H(D_1^H)$. We assume that $\frac{dT_1^H(D_1^H)}{dD_1^H} < 0$, implying that illness reduces the amount of time available to the husband. We further assume that illness reduces his own labor supply (i.e., $\frac{dL_1^H}{dD_1^H} < 0$).[4]

Illness-induced labor supply reduction of the husband affects the time allocation of

[3]In our survey area in rural Zambia, doctor consultations at local clinics are free at the time of the study (Picazo and Zhao, 2009). Because health facilities are limited, households may need to purchase medicines from local kiosks. The medicines available at these kiosks, which are typically general-purpose tablets, are inexpensive. We also expect demand for caregiving to be limited because most illnesses in our sample are not severe enough to require constant care. Consistent with this expectation, the regression results in Section 5 show insignificant responses of domestic work to family health shocks in most specifications. Nevertheless, we first present reduced-form results to examine the overall effects of one member's health shocks on other household members' time allocation before presenting the main results on the implications of illness-induced labor supply reductions.

[4]In principle, health shocks could increase an individual's own labor supply. However, our empirical results provide no evidence of such a counterintuitive response.

other household members through two channels: the income effect and the substitution effect. To facilitate interpretation of the relative importance of these two effects, we introduce the shadow wage w_1^i for i=$\{W, C\}$, household income I_1, and the total price of schooling p^S, defined as the sum of the direct schooling cost and opportunity cost. In particular, we define them as follows:

$$w_1^i = \frac{\partial F}{\partial L_1^i}$$

$$I_1 = F(L_1^H, L_1^W, L_1^C)$$

$$p^S = 1 + \frac{\partial F}{\partial L_1^C}$$

Using these newly defined variables, we summarize the comparative statics of other members' leisure l_1^i and child schooling S regarding an illness shock affecting the husband, D_1^H, as follows:[5]

$$\begin{aligned} \frac{dl_1^i}{dD_1^H} &= \frac{\partial l_1^{i,c}}{\partial w_1^i}\frac{\partial w_1^i}{\partial D_1^H} + \frac{\partial l_1^i}{\partial I_1}\frac{\partial I_1}{\partial D_1^H} \quad (i \in \{W, C\}) \\ \frac{dS}{dD_1^H} &= \frac{\partial S^c}{\partial p^S}\frac{\partial p^S}{\partial D_1^H} + \frac{\partial S}{\partial I_1}\frac{\partial I_1}{\partial D_1^H} \end{aligned}$$

Here, $l_1^{i,c}$ and S^c denote the Hicksian demand functions for leisure and child schooling, respectively. Furthermore, we have $\frac{\partial w_1^i}{\partial D_1^H} = \frac{\partial^2 F}{\partial L_1^i \partial L_1^H}\frac{dL_1^H}{dD_1^H}$, $\frac{\partial p^S}{\partial D_1^H} = \frac{\partial w_1^C}{\partial D_1^H}$, and $\frac{\partial I_1}{\partial D_1^H} = \frac{\partial F}{\partial L_1^H}\frac{dL_1^H}{dD_1^H}$. The first term in each equation represents the substitution effect. The sign of $\frac{\partial w_1^i}{\partial D_1^H}$ and $\frac{\partial p^S}{\partial D_1^H}$ depends on the substitutionability between L_1^H and L_1^i. When L_1^H and L_1^i are complements (i.e., $\frac{\partial^2 F}{\partial L_1^H \partial L_1^i} > 0$), the marginal productivity of L_1^i decreases as L_1^H declines. As a result, this term becomes negative. In contrast, when L_1^H and L_1^i are substitutes (i.e., $\frac{\partial^2 F}{\partial L_1^H \partial L_1^i} < 0$), the marginal productivity of L_1^i increases as L_1^H decreases. Therefore, this term turns positive. The second term captures the income effect. Under the reasonable assumption that both leisure and schooling are normal goods, this term is always negative when illness D_1^H reduces L_1^H.

In a nutshell, the signs of $\frac{dl_1^i}{dD_1^H}$ and $\frac{dS}{dD_1^H}$ depend on the net effect of these two forces. Table 1 summarizes the possible directions of other household members' time use following one member's decline in labor supply, depending on the assumptions about the relationship between labor across family members. In particular, our household labor supply model predicts that observing a decline in other members' labor after the husband's

[5]We abstract from cross-price substitution effects arising from simultaneous changes in other members' shadow wages, assuming that own-price substitution effects dominate.

Table 1: Sign decomposition of substitution, income, and total effects of a household member's decline in labor supply

Assumption	Activity	Substitution effect	Income effect	Total effect
Family labor is a substitute	Labor	+	+	+
	Leisure	-	-	-
	Schooling	-	-	-
Family labor is a complement	Labor	-	+	Ambiguous
	Leisure	+	-	Ambiguous
	Schooling	+	-	Ambiguous

health shocks indicates complementarity in family labor for that economic activity. The negative substitution effects from strong complementarity outweigh the need to increase labor supply to offset income losses. Similarly, the observed increase in leisure suggests high returns to working together, reflecting complementarity in family labor in income-generating activities. Since the maximization problem is symmetric with respect to H and W, we can consider the consequences of the wife's illness in intrahousehold labor reallocation in a similar way.

3 Data

3.1 Weekly Household Survey Data

The data used in this study come from the current Sinazongwe and Pemba districts in Southern Province, Zambia.[6] Southern Province situated in semi-arid tropic regions is known to be the most drought-prone area in the country (Okamura et al., 2025), with roughly 700 mm as the average of total rainfall amounts during the main agricultural season.[7] Despite frequent drought events, people in this area largely depend on rain-fed agricultural production systems, and their livelihoods are vulnerable to interannual climate variability. The main agricultural season is the rainy season from November to April, followed by the dry season from May to October. During the rainy season, local farmers grow maize (the staple crop), cotton, and sweet potatoes. In the dry season, agricultural production is limited except for vegetable production near rivers or streams since it does not rain. Thus, their livelihoods rely on grain stocks from previous harvests and earnings from non-agricultural wage employment (e.g., coal mining) and self-employment (e.g., charcoal burning and furniture-making for sale). However, cash earning opportunities are generally limited throughout the year.

[6]During the study period between 2007 and 2011, part of the survey area was located in Choma district. Pemba district was partitioned from Choma district in 2012.

[7]Referring to rainfall records collected at the Choma meteorological station, the closest weather station to our study sites, for 35 agricultural seasons between 1990/91 and 2024/25, the average rainfall amount between November and April was 691mm, with a standard deviation of 220mm.

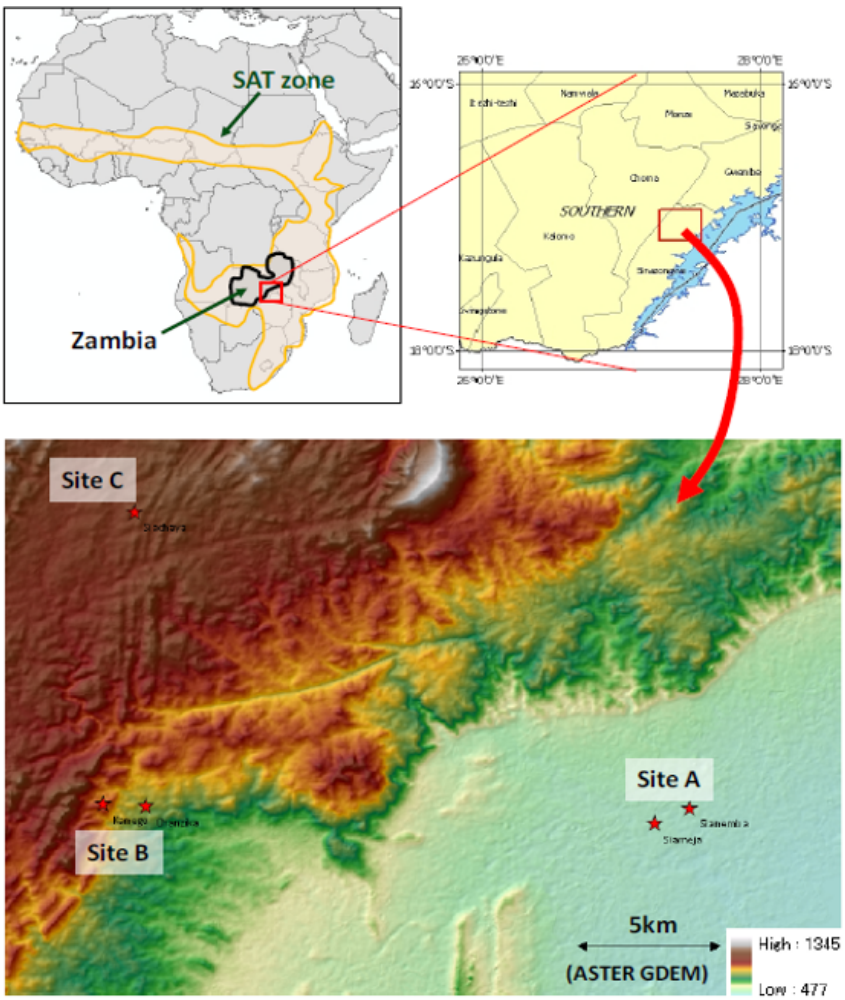


Figure 1: Study area

Notes: SAT stands for the semi-arid tropics.

This study uses data collected as part of the Research Institute for Humanity and Nature's research project "Vulnerability and Resilience of Social-Ecological Systems." For the sampling, the project first selected three agro-ecologically distinctive locations intended to be representative of this area in 2007 (Figure 1). The three locations are a lower flat area near Lake Kariba at an elevation of 500-550 meters (Site A), a middle escarpment area at 750-1100 meters (Site B), and an upper terrace on the Zambian plateau (Site C). As shown in Figure 1, these three sites, all within a 15-km radius, are relatively close together. However, weather conditions often differ from site to site, reflecting elevation-based differences.

Because no prior information existed on the villages in the selected areas, the research team conducted group interviews with local informants in April 2007 to identify villages for each site, covering approximately 50 villages across the three sites. Based on information from group discussions and field observations, the project selected five villages from the list as typical communities representing each site. The team then conducted a census in these five villages in July-August 2007 and randomly selected 16 households from each

site for household survey interviews, yielding a total sample of 48 households.

The household survey began with an annual interview in November 2007, followed by weekly interviews, and continued until November 2011. The annual interviews were conducted every November, at the start of the rainy season, to collect demographic information for each household member (e.g., age, gender, relationship to the household head, and educational attainment) and household characteristics (e.g., land holdings and asset ownership). The primary data for the empirical analysis come from weekly interviews that asked about economic activities and shocks households experienced in the week before the interview. In particular, these interviews recorded each family member's time use and health status at a near-weekly frequency over the four-year survey period.

This study focuses on husbands, wives, and their children as the primary unit of analysis. In most cases, the husband and wife correspond to the household head and their spouse, respectively. The analysis sample also includes female-headed households and households without a husband present. For polygamous households, the analysis treats all wives as the analytical sample. Regarding the definition of children, primary education in Zambia begins formally at age 7, and secondary education concludes at age 15. Based on typical school-age ranges, we define individuals aged 7–15 as children and those under age 7 as preschool children.[8]

The survey questionnaire's time-use module records time spent on the following seven activities for each family member: agriculture, non-agriculture, school, domestic work, grazing, natural resource collection, and social activities. Among these, social activities are treated as leisure in our analysis because they are not economic activities. Consequently, this study classifies agriculture, non-agriculture, domestic work, grazing, and natural resource collection as labor. Among them, non-agricultural activities include both wage labor and self-employment. Natural resource collection plays an important role in household livelihoods in the study areas. For example, wild fruits provide a crucial source of nutrition in rural Zambia (Ickowitz et al., 2021), and households often rely on fuelwood as their primary energy source.

The weekly survey data exhibit variation in survey dates across households, and the recall period does not always span exactly 7 days, occasionally ranging from 6 to 8 days. To ensure comparability across observations, we standardize time spent on each activity into daily averages by dividing total hours by the exact number of days in the specific reference period. For schooling, we divide total hours by the number of weekdays in the corresponding reference period. Finally, we define leisure time as the residual time remaining after subtracting labor and school hours from 24 hours.

Regarding health conditions, the weekly survey collects information on whether indi-

[8]According to the International Labour Organization's statistical framework for child labor, children aged 5–14 are assessed using age-specific thresholds of economic activity (International Labour Organization, 2024). However, to analyze the impact on education, we align our definition with the school-age cycle. This approach aligns with the literature that uses school-cycle-based cutoffs (e.g. Ray, 2000).

viduals become ill, how many days they are ill, and how many days they miss work due to illness. All of these measures are self-reported.

For context, Appendix Figure A1 shows average weekly rainfall and local maize prices during the survey period. Crop production was generally normal in all survey years except for the 2007/08 rainy season (Miura and Sakurai, 2021). Shortly after the survey began, the study area experienced historically heavy rainfall in December 2007. The heavy rainfall damaged crops, inundated fields, and destroyed infrastructure, including roads and bridges. Given the exceptional nature of these conditions, the empirical analysis should pay particular attention to the 2007/08 rainy season. Although our regression analysis accounts for such temporal variation in rainfall conditions by including site-by-week fixed effects, we also assess the robustness of the main results by re-estimating the models using a restricted sample that excludes the 2007/08 rainy season.

3.2 Descriptive Statistics

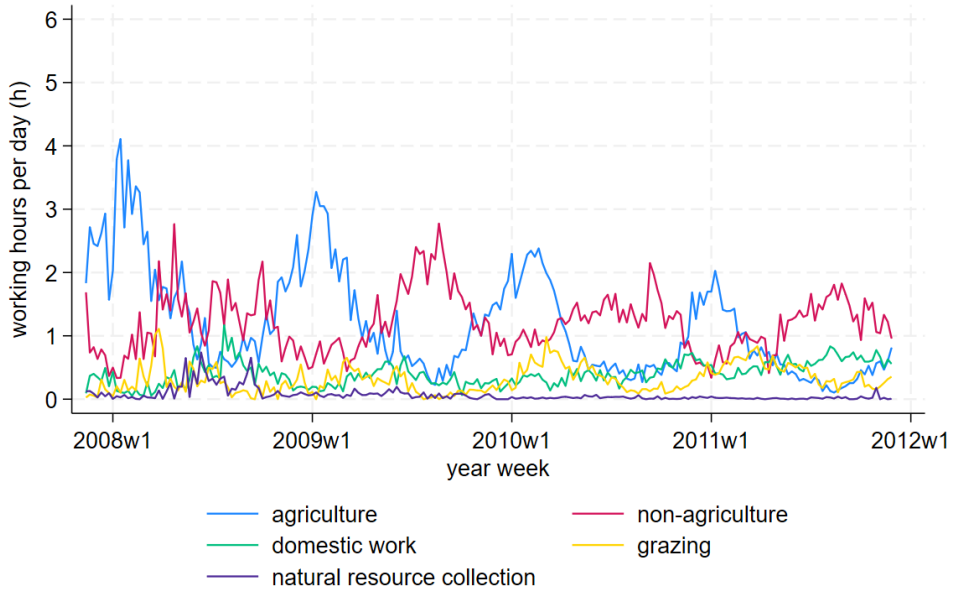


Figure 2: Average daily hours by activity: husbands

Note: The vertical axis represents daily hours, while the horizontal axis indicates the survey period. The rainy season runs from November to April, while the dry season lasts from May to October.

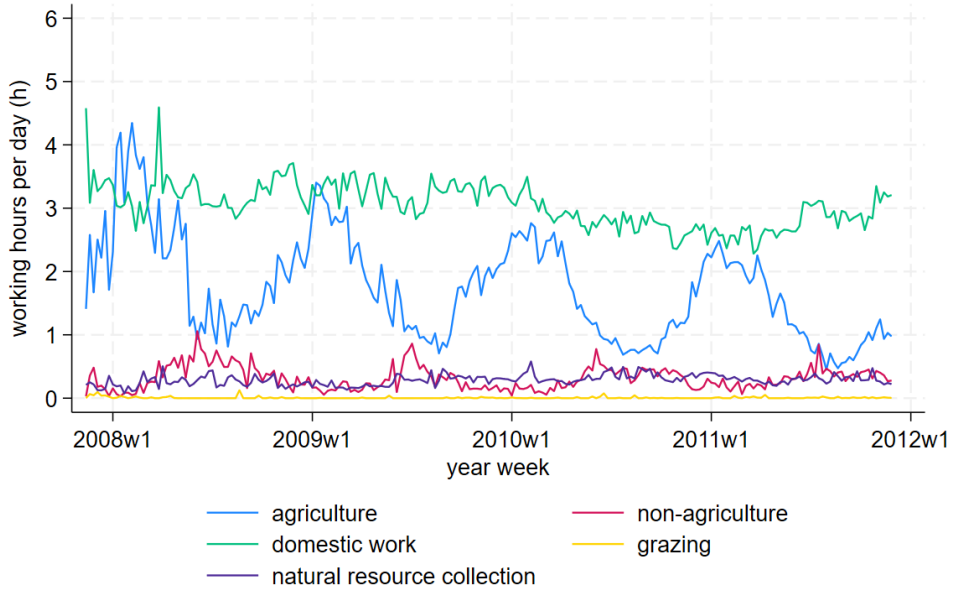


Figure 3: Average daily hours by activity: wives

Note: The vertical axis represents daily hours, while the horizontal axis indicates the survey period. The rainy season runs from November to April, while the dry season lasts from May to October.

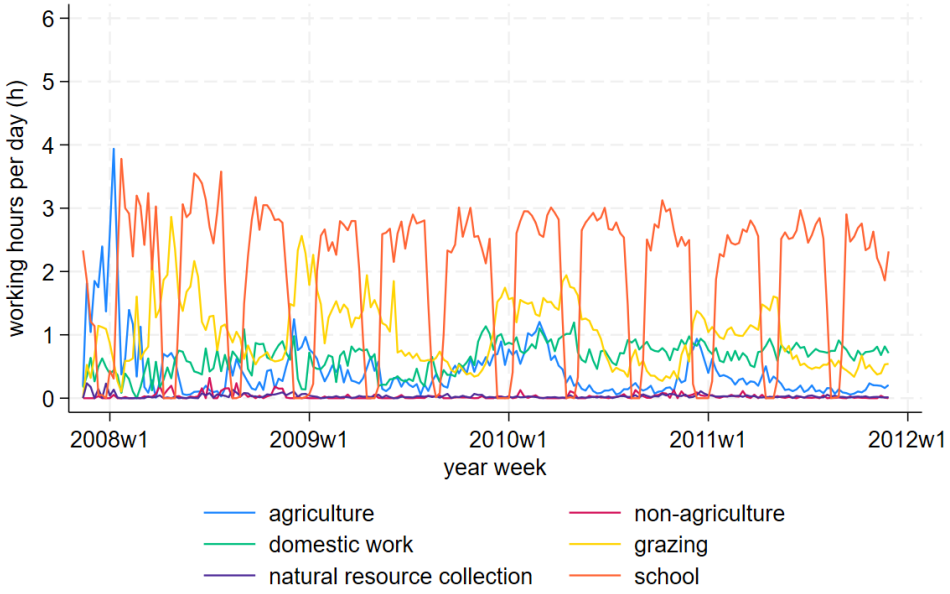


Figure 4: Average daily hours by activity: boys

Note: The vertical axis represents daily hours, while the horizontal axis indicates the survey period. The rainy season runs from November to April, while the dry season lasts from May to October. Periods during which school hours drop to zero correspond to long school vacations.

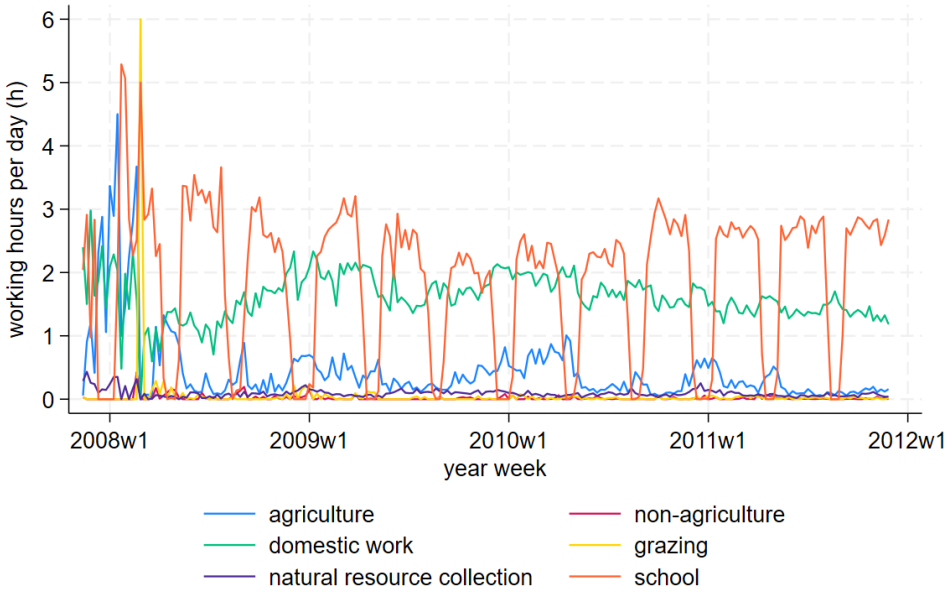


Figure 5: Average daily hours by activity: girls

Note: The vertical axis represents daily hours, while the horizontal axis indicates the survey period. The rainy season runs from November to April, while the dry season lasts from May to October. Periods during which school hours drop to zero correspond to long school vacations.

Figures 2–5 show the average daily hours spent on each activity for husbands, wives, boys, and girls. As shown in Figures 2 and 3, adult family labor hours in agriculture are

Table 2: Illness incidences during the survey period

	Number of Individuals	Person-Week Illness Rate	Share Ever Ill
Husband	44	0.06	0.97
Wives	70	0.06	0.97

Note: The column "Number of Individuals" indicates the number of unique individuals in the sample. The column "Person-Week Illness Rate" is the rate of observations with illness to the total number of observations. The last column "Share Ever Ill" presents the proportion of individuals who reported at least one illness episode during the survey period.

higher during the rainy season (November-April) than during the dry season. In addition, husbands and wives devote comparable time to agricultural work during the rainy season, consistent with the observation that family members commonly farm together in the study area. In contrast, during the dry season, wives spend more time farming on average than husbands, suggesting that women play a more important role in vegetable production than men.

The comparison of time use patterns between husbands and wives suggests that husbands predominantly engage in non-agricultural work (Figures 2 and 3). Indeed, husbands' average off-farm working hours exhibit a cyclical pattern opposite to that of their on-farm working hours, consistent with seasonal fluctuations in labor demand over the agricultural cycle. The descriptive figures also show that boys mainly undertake grazing, which peaks between January and June, while female household members (wives and girls) rarely engage in this activity. Wives primarily collect natural resources, and their time spent on this activity remains stable throughout the year. Wives and girls are mainly responsible for household chores, with relatively little seasonal variation in the time they devote to domestic work. These empirical patterns are broadly consistent with field observations.

Table 2 presents summary statistics on illness. Almost every husband and wife experiences at least one illness episode during the four-year survey period. Figure 6 depicts the trend in illness over the four-year survey period. Although weekly fluctuations are substantial, the incidence of health shocks is visibly higher during the rainy season. This pattern may reflect the heightened risk of mosquito-borne infectious diseases (e.g., malaria) during the rainy season, as well as the tendency for nutritional status to deteriorate during the lean period immediately preceding the harvest (Sahn, 1989). Figure 7 shows the histogram for the number of sick days and days absent due to illness among people who were sick for one or more days. No substantial differences are observed between the distributions for husbands and wives. For both husbands and wives, the most common number of days of illness is three, while the most common number of days absent from work due to illness is two. This pattern suggests that a non-negligible proportion of

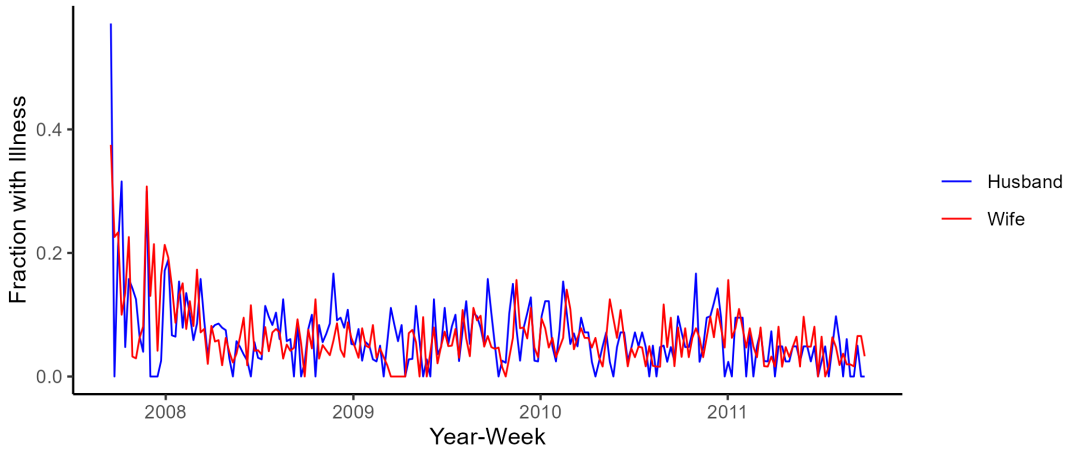
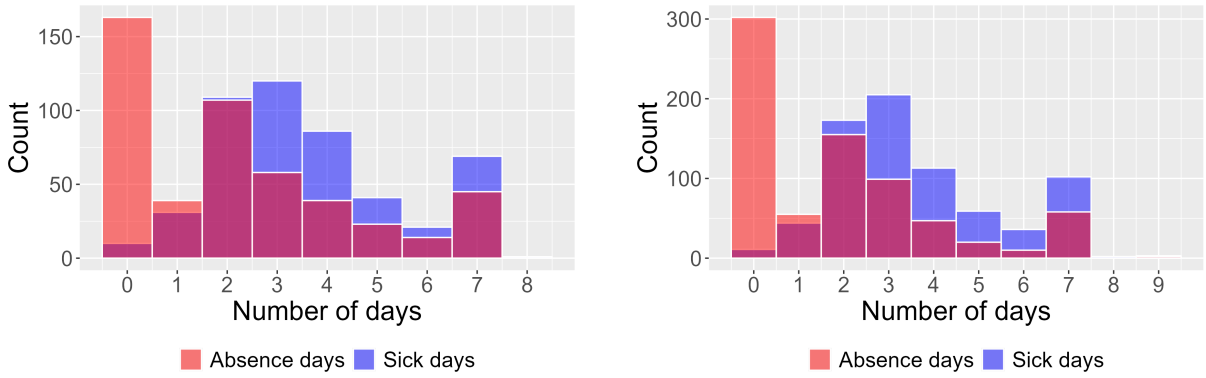


Figure 6: Seasonality in illness incidences during the survey period

Note: The vertical axis indicates the proportion of individuals reporting illness in each week, defined as the number of individuals reporting illness divided by the total number of individuals in the sample at each week. The rainy season runs from November to April, while the dry season lasts from May to October.



(a) Husbands (b) Wives

Figure 7: Number of sick days and days absent from work due to illness

Note: Observations in which both the number of days of illness and the number of days absent from work due to illness were zero were excluded. Due to reporting errors, some observations recorded more days absent from work due to illness than days of illness.

individuals did not take time off work despite being ill.

Nevertheless, the financial burden of illness is minimal in the study area. Table 3 reports weekly consumption levels and their category breakdown during the survey period. As shown, average medical expenditures are low and constant across seasons. In fact, among households in which at least one household member became ill during the week, only about 2% incurred medical fees and approximately 23% purchased medication. Such low medical expenses reflect free medical services at local clinics. Thus, households spend little on medical expenses when they fall ill in our study context.

Table 3: Consumption per week during the survey period

	Rainy season	Dry season
Total consumption	4.39	5.35
	(4.42)	(4.65)
Food consumption	3.72	4.24
	(2.80)	(2.57)
Luxuary goods consumption	0.03	0.05
	(0.18)	(0.24)
Household goods consumption	0.45	0.77
	(2.41)	(3.02)
Medical expenditure	0.02	0.02
	(0.12)	(0.10)
Other service expenses	0.18	0.27
	(1.03)	(1.19)
Observations	4759	4456

Note: Values are expressed per adult equivalent in Zambian kwacha (ZMW), deflated by the local maize price index obtained from the household survey data. US$ 1.00 = ZMW 3.7. Luxury goods include alcohol, tobacco, and snacks. Household goods include tableware, clothes, and necessities such as soap and candles. Medical expenditure consists of medical fees and medicine costs. Other services include fees for maize milling, schooling, transportation, and mobile phones, among others. The rainy season runs from November to April, and the dry season from May to October. This table is adapted from Table 2 in Miura and Sakurai (2021).

4 Empirical Strategy

This section presents empirical specifications to investigate intrahousehold labor reallocation after health shocks. Health shocks may increase demand for domestic work due to caregiving needs and raise medical expenditures. However, because these channels play minor roles in our study settings, as described in Sections 2 and 3, we focus mainly on illness-induced declines in labor supply following absence from work. To do so, we run two interrelated regressions.

Our empirical investigation starts with reduced-form regressions to examine the overall effects of illness on intrahousehold labor reallocation. Specifically, we estimate the following regression equations for the time allocation of husbands, wives, and children:

$$Hour^H_{kit} = \beta^H_1 WifeSickDays_{it} + \beta^H_2 WifeSickDays_{it} \times Dry_t + \boldsymbol{\beta}'^H \boldsymbol{X}_{it} + \alpha^H_i + \gamma^H_{vt} + \epsilon^H_{it}$$

$$Hour^W_{kit} = \beta^W_1 HusbSickDays_{it} + \beta^W_2 HusbSickDays_{it} \times Dry_t + \boldsymbol{\beta}'^W \boldsymbol{X}_{it} + \alpha^W_i + \gamma^W_{vt} + \epsilon^W_{it}$$

$$Hour^C_{kit} = \beta^C_1 HusbSickDays_{it} + \beta^C_2 HusbSickDays_{it} \times Dry_t + \beta^C_3 WifeSickDays_{it} + \beta^C_4 WifeSickDays_{it} \times Dry_t + \boldsymbol{\beta}'^C \boldsymbol{X}_{it} + \alpha^C_i + \gamma^C_{vt} + \epsilon^C_{it}$$

The subscripts i, t, and v denote individuals, weeks, and sites, respectively. $Hour^H_k$ ($Hour^W_k$) stands for the husband's (wife's) average daily hours spent on activity k. For adults, we consider six activities: agricultural work, non-agricultural work, domestic work, grazing, natural resource collection, and leisure. $Hour^C_k$ represents the child's average daily hours spent on activity k. For children, we also add schooling as an activity, resulting in seven activity categories. We estimate the regressions separately for boys and girls.

$HusbSickDays$ and $WifeSickDays$ measure the number of days of illness experienced by husbands and wives, respectively.[9] The coefficients β^H_1 and β^W_1 capture the overall effect of illness on time allocation for other family members during the rainy season. Dry is a dummy variable equal to one during the dry season, which runs from May to October. By including the interaction term between Dry and $Wife(Husband)SickDays$, these specifications allow the effect of spousal illness on time allocation to vary by season.

X is a vector of controls that includes the number of days of illness experienced by individual i, other male adults, other female adults, boys, girls, and preschool children; the number of household members in each of these categories, along with the number of wives; a dummy for the husband's absence; and dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire. For household members other than husbands and wives, we do not seek to distinguish between effects operating through reduced labor supply and those arising through direct channels that do not involve reductions in working hours. Accordingly, we use the number of days of illness, rather than the number of days absent from work due to illness, as controls for these household members.

We also control for the exact number of days in each survey period to account for any potential bias in the probability of capturing health shocks during longer or shorter survey periods. α denotes individual fixed effects, and γ represents site-by-week fixed effects. By using location-by-time fixed effects rather than time fixed effects alone, we can control for period-specific variation in labor demand driven by microclimate conditions and other local shocks. ϵ is an error term. Standard errors in all specifications are robustly clustered at the household level.[10]

Our main analysis examines how illness-induced reductions in labor supply affect intrahousehold labor reallocation. To do so, we modify the above specifications by adding days absent from work as the main explanatory variable, as follows:

[9] For polygamous households, we calculate $WifeSickDays$ as the sum of sick days across all wives.

[10] Since one household has one husband for couple households, household-level clustering is identical to individual-level clustering in the regression analysis for husbands.

$$Hour^H_{kit} = \delta^H_1 WifeDaysAbsent_{it} + \delta^H_2 WifeDaysAbsent_{it} \times Dry_t + \delta^H_3 WifeSickDays_{it} + \delta^H_4 WifeSickDays_{it} \times Dry_t + \boldsymbol{\delta}'^H \boldsymbol{X}_{it} + \alpha^H_i + \tau^H_{vt} + \varepsilon^H_{it}$$

$$Hour^W_{kit} = \delta^W_1 HusbDaysAbsent_{it} + \delta^W_2 HusbDaysAbsent_{it} \times Dry_t + \delta^W_3 HusbSickDays_{it} + \delta^W_4 HusbSickDays_{it} \times Dry_t + \boldsymbol{\delta}'^W \boldsymbol{X}_{it} + \alpha^W_i + \tau^W_{vt} + \varepsilon^W_{it}$$

$$\begin{aligned} Hour^C_{kit} = {} & \delta^C_1 HusbDaysAbsent_{it} + \delta^C_2 HusbDaysAbsent_{it} \times Dry_t + \delta^C_3 HusbSickDays_{it} \\ & + \delta^C_4 HusbSickDays_{it} \times Dry_t + \delta^C_5 WifeDaysAbsent_{it} + \delta^C_6 WifeDaysAbsent_{it} \times Dry_t \\ & + \delta^C_7 WifeSickDays_{it} + \delta^C_8 WifeSickDays_{it} \times Dry_t + \boldsymbol{\delta}'^C \boldsymbol{X}_{it} + \alpha^C_i + \tau^C_{vt} + \varepsilon^C_{it} \end{aligned}$$

The key independent variables, $HusbDaysAbsent$ and $WifeDaysAbsent$, measure the number of days that husbands and wives are absent from work due to illness, respectively. Conditional on $Husb(Wife)SickDays$, the coefficients on $Husb(Wife)DaysAbsent$ capture the effects of illness via reductions in labor supply. In contrast, the coefficients of $Husb(Wife)SickDays$ capture effects through channels that do not involve absence from work, such as time devoted to caregiving and increased engagement in cash-earning activities to cover medical expenses. However, illness may reduce effective labor supply through reduced labor productivity or shorter working hours when individuals continue to work despite being ill (Schultz and Tansel, 1997). In such cases, $Husb(Wife)SickDays$ may also capture part of the labor-supply channel. Thus, the estimated coefficients on $Husb(Wife)DaysAbsent$ may be underestimated, implying that our estimates of the parameters of interest, δ_1 and δ_2, should be interpreted as potentially conservative.

To examine age-dependent heterogeneity in children's time allocation responses, further analyses interact all health shock variables and their dry-season interaction terms with the child's age (Age_{it}), allowing the marginal effects of parental sickness and work absences to vary continuously with age across seasons. Since the analysis sample consists of children aged 7 to 15, Age_{it} is defined as age minus 7, with age 7 serving as the reference category. Therefore, the coefficient on a single health shock variable represents the effect on children aged 7, while the coefficient on the interaction term captures how the effect changes with each additional year of age.

When using health shocks as independent variables and working hours as the dependent variable, reverse causality is an important empirical concern: greater work intensity may increase the likelihood of illness. Because an individual's working hours are unlikely to directly cause illness among other household members, this concern is less salient when we focus on the coefficient on other family members' illness. However, idiosyncratic labor

demand shocks may still raise working hours at the household level, thereby increasing the likelihood that a household member becomes ill. In this case, we may observe family members' illness and an individual's increased working hours jointly, making it difficult to disentangle the effect of illness on labor supply from that of increased household labor demand. Moreover, our empirical measure of health shocks—days absent from work due to illness—reflects an endogenous decision to take time off work after becoming ill.

To relax these endogeneity concerns, we employ individual fixed effects to control for time-invariant characteristics that may be correlated with both illness and labor supply (e.g., unobserved labor demand at household and individual levels) and site-by-week fixed effects to account for common and site-specific fluctuations in agricultural labor demand. We also include other family members' illness and field-level shock variables as time-varying controls to capture short-term household-level labor and cash demands. Our identification assumption is that, conditional on these controls and fixed effects, the decision to take time off work after becoming ill depends primarily on illness severity, which we assume is plausibly exogenous. However, in the presence of unobserved time-varying idiosyncratic labor demand shocks, the identification problem between family illness and increased working hours remains.

Another empirical concern is multicollinearity. First, $SickDays$ and $DaysAbsent$ are inherently correlated, as work absence is, by definition, a conditional outcome of underlying sickness. Including both variables in our primary regression specification therefore introduces multicollinearity. Despite this concern, we include both $SickDays$ and $DaysAbsent$ in the same empirical model to directly decompose the two distinct channels through which health shocks affect spousal and child time use. Second, infectious diseases can easily spread among household members, creating another source of potential multicollinearity. However, controlling for each household member's own health status is necessary to isolate the true effects of a specific member's illness from those of other household members. Therefore, despite the potential source of multicollinearity arising from within-household disease contagion, we include both an individual's own illness and other members' illnesses as explanatory variables.

5 Results

This section presents our empirical findings on the time allocations of husbands, wives, boys, and girls. We first report reduced-form estimates capturing the overall effects of spousal illness (Tables 4, 6, 9, and 11), followed by mechanism specifications that isolate the direct labor-reallocation channel driven by work absences (Tables 5, 7, 10, and 12). Overall, the results reveal striking heterogeneity in intrahousehold labor reallocation across gender, age groups, seasons, periods, and types of activities.

Table 4: Determinants of husbands' time allocation by activity

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure
wife sick days	-0.0156	0.0300	-0.00237	-0.00772	0.0209	-0.0264
	(0.0318)	(0.0195)	(0.00249)	(0.0247)	(0.0139)	(0.0512)
wife sick days × dry	-0.00190	-0.0518**	0.0103	-0.00993	0.0120	0.0417
	(0.0404)	(0.0242)	(0.00839)	(0.0370)	(0.0220)	(0.0698)
sick days (own)	-0.0744*	-0.0405***	-0.00768**	-0.118***	-0.0269***	0.270***
	(0.0385)	(0.0121)	(0.00339)	(0.0309)	(0.00773)	(0.0436)
sick days (own) × dry	0.00382	0.0432**	0.000458	-0.0288	0.0109	-0.0338
	(0.0482)	(0.0168)	(0.0106)	(0.0521)	(0.0161)	(0.0586)
Mean of dep. var.	1.188	0.320	0.066	1.189	0.404	20.826
Observations	7528	7528	7528	7528	7528	7528
R-squared	0.448	0.366	0.301	0.436	0.336	0.432
wife sick days + wife sick days × dry	-0.017	-0.022	0.008	-0.018	0.033	0.015
p-value	0.350	0.027	0.323	0.487	0.091	0.653

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, boys, girls and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

5.1 Adult Time Allocation Responses to Spousal Illness

We begin by examining husbands' time allocation in response to their wives' illness. The regression results in Table 4 indicate that husbands' time allocation responds little to their wives' illness. Two exceptions are grazing and domestic work. During the dry season, husbands spend less time grazing but more time on domestic work in response to their wives' illness. The results in Table 5 provide insights into the mechanisms underlying these responses. For grazing, the results in Column 2 show that the coefficient on wives' days of illness during the dry season is statistically significant and negative (shown in the bottom rows), suggesting that the overall reduction in husbands' grazing time is driven by channels other than the loss of their wives' labor supply. For domestic work, Column 5 in Table 5 shows that husbands increase their working hours in response to their wives' illness-related absence, and this response does not vary by season. These results suggest that intrahousehold labor substitution plausibly explains the observed increase in husbands' domestic work hours in response to wives' illness.

Table 6 reports reduced-form regression results for wives' time allocation in response to their husbands' illness. The results suggest that during the rainy season, wives respond to husbands' illness by spending more time on non-agricultural work. However, the regression results in Table 7 show no statistically significant responses to either husbands' work absence or sick days. Thus, these results cannot identify the mechanism underlying the increased time spent on non-agricultural work.

An interesting finding in Table 7 is that wives reduce their time spent on agricultural

Table 5: Husbands' time allocation responses to wives' work absences by activity

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure
wife days absent	0.0101	0.00517	-0.00429	-0.0143	0.0523**	-0.0478
	(0.0612)	(0.0258)	(0.00467)	(0.0458)	(0.0221)	(0.0687)
wife days absent × dry	-0.0415	0.0132	-0.0215	-0.0598	0.0289	0.0785
	(0.0843)	(0.0307)	(0.0192)	(0.0731)	(0.0440)	(0.0953)
wife sick days	-0.0217	0.0270	0.000160	0.000705	-0.0102	0.00225
	(0.0310)	(0.0234)	(0.00383)	(0.0383)	(0.0103)	(0.0505)
wife sick days × dry	0.0179	-0.0567*	0.0190	0.0139	0.00781	-0.000337
	(0.0384)	(0.0287)	(0.0163)	(0.0546)	(0.0182)	(0.0647)
sick days (own)	-0.0744*	-0.0404***	-0.00769**	-0.118***	-0.0268***	0.270***
	(0.0384)	(0.0121)	(0.00338)	(0.0309)	(0.00768)	(0.0434)
sick days (own) × dry	0.00314	0.0436**	-0.0000833	-0.0303	0.0126	-0.0331
	(0.0485)	(0.0167)	(0.0105)	(0.0519)	(0.0161)	(0.0585)
Mean of dep. var.	1.188	0.320	0.066	1.189	0.404	20.826
Observations	7528	7528	7528	7528	7528	7528
R-squared	0.448	0.366	0.301	0.436	0.338	0.432
wife days absent + wife days absent × dry	-0.031	0.018	-0.026	-0.074	0.081	0.031
p-value	0.505	0.147	0.159	0.303	0.063	0.646
wife sick days + wife sick days × dry	-0.004	-0.030	0.019	0.015	-0.002	0.002
p-value	0.894	0.017	0.218	0.741	0.872	0.962

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, boys, girls and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table 6: Determinants of wives' time allocation by activity

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure
husband sick days	-0.0113	0.00267	-0.000294	0.0285*	-0.0211	0.00238
	(0.0302)	(0.00243)	(0.00408)	(0.0152)	(0.0140)	(0.0431)
husband sick days × dry	-0.0115	-0.00149	-0.00540	-0.0168	0.0116	0.0228
	(0.0378)	(0.00337)	(0.00646)	(0.0194)	(0.0194)	(0.0535)
sick days (own)	-0.189***	0.00268	-0.0222***	-0.0191**	-0.187***	0.416***
	(0.0287)	(0.00187)	(0.00368)	(0.00868)	(0.0275)	(0.0471)
sick days (own) × dry	0.0962***	-0.00332	0.00772	-0.0166	0.0699*	-0.158***
	(0.0308)	(0.00199)	(0.00651)	(0.0152)	(0.0352)	(0.0562)
Mean of dep. var.	1.749	0.007	0.288	0.311	3.035	18.605
Observations	11889	11889	11889	11889	11889	11889
R-squared	0.474	0.073	0.263	0.235	0.436	0.404
husband sick days + husband sick days × dry	-0.023	0.001	-0.006	0.012	-0.010	0.025
p-value	0.331	0.586	0.305	0.330	0.621	0.402

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, boys, girls, other wives and preschool children, as well as their interaction terms with a dry season dummy; the numbers of other wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table 7: Wives' time allocation responses to husbands' work absences by activity

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure
husband days absent	-0.104*	0.00676**	-0.0107	0.00492	0.0228	0.0800
	(0.0551)	(0.00301)	(0.0114)	(0.0345)	(0.0481)	(0.0598)
husband days absent × dry	0.135*	-0.0112	-0.00118	-0.0280	-0.0463	-0.0476
	(0.0716)	(0.00755)	(0.0154)	(0.0555)	(0.0806)	(0.0936)
husband sick days	0.0557	-0.00163	0.00660	0.0254	-0.0356	-0.0496
	(0.0418)	(0.00240)	(0.00839)	(0.0212)	(0.0366)	(0.0445)
husband sick days × dry	-0.0998	0.00575	-0.00435	0.00114	0.0403	0.0555
	(0.0605)	(0.00711)	(0.0121)	(0.0388)	(0.0545)	(0.0714)
sick days (own)	-0.190***	0.00266	-0.0222***	-0.0192**	-0.188***	0.417***
	(0.0292)	(0.00187)	(0.00373)	(0.00864)	(0.0279)	(0.0477)
sick days (own) × dry	0.0978***	-0.00324	0.00751	-0.0160	0.0710*	-0.162***
	(0.0315)	(0.00199)	(0.00657)	(0.0150)	(0.0358)	(0.0579)
Mean of dep. var.	1.749	0.007	0.288	0.311	3.035	18.605
Observations	11889	11889	11889	11889	11889	11889
R-squared	0.475	0.074	0.263	0.235	0.436	0.404
husband days absent + husband days absent × dry	0.031	-0.004	-0.012	-0.023	-0.023	0.032
p-value	0.468	0.517	0.274	0.587	0.627	0.652
husband sick days + husband sick days × dry	-0.044	0.004	0.002	0.027	0.005	0.006
p-value	0.268	0.535	0.822	0.391	0.899	0.914

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, boys, girls, other wives and preschool children, as well as their interaction terms with a dry season dummy; the numbers of other wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

activities when their husbands are absent from work due to illness during the rainy season (Column 1). Our theoretical framework in Section 2 provides insights into the nature of labor complementarities between household members based on the direction of their labor responses. In particular, our simple model suggests that such a negative reaction provides prima facie evidence of strong complementarity between husbands' and wives' labor in farm production during the main agricultural season. We can infer strong labor complementarity between spouses because a negative labor response occurs only when the substitution effect associated with labor complementarity outweighs the income effect that would otherwise increase labor supply. This negative spillover onto wives' labor supply is masked in the overall effects of husbands' illness (Table 6), underscoring the importance of examining the mechanisms underlying the overall effects.[11]

To identify the stages of agricultural production at which such labor complementarities arise, we estimate separate regressions of wives' farm labor hours for each month of the rainy season. Table 8 reports the estimation results.[12] As shown in Table 8, wives

[11]We do not interpret the positive response in wives' grazing time (Column 2) because the estimated effect is small in magnitude and women rarely engage in grazing.

[12]We conduct the same analysis for husbands, with the results reported in Appendix Table A1. We find no significant changes in husbands' agricultural working hours in response to their wives' illness-induced work absences. Moreover, the coefficients on husbands' own illness are never statistically significant at

Table 8: Wives' farm labor supply responses to husbands' work absences by month

	(1) November	(2) December	(3) January	(4) February	(5) March	(6) April
husband days absent	0.278***	-0.267***	-0.182*	-0.0796	-0.154	-0.0693
	(0.0842)	(0.0987)	(0.0912)	(0.0969)	(0.145)	(0.129)
husband sick days	-0.0501	0.164*	0.138	0.0293	0.0634	-0.0320
	(0.137)	(0.0850)	(0.0836)	(0.0547)	(0.109)	(0.0989)
sick days (own)	-0.0839*	-0.120***	-0.367***	-0.236***	-0.173***	-0.0758
	(0.0433)	(0.0404)	(0.103)	(0.0698)	(0.0446)	(0.0460)
Mean of dep. var.	1.592	2.149	2.917	2.832	2.432	2.011
Observations	1068	988	913	892	1098	1016
R-squared	0.437	0.444	0.530	0.579	0.575	0.521

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters, other wives and preschool children; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

increase their agricultural working hours in response to their husbands' illness-induced work absences in November, whereas they reduce their working hours in December and January. Although our dataset does not allow task-specific analyses and thus precludes us from directly identifying the mechanisms underlying these heterogeneous responses across months, the results can be interpreted in light of the local agricultural calendar. In particular, observed period-specific patterns of labor reallocation between spouses may partly reflect differences in the nature of agricultural activities.

In November, the main activities are land preparation and plowing. Land preparation using hand hoes can generally be undertaken individually, with relatively limited gains from spouses working together. This may make it easier for wives to substitute for their husbands' labor. Such substitution may also reflect the time-sensitive nature of land preparation, as delays in completing these activities could postpone subsequent planting. In contrast, the main activities in December and January are planting and fertilizer application, which may offer greater opportunities for task specialization and coordination between spouses. For example, spouses may divide planting-related tasks or coordinate seed placement and fertilizer application, thereby increasing the productivity of their joint labor input. Such labor complementarities may make it difficult for wives to compensate for husbands' absence. Consequently, husbands' illness and resultant work absences during these months may reduce the productivity of wives' agricultural labor

conventional levels in any month, suggesting that husbands continue to work on the farm even when they are ill. The insensitivity of husbands' farm labor supply to their own illness highlights the importance of their labor input in crop production during the rainy season.

Table 9: Determinants of boys' time allocation by activity

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband sick days	0.0430	-0.01000	-0.00199	-0.0126*	0.0266*	-0.0212	-0.0237
	(0.0396)	(0.0281)	(0.00159)	(0.00667)	(0.0132)	(0.0461)	(0.0295)
husband sick days × dry	-0.0599	0.00435	0.00311	0.00510	-0.0222	0.0151	0.0545
	(0.0425)	(0.0306)	(0.00283)	(0.00611)	(0.0180)	(0.0751)	(0.0429)
wife sick days	-0.00573	-0.0155	-0.000282	-0.00140	-0.00589	0.0384	-0.00957
	(0.00798)	(0.0239)	(0.00138)	(0.00544)	(0.0126)	(0.0258)	(0.0212)
wife sick days × dry	0.00896	0.0393	0.00189	0.00875	0.0286*	-0.0927**	0.00529
	(0.0138)	(0.0243)	(0.00228)	(0.0148)	(0.0162)	(0.0373)	(0.0335)
sick days (own)	-0.0438**	-0.0909***	0.000994	-0.0100	-0.0888***	0.402***	-0.169***
	(0.0207)	(0.0299)	(0.00235)	(0.00669)	(0.0212)	(0.0701)	(0.0546)
sick days (own) × dry	0.0319	0.0359	-0.00406*	-0.0148	0.00789	-0.0996	0.0427
	(0.0259)	(0.0327)	(0.00220)	(0.0137)	(0.0270)	(0.0846)	(0.0707)
Mean of dep. var.	0.383	1.007	0.030	0.028	0.669	19.964	1.919
Observations	9543	9543	9543	9543	9543	9543	9543
R-squared	0.385	0.427	0.229	0.227	0.508	0.569	0.599
husband sick days + husband sick days × dry	-0.017	-0.006	0.001	-0.007	0.004	-0.006	0.031
p-value	0.102	0.813	0.658	0.326	0.673	0.900	0.326
wife sick days + wife sick days × dry	0.003	0.024	0.002	0.007	0.023	-0.054	-0.004
p-value	0.791	0.071	0.352	0.509	0.142	0.048	0.849

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

because of the strong complementarities involved in planting and fertilizer application, leading them to decrease their working hours on the farm rather than increase them to compensate for their husbands' labor loss.

5.2 Child Time Allocation Responses to Parental Illness

The discussion now turns to the implications of parental sickness for children's time allocation. The reduced-form regression results for boys in Table 9 show that, during the rainy season, boys spend less time on non-agricultural work and more time on domestic work in response to their fathers' illness. In addition, boys spend less time on leisure when their mothers are ill during the dry season, mainly reflecting increased engagement in grazing and household chores. The results in Table 10, which additionally include parental days of absence from work, show that boys' time spent on non-agricultural work responds negatively, albeit only marginally significant, to their fathers' days of illness rather than to their fathers' work absence. This finding suggests that channels other than intrahousehold labor substitution may play a more important role in explaining the observed reduction in boys' non-agricultural work. The same interpretation applies to the increase in boys' agricultural and domestic work during the rainy season in response

Table 10: Boys' time allocation responses to parents' work absences by activity

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	-0.0836	-0.0130	0.00611	0.0255	-0.0350	0.208***	-0.108**
	(0.0587)	(0.0510)	(0.00522)	(0.0205)	(0.0239)	(0.0718)	(0.0436)
husband days absent × dry	0.107*	0.0379	-0.000770	-0.0328	0.0479	-0.172	0.0131
	(0.0615)	(0.0863)	(0.00412)	(0.0233)	(0.0436)	(0.107)	(0.0720)
wife days absent	0.0302	-0.0332	0.00338	-0.0181	0.0155	-0.000467	0.00259
	(0.0252)	(0.0539)	(0.00283)	(0.0141)	(0.0239)	(0.0745)	(0.0519)
wife days absent × dry	-0.0291	0.0552	0.00478	-0.0147	-0.0214	0.00379	0.00150
	(0.0367)	(0.0713)	(0.00589)	(0.0253)	(0.0377)	(0.117)	(0.0580)
husband sick days	0.0998*	-0.00261	-0.00592	-0.0303	0.0504***	-0.160**	0.0485
	(0.0548)	(0.0339)	(0.00420)	(0.0180)	(0.0169)	(0.0727)	(0.0370)
husband sick days × dry	-0.131**	-0.0185	0.00378	0.0271*	-0.0542*	0.132	0.0418
	(0.0601)	(0.0721)	(0.00396)	(0.0141)	(0.0313)	(0.106)	(0.0579)
wife sick days	-0.0236	0.00497	-0.00238	0.00944	-0.0152	0.0373	-0.0105
	(0.0190)	(0.0420)	(0.00250)	(0.0132)	(0.0151)	(0.0641)	(0.0452)
wife sick days × dry	0.0264	0.00858	0.000191	0.0130	0.0405	-0.0936	0.00500
	(0.0231)	(0.0463)	(0.00296)	(0.0263)	(0.0249)	(0.0874)	(0.0592)
sick days (own)	-0.0444**	-0.0910***	0.00101	-0.00977	-0.0891***	0.403***	-0.170***
	(0.0212)	(0.0298)	(0.00233)	(0.00621)	(0.0215)	(0.0697)	(0.0542)
sick days (own) × dry	0.0327	0.0362	-0.00402*	-0.0153	0.00824	-0.101	0.0433
	(0.0260)	(0.0328)	(0.00220)	(0.0144)	(0.0271)	(0.0831)	(0.0703)
Mean of dep. var.	0.383	1.007	0.030	0.028	0.669	19.964	1.919
Observations	9543	9543	9543	9543	9543	9543	9543
R-squared	0.386	0.427	0.230	0.230	0.508	0.569	0.599
husband days absent + husband days absent × dry	0.024	0.025	0.005	-0.007	0.013	0.036	-0.095
p-value	0.217	0.700	0.349	0.352	0.715	0.735	0.102
wife days absent + wife days absent × dry	0.001	0.022	0.008	-0.033	-0.006	0.003	0.004
p-value	0.959	0.583	0.150	0.192	0.851	0.971	0.924
husband sick days + husband sick days × dry	-0.032	-0.021	-0.002	-0.003	-0.004	-0.028	0.090
p-value	0.021	0.706	0.374	0.678	0.880	0.703	0.058
wife sick days + wife sick days × dry	0.003	0.014	-0.002	0.022	0.025	-0.056	-0.006
p-value	0.778	0.428	0.376	0.301	0.266	0.332	0.887

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

to their fathers' illness, which reduces their leisure time. The reduction in boys' leisure time is approximately 30 minutes per day ($= 0.160 \times 3 \times 60$) in response to three days of illness, the median number of illness days in the sample conditional on becoming ill, indicating that the effect is also economically significant.

In contrast, during the dry season, boys spend less time on agricultural activities when their fathers become ill (bottom row of Column 1 in Table 10), while the resulting additional time is allocated to schooling (bottom row of Column 7). The significant adjustment in boys' time allocation across economic activities during the dry season also responds to fathers' days of illness rather than fathers' work absence. This empirical pattern is also consistent with the previous interpretation that labor substitution plays a relatively minor role and that other channels, such as time constraints arising from

increased caregiving needs, may be more important.

Table 10 also shows that fathers' illness-related absence from work is associated with more leisure time and less time spent on schooling among boys during the rainy season. To further explore this empirical regularity, auxiliary analyses examine age-dependent heterogeneity in children's time allocation responses by interacting health shock variables and their dry-season interaction terms with the child's age (Table A2). Tables A3 and A4 (A5 and A6) report the resultant marginal effects of fathers' (mothers') illness-related absence from work by age for the rainy and dry seasons. Results suggest that boys' negative response in schooling time to their fathers' illness-induced work absence is more salient when they are in the upper grades. However, we observe no corresponding increase in working hours in either season. One potential explanation for this decrease in time spent at school is reduced household income. However, primary education tuition fees are free in Zambia, and thus, short-term income fluctuations are unlikely to affect school attendance. Therefore, the observed decrease in schooling time does not appear to be explained by increased boys' working hours and may not be attributable solely to income effects. Our data, however, do not allow us to identify the underlying mechanisms further.

Moreover, Table A3 shows that boys aged 10 or younger spend less time on agricultural activities, and boys aged 12 to 14 spend less time on domestic work in response to fathers' absence from work during the rainy season, suggesting a complementary relationship between fathers' labor and boys' help. In contrast, Tables A5 and A6 show that boys' time allocation is relatively unaffected by mothers' absence from work due to illness.[13] Overall, the negative response of boys' schooling to fathers' work absence highlights a potentially important negative spillover of parental health shocks within the household, with implications for policies aimed at protecting children's schooling from temporary household shocks.

Finally, we examine girls' time reallocation after parental health shocks. The reduced-form results in Table 11 show that, in response to their mothers' illness during the rainy season, girls spend more time collecting natural resources and less time on leisure. However, after including parental days of work absence as additional explanatory variables, both the coefficients on mothers' illness and on mothers' work absence lose statistical significance (Table 12). Thus, we cannot identify the dominant channels underlying girls' time allocation responses to parental illness.

Table 12 shows no significant changes in girls' time allocation in response to parental absence from work. Nevertheless, Tables A8 to A11 reveal heterogeneous effects of parental work absences due to illness on girls' time allocation across age groups. Table A8 shows that older girls spend less time on domestic work when fathers are absent

[13]In polygamous households, wives are not necessarily the biological mothers of the children in the household. For ease of interpretation, however, we use the terms "wives" and "mothers" interchangeably throughout the paper.

Table 11: Determinants of girls' time allocation by activity

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband sick days	0.0559	-0.00419	0.000993	-0.00202	-0.0230	-0.0455	0.0179
	(0.0577)	(0.00450)	(0.00265)	(0.00235)	(0.0153)	(0.0515)	(0.0277)
husband sick days × dry	-0.0651	0.0102*	0.00620	-0.000860	0.0215	0.0478	-0.0197
	(0.0603)	(0.00572)	(0.00695)	(0.00334)	(0.0204)	(0.0721)	(0.0436)
wife sick days	0.0333	-0.00396	0.00578**	0.00188	0.0178	-0.0749**	0.0201
	(0.0212)	(0.00406)	(0.00253)	(0.00209)	(0.0172)	(0.0299)	(0.0196)
wife sick days × dry	-0.0294	0.00222	-0.00496	-0.00413	-0.0116	0.0821**	-0.0342
	(0.0254)	(0.00420)	(0.00330)	(0.00265)	(0.0234)	(0.0370)	(0.0257)
sick days (own)	-0.00730	-0.00916*	-0.000893	-0.000721	-0.0879***	0.272***	-0.166***
	(0.0253)	(0.00532)	(0.00493)	(0.00121)	(0.0311)	(0.0432)	(0.0351)
sick days (own) × dry	0.00285	0.00966*	-0.000809	0.00435	-0.0161	0.0117	-0.0117
	(0.0265)	(0.00524)	(0.00627)	(0.00389)	(0.0289)	(0.0645)	(0.0590)
Mean of dep. var.	0.349	0.023	0.083	0.016	1.616	20.047	1.866
Observations	7777	7777	7777	7777	7777	7777	7777
R-squared	0.367	0.169	0.335	0.166	0.566	0.600	0.644
husband sick days + husband sick days × dry	-0.009	0.006	0.007	-0.003	-0.001	0.002	-0.002
p-value	0.583	0.090	0.190	0.214	0.938	0.959	0.959
wife sick days + wife sick days × dry	0.004	-0.002	0.001	-0.002	0.006	0.007	-0.014
p-value	0.688	0.130	0.707	0.202	0.625	0.766	0.435

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

from work only during the rainy season, suggesting that fathers' labor and girls' help complement each other in household chores. As shown in Table A9, this relationship is not observed during the dry season. The response of time spent on domestic work to fathers' work absence is similar to that observed among boys, suggesting that fathers' and children's labor for domestic work is complementary during the rainy season.

Table A10 reports that maternal absence from work is associated with reduced schooling time among girls aged 9 or younger during the rainy season. However, we find no corresponding increase in working hours. Thus, as with boys in the upper grades, this decrease in time spent at school likely reflects factors other than labor substitution or income effects. Moreover, girls aged 12 and older spend more time on household chores when their mothers are absent from work, while girls aged 14 and older, who are of secondary-school age, spend less time on leisure activities. These patterns disappear during the dry season (Table A11). Overall, child time allocations are strongly influenced by the same-gender parent's health conditions.

Except for the increase in boys' domestic work time due to their fathers' illness during the rainy season, the regression results show insignificant responses in domestic work to husbands' and wives' illnesses. This pattern suggests that, in our study context, increased time commitment to caregiving is a minor response to family illness, supporting our

Table 12: Girls' time allocation responses to parents' work absences by activity

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	-0.00278	0.00500	-0.00126	-0.00645	-0.0454	0.0757	-0.0249
	(0.0404)	(0.00903)	(0.00496)	(0.00427)	(0.0298)	(0.0874)	(0.0545)
husband days absent × dry	-0.0423	-0.00411	0.00411	0.00511	0.0686	-0.0494	0.0181
	(0.0656)	(0.0118)	(0.0108)	(0.00537)	(0.0514)	(0.112)	(0.0820)
wife days absent	0.0507	0.00754	0.00568	0.00422	0.0360	-0.0437	-0.0604
	(0.0363)	(0.00880)	(0.00662)	(0.00440)	(0.0297)	(0.0760)	(0.0424)
wife days absent × dry	-0.0435	-0.00670	-0.00598	0.00139	-0.0516	0.0753	0.0312
	(0.0409)	(0.00906)	(0.00816)	(0.00581)	(0.0477)	(0.0980)	(0.0621)
husband sick days	0.0596	-0.00678*	0.00196	0.00192	0.00492	-0.0914	0.0298
	(0.0498)	(0.00341)	(0.00351)	(0.00132)	(0.0198)	(0.0742)	(0.0477)
husband sick days × dry	-0.0365	0.0121*	0.00319	-0.00389	-0.0229	0.0745	-0.0266
	(0.0660)	(0.00616)	(0.00557)	(0.00258)	(0.0428)	(0.108)	(0.0719)
wife sick days	0.000879	-0.00872	0.00215	-0.000844	-0.00547	-0.0463	0.0584*
	(0.0216)	(0.00927)	(0.00322)	(0.00215)	(0.0175)	(0.0613)	(0.0325)
wife sick days × dry	-0.000176	0.00656	-0.00122	-0.00415	0.0190	0.0380	-0.0580
	(0.0292)	(0.00920)	(0.00491)	(0.00411)	(0.0341)	(0.0753)	(0.0461)
sick days (own)	-0.00834	-0.00924*	-0.00102	-0.000912	-0.0893***	0.274***	-0.165***
	(0.0252)	(0.00536)	(0.00492)	(0.00122)	(0.0313)	(0.0427)	(0.0349)
sick days (own) × dry	0.00396	0.00975*	-0.000692	0.00469	-0.0152	0.0108	-0.0133
	(0.0263)	(0.00526)	(0.00631)	(0.00391)	(0.0289)	(0.0645)	(0.0588)
Mean of dep. var.	0.349	0.023	0.083	0.016	1.616	20.047	1.866
Observations	7777	7777	7777	7777	7777	7777	7777
R-squared	0.368	0.169	0.335	0.166	0.566	0.600	0.644
husband days absent + husband days absent × dry	-0.045	0.001	0.003	-0.001	0.023	0.026	-0.007
p-value	0.373	0.902	0.738	0.617	0.550	0.785	0.922
wife days absent + wife days absent × dry	0.007	0.001	-0.000	0.006	-0.016	0.032	-0.029
p-value	0.694	0.755	0.945	0.165	0.686	0.518	0.454
husband sick days + husband sick days × dry	0.023	0.005	0.005	-0.002	-0.018	-0.017	0.003
p-value	0.583	0.268	0.295	0.419	0.604	0.836	0.961
wife sick days + wife sick days × dry	0.001	-0.002	0.001	-0.005	0.014	-0.008	0.000
p-value	0.963	0.105	0.741	0.108	0.648	0.841	0.990

Note: Standard errors clustered at the household level in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

assumption that recorded illnesses are not serious enough to require constant care.

Overall, while an individual's own illness significantly reduces their working hours in most activities, adjustments in other household members' time allocation in response to the illness are less common. Moreover, even when such adjustments are statistically significant, their magnitudes are insufficient to fully compensate for the labor lost due to illness. These findings suggest that households often cannot fully offset illness-induced labor shortages through intrahousehold labor substitution.

5.3 Alternative Labor Supply Responses to Family Illness

The regression results presented in the previous subsections indicate that intrahousehold labor substitution is limited in the short run in response to illness-induced labor sup-

ply shocks. When immediate labor reallocation between spouses is insufficient to offset these shocks, households may resort to two alternative mechanisms to mitigate illness-induced labor shortages: intertemporal adjustments in labor supply and the employment of temporary labor from outside the household.

First, family members may increase their labor supply after recovering from illness to make up for work lost during the preceding illness period. To examine whether such intertemporal labor substitutions occur, we re-estimate the same specifications after including one-period lagged values of all illness-related variables. However, the results reported in Appendix Tables A12-A15 provide no evidence of such intertemporal labor supply adjustments.

Second, households may temporarily rely on labor from neighboring households to compensate for illness-related labor shortages. To investigate this possibility, we re-run the regressions using the average daily agricultural working hours of male and female free helpers and male and female hired workers as the outcome variables. Appendix Table A16 reports the estimation results. We find no significant increases in any of these measures of external labor use, suggesting that households do not increase their reliance on external labor to compensate for illness-related labor shortages. Moreover, average working hours provided by each of these labor types are relatively low, indicating that reciprocal labor-sharing arrangements are uncommon and that hired labor markets are thin in our study area, at least during the study period.

Overall, we find no evidence that households compensate for illness-induced reductions in labor input through intrahousehold labor substitution, intertemporal adjustments in labor supply, or the temporary use of external labor.

6 Robustness Checks

To evaluate the stability and reliability of our main empirical findings, we conduct robustness checks to address potential concerns about model specifications, extreme weather shocks, and variable definitions.

First, in the primary analysis, the empirical specification, which includes interaction terms between illness variables and the dry-season dummy, assumes that the control-variable coefficients are the same across the rainy and dry seasons. To relax this assumption, we conduct auxiliary analyses by splitting the sample into rainy- and dry-season subsamples. Tables A17-A24 show the results. While we observe minor quantitative variations in the magnitudes of some coefficients, all of our key empirical findings remain qualitatively unchanged, confirming the robustness of our baseline results when relaxing the assumption of constant coefficients for the controls imposed by the baseline specification.

Second, the study area experienced historically severe flooding during the 2007/2008

rainy season, which might have abnormally disrupted household time allocations and heightened health risks. To ensure that this extreme weather event does not drive our baseline findings, we re-estimate our primary specifications for the sample excluding observations from the 2007/2008 rainy season. Tables A25-A28 report the results, which show that the main findings remain largely unchanged.

Third, we test the sensitivity of our fixed-effects model specifications. While our baseline models incorporate granular site-by-week fixed effects (τ_{vt}) to absorb weekly labor demand shifts, one potential concern is that such high-frequency fixed effects might over-absorb variation in localized health events. To check this, we replace site-by-week fixed effects with more coarse site-by-month fixed effects. As shown in Appendix Tables A29-A32, the empirical patterns and statistical significance of our spousal and child labor supply estimates remain qualitatively identical, confirming the robustness of our main results to this alternative model specification.

Finally, to address potential recall bias or measurement error in self-reported variables, we test the sensitivity of our results to an alternative definition of the health shock measures. Specifically, we replace the continuous illness variables ($SickDays$ and $DaysAbsent$) with binary indicators equal to one if an individual experienced any illness or work absence during the reference period, respectively. The estimation results, presented in Appendix Tables A33-A36, are highly consistent with our baseline estimates, confirming that our core conclusions are robust to alternative definitions of health shocks.

7 Conclusions

This study examines intrahousehold labor reallocation in response to health shocks using weekly panel data from rural Zambia. The results yield three main empirical findings. First, although an individual's own illness consistently reduces their labor supply, as expected, adjustments in other household members' labor supply are relatively limited and insufficient to fully compensate for the resulting loss of working hours. Additional analyses provide little evidence that households offset illness-induced labor shortages through either intertemporal adjustments in labor supply or the use of temporary labor from outside the household.

Second, our empirical results reveal period-specific patterns of labor reallocation between spouses during the main agricultural season. In particular, wives increase their farm labor hours in response to their husbands' illness-induced work absences in November, but reduce them in December and January. Based on the local farming calendar, we suggest that these contrasting responses may partly reflect differences in the nature of agricultural activities across different stages of the production cycle. In November, the main activities are land preparation and plowing. Because land preparation using hand hoes can generally be undertaken individually, the gains from spouses working together

may be relatively limited, making it easier for wives to substitute for their husbands' labor. Furthermore, the time-sensitive nature of these activities may create an additional incentive for wives to compensate for their husbands' absences to avoid delays in completing essential tasks. In contrast, the main activities in December and January are planting and fertilizer application, which may offer greater scope for task specialization and coordination between spouses. The potentially high returns to joint labor arising from complementarities between spouses in these activities may constrain wives' ability to compensate for their husbands' illness-induced work absences. Regression results using pooled data for the main agricultural season indicate that, overall, spouses' farm labor is complementary rather than substitutable. Taken together, these findings suggest that labor complementarities between spouses in agricultural production can exacerbate the adverse consequences of illness for household labor supply.

Third, parental illness-induced work absence reduces children's schooling time. Specifically, when fathers are absent from work due to illness, boys in the upper grades reduce their schooling time. Similarly, girls in the lower grades also reduce their time spent at school during the rainy season when their mothers are absent from work due to illness. Thus, children's time allocation is particularly responsive to health shocks experienced by same-gender parents. However, we find no corresponding increases in children's working hours in either case, suggesting that these reductions in schooling time likely reflect factors other than labor substitution or income effects.

These findings have several policy implications. First, flexible labor-sharing arrangements within communities could help mitigate temporary labor shortages caused by household-level health shocks. Our results suggest that intrahousehold labor substitution cannot fully offset the labor lost due to family illness. Rather, a husband's illness-related absence from work reduces his wife's agricultural labor supply during December and January, reflecting complementarity between spouses' labor inputs in farm production. Because many agricultural tasks are time-sensitive, delays in completing essential farm operations due to illness-induced labor shortages may entail substantial costs. In such cases, labor-sharing arrangements with neighboring households could help maintain timely completion of agricultural activities by temporarily replacing labor lost due to illness within the household.

Second, policies that protect adult health may reduce children's involvement in compensatory labor and preserve their time for schooling. Improving access to medical services among adults can therefore contribute indirectly to reducing child labor while preventing disruptions to children's education. Accordingly, public health programs should account for these spillover effects on children's time allocation and educational attainment when conducting cost-benefit analyses.

Because our findings are based on data from a specific rural area in Zambia, caution is warranted when generalizing the estimated effects beyond the study setting. Never-

theless, intrahousehold labor reallocation is a fundamental coping strategy in response to health shocks and the resulting labor shortages, particularly in developing-country contexts where thin hired labor markets limit households' ability to flexibly adjust labor input through market employment. The behavioral mechanisms documented in this study contribute to a better understanding of household responses to health shocks and offer insights into policy design to mitigate the consequences of illness-induced labor shortages in other low-income rural settings.

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A Appendix Figure

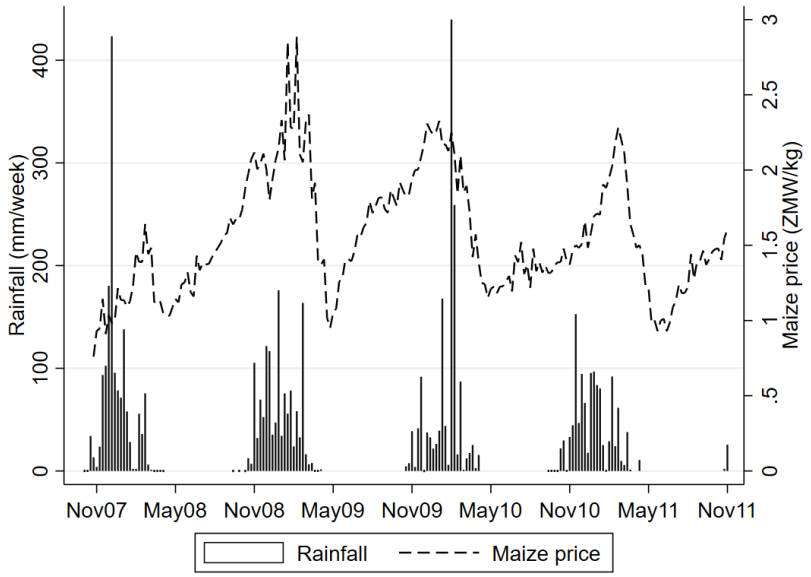

Figure A1: Weekly rainfall and local maize price during the survey period

Notes: The figure presents weekly averages for local maize prices and plot-level rainfall amounts.

B Appendix Tables

Table A1: Husbands' farm labor supply responses to wives' work absences by month

	(1)	(2)	(3)	(4)	(5)	(6)
	November	December	January	February	March	April
wife days absent	-0.0455	0.178	0.0563	-0.0444	-0.165	0.0273
	(0.117)	(0.133)	(0.201)	(0.124)	(0.113)	(0.0710)
wife sick days	0.0926	-0.0800	0.0601	-0.0267	0.0623	-0.0549
	(0.0912)	(0.0796)	(0.118)	(0.0831)	(0.0605)	(0.0596)
sick days (own)	0.0119	-0.0370	-0.100	-0.0680	-0.0702	-0.0695
	(0.118)	(0.0543)	(0.0623)	(0.0671)	(0.120)	(0.0435)
Mean of dep. var.	1.237	1.954	2.501	2.205	1.596	1.089
Observations	679	617	556	549	693	645
R-squared	0.419	0.392	0.647	0.595	0.526	0.403

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, boys, girls, other wives and preschool children; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A2: Boys' time allocation responses to parents' work absences by activity: Age interactions

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	-0.212*	0.0336	0.00918	0.00299	0.0250	0.133	0.00801
	(0.118)	(0.102)	(0.00638)	(0.0115)	(0.0506)	(0.158)	(0.108)
husband days absent × age	0.0284*	-0.0121	-0.000709	0.00547	-0.0139	0.0167	-0.0239
	(0.0168)	(0.0201)	(0.00116)	(0.00450)	(0.0114)	(0.0363)	(0.0248)
husband days absent × dry	0.256*	0.0414	-0.00608	-0.00154	-0.0103	-0.286	0.00606
	(0.129)	(0.118)	(0.00732)	(0.0139)	(0.0786)	(0.245)	(0.198)
husband days absent × dry × age	-0.0332*	-0.000106	0.00123	-0.00768	0.0132	0.0297	-0.00308
	(0.0186)	(0.0211)	(0.00166)	(0.00642)	(0.0168)	(0.0527)	(0.0391)
wife days absent	0.0553	-0.0836	-0.000421	0.0139	0.0224	-0.0890	0.0815
	(0.0383)	(0.0983)	(0.00345)	(0.0131)	(0.0359)	(0.137)	(0.0796)
wife days absent × age	-0.00624	0.0117	0.000889	-0.00733	-0.00163	0.0205	-0.0179
	(0.00537)	(0.0165)	(0.000567)	(0.00493)	(0.00557)	(0.0198)	(0.0158)
wife days absent × dry	-0.0422	0.161	0.00200	-0.0276*	-0.00965	0.0136	-0.0976
	(0.0397)	(0.129)	(0.00812)	(0.0156)	(0.0555)	(0.204)	(0.117)
wife days absent × dry × age	0.00522	-0.0222	0.000530	0.00283	-0.00369	-0.00298	0.0203
	(0.00905)	(0.0210)	(0.00201)	(0.00675)	(0.00890)	(0.0282)	(0.0217)
husband sick days	0.181**	-0.0420	-0.00966*	-0.00795	0.0175	-0.166	0.0271
	(0.0887)	(0.0739)	(0.00544)	(0.00910)	(0.0448)	(0.114)	(0.0769)
husband sick days × age	-0.0183	0.00982	0.000874	-0.00536	0.00780	0.00154	0.00366
	(0.0124)	(0.0179)	(0.000821)	(0.00430)	(0.0109)	(0.0339)	(0.0206)
husband sick days × dry	-0.219**	-0.0194	0.00761	-0.00265	-0.0290	0.291	-0.0279
	(0.0992)	(0.108)	(0.00586)	(0.0119)	(0.0574)	(0.232)	(0.153)
husband sick days × dry × age	0.0200	0.000376	-0.000903	0.00726	-0.00575	-0.0402	0.0192
	(0.0133)	(0.0219)	(0.00129)	(0.00487)	(0.0134)	(0.0498)	(0.0306)
wife sick days	-0.0481*	-0.0240	-0.00000193	-0.0194	-0.0212	0.164	-0.0509
	(0.0283)	(0.0756)	(0.00306)	(0.0153)	(0.0276)	(0.117)	(0.0750)
wife sick days × dry	0.0621*	0.0382	-0.000521	0.0299	0.0223	-0.191	0.0393
	(0.0319)	(0.0740)	(0.00442)	(0.0183)	(0.0414)	(0.143)	(0.106)
wife sick days × age	0.00573	0.00675	-0.000578	0.00648	0.00156	-0.0290*	0.00906
	(0.00389)	(0.0142)	(0.000466)	(0.00539)	(0.00427)	(0.0171)	(0.0145)
wife sick days × dry × age	-0.00881	-0.00707	0.000149	-0.00332	0.00495	0.0207	-0.00657
	(0.00609)	(0.0163)	(0.000757)	(0.00775)	(0.00785)	(0.0223)	(0.0198)
sick days (own)	-0.0411*	-0.0879***	0.00113	-0.00783	-0.0885***	0.396***	-0.172***
	(0.0218)	(0.0293)	(0.00233)	(0.00643)	(0.0213)	(0.0704)	(0.0548)
sick days (own) × dry	0.0293	0.0336	-0.00434*	-0.0175	0.00721	-0.0943	0.0460
	(0.0261)	(0.0322)	(0.00220)	(0.0145)	(0.0273)	(0.0812)	(0.0713)
Mean of dep. var.	0.383	1.007	0.030	0.028	0.669	19.964	1.919
Observations	9543	9543	9543	9543	9543	9543	9543
R-squared	0.389	0.429	0.231	0.233	0.509	0.570	0.600
husband days absent + husband days absent × dry	0.044	0.075	0.003	0.001	0.015	-0.153	0.014
p-value	0.175	0.452	0.497	0.904	0.757	0.447	0.925
wife days absent + wife days absent × dry	0.013	0.078	0.002	-0.014	0.013	-0.075	-0.016
p-value	0.625	0.244	0.824	0.052	0.778	0.561	0.828
husband sick days + husband sick days × dry	0.014	0.014	-0.001	0.010	0.001	-0.027	-0.012
p-value	0.422	0.481	0.874	0.041	0.976	0.709	0.833
wife sick days + wife sick days × dry	-0.038	-0.061	-0.002	-0.011	-0.012	0.125	-0.001
p-value	0.112	0.409	0.562	0.325	0.628	0.499	0.995

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A3: Heterogeneous effects of husbands' work absences on boys' time allocation by age: rainy season

	agriculture	grazing	collection	non-agriculture	domestic work	leisure	school
husband days absent (7 years old)	-0.212*	0.034	0.009	0.003	0.025	0.133	0.008
	(0.118)	(0.102)	(0.006)	(0.011)	(0.051)	(0.158)	(0.108)
husband days absent (8 years old)	-0.184*	0.021	0.008	0.008	0.011	0.150	-0.016
	(0.102)	(0.085)	(0.006)	(0.012)	(0.041)	(0.127)	(0.086)
husband days absent (9 years old)	-0.155*	0.009	0.008	0.014	-0.003	0.167	-0.040
	(0.087)	(0.070)	(0.005)	(0.013)	(0.032)	(0.100)	(0.066)
husband days absent (10 years old)	-0.127*	-0.003	0.007	0.019	-0.017	0.183**	-0.064
	(0.073)	(0.059)	(0.005)	(0.016)	(0.025)	(0.079)	(0.050)
husband days absent (11 years old)	-0.098	-0.015	0.006	0.025	-0.031	0.200***	-0.087*
	(0.060)	(0.053)	(0.005)	(0.020)	(0.023)	(0.073)	(0.044)
husband days absent (12 years old)	-0.070	-0.027	0.006	0.030	-0.045*	0.217**	-0.111**
	(0.050)	(0.054)	(0.005)	(0.024)	(0.026)	(0.083)	(0.051)
husband days absent (13 years old)	-0.041	-0.039	0.005	0.036	-0.058*	0.234**	-0.135**
	(0.043)	(0.062)	(0.006)	(0.028)	(0.033)	(0.105)	(0.067)
husband days absent (14 years old)	-0.013	-0.051	0.004	0.041	-0.072*	0.250*	-0.159*
	(0.043)	(0.075)	(0.007)	(0.032)	(0.042)	(0.134)	(0.087)
husband days absent (15 years old)	0.015	-0.064	0.004	0.047	-0.086	0.267	-0.183
	(0.049)	(0.091)	(0.007)	(0.036)	(0.052)	(0.166)	(0.109)

Note: Values represent the sum of the coefficients on $HusbDaysAbsent$ and its interaction with the difference between the child's age and 7, based on the regression results in Table A2. Standard errors clustered at the household level are in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A4: Heterogeneous effects of husbands' work absences on boys' time allocation by age: dry season

	agriculture	grazing	collection	non-agriculture	domestic work	leisure	school
husband days absent (7 years old)	0.044	0.075	0.003	0.001	0.015	-0.153	0.014
	(0.032)	(0.099)	(0.005)	(0.012)	(0.047)	(0.199)	(0.148)
husband days absent (8 years old)	0.039	0.063	0.004	-0.001	0.014	-0.106	-0.013
	(0.027)	(0.087)	(0.004)	(0.009)	(0.041)	(0.167)	(0.121)
husband days absent (9 years old)	0.035	0.051	0.004	-0.003	0.013	-0.060	-0.040
	(0.023)	(0.078)	(0.004)	(0.007)	(0.037)	(0.139)	(0.096)
husband days absent (10 years old)	0.030	0.038	0.005	-0.005	0.013	-0.013	-0.067
	(0.020)	(0.070)	(0.005)	(0.006)	(0.035)	(0.117)	(0.073)
husband days absent (11 years old)	0.025	0.026	0.005	-0.007	0.012	0.033	-0.094
	(0.019)	(0.065)	(0.005)	(0.007)	(0.036)	(0.104)	(0.057)
husband days absent (12 years old)	0.020	0.014	0.006	-0.010	0.011	0.080	-0.121**
	(0.020)	(0.063)	(0.006)	(0.010)	(0.039)	(0.103)	(0.052)
husband days absent (13 years old)	0.015	0.002	0.006	-0.012	0.010	0.126	-0.148**
	(0.023)	(0.066)	(0.007)	(0.013)	(0.044)	(0.115)	(0.063)
husband days absent (14 years old)	0.011	-0.011	0.007	-0.014	0.010	0.172	-0.175**
	(0.027)	(0.071)	(0.009)	(0.016)	(0.051)	(0.137)	(0.083)
husband days absent (15 years old)	0.006	-0.023	0.007	-0.016	0.009	0.219	-0.202*
	(0.031)	(0.079)	(0.010)	(0.020)	(0.058)	(0.165)	(0.107)

Note: Values represent the sum of the coefficients on $HusbDaysAbsent$, its interaction with Dry, its interaction with the difference between the child's age and 7, and the three-way interaction term between them, based on the regression results in Table A2. Standard errors clustered at the household level are in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A5: Heterogeneous effects of wives' work absences on boys' time allocation by age: rainy season

	agriculture	grazing	collection	non-agriculture	domestic work	leisure	school
wife days absent (7 years old)	0.055	-0.084	-0.000	0.014	0.022	-0.089	0.081
	(0.038)	(0.098)	(0.003)	(0.013)	(0.036)	(0.137)	(0.080)
wife days absent (8 years old)	0.049	-0.072	0.000	0.007	0.021	-0.069	0.064
	(0.034)	(0.085)	(0.003)	(0.009)	(0.032)	(0.120)	(0.068)
wife days absent (9 years old)	0.043	-0.060	0.001	-0.001	0.019	-0.048	0.046
	(0.031)	(0.072)	(0.003)	(0.007)	(0.029)	(0.104)	(0.059)
wife days absent (10 years old)	0.037	-0.048	0.002	-0.008	0.018	-0.027	0.028
	(0.028)	(0.062)	(0.003)	(0.008)	(0.026)	(0.089)	(0.053)
wife days absent (11 years old)	0.030	-0.037	0.003	-0.015	0.016	-0.007	0.010
	(0.026)	(0.055)	(0.003)	(0.011)	(0.024)	(0.076)	(0.052)
wife days absent (12 years old)	0.024	-0.025	0.004	-0.023	0.014	0.014	-0.008
	(0.025)	(0.052)	(0.003)	(0.015)	(0.024)	(0.066)	(0.055)
wife days absent (13 years old)	0.018	-0.013	0.005	-0.030	0.013	0.034	-0.026
	(0.025)	(0.054)	(0.003)	(0.020)	(0.025)	(0.062)	(0.062)
wife days absent (14 years old)	0.012	-0.001	0.006*	-0.037	0.011	0.055	-0.044
	(0.026)	(0.061)	(0.003)	(0.025)	(0.027)	(0.064)	(0.072)
wife days absent (15 years old)	0.005	0.010	0.007*	-0.045	0.009	0.075	-0.062
	(0.029)	(0.071)	(0.004)	(0.029)	(0.030)	(0.071)	(0.084)

Note: Values represent the sum of the coefficients on $WifeDaysAbsent$ and its interaction with the difference between the child's age and 7, based on the regression results in Table A2. Standard errors clustered at the household level are in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A6: Heterogeneous effects of wives' work absences on boys' time allocation by age: dry season

	agriculture	grazing	collection	non-agriculture	domestic work	leisure	school
wife days absent (7 years old)	0.013	0.078	0.002	-0.014*	0.013	-0.075	-0.016
	(0.027)	(0.066)	(0.007)	(0.007)	(0.045)	(0.128)	(0.074)
wife days absent (8 years old)	0.012	0.067	0.003	-0.018	0.007	-0.058	-0.014
	(0.021)	(0.057)	(0.006)	(0.011)	(0.040)	(0.118)	(0.063)
wife days absent (9 years old)	0.011	0.057	0.004	-0.023	0.002	-0.040	-0.012
	(0.017)	(0.050)	(0.005)	(0.016)	(0.035)	(0.109)	(0.053)
wife days absent (10 years old)	0.010	0.047	0.006	-0.027	-0.003	-0.023	-0.009
	(0.016)	(0.044)	(0.004)	(0.020)	(0.032)	(0.102)	(0.047)
wife days absent (11 years old)	0.009	0.036	0.007	-0.032	-0.008	-0.005	-0.007
	(0.018)	(0.041)	(0.005)	(0.025)	(0.031)	(0.098)	(0.046)
wife days absent (12 years old)	0.008	0.026	0.009	-0.036	-0.014	0.012	-0.005
	(0.022)	(0.041)	(0.006)	(0.030)	(0.031)	(0.096)	(0.049)
wife days absent (13 years old)	0.007	0.015	0.010	-0.041	-0.019	0.030	-0.002
	(0.028)	(0.044)	(0.007)	(0.035)	(0.034)	(0.098)	(0.056)
wife days absent (14 years old)	0.006	0.005	0.012	-0.045	-0.024	0.047	0.000
	(0.034)	(0.049)	(0.009)	(0.040)	(0.038)	(0.102)	(0.066)
wife days absent (15 years old)	0.005	-0.006	0.013	-0.050	-0.030	0.065	0.002
	(0.041)	(0.056)	(0.011)	(0.045)	(0.043)	(0.108)	(0.078)

Note: Values represent the sum of the coefficients on $WifeDaysAbsent$, its interaction with Dry, its interaction with the difference between the child's age and 7, and the three-way interaction term between them, based on the regression results in Table A2. Standard errors clustered at the household level are in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A7: Girls' time allocation responses to parents' work absences by activity: Age interactions

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	0.0133	0.0121	0.0112**	-0.00672	-0.00466	0.0493	-0.0745
	(0.0492)	(0.0179)	(0.00513)	(0.00504)	(0.0426)	(0.108)	(0.0665)
husband days absent × age	-0.00535	-0.00219	-0.00384**	0.000115	-0.0104	0.00544	0.0163
	(0.00987)	(0.00317)	(0.00170)	(0.000812)	(0.00836)	(0.0188)	(0.0148)
husband days absent × dry	-0.0820	-0.0207	0.00107	0.00590	0.000474	-0.0138	0.109
	(0.0908)	(0.0231)	(0.0140)	(0.00783)	(0.0825)	(0.169)	(0.118)
husband days absent × dry × age	0.0130	0.00507	0.000895	-0.000293	0.0190	-0.00821	-0.0294
	(0.0144)	(0.00417)	(0.00323)	(0.00110)	(0.0136)	(0.0275)	(0.0184)
wife days absent	0.0115	0.0118	-0.00204	-0.00136	-0.0290	0.138	-0.129*
	(0.0364)	(0.0113)	(0.00648)	(0.00381)	(0.0485)	(0.0903)	(0.0670)
wife days absent × age	0.00928	-0.00108	0.00195	0.00159	0.0185	-0.0521**	0.0219
	(0.0139)	(0.00138)	(0.00211)	(0.00194)	(0.0117)	(0.0239)	(0.0173)
wife days absent × dry	0.00493	-0.00750	0.00857	0.00498	0.0363	-0.174	0.126
	(0.0407)	(0.0118)	(0.00816)	(0.00632)	(0.0736)	(0.130)	(0.108)
wife days absent × dry × age	-0.0122	0.000123	-0.00380	-0.000914	-0.0249	0.0715*	-0.0298
	(0.0171)	(0.00156)	(0.00286)	(0.00201)	(0.0167)	(0.0376)	(0.0245)
husband sick days	0.0762	-0.00820	-0.00611	0.00380*	-0.0307	-0.0784	0.0434
	(0.0800)	(0.00966)	(0.00424)	(0.00194)	(0.0328)	(0.0692)	(0.0451)
husband sick days × age	-0.00441	0.000400	0.00255	-0.000656	0.00943	-0.00225	-0.00506
	(0.0114)	(0.00215)	(0.00158)	(0.000516)	(0.00741)	(0.0119)	(0.00891)
husband sick days × dry	-0.0175	0.0189	0.00496	-0.00603	-0.0122	0.0593	-0.0475
	(0.102)	(0.0149)	(0.00775)	(0.00440)	(0.0642)	(0.145)	(0.0970)
husband sick days × dry × age	-0.00757	-0.00205	-0.000672	0.000756	-0.00156	0.00384	0.00725
	(0.0149)	(0.00299)	(0.00230)	(0.000755)	(0.0114)	(0.0257)	(0.0168)
wife sick days	-0.0249	-0.00762	0.000817	0.00110	0.0441	-0.154**	0.140***
	(0.0279)	(0.0105)	(0.00334)	(0.00262)	(0.0272)	(0.0734)	(0.0457)
wife sick days × dry	0.0286	0.00305	-0.00239	-0.00350	-0.0630	0.193**	-0.156**
	(0.0352)	(0.0105)	(0.00417)	(0.00454)	(0.0444)	(0.0838)	(0.0609)
wife sick days × age	0.00750	-0.000317	0.000463	-0.000618	-0.0142**	0.0326	-0.0254**
	(0.00944)	(0.000896)	(0.00101)	(0.000756)	(0.00598)	(0.0210)	(0.0116)
wife sick days × dry × age	-0.00840	0.00104	0.000212	-0.000235	0.0240**	-0.0468	0.0302*
	(0.0127)	(0.000860)	(0.00158)	(0.000738)	(0.0115)	(0.0292)	(0.0159)
sick days (own)	-0.00210	-0.00872	-0.000147	-0.000308	-0.0897***	0.279***	-0.178***
	(0.0252)	(0.00523)	(0.00478)	(0.00127)	(0.0314)	(0.0426)	(0.0321)
sick days (own) × dry	-0.00247	0.00922*	-0.00222	0.00425	-0.0150	0.00598	0.000267
	(0.0258)	(0.00515)	(0.00681)	(0.00410)	(0.0274)	(0.0661)	(0.0579)
Mean of dep. var.	0.349	0.023	0.083	0.016	1.616	20.047	1.866
Observations	7777	7777	7777	7777	7777	7777	7777
R-squared	0.371	0.170	0.338	0.168	0.568	0.602	0.646
husband days absent + husband days absent × dry	-0.069	-0.009	0.012	-0.001	-0.004	0.035	0.034
p-value	0.383	0.441	0.290	0.867	0.946	0.802	0.733
wife days absent + wife days absent × dry	0.016	0.004	0.007	0.004	0.007	-0.035	-0.003
p-value	0.384	0.253	0.216	0.492	0.889	0.697	0.971
husband sick days + husband sick days × dry	0.004	-0.005	-0.002	-0.002	-0.019	0.039	-0.015
p-value	0.832	0.061	0.554	0.565	0.554	0.287	0.679
wife sick days + wife sick days × dry	0.059	0.011	-0.001	-0.002	-0.043	-0.019	-0.004
p-value	0.333	0.282	0.835	0.584	0.433	0.863	0.963

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A8: Heterogeneous effects of husbands' work absences on girls' time allocation by age: rainy season

	agriculture	grazing	collection	non-agriculture	domestic work	leisure	school
husband days absent (7 years old)	0.013	0.012	0.011**	-0.007	-0.005	0.049	-0.075
	(0.049)	(0.018)	(0.005)	(0.005)	(0.043)	(0.108)	(0.066)
husband days absent (8 years old)	0.008	0.010	0.007	-0.007	-0.015	0.055	-0.058
	(0.044)	(0.015)	(0.005)	(0.005)	(0.038)	(0.099)	(0.060)
husband days absent (9 years old)	0.003	0.008	0.003	-0.006	-0.026	0.060	-0.042
	(0.041)	(0.012)	(0.004)	(0.004)	(0.034)	(0.094)	(0.057)
husband days absent (10 years old)	-0.003	0.006	-0.000	-0.006	-0.036	0.066	-0.026
	(0.040)	(0.010)	(0.005)	(0.004)	(0.032)	(0.092)	(0.058)
husband days absent (11 years old)	-0.008	0.003	-0.004	-0.006	-0.046	0.071	-0.009
	(0.041)	(0.008)	(0.006)	(0.004)	(0.033)	(0.094)	(0.062)
husband days absent (12 years old)	-0.013	0.001	-0.008	-0.006	-0.057	0.076	0.007
	(0.045)	(0.007)	(0.007)	(0.005)	(0.035)	(0.100)	(0.070)
husband days absent (13 years old)	-0.019	-0.001	-0.012	-0.006	-0.067*	0.082	0.023
	(0.050)	(0.007)	(0.009)	(0.005)	(0.039)	(0.109)	(0.079)
husband days absent (14 years old)	-0.024	-0.003	-0.016	-0.006	-0.078*	0.087	0.039
	(0.057)	(0.009)	(0.010)	(0.005)	(0.044)	(0.120)	(0.090)
husband days absent (15 years old)	-0.029	-0.005	-0.020	-0.006	-0.088*	0.093	0.056
	(0.064)	(0.011)	(0.012)	(0.006)	(0.051)	(0.133)	(0.102)

Note: Values represent the sum of the coefficients on $HusbDaysAbsent$ and its interaction with the difference between the child's age and 7, based on the regression results in Table A2. Standard errors clustered at the household level are in parentheses. $^*p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A9: Heterogeneous effects of husbands' work absences on girls' time allocation by age: dry season

	agriculture	grazing	collection	non-agriculture	domestic work	leisure	school
husband days absent (7 years old)	-0.069	-0.009	0.012	-0.001	-0.004	0.035	0.034
	(0.078)	(0.011)	(0.011)	(0.005)	(0.061)	(0.141)	(0.100)
husband days absent (8 years old)	-0.061	-0.006	0.009	-0.001	0.004	0.033	0.021
	(0.068)	(0.010)	(0.010)	(0.004)	(0.052)	(0.123)	(0.086)
husband days absent (9 years old)	-0.053	-0.003	0.006	-0.001	0.013	0.030	0.008
	(0.060)	(0.008)	(0.009)	(0.003)	(0.045)	(0.108)	(0.075)
husband days absent (10 years old)	-0.046	0.000	0.003	-0.001	0.021	0.027	-0.005
	(0.052)	(0.007)	(0.009)	(0.003)	(0.039)	(0.098)	(0.068)
husband days absent (11 years old)	-0.038	0.003	0.000	-0.002	0.030	0.024	-0.018
	(0.045)	(0.007)	(0.009)	(0.002)	(0.037)	(0.093)	(0.067)
husband days absent (12 years old)	-0.031	0.006	-0.002	-0.002	0.038	0.022	-0.031
	(0.041)	(0.007)	(0.009)	(0.002)	(0.039)	(0.095)	(0.071)
husband days absent (13 years old)	-0.023	0.009	-0.005	-0.002	0.047	0.019	-0.044
	(0.039)	(0.007)	(0.010)	(0.002)	(0.043)	(0.103)	(0.080)
husband days absent (14 years old)	-0.015	0.012	-0.008	-0.002	0.055	0.016	-0.057
	(0.040)	(0.007)	(0.012)	(0.003)	(0.051)	(0.117)	(0.092)
husband days absent (15 years old)	-0.008	0.014*	-0.011	-0.002	0.064	0.013	-0.070
	(0.044)	(0.009)	(0.013)	(0.003)	(0.059)	(0.133)	(0.107)

Note: Values represent the sum of the coefficients on $HusbDaysAbsent$, its interaction with Dry, its interaction with the difference between the child's age and 7, and the three-way interaction term between them, based on the regression results in Table A2. Standard errors clustered at the household level are in parentheses. $^*p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A10: Heterogeneous effects of wives' work absences on girls' time allocation by age: rainy season

	agriculture	grazing	collection	non-agriculture	domestic work	leisure	school
wife days absent (7 years old)	0.012	0.012	-0.002	-0.001	-0.029	0.138	-0.129*
	(0.036)	(0.011)	(0.006)	(0.004)	(0.049)	(0.090)	(0.067)
wife days absent (8 years old)	0.021	0.011	-0.000	0.000	-0.011	0.086	-0.107*
	(0.027)	(0.010)	(0.005)	(0.002)	(0.040)	(0.076)	(0.054)
wife days absent (9 years old)	0.030	0.010	0.002	0.002	0.008	0.034	-0.085*
	(0.023)	(0.010)	(0.005)	(0.002)	(0.033)	(0.068)	(0.044)
wife days absent (10 years old)	0.039	0.009	0.004	0.003	0.026	-0.018	-0.063
	(0.027)	(0.009)	(0.006)	(0.003)	(0.029)	(0.067)	(0.040)
wife days absent (11 years old)	0.049	0.007	0.006	0.005	0.045	-0.070	-0.041
	(0.036)	(0.009)	(0.007)	(0.005)	(0.029)	(0.075)	(0.043)
wife days absent (12 years old)	0.058	0.006	0.008	0.007	0.063*	-0.123	-0.019
	(0.048)	(0.009)	(0.008)	(0.007)	(0.034)	(0.089)	(0.052)
wife days absent (13 years old)	0.067	0.005	0.010	0.008	0.082*	-0.175	0.003
	(0.060)	(0.009)	(0.010)	(0.009)	(0.042)	(0.106)	(0.064)
wife days absent (14 years old)	0.076	0.004	0.012	0.010	0.100*	-0.227*	0.024
	(0.073)	(0.009)	(0.012)	(0.011)	(0.051)	(0.125)	(0.078)
wife days absent (15 years old)	0.086	0.003	0.014	0.011	0.119*	-0.279*	0.046
	(0.087)	(0.009)	(0.014)	(0.013)	(0.061)	(0.146)	(0.094)

Note: Values represent the sum of the coefficients on $WifeDaysAbsent$ and its interaction with the difference between the child's age and 7, based on the regression results in Table A2. Standard errors clustered at the household level are in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A11: Heterogeneous effects of wives' work absences on girls' time allocation by age: dry season

	agriculture	grazing	collection	non-agriculture	domestic work	leisure	school
wife days absent (7 years old)	0.016	0.004	0.007	0.004	0.007	-0.035	-0.003
	(0.019)	(0.004)	(0.005)	(0.005)	(0.052)	(0.090)	(0.073)
wife days absent (8 years old)	0.014	0.003	0.005	0.004	0.001	-0.016	-0.011
	(0.015)	(0.003)	(0.004)	(0.005)	(0.042)	(0.069)	(0.059)
wife days absent (9 years old)	0.011	0.002	0.003	0.005	-0.006	0.003	-0.018
	(0.014)	(0.003)	(0.004)	(0.004)	(0.036)	(0.055)	(0.049)
wife days absent (10 years old)	0.008	0.001	0.001	0.006	-0.012	0.023	-0.026
	(0.017)	(0.003)	(0.004)	(0.004)	(0.036)	(0.051)	(0.043)
wife days absent (11 years old)	0.005	0.000	-0.001	0.006	-0.019	0.042	-0.034
	(0.021)	(0.003)	(0.005)	(0.004)	(0.042)	(0.061)	(0.043)
wife days absent (12 years old)	0.002	-0.000	-0.003	0.007*	-0.025	0.061	-0.042
	(0.027)	(0.003)	(0.006)	(0.004)	(0.052)	(0.080)	(0.050)
wife days absent (13 years old)	-0.001	-0.001	-0.005	0.008**	-0.031	0.081	-0.050
	(0.033)	(0.004)	(0.008)	(0.004)	(0.064)	(0.102)	(0.062)
wife days absent (14 years old)	-0.004	-0.002	-0.006	0.008**	-0.038	0.100	-0.058
	(0.040)	(0.004)	(0.009)	(0.004)	(0.077)	(0.126)	(0.075)
wife days absent (15 years old)	-0.007	-0.003	-0.008	0.009**	-0.044	0.119	-0.066
	(0.046)	(0.005)	(0.010)	(0.004)	(0.091)	(0.151)	(0.090)

Note: Values represent the sum of the coefficients on $WifeDaysAbsent$, its interaction with Dry, its interaction with the difference between the child's age and 7, and the three-way interaction term between them, based on the regression results in Table A2. Standard errors clustered at the household level are in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A12: Husbands' lagged time allocation responses to wives' work absences by activity

	(1)	(2)	(3)	(4)	(5)	(6)
	agriculture	grazing	collection	non-agriculture	domestic work	leisure
wife days absent	-0.0325	0.00202	-0.00175	0.0412	0.0453**	-0.0508
	(0.0547)	(0.0273)	(0.00377)	(0.0402)	(0.0192)	(0.0567)
wife days absent × dry	-0.00220	0.0102	-0.00176	-0.128	0.0325	0.0844
	(0.0790)	(0.0337)	(0.0152)	(0.0770)	(0.0425)	(0.0990)
wife days absent (lag)	0.0773*	0.00173	0.0134*	-0.0730	-0.00404	-0.0145
	(0.0424)	(0.0258)	(0.00681)	(0.0492)	(0.0160)	(0.0503)
wife days absent × dry (lag)	-0.0193	0.0104	-0.00677	0.0657	0.0403	-0.0957
	(0.0605)	(0.0416)	(0.0132)	(0.0980)	(0.0391)	(0.0773)
sick days (own)	-0.0772***	-0.0432***	-0.00488**	-0.125***	-0.0288***	0.281***
	(0.0280)	(0.0112)	(0.00239)	(0.0320)	(0.00770)	(0.0408)
sick days (own) × dry	-0.00792	0.0444***	0.00174	-0.0134	0.0149	-0.0437
	(0.0398)	(0.0152)	(0.00735)	(0.0472)	(0.0157)	(0.0573)
sick days (own, lag)	0.00610	-0.00171	-0.00525**	-0.0515	-0.00200	0.0549*
	(0.0244)	(0.0153)	(0.00237)	(0.0324)	(0.00996)	(0.0326)
sick days × dry (own, lag)	-0.0530*	-0.00374	-0.000672	0.0371	0.00556	0.0157
	(0.0283)	(0.0160)	(0.00569)	(0.0532)	(0.0215)	(0.0488)
Mean of dep. var.	1.188	0.320	0.066	1.189	0.404	20.826
Observations	6589	6589	6589	6589	6589	6589
R-squared	0.474	0.406	0.356	0.461	0.368	0.455
Wife days absent + wife days absent × dry (lag)	0.058	0.012	0.007	-0.007	0.036	-0.110
p-value	0.176	0.583	0.533	0.928	0.323	0.177

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the current and lagged numbers of sick days for wives, other male adults, other female adults, boys, girls, and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A13: Wives' lagged time allocation responses to husbands' work absences by activity

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure
husband days absent	-0.115***	0.00630*	-0.0115	0.0142	0.0361	0.0707
	(0.0375)	(0.00329)	(0.0120)	(0.0373)	(0.0460)	(0.0664)
husband days absent × dry	0.174***	-0.0112	-0.00605	-0.0293	-0.116	-0.0116
	(0.0499)	(0.00838)	(0.0170)	(0.0534)	(0.0828)	(0.0918)
husband days absent (lag)	-0.0853**	0.00494*	-0.00614	-0.0302	0.0599	0.0606
	(0.0360)	(0.00258)	(0.00862)	(0.0259)	(0.0369)	(0.0548)
husband days absent × dry (lag)	0.0970*	-0.00459	-0.000984	0.0254	-0.151	0.0330
	(0.0547)	(0.00308)	(0.0312)	(0.0389)	(0.108)	(0.127)
sick days (own)	-0.178***	0.00106	-0.0202***	-0.0203**	-0.175***	0.392***
	(0.0277)	(0.00113)	(0.00421)	(0.00815)	(0.0307)	(0.0473)
sick days (own) × dry	0.0855***	-0.00169	0.00545	-0.0111	0.0481	-0.129**
	(0.0287)	(0.00136)	(0.00648)	(0.0156)	(0.0400)	(0.0577)
sick days (own, lag)	-0.0591***	-0.000756	-0.00310	-0.000681	-0.0387*	0.104***
	(0.0189)	(0.000566)	(0.00445)	(0.00836)	(0.0214)	(0.0274)
sick days × dry (own, lag)	0.0373	-0.000207	-0.00256	-0.0293**	0.0367	-0.0451
	(0.0287)	(0.000776)	(0.00671)	(0.0133)	(0.0280)	(0.0420)
Mean of dep. var.	1.749	0.007	0.288	0.311	3.035	18.605
Observations	10512	10512	10512	10512	10512	10512
R-squared	0.500	0.075	0.278	0.262	0.469	0.427
Husband days absent + husband days absent × dry (lag)	0.012	0.000	-0.007	-0.005	-0.091	0.094
p-value	0.781	0.797	0.798	0.875	0.305	0.386

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the current and lagged numbers of sick days for husband, other wives, other male adults, other female adults, boys, girls, and preschool children, as well as their interaction terms with a dry season dummy; the numbers of other wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A14: Boys' lagged time allocation responses to parental work absences by activity

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	-0.0359	-0.0294	0.00636	0.0356	-0.0328	0.152	-0.0960*
	(0.0923)	(0.0689)	(0.00485)	(0.0232)	(0.0297)	(0.108)	(0.0507)
husband days absent × dry	0.0706	0.0736	-0.00279	-0.0374	0.0329	-0.157	0.0197
	(0.0970)	(0.0960)	(0.00367)	(0.0237)	(0.0417)	(0.139)	(0.0721)
wife days absent	0.0416	-0.0568	0.00411	-0.0197	0.0253	0.00906	-0.00352
	(0.0284)	(0.0380)	(0.00258)	(0.0161)	(0.0222)	(0.0650)	(0.0512)
wife days absent × dry	-0.0350	0.0386	0.00297	-0.0191	-0.0499	0.0929	-0.0305
	(0.0390)	(0.0571)	(0.00520)	(0.0306)	(0.0329)	(0.102)	(0.0621)
husband days absent (lag)	-0.0507	-0.0278	-0.000422	0.0332***	-0.0286	0.182***	-0.107**
	(0.0427)	(0.0494)	(0.00278)	(0.00997)	(0.0199)	(0.0628)	(0.0470)
husband days absent × dry (lag)	0.0663	0.0587	-0.0102	-0.0327**	-0.00838	-0.116	0.0424
	(0.0434)	(0.0776)	(0.0100)	(0.0121)	(0.0257)	(0.104)	(0.0649)
wife days absent (lag)	-0.0192	-0.0470	-0.00175	0.00282	-0.0461**	0.0982	0.0131
	(0.0364)	(0.0292)	(0.00259)	(0.00394)	(0.0210)	(0.0805)	(0.0548)
wife days absent × dry (lag)	0.0108	0.0582	0.00518	-0.0334	0.0341	-0.0818	0.00679
	(0.0289)	(0.0439)	(0.00550)	(0.0227)	(0.0313)	(0.0908)	(0.0752)
sick days (own)	-0.0491**	-0.104***	-0.000991	-0.00881	-0.0916***	0.409***	-0.154***
	(0.0231)	(0.0298)	(0.00281)	(0.00745)	(0.0226)	(0.0627)	(0.0504)
sick days (own) × dry	0.0302	0.0404	-0.00321	-0.0199	0.00873	-0.0876	0.0313
	(0.0299)	(0.0314)	(0.00271)	(0.0171)	(0.0291)	(0.0800)	(0.0713)
sick days (own, lag)	-0.00622	-0.0226	0.00202	-0.00885*	-0.0283	0.113*	-0.0487
	(0.0228)	(0.0257)	(0.00253)	(0.00516)	(0.0184)	(0.0625)	(0.0546)
sick days × dry (own, lag)	0.00647	0.0102	0.00303	-0.00983	0.0198	-0.0301	0.000354
	(0.0265)	(0.0325)	(0.00489)	(0.0146)	(0.0287)	(0.0721)	(0.0714)
Mean of dep. var.	0.383	1.007	0.030	0.028	0.669	19.964	1.919
Observations	8504	8504	8504	8504	8504	8504	8504
R-squared	0.393	0.444	0.248	0.251	0.520	0.586	0.611
husband days absent + husband days absent × dry (lag)	0.016	0.031	-0.011	0.001	-0.037	0.066	-0.065
p-value	0.433	0.539	0.286	0.955	0.042	0.371	0.183
wife days absent + wife days absent × dry (lag)	-0.008	0.011	0.003	-0.031	-0.012	0.016	0.020
p-value	0.706	0.749	0.535	0.223	0.619	0.772	0.624

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the current and lagged numbers of sick days for husband, wives, other male adults, other female adults, brothers, sisters, and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A15: Girls' lagged time allocation responses to parental work absences by activity

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	0.0396	0.00893	-0.000484	-0.00549	-0.0614*	0.0466	-0.0277
	(0.0736)	(0.00575)	(0.00569)	(0.00446)	(0.0334)	(0.106)	(0.0647)
husband days absent × dry	-0.0440	-0.00953	0.00868	0.00500	0.0597	-0.0979	0.0780
	(0.0844)	(0.0112)	(0.0116)	(0.00699)	(0.0487)	(0.126)	(0.0914)
wife days absent	0.0592*	-0.000525	0.00306	0.00443	0.0280	-0.0166	-0.0775**
	(0.0328)	(0.00314)	(0.00598)	(0.00465)	(0.0305)	(0.0666)	(0.0374)
wife days absent × dry	-0.0596*	0.00142	-0.00189	0.00460	-0.0675	0.0845	0.0384
	(0.0347)	(0.00381)	(0.00799)	(0.00741)	(0.0418)	(0.0902)	(0.0558)
husband days absent (lag)	-0.0254	0.00945	-0.0112**	0.00398	-0.0227	0.0387	0.00713
	(0.0200)	(0.00622)	(0.00541)	(0.00557)	(0.0431)	(0.0902)	(0.0685)
husband days absent × dry (lag)	0.00984	-0.00683	0.0265***	-0.00694	0.0242	-0.0161	-0.0306
	(0.0291)	(0.00820)	(0.00932)	(0.00574)	(0.0540)	(0.111)	(0.0845)
wife days absent (lag)	0.0299	0.0105**	-0.00436	-0.00719	0.0154	-0.0371	-0.00712
	(0.0336)	(0.00488)	(0.00590)	(0.00454)	(0.0272)	(0.0709)	(0.0502)
wife days absent × dry (lag)	-0.0625*	-0.00953*	0.0123	0.0144**	-0.0286	0.0377	0.0362
	(0.0322)	(0.00538)	(0.0100)	(0.00695)	(0.0353)	(0.0667)	(0.0520)
sick days (own)	-0.0125	-0.00628	-0.00396	-0.000788	-0.0925***	0.284***	-0.168***
	(0.0254)	(0.00389)	(0.00432)	(0.00132)	(0.0310)	(0.0448)	(0.0347)
sick days (own) × dry	0.00386	0.00698*	0.00299	0.00549	-0.0173	-0.0104	0.00839
	(0.0271)	(0.00374)	(0.00624)	(0.00425)	(0.0302)	(0.0626)	(0.0560)
sick days (own, lag)	0.0272	0.00208	0.000661	0.00424	0.000953	-0.0551	0.0200
	(0.0276)	(0.00371)	(0.00277)	(0.00398)	(0.0202)	(0.0535)	(0.0456)
sick days × dry (own, lag)	-0.0195	-0.00111	-0.000765	-0.00461	-0.0115	0.0746	-0.0372
	(0.0282)	(0.00339)	(0.00411)	(0.00445)	(0.0243)	(0.0505)	(0.0466)
Mean of dep. var.	0.349	0.023	0.083	0.016	1.616	20.047	1.866
Observations	7018	7018	7018	7018	7018	7018	7018
R-squared	0.377	0.197	0.355	0.170	0.591	0.622	0.665
husband days absent + husband days absent × dry (lag)	-0.016	0.003	0.015	-0.003	0.002	0.023	-0.023
p-value	0.480	0.611	0.032	0.506	0.963	0.753	0.691
wife days absent + wife days absent × dry (lag)	-0.033	0.001	0.008	0.007	-0.013	0.001	0.029
p-value	0.042	0.805	0.286	0.141	0.584	0.991	0.453

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the current and lagged numbers of sick days for husband, wives, other male adults, other female adults, brothers, sisters, and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A16: Determinants of external labor use

	(1) male help hours	(2) female help hours	(3) male hired hours	(4) female hired hours
husband days absence	-0.0287**	0.0178	-0.000573	0.0112
	(0.0136)	(0.0130)	(0.00613)	(0.00895)
husband days absence × dry	0.0241	-0.0110	-0.00107	-0.00504
	(0.0158)	(0.0147)	(0.00673)	(0.00837)
wife days absence	-0.00163	-0.00809	-0.0428	0.0304
	(0.0118)	(0.0162)	(0.0409)	(0.0254)
wife days absence × dry	0.00798	0.0185	0.0446	-0.0331
	(0.0197)	(0.0194)	(0.0419)	(0.0263)
husband sick days	0.0159	-0.00676	-0.00381	-0.00671
	(0.0128)	(0.00598)	(0.00596)	(0.00635)
husband sick days × dry	-0.0127	-0.00231	0.00426	-0.00660
	(0.0150)	(0.00904)	(0.00831)	(0.00609)
wife sick days	-0.00367	0.00982	0.0343	-0.00619
	(0.00997)	(0.0134)	(0.0379)	(0.00488)
wife sick days × dry	0.00485	0.00312	-0.0394	0.0132
	(0.0147)	(0.0163)	(0.0380)	(0.0111)
Mean of dep. var.	0.097	0.088	0.023	0.040
Observations	9022	9022	9022	9022
R-squared	0.087	0.078	0.033	0.087
husband days absent + husband days absent × dry	-0.005	0.007	-0.002	0.006
p-value	0.664	0.384	0.676	0.276
wife days absent + wife days absent × dry	0.006	0.010	0.002	-0.003
p-value	0.642	0.542	0.792	0.695
husband sick days + husband sick days × dry	0.003	-0.009	0.000	-0.013
p-value	0.779	0.219	0.924	0.124
wife sick days + wife sick days × dry	0.001	0.013	-0.005	0.007
p-value	0.908	0.250	0.146	0.598

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A17: Robustness check: Husbands' time allocation responses to wives' work absences by activity in the rainy season

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure
wife days absent	-0.000593	0.00704	-0.00404	-0.0327	0.0510**	-0.0189
	(0.0608)	(0.0248)	(0.00334)	(0.0476)	(0.0224)	(0.0674)
wife sick days	-0.0140	0.0263	0.000354	0.0109	-0.00837	-0.0175
	(0.0324)	(0.0235)	(0.00321)	(0.0375)	(0.00966)	(0.0499)
Mean of dep. var.	1.743	0.381	0.0420	0.901	0.340	20.59
Observations	3747	3747	3747	3747	3747	3747
R-squared	0.460	0.378	0.284	0.397	0.373	0.475

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, boys, girls and preschool children; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A18: Robustness check: Husbands' time allocation responses to wives' work absences by activity in the dry season

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure
wife days absent	-0.0447	0.0177	-0.0314*	-0.0700	0.0834*	0.0445
	(0.0451)	(0.0122)	(0.0183)	(0.0707)	(0.0440)	(0.0655)
wife sick days	0.0130	-0.0319***	0.0221	0.0162	-0.00911	-0.0106
	(0.0279)	(0.0115)	(0.0155)	(0.0493)	(0.0205)	(0.0407)
Mean of dep. var.	0.599	0.255	0.0920	1.493	0.472	21.08
Observations	3775	3775	3775	3775	3775	3775
R-squared	0.286	0.378	0.351	0.486	0.350	0.435

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, boys, girls and preschool children; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A19: Robustness check: Wives' time allocation responses to husbands' work absences by activity in the rainy season

	(1)	(2)	(3)	(4)	(5)	(6)
	agriculture	grazing	collection	non-agriculture	domestic work	leisure
husband days absent	-0.108*	0.00664**	-0.0127	0.0169	0.0203	0.0763
	(0.0556)	(0.00291)	(0.0116)	(0.0337)	(0.0525)	(0.0613)
husband sick days	0.0564	-0.00190	0.00716	0.0153	-0.0363	-0.0398
	(0.0424)	(0.00239)	(0.00847)	(0.0204)	(0.0401)	(0.0458)
Mean of dep. var.	2.300	0.00779	0.264	0.204	3.078	18.14
Observations	5982	5982	5982	5982	5982	5982
R-squared	0.477	0.112	0.330	0.184	0.478	0.441

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other wives, other male adults, other female adults, boys, girls and preschool children; the numbers of other wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A20: Robustness check: Wives' time allocation responses to husbands' work absences by activity in the dry season

	(1)	(2)	(3)	(4)	(5)	(6)
	agriculture	grazing	collection	non-agriculture	domestic work	leisure
husband days absent	0.0310	-0.00407	-0.0163*	-0.0329	0.00553	0.0163
	(0.0435)	(0.00701)	(0.00923)	(0.0416)	(0.0437)	(0.0731)
husband sick days	-0.0487	0.00368	0.00542	0.0296	-0.0101	0.0210
	(0.0429)	(0.00676)	(0.0100)	(0.0307)	(0.0334)	(0.0607)
Mean of dep. var.	1.153	0.00618	0.313	0.426	2.989	19.11
Observations	5904	5904	5904	5904	5904	5904
R-squared	0.325	0.0673	0.262	0.279	0.430	0.339

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other wives, other male adults, other female adults, boys, girls and preschool children; the numbers of other wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A21: Robustness check: Boys' time allocation responses to parents' work absences by activity in the rainy season

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	-0.0706	-0.0105	0.00772	0.0310	-0.0326	0.182**	-0.107**
	(0.0546)	(0.0514)	(0.00540)	(0.0240)	(0.0256)	(0.0702)	(0.0428)
wife days absent	0.0216	-0.0268	0.00377	-0.0203	0.0179	0.00598	-0.00214
	(0.0228)	(0.0595)	(0.00283)	(0.0145)	(0.0245)	(0.0769)	(0.0529)
husband sick days	0.0858	-0.00598	-0.00685	-0.0347	0.0487***	-0.155**	0.0676*
	(0.0538)	(0.0330)	(0.00433)	(0.0216)	(0.0172)	(0.0643)	(0.0357)
wife sick days	-0.0118	-0.00451	-0.00258	0.00784	-0.00875	0.0321	-0.0123
	(0.0177)	(0.0453)	(0.00251)	(0.0120)	(0.0163)	(0.0662)	(0.0461)
Mean of dep. var.	0.574	1.246	0.0312	0.0294	0.711	19.70	1.704
Observations	4561	4561	4561	4561	4561	4561	4561
R-squared	0.434	0.443	0.254	0.274	0.573	0.591	0.591

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A22: Robustness check: Boys' time allocation responses to parents' work absences by activity in the dry season

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	0.0109	0.0149	0.00404	-0.00490	0.0209	0.0167	-0.0625
	(0.0200)	(0.0641)	(0.00544)	(0.00697)	(0.0342)	(0.111)	(0.0600)
wife days absent	0.00581	0.0174	0.00744	-0.0352	-0.0157	0.0106	0.00967
	(0.0189)	(0.0344)	(0.00545)	(0.0259)	(0.0285)	(0.0904)	(0.0449)
husband sick days	-0.0293**	-0.00962	-0.00137	-0.00353	-0.0118	-0.00505	0.0607
	(0.0141)	(0.0504)	(0.00237)	(0.00787)	(0.0206)	(0.0707)	(0.0498)
wife sick days	-0.0000616	0.00627	-0.00166	0.0247	0.0308	-0.0520	-0.00804
	(0.00971)	(0.0179)	(0.00225)	(0.0224)	(0.0229)	(0.0565)	(0.0398)
Mean of dep. var.	0.202	0.780	0.0280	0.0270	0.630	20.21	2.123
Observations	4981	4981	4981	4981	4981	4981	4981
R-squared	0.295	0.428	0.222	0.216	0.481	0.571	0.623

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A23: Robustness check: Girls' time allocation responses to parents' work absences by activity in the rainy season

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	-0.00115	0.00626	-0.00191	-0.00730	-0.0500*	0.0756	-0.0215
	(0.0392)	(0.00876)	(0.00509)	(0.00452)	(0.0270)	(0.0875)	(0.0563)
wife days absent	0.0498	0.00807	0.00595	0.00532	0.0336	-0.0446	-0.0581
	(0.0343)	(0.00883)	(0.00687)	(0.00459)	(0.0287)	(0.0809)	(0.0412)
husband sick days	0.0645	-0.00861*	0.00329	0.00311	0.0112	-0.0870	0.0135
	(0.0452)	(0.00424)	(0.00388)	(0.00219)	(0.0198)	(0.0667)	(0.0460)
wife sick days	-0.00292	-0.00976	0.00126	-0.00198	0.00592	-0.0503	0.0578*
	(0.0208)	(0.00932)	(0.00331)	(0.00222)	(0.0211)	(0.0655)	(0.0312)
Mean of dep. var.	0.504	0.0363	0.0938	0.0203	1.726	19.90	1.717
Observations	3675	3675	3675	3675	3675	3675	3675
R-squared	0.419	0.176	0.384	0.200	0.611	0.611	0.639

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A24: Robustness check: Girls' time allocation responses to parents' work absences by activity in the dry season

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	-0.0680	-0.00263	0.00357	-0.00104	0.0148	0.0389	0.0144
	(0.0464)	(0.00774)	(0.00855)	(0.00320)	(0.0323)	(0.0948)	(0.0701)
wife days absent	0.00856	0.00115	0.00137	0.00341	-0.0134	0.0352	-0.0363
	(0.0172)	(0.00251)	(0.00394)	(0.00384)	(0.0393)	(0.0522)	(0.0440)
husband sick days	0.0299	0.00734	0.00466	-0.00185	-0.0148	-0.0231	-0.00211
	(0.0360)	(0.00535)	(0.00492)	(0.00283)	(0.0291)	(0.0791)	(0.0632)
wife sick days	-0.00813	-0.00267*	0.000563	-0.00333	0.0123	-0.00677	0.00809
	(0.0142)	(0.00135)	(0.00265)	(0.00294)	(0.0285)	(0.0419)	(0.0281)
Mean of dep. var.	0.206	0.0115	0.0724	0.0127	1.515	20.18	2.003
Observations	4099	4099	4099	4099	4099	4099	4099
R-squared	0.292	0.229	0.314	0.175	0.554	0.615	0.666

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A25: Robustness check: Husbands' time allocation responses to wives' work absences by activity, excluding the 2007/08 rainy season

	(1)	(2)	(3)	(4)	(5)	(6)
	agriculture	grazing	collection	non-agriculture	domestic work	leisure
wife days absent	0.0272	-0.00502	-0.000913	0.0174	0.0608**	-0.0985
	(0.0685)	(0.0322)	(0.00406)	(0.0311)	(0.0245)	(0.0661)
wife days absent × dry	-0.0628	0.0207	-0.0259	-0.104	0.0181	0.152
	(0.0938)	(0.0372)	(0.0179)	(0.0624)	(0.0434)	(0.100)
wife sick days	-0.0105	0.0395	-0.00158	-0.0327	-0.0128	0.0160
	(0.0329)	(0.0258)	(0.00348)	(0.0277)	(0.0110)	(0.0478)
wife sick days × dry	0.0127	-0.0708**	0.0217	0.0499	0.0122	-0.0239
	(0.0432)	(0.0318)	(0.0157)	(0.0427)	(0.0152)	(0.0620)
sick days (own)	-0.0730**	-0.0316**	-0.00759*	-0.117***	-0.0327***	0.265***
	(0.0295)	(0.0127)	(0.00429)	(0.0317)	(0.00952)	(0.0446)
sick days (own) × dry	0.00324	0.0338**	-0.000187	-0.0316	0.0178	-0.0271
	(0.0447)	(0.0165)	(0.0110)	(0.0578)	(0.0170)	(0.0623)
Mean of dep. var.	1.026	0.323	0.067	1.214	0.426	20.937
Observations	6930	6930	6930	6930	6930	6930
R-squared	0.427	0.396	0.306	0.446	0.350	0.433
wife days absent + wife days absent × dry	-0.036	0.016	-0.027	-0.087	0.079	0.054
p-value	0.437	0.218	0.135	0.218	0.072	0.402
wife sick days + wife sick days × dry	0.002	-0.031	0.020	0.017	-0.001	-0.008
p-value	0.940	0.015	0.202	0.702	0.972	0.846

Note: Standard errors clustered at the household level are in parentheses. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, boys, girls and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A26: Robustness check: Wives' time allocation responses to husbands' work absences by activity, excluding the 2007/08 rainy season

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure
husband days absent	-0.107**	0.00426	-0.00594	-0.0357	0.0349	0.109*
	(0.0398)	(0.00278)	(0.0104)	(0.0278)	(0.0432)	(0.0624)
husband days absent × dry	0.140**	-0.00865	-0.00634	0.0136	-0.0533	-0.0853
	(0.0626)	(0.00744)	(0.0150)	(0.0552)	(0.0770)	(0.0964)
husband sick days	0.0518	0.000316	0.00572	0.0432*	-0.0521	-0.0479
	(0.0364)	(0.00274)	(0.00732)	(0.0238)	(0.0352)	(0.0514)
husband sick days × dry	-0.0975	0.00376	-0.00327	-0.0182	0.0553	0.0585
	(0.0596)	(0.00729)	(0.0119)	(0.0419)	(0.0528)	(0.0745)
sick days (own)	-0.191***	-0.0000282	-0.0173***	-0.0162**	-0.196***	0.421***
	(0.0314)	(0.000622)	(0.00363)	(0.00788)	(0.0282)	(0.0520)
sick days (own) × dry	0.0970**	-0.000545	0.00209	-0.0173	0.0812**	-0.167**
	(0.0367)	(0.000941)	(0.00644)	(0.0130)	(0.0356)	(0.0631)
Mean of dep. var.	1.605	0.005	0.295	0.319	3.007	18.764
Observations	10965	10965	10965	10965	10965	10965
R-squared	0.466	0.063	0.264	0.246	0.453	0.401
husband days absent + husband days absent × dry	0.034	-0.004	-0.012	-0.022	-0.018	0.024
p-value	0.442	0.528	0.245	0.605	0.703	0.741
husband sick days + husband sick days × dry	-0.046	0.004	0.002	0.025	0.003	0.011
p-value	0.261	0.541	0.806	0.419	0.933	0.850

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, boys, girls, other wives and preschool children, as well as their interaction terms with a dry season dummy; the numbers of other wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A27: Robustness check: Boys' time allocation responses to parents' work absences by activity, excluding the 2007/08 rainy season

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	-0.102	-0.0118	0.00726	0.0367	-0.0402	0.216**	-0.106**
	(0.0695)	(0.0593)	(0.00532)	(0.0226)	(0.0286)	(0.0796)	(0.0429)
husband days absent × dry	0.127*	0.0393	-0.00211	-0.0434*	0.0539	-0.189	0.0149
	(0.0720)	(0.0899)	(0.00389)	(0.0257)	(0.0468)	(0.116)	(0.0699)
wife days absent	0.0316	-0.0340	0.00538*	-0.0264	0.0201	0.0319	-0.0286
	(0.0278)	(0.0553)	(0.00312)	(0.0161)	(0.0250)	(0.0814)	(0.0524)
wife days absent × dry	-0.0284	0.0480	0.00282	-0.00670	-0.0294	-0.0304	0.0442
	(0.0393)	(0.0670)	(0.00587)	(0.0255)	(0.0386)	(0.116)	(0.0588)
husband sick days	0.0658	0.0124	-0.00711	-0.0359*	0.0566***	-0.141*	0.0492
	(0.0595)	(0.0419)	(0.00451)	(0.0198)	(0.0178)	(0.0736)	(0.0380)
husband sick days × dry	-0.0999	-0.0312	0.00515	0.0325**	-0.0584*	0.113	0.0386
	(0.0657)	(0.0781)	(0.00427)	(0.0160)	(0.0325)	(0.104)	(0.0563)
wife sick days	-0.0261	0.0139	-0.00345	0.0181	-0.0147	0.00416	0.00808
	(0.0188)	(0.0384)	(0.00272)	(0.0149)	(0.0173)	(0.0683)	(0.0499)
wife sick days × dry	0.0274	0.00364	0.00126	0.00452	0.0445	-0.0625	-0.0188
	(0.0242)	(0.0453)	(0.00314)	(0.0266)	(0.0295)	(0.0906)	(0.0615)
sick days (own)	-0.0512**	-0.108***	0.000614	-0.00869	-0.0955***	0.446***	-0.184***
	(0.0238)	(0.0304)	(0.00267)	(0.00705)	(0.0215)	(0.0669)	(0.0543)
sick days (own) × dry	0.0391	0.0537	-0.00372	-0.0167	0.0131	-0.142	0.0568
	(0.0290)	(0.0347)	(0.00255)	(0.0140)	(0.0283)	(0.0846)	(0.0726)
Mean of dep. var.	0.348	0.990	0.029	0.027	0.685	19.971	1.950
Observations	9214	9214	9214	9214	9214	9214	9214
R-squared	0.325	0.424	0.223	0.226	0.512	0.572	0.601
husband days absent + husband days absent × dry	0.024	0.028	0.005	-0.007	0.014	0.027	-0.091
p-value	0.194	0.671	0.361	0.383	0.697	0.803	0.115
wife days absent + wife days absent × dry	0.003	0.014	0.008	-0.033	-0.009	0.001	0.016
p-value	0.888	0.720	0.143	0.191	0.758	0.987	0.727
husband sick days + husband sick days × dry	-0.034	-0.019	-0.002	-0.003	-0.002	-0.028	0.088
p-value	0.012	0.740	0.416	0.658	0.941	0.710	0.062
wife sick days + wife sick days × dry	0.001	0.018	-0.002	0.023	0.030	-0.058	-0.011
p-value	0.899	0.288	0.374	0.299	0.180	0.313	0.787

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A28: Robustness check: Girls' time allocation responses to parents' work absences by activity, excluding the 2007/08 rainy season

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	-0.0387	0.00916	0.000108	-0.00559	-0.0480	0.0864	-0.00337
	(0.0322)	(0.00609)	(0.00545)	(0.00369)	(0.0329)	(0.0891)	(0.0583)
husband days absent × dry	-0.00362	-0.00975	0.00305	0.00453	0.0701	-0.0626	-0.00171
	(0.0605)	(0.00937)	(0.0112)	(0.00483)	(0.0527)	(0.110)	(0.0828)
wife days absent	0.0582	0.000871	-0.000448	0.0000792	0.0259	-0.00326	-0.0814**
	(0.0371)	(0.00280)	(0.00519)	(0.000826)	(0.0307)	(0.0675)	(0.0396)
wife days absent × dry	-0.0476	0.000749	0.000426	0.00352	-0.0458	0.0370	0.0517
	(0.0399)	(0.00361)	(0.00694)	(0.00424)	(0.0518)	(0.0915)	(0.0587)
husband sick days	0.00793	-0.00673*	0.00126	0.00165	0.0146	-0.0476	0.0289
	(0.0191)	(0.00336)	(0.00360)	(0.00125)	(0.0185)	(0.0606)	(0.0487)
husband sick days × dry	0.0105	0.0133**	0.00371	-0.00332	-0.0316	0.0332	-0.0258
	(0.0491)	(0.00621)	(0.00568)	(0.00252)	(0.0429)	(0.0989)	(0.0752)
wife sick days	-0.00658	-0.00207	0.00439	-0.000956	-0.00139	-0.0730	0.0796***
	(0.0177)	(0.00290)	(0.00296)	(0.00137)	(0.0183)	(0.0517)	(0.0291)
wife sick days × dry	0.00334	-0.00118	-0.00327	-0.00265	0.0166	0.0663	-0.0791*
	(0.0259)	(0.00302)	(0.00469)	(0.00387)	(0.0355)	(0.0677)	(0.0432)
sick days (own)	-0.0161	-0.00473	-0.00325	-0.00105	-0.0903***	0.278***	-0.163***
	(0.0242)	(0.00337)	(0.00473)	(0.00131)	(0.0325)	(0.0459)	(0.0377)
sick days (own) × dry	0.00582	0.00606	0.00167	0.00538	-0.0113	0.00835	-0.0160
	(0.0260)	(0.00383)	(0.00630)	(0.00388)	(0.0302)	(0.0649)	(0.0576)
Mean of dep. var.	0.311	0.020	0.082	0.014	1.625	20.063	1.886
Observations	7576	7576	7576	7576	7576	7576	7576
R-squared	0.358	0.179	0.332	0.132	0.568	0.606	0.648
husband days absent + husband days absent × dry	-0.042	-0.001	0.003	-0.001	0.022	0.024	-0.005
p-value	0.403	0.936	0.709	0.699	0.571	0.808	0.943
wife days absent + wife days absent × dry	0.011	0.002	-0.000	0.004	-0.020	0.034	-0.030
p-value	0.559	0.545	0.996	0.372	0.607	0.484	0.441
husband sick days + husband sick days × dry	0.018	0.007	0.005	-0.002	-0.017	-0.014	0.003
p-value	0.670	0.172	0.316	0.497	0.632	0.864	0.963
wife sick days + wife sick days × dry	-0.003	-0.003	0.001	-0.004	0.015	-0.007	0.000
p-value	0.833	0.021	0.695	0.258	0.606	0.870	0.985

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A29: Robustness check: Husbands' time allocation responses to wives' work absences by activity, with site-by-month fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)
	agriculture	grazing	collection	non-agriculture	domestic work	leisure
wife days absent	0.00133	-0.00321	-0.00512	-0.0162	0.0513**	-0.0262
	(0.0618)	(0.0235)	(0.00556)	(0.0450)	(0.0210)	(0.0672)
wife days absent × dry	-0.0365	0.0124	-0.0242	-0.0621	0.0350	0.0725
	(0.0838)	(0.0250)	(0.0202)	(0.0681)	(0.0423)	(0.0881)
wife sick days	-0.0151	0.0275	0.000683	0.00847	-0.0113	-0.0125
	(0.0309)	(0.0223)	(0.00422)	(0.0363)	(0.0109)	(0.0452)
wife sick days × dry	0.0174	-0.0571**	0.0206	0.0138	0.00685	0.000624
	(0.0365)	(0.0269)	(0.0178)	(0.0506)	(0.0178)	(0.0563)
sick days (own)	-0.0821*	-0.0453***	-0.00713**	-0.112***	-0.0294***	0.278***
	(0.0419)	(0.0127)	(0.00311)	(0.0299)	(0.00844)	(0.0426)
sick days (own) × dry	0.0193	0.0464**	-0.000497	-0.0454	0.0155	-0.0389
	(0.0473)	(0.0173)	(0.00706)	(0.0497)	(0.0137)	(0.0582)
Mean of dep. var.	1.188	0.320	0.066	1.189	0.404	20.826
Observations	7531	7531	7531	7531	7531	7531
R-squared	0.400	0.329	0.261	0.405	0.300	0.395
wife days absent + wife days absent × dry	-0.035	0.009	-0.029	-0.078	0.086	0.046
p-value	0.382	0.359	0.173	0.216	0.047	0.460
wife sick days + wife sick days × dry	0.002	-0.030	0.021	0.022	-0.004	-0.012
p-value	0.924	0.020	0.241	0.583	0.726	0.764

Note: Standard errors clustered at the household level are in parentheses. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, boys, girls and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A30: Robustness check: Wives' time allocation responses to husbands' work absences by activity, with site-by-month fixed effects

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure
husband days absent	-0.105*	0.00592**	-0.00519	0.00524	0.0206	0.0775
	(0.0536)	(0.00286)	(0.0103)	(0.0354)	(0.0427)	(0.0635)
husband days absent × dry	0.138**	-0.0117	0.000952	-0.0230	-0.0453	-0.0565
	(0.0667)	(0.00728)	(0.0157)	(0.0505)	(0.0718)	(0.0864)
husband sick days	0.0661*	-0.00120	0.00454	0.0260	-0.0390	-0.0548
	(0.0382)	(0.00172)	(0.00775)	(0.0212)	(0.0343)	(0.0447)
husband sick days × dry	-0.106*	0.00652	-0.00526	0.000322	0.0330	0.0685
	(0.0579)	(0.00667)	(0.0111)	(0.0366)	(0.0501)	(0.0705)
sick days (own)	-0.187***	0.00244	-0.0218***	-0.0174**	-0.195***	0.419***
	(0.0293)	(0.00178)	(0.00404)	(0.00768)	(0.0312)	(0.0478)
sick days (own) × dry	0.104***	-0.00329*	0.00770	-0.0139	0.0807**	-0.180***
	(0.0300)	(0.00189)	(0.00623)	(0.0142)	(0.0376)	(0.0574)
Mean of dep. var.	1.749	0.007	0.288	0.311	3.035	18.605
Observations	11891	11891	11891	11891	11891	11891
R-squared	0.427	0.039	0.206	0.194	0.405	0.366
husband days absent + husband days absent × dry	0.034	-0.006	-0.004	-0.018	-0.025	0.021
p-value	0.419	0.384	0.679	0.628	0.580	0.742
husband sick days + husband sick days × dry	-0.040	0.005	-0.001	0.026	-0.006	0.014
p-value	0.304	0.409	0.931	0.366	0.856	0.785

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, boys, girls, other wives and preschool children, as well as their interaction terms with a dry season dummy; the numbers of other wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A31: Robustness check: Boys' time allocation responses to parents' work absences by activity, with site-by-month fixed effects

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	-0.0686	-0.00229	0.00721	0.0258	-0.0251	0.149*	-0.0861
	(0.0605)	(0.0525)	(0.00451)	(0.0182)	(0.0221)	(0.0795)	(0.0516)
husband days absent × dry	0.0987	0.0352	-0.00264	-0.0301	0.0442	-0.119	-0.0265
	(0.0636)	(0.0806)	(0.00360)	(0.0204)	(0.0384)	(0.119)	(0.0912)
wife days absent	0.0230	-0.0450	0.00395	-0.0190	0.0158	-0.0160	0.0372
	(0.0272)	(0.0491)	(0.00259)	(0.0127)	(0.0208)	(0.0679)	(0.0550)
wife days absent × dry	-0.0168	0.0553	0.00307	-0.0103	-0.0236	0.0557	-0.0634
	(0.0376)	(0.0705)	(0.00573)	(0.0229)	(0.0377)	(0.102)	(0.0693)
husband sick days	0.0933	-0.0112	-0.00664*	-0.0272	0.0400**	-0.112	0.0240
	(0.0563)	(0.0359)	(0.00344)	(0.0168)	(0.0178)	(0.0826)	(0.0429)
husband sick days × dry	-0.131**	-0.0105	0.00480	0.0220*	-0.0450	0.0788	0.0811
	(0.0615)	(0.0651)	(0.00346)	(0.0123)	(0.0300)	(0.112)	(0.0654)
wife sick days	-0.0117	0.0104	-0.00310	0.0114	-0.0160	0.0389	-0.0299
	(0.0199)	(0.0401)	(0.00233)	(0.0124)	(0.0136)	(0.0561)	(0.0418)
wife sick days × dry	0.00904	0.0109	0.000691	0.00563	0.0386	-0.0785	0.0137
	(0.0238)	(0.0461)	(0.00246)	(0.0226)	(0.0243)	(0.0716)	(0.0541)
sick days (own)	-0.0315	-0.0774**	0.00160	-0.0110*	-0.0814***	0.368***	-0.168***
	(0.0193)	(0.0289)	(0.00220)	(0.00638)	(0.0221)	(0.0790)	(0.0570)
sick days (own) × dry	0.0187	0.0308	-0.00634**	-0.0126	0.00253	-0.0762	0.0430
	(0.0230)	(0.0289)	(0.00267)	(0.0135)	(0.0269)	(0.0836)	(0.0634)
Mean of dep. var.	0.383	1.007	0.030	0.028	0.669	19.964	1.919
Observations	9554	9554	9554	9554	9554	9554	9554
R-squared	0.320	0.386	0.172	0.193	0.469	0.506	0.482
husband days absent + husband days absent × dry	0.030	0.033	0.005	-0.004	0.019	0.030	-0.113
p-value	0.125	0.478	0.357	0.428	0.551	0.806	0.234
wife days absent + wife days absent × dry	0.006	0.010	0.007	-0.029	-0.008	0.040	-0.026
p-value	0.729	0.820	0.244	0.208	0.804	0.621	0.575
husband sick days + husband sick days × dry	-0.038	-0.022	-0.002	-0.005	-0.005	-0.033	0.105
p-value	0.010	0.631	0.397	0.453	0.826	0.682	0.070
wife sick days + wife sick days × dry	-0.003	0.021	-0.002	0.017	0.023	-0.040	-0.016
p-value	0.756	0.351	0.274	0.328	0.299	0.459	0.680

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A32: Robustness check: Girls' time allocation responses to parents' work absences by activity, with site-by-month fixed effects

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure	(7) school
husband days absent	-0.00785	0.00470	0.000421	-0.00294	-0.0585**	0.0839	-0.0197
	(0.0327)	(0.00678)	(0.00461)	(0.00183)	(0.0274)	(0.0760)	(0.0588)
husband days absent × dry	-0.0123	0.000695	0.00280	0.00445	0.0640	-0.0588	-0.000769
	(0.0628)	(0.00958)	(0.00971)	(0.00314)	(0.0513)	(0.116)	(0.0776)
wife days absent	0.0447	0.00595	0.0103	0.00402	0.0339	-0.0571	-0.0418
	(0.0366)	(0.00652)	(0.00613)	(0.00466)	(0.0228)	(0.0737)	(0.0466)
wife days absent × dry	-0.0420	-0.00367	-0.0133	-0.00106	-0.0554	0.0653	0.0500
	(0.0403)	(0.00700)	(0.00812)	(0.00490)	(0.0355)	(0.0896)	(0.0565)
husband sick days	0.0532	-0.00695*	0.000649	-0.000581	0.00961	-0.0496	-0.00636
	(0.0499)	(0.00377)	(0.00377)	(0.00164)	(0.0170)	(0.0692)	(0.0413)
husband sick days × dry	-0.0427	0.00857	0.00344	-0.00268	-0.0191	0.0464	0.00615
	(0.0674)	(0.00630)	(0.00483)	(0.00285)	(0.0385)	(0.103)	(0.0561)
wife sick days	-0.00323	-0.00797	-0.00256	-0.000326	0.000141	-0.0263	0.0402
	(0.0290)	(0.00667)	(0.00287)	(0.00162)	(0.0166)	(0.0634)	(0.0335)
wife sick days × dry	0.00591	0.00539	0.00463	-0.00199	0.0211	0.0485	-0.0836*
	(0.0357)	(0.00662)	(0.00470)	(0.00205)	(0.0288)	(0.0747)	(0.0414)
sick days (own)	-0.0207	-0.00639**	-0.00242	-0.00272*	-0.0888***	0.278***	-0.157***
	(0.0260)	(0.00307)	(0.00479)	(0.00156)	(0.0283)	(0.0461)	(0.0357)
sick days (own) × dry	0.0118	0.00608*	0.000850	0.00484	-0.0156	0.0104	-0.0184
	(0.0268)	(0.00304)	(0.00611)	(0.00538)	(0.0286)	(0.0660)	(0.0590)
Mean of dep. var.	0.349	0.023	0.083	0.016	1.616	20.047	1.866
Observations	7782	7782	7782	7782	7782	7782	7782
R-squared	0.314	0.107	0.280	0.084	0.537	0.522	0.510
husband days absent + husband days absent × dry	-0.020	0.005	0.003	0.002	0.006	0.025	-0.020
p-value	0.666	0.432	0.696	0.499	0.886	0.831	0.834
wife days absent + wife days absent × dry	0.003	0.002	-0.003	0.003	-0.022	0.008	0.008
p-value	0.897	0.326	0.486	0.265	0.456	0.866	0.862
husband sick days + husband sick days × dry	0.011	0.002	0.004	-0.003	-0.010	-0.003	-0.000
p-value	0.811	0.746	0.367	0.185	0.765	0.970	0.997
wife sick days + wife sick days × dry	0.003	-0.003	0.002	-0.002	0.021	0.022	-0.043
p-value	0.867	0.069	0.491	0.023	0.360	0.608	0.206

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the number of sick days of other male adults, other female adults, brothers, sisters and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A33: Robustness check: Husbands' time allocation responses to wives' work absences by activity, with an alternative definition of illness variables

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure
wife illness	-0.157	0.0881	-0.00855	0.0471	-0.0124	0.0458
	(0.163)	(0.120)	(0.0175)	(0.192)	(0.0493)	(0.248)
wife illness × dry	0.115	-0.180	0.0631	0.0651	0.00867	-0.0691
	(0.168)	(0.136)	(0.0570)	(0.281)	(0.0695)	(0.344)
wife work absence due to illness	0.0614	0.120	-0.00136	-0.198	0.178**	-0.165
	(0.222)	(0.129)	(0.0255)	(0.178)	(0.0780)	(0.296)
wife work absence due to illness × dry	-0.153	-0.0655	-0.0648	-0.0380	0.0245	0.289
	(0.245)	(0.138)	(0.0731)	(0.318)	(0.133)	(0.392)
Mean of dep. var.	1.188	0.320	0.066	1.189	0.404	20.826
Observations	7528	7528	7528	7528	7528	7528
R-squared	0.449	0.365	0.301	0.435	0.337	0.432
wife absent + wife absent × dry	-0.092	0.054	-0.066	-0.236	0.203	0.124
p-value	0.524	0.296	0.240	0.395	0.105	0.586
wife illness + wife illness × dry	-0.042	-0.092	0.055	0.112	-0.004	-0.023
p-value	0.747	0.017	0.253	0.558	0.950	0.901

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the dummies for sickness of other male adults, other female adults, boys, girls and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A34: Robustness check: Wives' time allocation responses to husbands' work absences by activity, with an alternative definition of illness variables

	(1) agriculture	(2) grazing	(3) collection	(4) non-agriculture	(5) domestic work	(6) leisure
husband illness	0.166	-0.0106	0.0335	0.0775	-0.189	-0.0745
	(0.189)	(0.0101)	(0.0414)	(0.0813)	(0.138)	(0.213)
husband illness × dry	-0.205	0.0305	-0.0253	-0.0206	-0.0473	0.261
	(0.235)	(0.0317)	(0.0619)	(0.155)	(0.213)	(0.322)
husband work absence due to illness	-0.377*	0.0251**	-0.0291	0.00635	0.119	0.257
	(0.208)	(0.0107)	(0.0507)	(0.104)	(0.166)	(0.204)
husband work absence due to illness × dry	0.368	-0.0470	-0.0109	-0.0499	0.0652	-0.322
	(0.228)	(0.0296)	(0.0717)	(0.197)	(0.270)	(0.319)
Mean of dep. var.	1.749	0.007	0.288	0.311	3.035	18.605
Observations	11889	11889	11889	11889	11889	11889
R-squared	0.475	0.073	0.262	0.233	0.436	0.404
husband absent + husband absent × dry	-0.009	-0.022	-0.040	-0.044	0.185	-0.065
p-value	0.950	0.449	0.321	0.766	0.325	0.795
husband illness + husband illness × dry	-0.039	0.020	0.008	0.057	-0.236	0.186
p-value	0.802	0.507	0.848	0.591	0.169	0.408

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the dummies for sickness of other wives, other male adults, other female adults, boys, girls and preschool children, as well as their interaction terms with a dry season dummy; the numbers of other wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A35: Robustness check: Boys' time allocation responses to parents' work absences by activity, with an alternative definition of illness variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	agriculture	grazing	collection	non-agriculture	domestic work	leisure	school
husband illness	0.468*	-0.112	-0.0179	-0.112	0.173**	-0.671**	0.271
	(0.264)	(0.121)	(0.0251)	(0.0728)	(0.0647)	(0.269)	(0.174)
husband illness × dry	-0.621**	-0.0347	0.00273	0.0679	-0.268**	0.951**	-0.0982
	(0.278)	(0.243)	(0.0246)	(0.0404)	(0.121)	(0.414)	(0.236)
husband work absence due to illness	-0.362	0.116	0.0155	0.0868	-0.0699	0.650**	-0.437**
	(0.254)	(0.167)	(0.0292)	(0.0743)	(0.0952)	(0.269)	(0.194)
husband work absence due to illness × dry	0.485*	0.0914	0.000517	-0.0871	0.210	-1.111**	0.411
	(0.253)	(0.284)	(0.0250)	(0.0721)	(0.157)	(0.486)	(0.342)
wife illness	-0.151	0.00807	-0.0126	0.0545	0.00384	0.121	-0.0238
	(0.108)	(0.142)	(0.00977)	(0.0666)	(0.0635)	(0.244)	(0.209)
wife illness × dry	0.114	0.101	-0.00190	0.0209	0.0908	-0.293	-0.0319
	(0.135)	(0.156)	(0.0134)	(0.107)	(0.101)	(0.341)	(0.259)
wife work absence due to illness	0.177	-0.0201	0.00867	-0.0813	-0.0932	0.0417	-0.0324
	(0.145)	(0.173)	(0.0101)	(0.0639)	(0.0960)	(0.283)	(0.228)
wife work absence due to illness × dry	-0.187	0.0668	0.0243	-0.0193	0.115	-0.0382	0.0383
	(0.173)	(0.255)	(0.0187)	(0.0942)	(0.162)	(0.450)	(0.236)
Mean of dep. var.	0.383	1.007	0.030	0.028	0.669	19.964	1.919
Observations	9543	9543	9543	9543	9543	9543	9543
R-squared	0.387	0.427	0.230	0.229	0.508	0.568	0.599
husband absent + husband absent × dry	0.123	0.207	0.016	-0.000	0.140	-0.461	-0.025
p-value	0.070	0.379	0.430	0.995	0.167	0.270	0.930
wife absent + wife absent × dry	-0.010	0.047	0.033	-0.101	0.021	0.003	0.006
p-value	0.898	0.743	0.046	0.196	0.855	0.993	0.977
husband illness + husband illness × dry	-0.153	-0.147	-0.015	-0.044	-0.095	0.280	0.173
p-value	0.002	0.441	0.204	0.431	0.271	0.315	0.390
wife illness + wife illness × dry	-0.037	0.109	-0.014	0.075	0.095	-0.172	-0.056
p-value	0.501	0.191	0.123	0.324	0.277	0.496	0.756

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the dummies for sickness of other male adults, other female adults, brothers, sisters and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

Table A36: Robustness check: Girls' time allocation responses to parents' work absences by activity, with an alternative definition of illness variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	agriculture	grazing	collection	non-agriculture	domestic work	leisure	school
husband illness	0.244	-0.0384*	0.0109	0.00183	-0.0264	-0.199	0.00749
	(0.292)	(0.0194)	(0.0164)	(0.00531)	(0.112)	(0.371)	(0.224)
husband illness × dry	-0.121	0.0647*	0.000380	-0.00868	-0.0976	0.478	-0.316
	(0.318)	(0.0319)	(0.0196)	(0.00879)	(0.166)	(0.506)	(0.360)
husband work absence due to illness	-0.159	0.0469	-0.00415	-0.0139	-0.0964	0.0814	0.145
	(0.212)	(0.0353)	(0.0159)	(0.0129)	(0.135)	(0.401)	(0.251)
husband work absence due to illness × dry	-0.0143	-0.0505	0.0227	0.00897	0.210	-0.377	0.200
	(0.241)	(0.0476)	(0.0328)	(0.0142)	(0.194)	(0.504)	(0.390)
wife illness	-0.00815	-0.0410	0.0231*	0.00123	0.135**	-0.357	0.246
	(0.113)	(0.0363)	(0.0118)	(0.00712)	(0.0611)	(0.296)	(0.180)
wife illness × dry	-0.0117	0.0298	-0.0178	-0.0193	-0.137	0.336	-0.180
	(0.154)	(0.0372)	(0.0232)	(0.0143)	(0.153)	(0.314)	(0.187)
wife work absence due to illness	0.200	0.0298	0.0161	0.0136	-0.137	0.0903	-0.213
	(0.147)	(0.0315)	(0.0212)	(0.0173)	(0.0976)	(0.362)	(0.208)
wife work absence due to illness × dry	-0.211	-0.0270	-0.0195	0.00160	0.171	0.0783	0.00676
	(0.193)	(0.0320)	(0.0335)	(0.0217)	(0.168)	(0.459)	(0.266)
Mean of dep. var.	0.349	0.023	0.083	0.016	1.616	20.047	1.866
Observations	7777	7777	7777	7777	7777	7777	7777
R-squared	0.367	0.169	0.334	0.166	0.566	0.598	0.643
husband absent + husband absent × dry	-0.173	-0.004	0.019	-0.005	0.113	-0.296	0.345
p-value	0.357	0.911	0.512	0.625	0.400	0.487	0.248
wife absent + wife absent × dry	-0.011	0.003	-0.003	0.015	0.034	0.169	-0.206
p-value	0.885	0.706	0.866	0.235	0.829	0.333	0.138
husband illness + husband illness × dry	0.123	0.026	0.011	-0.007	-0.124	0.279	-0.309
p-value	0.423	0.203	0.423	0.365	0.234	0.414	0.255
wife illness + wife illness × dry	-0.020	-0.011	0.005	-0.018	-0.002	-0.020	0.067
p-value	0.799	0.042	0.739	0.096	0.987	0.892	0.517

Note: Standard errors clustered at the household level are in parentheses. The unit of the dependent variable is hours. The following variables are included as controls but not reported: the dummies for sickness of other male adults, other female adults, brothers, sisters and preschool children, as well as their interaction terms with a dry season dummy; the numbers of wives, other male adults, other female adults, boys, girls, and preschool children in the household; a dummy for the husband's absence; dummies for various field-level shocks, such as crop disease, insect damage, animal attacks, theft, and fire; and the exact number of days in each survey period. Statistical significance is denoted by $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.