Labor Shortages Despite Underemployment? Seasonality in Time Use in Malawi

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CHAPTER 5

Labor Shortages Despite Underemployment? Seasonality in Time Use in Malawi

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Evidence for Malawi and other developing countries suggests the existence of labor shortages at the peak of the cropping season, with negative impacts on the ability of households to make the most of their endowments such as land. At the same time, for most of the year, there is substantial underemployment, especially in rural areas. It could therefore be argued that seasonality in the demand for labor is leading to both underemployment and labor shortages. This paper provides basic descriptive data from a 2004 nationally representative household survey to assess the typical workload of the population. The data confirm the presence of strong seasonality effects in the supply of labor, as well as substantial differences in workload between men and women due to the burden of domestic work, including the time spent for collecting water and wood.

The issue of seasonality in labor demand and supply in developing countries has been discussed extensively in the literature. For example, using household panel data from India, Skoufias (1993, 1994) suggests the presence of significant intertemporal substitution in the labor supply of women, but not of men. Dercon and Krishnan (2000) use data from rural Ethiopia to show high levels of seasonal and year-to-year variability in consumption and poverty, with households also responding to changes in labor demand and prices. Pitt and Khandker (2002) show how group-based credit mechanisms used to fund self-employment by landless households in Bangladesh help to smooth

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seasonal patterns of consumption and even out male labor supply. Ellis (2000) suggests that households adopt multiple livelihood strategies in part to deal with seasonality, with diversified rural livelihoods leading to a reduction in vulnerability. Finally, using data from India, Kanwar (2004) analyzes how labor supply and demand respond to wages in the agricultural market for daily-rated labor. While the agricultural labor market is in equilibrium during the rainy season, it experiences excess supply in the post-rainy season.

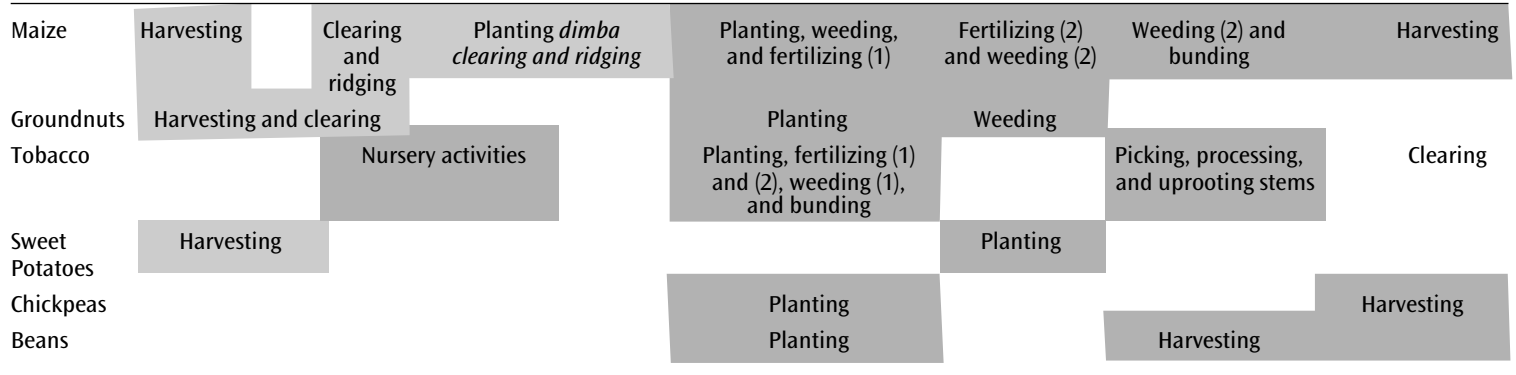
The importance of seasonality in the allocation of rural farm labor in Malawi is also relatively well documented. For example, Kamanga (2002) provides seasonal cropping and labor calendars for two villages. The first village, Chisepo, is located in the Kasungu area. The village has a semi-arid to sub-humid climate with unimodal rainfall from November to April (the annual rainfall is estimated at 845 mm with a mean temperature of 25°C). Farmers cultivate tobacco, maize and groundnut on soils of low to moderate fertility. The second village is Songani, in the Zomba area. Rainfalls are concentrated between October and April, with *Chiperoni* rains from May to July. The total annual rainfalls vary from 800 to 1,200 mm, and the mean temperature is 22.5°C. Apart from maize, farmers also cultivate cassava, pigeon peas, groundnuts, beans, and pumpkins. Farming is seasonally driven, with few differences between the two villages. In both villages the periods of highest intensity of labor are concentrated in December–January, as shown in Tables 5.1 and 5.2 where the dark shaded areas represent high labor intensity.

As explained by Brummett (2002), the fact that labor is scarce at some periods of the year has implications for the ability of farmers to diversify and enter into new activities. In the case of aquaculture, apart from the seasonal availability of inputs for the ponds, the availability of water and labor are constraining aquaculture adoption and production. That is, household labor is required for the production of staple crops precisely when inputs for aquaculture are available. Brummett argues that such constraints to the development of aquaculture are seldom recognized in analytical work and programs.

A large sample study for Malawi by Tango International (2003) based on a household survey conducted in 2003–2004 with data on 2030 households identified the scarcity of labor as an important constraint to the development of rural farming. The most common reason cited by households for not cultivating all of their land was a lack of inputs such as fertilizer and pesticides (cited by 62.7 percent of households). This was followed by the lack of labor (44.5 percent), and the lack of seeds (21.1 percent). Other reasons cited for not cultivating all the land available were the lack of rainfall (5 percent), the need to leave land as fallow in order to conserve soil fertility (2.6 percent), and other reasons (13.5 percent). When combined with an analysis of the level of vulnerability of the households in the sample, it appeared that more vulnerable households were more likely to cite the lack of labor as the main constraint to farming all their available land.

Another interesting finding from the Tango International study relates to the relationship between labor availability and food security. Households were asked why their food stock expectations had decreased for the current harvest as compared to a normal harvest, which led to a lack of food for many. Most households associated the insufficient availability of food to a lack of inputs, an issue likely to be related to the recent reduction in input subsidies provided by the government (Starter Packs which contain, among other items, fertilizer). The impacts of droughts and "other reasons" came in as the second and third most important reasons for a lack of sufficient food. The lack of labor ranked fourth, before the lack of land, poor soils, not enough seeds, and draught power. There are signs

Table 5.1. Seasonality in Cropping Activities, Kasungu, Northern Malawi



Note: Dark shaded areas represent high labor intensity.

Source: Kamanga (2002).

Table 5.2. Seasonality in Cropping Activities, Zomba, Southern Malawi

Crops	June	July	August	September	October	November	December	January	February	March	April	May
Maize	Incorporation of residues (clearing)		Incorporation of residues and ridging		Ridging, planting, weeding (1) and fertilizing (1)			Weeding (2) and fertilizing (2)	Weedubg (2) and bunding	Harvesting		
Groundnut	Harvesting and clearing					Planting		Weeding				Harvesting
Pigeons peas		Harvesting				Planting and weeding		Weeding				
Cassava		Planting and ridging										
Sweet potatoes	Harvesting							Planting				
Mucuna						Planting at low population densities					Harvesting	
Chick peas						Planting						Harvesting
Beans						Planting					Harvesting	

Note: Dark shaded areas represent high labor intensity.
Source: Kamanga (2002).

that the problem of a lack of labor is being exacerbated by the HIV/AIDS crisis. Apart from the direct impact of death itself, caring for the sick, and burying the dead has led to a reduction in the time available for productive activities (Shah and others 2001).[14]

The above evidence for Malawi on labor shortages suggests that such shortages are temporary, but that they do have a negative effect on the ability of households to make the most of their endowments. It could be argued that seasonality in the demand for labor is leading to both underemployment and labor shortages. For most of the year, household members have extra time available to undertake productive ventures, but many do not because of the limited opportunities available to them. At the peak of the cropping season, around December–January, the demands in the agriculture sector make it difficult to find the labor necessary to perform all the work that has to be done. In addition, time constraints may force household to conduct necessary tasks (such as planting and weeding) at suboptimal times, thereby reducing yields.

The contribution of this paper is to provide basic yet detailed statistics from recent household survey data on time use patterns in Malawi. This is done using a 2004 nationally representative household survey that includes questions on time use. Because the survey was implemented over a 13-month period, we can analyze changes in the patterns of time use between households who were interviewed at different periods of the year. We limit the analysis to providing basic statistics on the allocation of time by individuals to different tasks at different periods of the year, with breakdowns according to age, gender, and the status of the household in the distribution of consumption per capita. The results in the next section confirm the presence of strong seasonality in time use. The brief conclusion that follows suggests that seasonality leads to different policy implications as compared to a situation without such seasonality.

Data and Empirical Results

This paper provides measures of time use in Malawi using the 2004 Second Integrated Household Survey. Data are available for all household members in the sample of 11,280 households (a total of over 52,000 individuals). The questions on time use are asked to all individuals above 4 years of age. More specifically, the employment and time use model in the survey asks the following questions to all household members above 4 years of age:

(a) How many hours did you spend yesterday cooking, doing laundry, cleaning your house, and the like?
(b) How many hours did you spend yesterday collecting firewood (or other fuel materials)?
(c) How many hours in the last seven days did you spend on household agricultural activities (including livestock) or fishing, whether for sale or for household food?

14. In contrast, in labor surplus areas, on average there may be no observable impact of a prime-age death on the labor supply of surviving household members, as suggested in a study of northwest Tanzania by Beegle (2005).

(d) How many hours in the last seven days did you do any work for a wage, salary, commission, or any payment in kind, excluding *ganyu*?[15]
(e) How many hours in the last seven days did you engage in casual, part-time or ganyu labor?
(f) How many hours in the last seven days did you help in any of the household's nonagricultural or non-fishing household businesses, if any?
(g) How many hours in the last seven days did you run or do any kind of nonagricultural or non-fishing household business, big or small, for yourself?

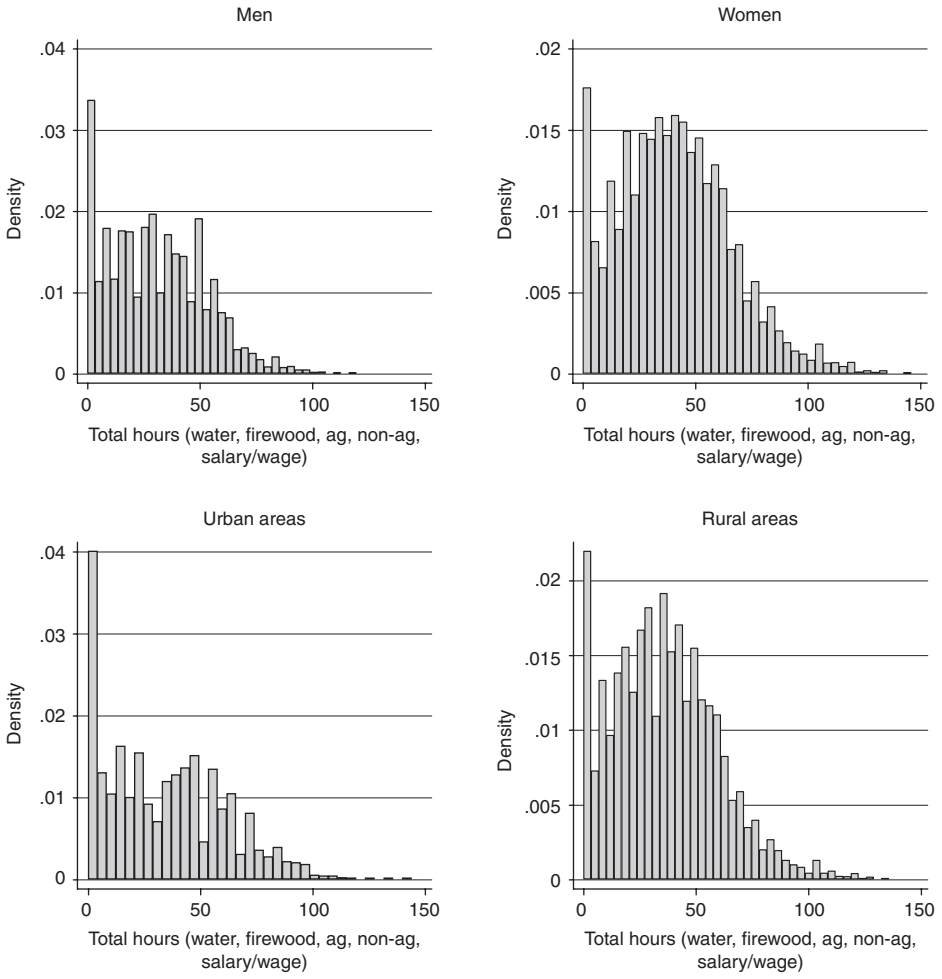
When computing the total time of work, the individual-level indicator is the sum of the time spent by individuals in the various categories of work identified in the survey, whether this time is spent in the labor market, for domestic chores or for collecting water and wood. The absence of questions in the survey on the time spent by individuals caring for children, sick household members and disabled people makes it likely that our estimates of the total workload of individuals are too low, but this bias need not be very large if it many activities related to care are carried on as secondary activities in combination with other activities (such as cooking, cleaning, or making laundry) that are recorded in the survey.[16] Another limitation of the data is that there is a single question for all domestic chores (cooking, laundry, and cleaning) apart from water and wood collection, which is likely to lead to some noise in the data. Yet, given that we are focusing in this paper on the seasonality of time use, and that domestic chores are not likely to have the same degree of seasonality as labor-related activities, the potential errors of measurement for domestic work time are less serious.

Figure 5.1 provides the distribution of total individual working hours per week for adults (individuals aged 15 and above). Hours have been aggregated into hour worked in the last seven days (where daily hour non-income generating work is multiplied by seven). The four graphs account respectively for men and women, as well as urban and rural areas. Clearly, rural individuals work longer hours than urban individuals, and women work more than men. Mean values for the number of hours worked are given at the national level and in rural areas by quintile of consumption per equivalent adult and by month in Tables 5.3 and 5.4 for both the adult population and children. The mean working time year-round nationally is 36.4 hours per week for the adult population (above 15 years of age) and a much lower 8.5 hours for children. In rural areas, where 88 percent of the population lives, the mean values are slightly higher.

What is most important for our purpose is the seasonality evident in Tables 5.5 and 5.6. For the adult population, the average level of working hours is peaking in December–January, which is as discussed earlier, the busy part of the cropping season. At that time, the adult population works on average more than five hours more per week than the annual mean. The seasonal differential in working hours is largest for the individuals who belong to the poorest quintile of the distribution of consumption per capita. In rural areas, the

15. *Ganyu* refers to short-term, temporary rural daily labor.
16. Malawi is facing one of the world's most severe HIV/AIDS Pandemics. With an estimated prevalence rate of 14.2 percent, it ranks eighth in the world (Population Reference Bureau 2004).

Figure 5.1. Distribution of Individual Working Time by Sex and Area (Individuals aged 15+)



Source: Authors' estimation using IHS2.

additional workload in December compared to the annual average amounts to close to 10 hours in the first quintile. December is also the busiest month of the year for children.

Tables 5.5 and 5.6 provide additional information by showing the distribution of hours of work according to the type of work performed and the gender of the individual. As expected, adult men spend more time in the labor market than adult women, essentially because of a larger average amount of time given to salaried work, as well as casual, part-time and *ganyu* work and non-agricultural business-related work. On the other hand, the differences between adult men and women in terms of the time spent on agricultural work

Table 5.3. Total Time Spent Working by Area and Consumption Quintile, National Sample

	Poorest Quintile	2nd Quintile	3rd Quintile	4th Quintile	Richest Quintile	Total
	National, adults (Age 15 and over)					
March 2004	34.0	32.6	36.0	35.6	38.4	35.7
April 2004	34.1	34.7	35.6	35.7	37.8	35.8
May 2004	28.3	31.7	33.7	34.5	38.3	33.8
June 2004	34.0	33.2	35.6	36.0	35.4	35.1
July 2004	28.4	33.1	32.2	34.4	35.2	33.5
August 2004	33.3	34.9	33.2	32.9	36.3	34.3
September 2004	34.5	35.5	35.4	38.3	34.5	35.7
October 2004	34.9	39.2	38.5	38.6	37.5	37.6
November 2004	39.8	40.2	40.3	38.1	40.3	39.8
December 2004	44.5	42.1	42.1	37.9	41.3	41.7
January 2005	38.9	41.1	43.1	41.1	42.1	41.2
February 2005	35.1	36.1	37.6	38.8	35.3	36.5
March 2005	33.8	38.5	36.7	36.2	41.2	37.0
Annual average	35.0	36.2	36.5	36.3	37.5	36.4
	National, children (Below 15 years old)					
March 2004	8.0	7.7	6.9	8.5	8.5	7.9
April 2004	9.5	10.7	9.9	10.4	10.1	10.2
May 2004	5.6	7.8	7.3	9.8	6.4	7.3
June 2004	5.3	6.8	8.3	7.9	7.4	7.2
July 2004	5.4	7.2	7.5	8.6	7.8	7.6
August 2004	8.3	9.7	9.8	9.3	10.8	9.6
September 2004	6.8	8.2	7.3	8.2	7.2	7.5
October 2004	7.4	8.4	8.6	6.9	7.6	7.8
November 2004	8.3	9.6	8.6	10.9	8.1	9.0
December 2004	12.8	12.3	13.2	15.4	11.3	12.9
January 2005	8.8	7.7	7.9	7.8	7.6	8.1
February 2005	7.4	8.2	9.0	9.4	7.3	8.1
March 2005	6.5	10.1	7.6	10.4	12.4	8.5
Annual average	7.7	8.9	8.6	9.3	8.6	8.5

Source: Authors' estimation using 2004 HIS.

are more limited on average (all values in the tables include zero values). As for domestic work, it is performed mostly by women, and the same holds for the collection of wood and water. In total, the mean and median working hours for women are about 10 hours above the corresponding values for men at the national level.

Table 5.4. Total Time Spent Working by Area and Consumption Quintile, Rural Areas

	Poorest Quintile	2nd Quintile	3rd Quintile	4th Quintile	Richest Quintile	Total
	Rural areas, adults (Age 15 and over)					
March 2004	34.3	32.9	36.4	37.3	39.5	36.3
April 2004	34.1	34.8	36.0	36.2	38.4	36.1
May 2004	29.0	31.8	35.0	34.8	38.2	33.8
June 2004	34.0	33.3	36.1	36.1	35.7	35.2
July 2004	27.4	33.1	31.9	34.8	35.6	33.6
August 2004	33.7	34.6	32.9	32.7	35.4	33.9
September 2004	33.7	35.0	35.0	37.9	35.7	35.6
October 2004	35.1	39.3	38.7	37.8	38.8	37.8
November 2004	40.1	40.7	41.2	39.4	41.5	40.6
December 2004	45.0	42.9	43.1	38.5	42.0	42.5
January 2005	39.1	40.2	41.5	41.4	44.2	41.1
February 2005	35.5	36.6	38.2	38.8	35.1	36.8
March 2005	34.3	38.2	37.5	35.9	40.2	36.9
Annual average	35.2	36.2	36.8	36.5	37.8	36.5
	Rural areas, children (Below 15 years old)					
March 2004	8.1	7.9	7.2	9.4	9.8	8.4
April 2004	9.6	11.0	10.0	10.8	10.9	10.4
May 2004	5.7	7.9	7.4	9.8	6.9	7.4
June 2004	5.3	6.4	8.2	7.7	7.9	7.1
July 2004	5.2	7.0	7.5	9.0	8.0	7.7
August 2004	8.5	9.6	9.8	8.8	11.2	9.5
September 2004	6.8	7.7	6.4	8.1	7.5	7.2
October 2004	7.5	8.5	8.7	6.5	9.2	8.0
November 2004	8.3	9.5	8.9	12.3	6.9	9.2
December 2004	12.9	12.3	15.0	15.5	8.7	13.2
January 2005	7.9	7.7	7.8	7.5	9.5	7.9
February 2005	7.6	8.3	8.4	6.2	6.5	7.8
March 2005	6.8	10.0	7.3	7.4	7.5	8.0
Annual average	7.8	8.8	8.5	9.1	8.9	8.5

Source: Authors' estimation using 2004 HIS.

As we expect gender and seasonality issues to be more pronounced in rural households, Tables 5.7 and 5.8 focus on the population residing in rural areas. The gender differences are even larger, at 11.0 hours for the median, and 11.6 hours for the mean. The workloads for children are much lower, but girls do work longer hours than boys, again mainly due to a higher burden from domestic work as well as water collection.

Table 5.5. Work Time by Gender, Month, and Age According to the Categories of Time Recorded in the Survey, Malawi–National, 2004

	Cooking laundry, and cleaning	Collecting water	Collecting fire-wood	Agricultural work	Running non-ag. business	Helping for non-ag. business	Casual, part-time & ganyu work	Salaried work	Total work (mean)	Total work (median)	Working less than 10 hours	Working more than 70 hours
Adult males (age 15 and over), national												
March 2004	1.6	0.5	0.5	13.9	3.4	0.7	2.5	6.0	29.1	24.5	27.4	8.0
April 2004	1.9	0.6	0.5	13.5	5.4	0.7	2.5	6.3	31.5	30.0	18.0	7.3
May 2004	1.9	0.6	0.3	11.8	4.5	0.8	1.8	6.6	28.3	26.0	24.3	5.4
June 2004	1.9	0.9	0.3	10.9	3.8	0.7	2.5	8.5	29.6	30.0	22.0	4.7
July 2004	2.2	0.9	0.6	10.5	5.4	0.5	3.2	5.7	29.0	27.0	19.7	5.3
August 2004	2.4	0.7	0.3	10.7	5.7	0.4	2.5	6.0	28.6	25.0	21.8	5.4
Sept. 2004	2.7	0.8	0.4	10.8	3.9	0.4	3.0	9.0	31.0	28.0	19.6	7.7
Oct. 2004	2.2	0.6	0.3	13.8	4.1	0.2	3.4	6.4	31.1	30.0	17.7	6.5
Nov. 2004	2.6	0.7	0.4	15.8	3.0	0.2	2.7	8.9	34.4	34.0	12.3	7.6
Dec. 2004	1.8	0.6	0.3	20.6	4.2	0.3	3.2	5.7	36.7	36.0	6.8	6.5
Jan. 2005	2.4	1.0	0.3	18.5	3.4	0.1	2.5	7.6	35.9	35.0	8.8	9.2
Feb. 2005	1.8	0.7	0.3	15.6	3.1	0.2	2.2	6.7	30.6	30.0	16.1	4.5
March 2005	2.4	0.7	0.3	14.2	3.9	0.5	2.6	7.5	32.2	30.0	16.3	7.1
Adult females (age 15 and over), national												
March 2004	14.8	5.3	3.0	12.5	2.2	1.1	1.7	1.4	41.9	38.0	11.8	17.4
April 2004	14.0	5.1	2.1	13.0	2.5	0.6	1.2	1.2	39.8	37.0	11.8	12.9
May 2004	13.6	5.4	2.3	13.2	1.6	0.6	1.0	1.3	39.0	38.0	10.9	10.9
June 2004	15.0	6.1	2.3	11.0	2.3	0.5	1.7	1.5	40.3	38.0	10.7	14.4

July 2004	14.5	6.4	2.4	8.6	2.6	0.3	1.6	1.2	37.7	35.0	11.5	10.9
August 2004	15.3	7.0	2.3	9.6	3.0	0.2	1.0	1.1	39.6	37.0	8.1	11.6
Sept. 2004	15.2	6.9	2.1	11.0	2.5	0.4	0.9	1.2	40.3	38.5	9.6	12.8
Oct. 2004	15.3	6.9	2.1	14.6	2.0	0.3	1.0	1.6	43.7	43.0	7.7	12.1
Nov. 2004	14.6	6.7	2.0	16.4	1.6	0.3	1.3	2.3	45.2	45.0	7.1	14.6
Dec. 2004	13.6	5.9	1.6	20.2	1.6	0.2	1.7	1.0	45.9	45.5	6.3	12.2
Jan. 2005	14.2	7.8	2.0	17.4	1.0	0.5	1.2	1.8	45.9	46.0	7.4	13.1
Feb. 2005	14.1	6.4	1.7	15.1	1.3	0.2	1.6	1.2	41.9	41.5	8.5	11.3
March 2005	14.7	6.8	2.1	13.2	1.5	0.3	1.3	1.6	41.5	40.5	6.9	10.1

Source: Authors' estimation using 2004 HIS.

Table 5.6. Work Time by Gender, Month, and Age According to the Categories of Time Recorded in the Survey, Malawi–National, 2004

	Cooking laundry, and cleaning	Collecting water	Collecting fire-wood	Agricultural work	Running non-ag. business	Helping for non-ag. business	Casual, part-time & ganyu work	Salaried work	Total work (mean)	Total work (median)	Working less than 10 hours	Working more than 70 hours
Boys (age 5 to 14), national												
March 2004	1.0	0.8	0.1	2.4	0.2	0.2	0.2	0.2	5.3	0.0	77.9	2.9
April 2004	1.3	1.0	0.3	4.5	0.1	0.2	0.3	0.1	7.8	3.0	71.0	2.6
May 2004	1.2	0.9	0.5	2.4	0.2	0.1	0.3	0.1	5.6	0.5	77.8	2.0
June 2004	1.6	1.2	0.4	2.3	0.1	0.1	0.2	0.1	6.0	0.5	76.9	2.2
July 2004	1.0	1.3	0.2	1.8	0.1	0.3	0.4	0.2	5.3	0.0	79.5	1.0
August 2004	1.9	1.4	0.3	3.0	0.0	0.2	0.2	0.2	7.2	0.0	68.7	2.2
Sept. 2004	2.1	1.2	0.2	1.9	0.0	0.0	0.2	0.1	5.8	0.0	77.6	2.0
Oct. 2004	1.1	1.0	0.2	2.8	0.0	0.1	0.3	0.0	5.5	0.0	79.6	1.1
Nov. 2004	1.8	0.9	0.3	4.1	0.0	0.0	0.3	0.1	7.5	1.0	72.5	2.3
Dec. 2004	1.6	1.1	0.4	6.8	0.1	0.0	0.8	0.1	10.9	3.5	60.0	1.1
Jan. 2005	1.3	1.1	0.1	2.7	0.0	0.1	0.2	0.0	5.5	0.0	74.2	0.6
Feb. 2005	1.5	1.1	0.2	3.3	0.0	0.0	0.3	0.1	6.6	0.0	77.4	1.3
March 2005	2.0	1.0	0.3	2.5	0.1	0.0	0.2	0.2	6.4	0.0	78.5	1.3
Girls (age 5 to 14), national												
March 2004	3.4	3.0	0.8	2.1	0.3	0.6	0.3	0.3	10.7	4.5	61.3	3.0
April 2004	3.8	3.4	1.1	3.3	0.2	0.4	0.2	0.0	12.5	7.0	58.2	2.7
May 2004	3.2	3.0	0.7	1.9	0.1	0.1	0.2	0.0	9.2	7.0	61.6	1.3
June 2004	3.1	2.6	0.7	1.3	0.1	0.2	0.3	0.2	8.4	3.5	67.7	1.4

July 2004	3.4	3.5	1.0	1.0	0.1	0.4	0.4	0.0	9.7	4.5	64.9	0.9
August 2004	4.4	4.1	0.8	1.9	0.0	0.3	0.1	0.1	11.8	7.0	56.1	2.6
Sept. 2004	3.5	3.4	0.8	1.0	0.0	0.2	0.0	0.1	9.1	7.0	62.1	2.0
Oct. 2004	3.4	3.3	1.0	2.1	0.1	0.1	0.1	0.0	10.0	7.0	62.3	1.4
Nov. 2004	3.5	3.1	0.6	2.9	0.0	0.1	0.0	0.5	10.6	7.0	59.9	2.1
Dec. 2004	4.3	3.3	1.0	5.9	0.1	0.0	0.6	0.0	15.2	10.0	49.5	0.9
Jan. 2005	2.9	3.6	0.4	3.3	0.1	0.0	0.2	0.0	10.6	7.0	58.6	0.6
Feb. 2005	2.9	3.3	0.5	2.8	0.0	0.0	0.1	0.0	9.7	3.5	67.1	1.1
March 2005	4.2	2.8	0.7	2.6	0.0	0.0	0.1	0.3	10.7	3.5	67.3	3.2

Source: Authors' estimation using 2004 HIS.

Table 5.7. Work Time by Gender, Month, and Age According to the Categories of Time Recorded in the Survey, Malawi–Rural, 2004

	Cooking laundry, and cleaning	Collecting water	Collecting fire-wood	Agricultural work	Running non-ag. business	Helping for non-ag. business	Casual, part-time & ganyu work	Salaried work	Total work (mean)	Total work (median)	Working less than 10 hours	Working more than 70 hours
Adult males (age 15 and over), rural												
March 2004	1.5	0.5	0.6	15.6	2.6	0.7	2.6	4.9	29.0	25.0	26.4	8.1
April 2004	1.7	0.6	0.5	15.2	5.9	0.7	2.5	3.6	30.9	29.0	17.2	6.9
May 2004	1.5	0.6	0.4	13.9	3.6	0.5	1.9	4.7	27.0	25.0	24.2	4.8
June 2004	1.6	0.9	0.4	12.6	3.3	0.7	2.6	6.1	28.3	28.0	22.0	4.7
July 2004	2.1	0.8	0.6	11.2	4.9	0.6	2.9	5.1	28.3	26.0	19.1	4.9
August 2004	2.2	0.7	0.3	12.2	4.4	0.3	2.4	4.4	26.9	24.0	22.2	4.6
Sept. 2004	2.4	0.8	0.4	12.8	3.6	0.2	2.7	6.7	29.4	26.0	18.4	7.0
Oct. 2004	1.9	0.6	0.3	15.5	4.0	0.2	3.4	4.5	30.3	30.0	16.5	5.8
Nov. 2004	2.1	0.7	0.4	18.8	2.2	0.2	3.1	6.3	33.9	32.0	10.9	6.8
Dec. 2004	1.3	0.6	0.3	24.7	2.8	0.3	3.1	3.0	36.2	34.5	4.0	5.5
Jan. 2005	1.5	0.9	0.3	19.4	3.4	0.1	2.4	7.1	35.2	34.5	7.4	7.4
Feb. 2005	1.6	0.7	0.3	16.7	3.0	0.2	2.3	5.2	29.9	28.0	15.7	4.3
March 2005	1.9	0.8	0.3	16.3	3.3	0.2	2.8	5.2	30.8	30.0	15.6	5.2
Adult females (age 15 and over), rural												
March 2004	14.7	5.6	3.3	13.6	1.9	1.2	1.8	0.8	43.0	38.5	10.5	18.1
April 2004	14.0	5.4	2.2	14.1	2.4	0.6	1.1	0.9	40.7	38.5	10.8	13.2
May 2004	13.6	5.8	2.6	14.8	1.3	0.3	1.1	0.4	39.9	38.5	8.6	10.4
June 2004	15.1	6.7	2.6	12.4	2.0	0.5	1.9	0.4	41.7	39.5	9.5	14.6

July 2004	14.5	6.7	2.5	9.3	2.4	0.4	1.6	1.2	38.5	35.0	11.1	11.1
August 2004	15.4	7.3	2.5	10.6	2.5	0.2	1.0	0.6	40.2	38.0	7.6	11.3
Sept. 2004	15.4	7.4	2.4	12.4	2.1	0.4	0.8	0.5	41.4	40.0	8.9	13.0
Oct. 2004	15.3	7.4	2.3	15.8	1.7	0.3	1.1	0.7	44.6	44.0	6.9	12.5
Nov. 2004	14.3	7.4	2.3	19.0	1.2	0.3	1.5	1.1	47.2	46.0	5.2	15.0
Dec. 2004	12.6	6.4	1.8	23.3	1.0	0.2	2.0	0.4	47.7	47.0	4.5	12.1
Jan. 2005	13.8	8.2	1.9	18.2	0.9	0.5	1.0	1.7	46.4	47.0	5.5	12.9
Feb. 2005	14.0	6.8	1.8	15.9	1.3	0.3	1.7	1.2	43.1	43.0	7.4	11.6
March 2005	14.0	7.3	2.2	14.8	1.4	0.2	1.5	1.0	42.4	41.0	6.8	10.3

Source: Authors' estimation using 2004 HIS.

Table 5.8. Work Time by Gender, Month, and Age According to the Categories of Time Recorded in the Survey, Malawi – Rural, 2004

	Cooking laundry, and cleaning	Collecting water	Collecting fire-wood	Agricultural work	Running non-ag. business	Helping for non-ag. business	Casual, part-time & ganyu work	Salaried work	Total work (mean)	Total work (median)	Working less than 10 hours	Working more than 70 hours
Boys (age 5 to 15), rural												
March 2004	0.9	0.9	0.1	2.7	0.2	0.3	0.3	0.3	5.6	0.0	76.6	3.2
April 2004	1.2	1.0	0.3	4.7	0.1	0.3	0.3	0.1	8.0	3.0	70.5	2.6
May 2004	0.9	0.9	0.5	2.6	0.3	0.1	0.3	0.1	5.6	0.0	78.0	2.3
June 2004	1.1	1.3	0.4	2.5	0.1	0.1	0.2	0.1	5.7	0.0	77.9	2.1
July 2004	1.0	1.4	0.2	1.9	0.1	0.2	0.5	0.2	5.6	0.0	78.8	0.7
August 2004	1.3	1.4	0.3	3.2	0.0	0.2	0.2	0.2	6.9	0.0	70.0	2.1
Sept. 2004	1.3	1.2	0.2	2.1	0.1	0.1	0.2	0.2	5.3	0.0	79.3	2.3
Oct. 2004	0.9	1.0	0.2	3.0	0.0	0.1	0.3	0.0	5.6	0.0	79.8	0.7
Nov. 2004	1.5	0.9	0.3	4.5	0.0	0.0	0.3	0.1	7.6	2.0	72.4	2.4
Dec. 2004	0.9	1.2	0.4	7.7	0.1	0.0	0.9	0.1	11.3	4.0	58.5	1.1
Jan. 2005	0.8	1.2	0.1	2.7	0.0	0.2	0.1	0.0	5.0	0.0	75.8	0.7
Feb. 2005	0.8	1.2	0.2	3.5	0.0	0.1	0.3	0.0	6.1	0.0	78.0	1.4
March 2005	1.2	1.0	0.4	2.7	0.1	0.0	0.2	0.2	6.0	0.0	78.9	1.2
Girls (age 5 to 15), rural												
March 2004	3.6	3.2	0.9	2.2	0.3	0.6	0.3	0.3	11.3	6.0	58.9	3.1
April 2004	3.8	3.5	1.2	3.6	0.2	0.5	0.2	0.0	13.0	7.0	57.5	2.4
May 2004	3.0	3.2	0.8	2.1	0.1	0.1	0.2	0.0	9.4	7.0	60.7	1.4
June 2004	2.7	2.9	0.8	1.4	0.1	0.1	0.4	0.1	8.4	3.5	67.5	1.3

July 2004	3.3	3.5	1.0	1.0	0.1	0.2	0.5	0.0	9.7	4.5	65.1	1.0
August 2004	4.0	4.4	0.9	2.1	0.0	0.3	0.1	0.1	12.1	7.0	56.0	2.7
Sept. 2004	2.9	3.7	0.9	1.2	0.0	0.2	0.0	0.1	9.0	7.0	62.9	1.9
Oct. 2004	3.3	3.4	1.1	2.2	0.2	0.1	0.1	0.0	10.3	7.0	61.2	1.4
Nov. 2004	3.2	3.4	0.7	3.3	0.0	0.1	0.0	0.1	10.8	7.0	57.4	1.7
Dec. 2004	3.0	3.6	1.1	6.9	0.1	0.0	0.7	0.0	15.4	10.5	49.0	0.7
Jan. 2005	2.5	3.8	0.4	3.2	0.1	0.0	0.1	0.0	10.3	7.0	58.9	0.7
Feb. 2005	2.3	3.5	0.6	2.9	0.0	0.0	0.1	0.0	9.4	3.5	67.1	1.2
March 2005	3.2	3.0	0.9	2.8	0.0	0.0	0.1	0.1	10.1	3.5	66.7	3.1

Source: Authors' estimation using 2004 HIS.

As noted by Bardasi and Wodon (2005), the concept of time poverty can be used to measure the share of the population that works very long hours, and can therefore be considered as time-poor. In their paper on Guinea, Bardasi and Wodon consider a time poverty line of about 70 hours per week. A similar threshold has been used in Tables 5.5–5.8 to measure the share of the population working at least 70 hours per week. In rural areas, as shown in Table 5.7, on an annual basis 5.2 percent of the adult male population works more than 70 hours per week, while the proportion is 10.3 percent for women. Interestingly, there is no clear seasonal pattern in the share of the population working more than 70 hours per week, suggesting that the overall increase in working hours observed around December–January is likely to be provided by those household members that have a reserve of time at their disposal rather than by those who already work the most.

While a small share of the population in Malawi can be considered as time poor according to the data in Tables 5.5–5.8, a larger share can be considered as underemployed, at least in the case of men. On an annual basis, 15.6 percent of adult males work less than 10 hours per week, and this proportion peaks to more than 20 percent in some months. For women, the proportion working less than 10 hours per week is much smaller. Importantly, we do see the impact of seasonality in this measure of underemployment, since the proportion of adults working less than 10 hours per week is lowest again in December. The corresponding data for children suggest a much larger share with a small burden of work, but also some cases apparently of very high workload.

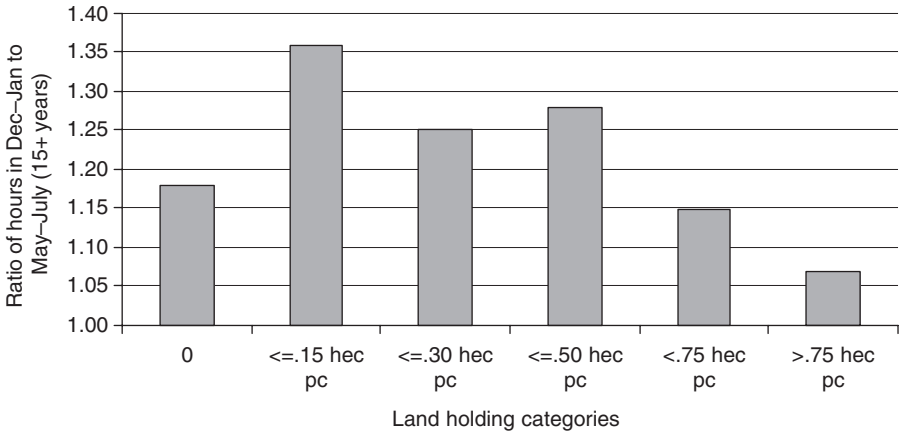
Looking more closely at rural households, we examine to what extent land holdings per adult are associated with seasonal labor constraints. The indicator of the seasonality of labor is the ratio of mean adult hours in the peak months (December–January) to the surplus months (May–July). This is a crude measure, as peak and surplus months will vary across regions (as described in the introduction and shown in Tables 5.1 and 5.2). Nonetheless, even with this imprecise measure we find evidence that seasonality affects small land holders the most. Figure 5.2 shows that seasonal labor issues are most pronounced for the smaller holders with less than 0.15 hectares of land per adult. Among these small land holding households, mean hours in December–January are more than 35 percent higher than the corresponding measure during the surplus labor season. For other land categories, including households with no land holdings and those with large holdings, we also see seasonality. For landless households, this will reflect land demand for *ganyu* workers during planting seasons. In turn, it is the larger land holders who hire such labor,[17] which explains the lower ratio of peak-to-surplus season hours for the large holders.

Conclusion

With a population density of 112 people per square kilometer, Malawi has the highest population density among neighboring countries. Generally, labor in Malawi is assumed to be

17. While the prevalence of hiring labor at least for one day on rain-fed plots is even across the land categories in Figure 5.2, the intensity of such labor is not even. The number of days of hired labor increases significantly as land holdings increase.

Figure 5.2. Seasonality of Labor Hours among Rural Households by Land Holdings



Source: Authors' estimation using 2004 HIS.

in surplus supply, with extensive underemployment. However, low mean hours in income-generating activities mask the existence of labor shortages at the peak of the cropping season. This seasonality in labor supply can have potentially large negative impacts on the ability of households to make the most of their endowments such as land as well as their labor. Using data from 2004 collected from households over a 13-month period, this paper has documented the extent to which the seasonality in the demand for labor is leading to both underemployment and labor shortages.

Defining work broadly to include income-generating activities (including work on the household farm) as well as main household chores (including fetching firewood and water), we find typical labor supply patterns. The population in rural areas works longer hours than urban individuals, and women work more than men. Across activities, while men have higher hours in income-generating work, chores (including firewood and water collection) are more extensively done by women such that their total hours are higher. The seasonal differential in working hours is largest for individuals who belong to the poorest quintile of the distribution of consumption per capita. As alternative to consumption wealth, the paper also examined seasonal differences by household landholdings. Small holders had the largest seasonal differences, with mean hours in peak month 35 percent higher than surplus months.

Understanding the implications of these patterns will require additional analysis, but the results suggest that the precious few endowments of poor households (labor and land) may not be utilized in the most efficient way, or at least, it can be argued that there are serious constraints to the generation of higher earnings for households, despite the presence of underemployment for most of the year. Poverty reduction strategies would need to take into account the strong seasonal dimensions to labor supply to be effective.

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