6

Labor and Labor Markets

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Introduction

Allocation of labor to different tasks is critical to a community's prospects for growth and overall development. The quality of human capital, itself largely a function of years and quality of education and health, have direct implications on productivity in the community. The quality of existing human capital is, however, only part of the story. Efficient deployment of labor will be either facilitated or marred by the existence or lack of properly functioning labor markets. Ideally, households with large labor endowments relative to land can make use of markets to sell some of this endowment; those households with relatively low labor/land ratios can hire labor to balance their factor endowments. The market should work to even out these factor ratios.

The existence of properly functioning labor markets leads to more efficient allocation of labor resources, both at the household and the community level. In the absence of such markets, potentially profitable opportunities for trade do not take place, leading to inefficiencies. Societies in such situations frequently develop a surrogate for the labor market, such as labor exchanges, to help balance factor endowments (Connell & Lipton 1977).

Labor utilisation in a rural community, therefore, may be broken down into three components: working on one's own household, participating in labor exchanges, or engaging in paid employment. The relative importance of these components in a given community, together with relative factor ratios, are yardsticks for measuring the nature and stage of development of labor markets. In addition, the functioning of the market surrogates is key; some surrogates

potentially could respond perversely to market incentives and a changing environment, exacerbating rather than alleviating labor disequilibria.

Bevan, Collier, & Gunning (1989) argue that village labor markets in Kenya and Tanzania remain in disequilibrium, forcing households with surplus labor often to look beyond the immediate community for employment opportunity. Similarly, households with the need for additional labor must look elsewhere to meet their labor needs, despite the apparent existence of surplus labor locally. Furthermore, they argue that selling and buying of labor do not improve land/labor ratios.

This chapter explores labor utilisation in our study communities by listing the main activities in which labor is used, estimating the intensity of labor applications on the more important agricultural activities, and gauging the importance of hiring and selling of labor. This is followed by a comparative analysis of participants in the local labor markets and a determination of the likelihood of their being in regular employment. For these purposes, the entire household membership is treated as a labor repository from which labor can be extracted for domestic farm and other activities as the need arises. Some of the activities on which such labor is deployed may, therefore, be directly productive while others may not be. Household labor use includes not only land preparation, weeding, planting, and harvesting, but also gathering and preparing food, processing grain, fetching wood and water, and caring for children. Availability of household labor for participation in directly productive activities and markets is often constrained by the labor requirements of these other tasks.

Household size was measured each round of the survey. Naturally, the composition and size of the households changed from round to round, as children studying at boarding schools came and went, babies were born, married sons and daughters returned for visits, young adults left in search of work, household members died, or marriages fell apart. In order to calculate the labor available for agricultural activities, we took the total number of household members present for at least one round,[1] and then made three adjustments: first, for the fraction of the rounds they

[1] "Present" implied having been in the household for at least two weeks prior to the survey. Visitors for less than two weeks were not considered members of the household.

were present; second, for occupations; and third, for age.[2] These adjustments, while crude, were in the right direction, and are helpful for ranking households by labor availability for agriculture.

Main Occupation of Household Members

Table 6.1 presents the main occupations of the survey households for all household members eight and above. A greater emphasis on secondary schooling in Kenya and consequent higher secondary school enrolment ratios leads to a large difference between the percentage of the 8-19 years olds enrolled in school. For the 20-39 year age group, differences between the sexes are stark. About 70% of the women in both communities list their primary occupation as farming, which clearly includes many other non-farming household obligations. Less than half of the men of this age group list themselves as farmers. Eighteen percent of the men in Tanzania and 23% of the men in this age group in Kenya are engaged in formal sector employment. Seventeen percent of the men in this age group and 13% of the women in Kenya report themselves as unemployed. Those categorized as "unemployed" in both communities were primarily young school-levers looking for formal sector employment. About 90% of these unemployed in each community had at least primary education; 42% in Kenya and 37% in Tanzania had completed secondary school. These residents were reluctant to call themselves "farmers," although most did labor on the shamba while not out looking for work.

Moving up in the age range, virtually all of the women 40-59 years of age in both communities call themselves farmers. This designation holds for almost 80% of the men in Tanzania, but only two thirds of the men in Kenya, where 17% are employed in the formal sector. Only 10% of the Tanzanian men in this age range are employed in the formal sector. Almost 10% of the Kenyan males in this age group are primarily casual laborers; the corresponding

[2] Fraction of rounds present was multiplied by adjustments for age and occupation of the household member. Age adjustments were: age <8, 0; 8-11, 0.1; 12,13, 0.5; 14-60, 1.0; 61-70, 0.5; >70, 0.1. Occupation adjustments use the reported main occupation of each household member. These occupation adjustments were: farming, 1.0; laborer on other shambas or estates, 0.5; employed by rural employer, 0.3; employed by urban employer, 0.25; trading and farming, 0.6; trading, 0.4; at boarding school, 0.5; at local school, 0.3. The boarding school adjustment is larger than the local school adjustment because children at boarding school were only present during school holidays; their time away from the household was already accounted for by the adjustment for rounds present.

figure is only 2% in Tanzania. In both communities, virtually all adults 60 and over report themselves to be farmers.

About 62% of the Kenyan adults and 78% of the Tanzanian adults had completed primary school. Fifteen percent of the Kenyan adults and 6% of the Tanzanian had completed secondary school. Twenty-three percent of the Kenyans and sixteen percent of the Tanzanians had no education at all. Those classified as farmers were only slightly different than others; the percent with primary schooling was virtually identical, while the percentage with secondary or higher education was three to four percent less.[3]

The majority of residents in the communities, therefore, consider themselves to be farmers; this is particularly true for women. Paid employment, both regular and casual, are relatively more important in the Kenyan community, confirming the income statistics presented in Chapter 4 above.

Labor by Farming Activity

Table 6.2 breaks down agricultural activities by type of work. The average adult labor per month is approximately the same in the two communities, at 17.2 and 18.5 man-days per month in Kenya and Tanzania, respectively. The breakdown by activity is fairly similar in the two communities; the main differences are that more time is reportedly spent on weeding in Tanzania, and more on harvesting in Kenya.

Livestock activities absorb another four and eight man-days per month in Kenya and Tanzania, respectively. Thus total agriculture and livestock man-days of household labor per month are about 21 in the Kenyan community and 26 in the Tanzanian community. Livestock keeping is labor intensive in these areas, as the lack of grazing land forces most farmers to use zero-grazing techniques. In Tanzania, where virtually no commercially-prepared feeds are used, even more time is spent gathering food, fetching water, and caring for the livestock.

[3] Chapter 12 presents more analysis of the education of survey respondents.

Table 6.2: Mean Monthly Use of Household Labor for Different Activities

Activity	Mean Monthly Labor: Adults				Children			
	Kenya		Tanzania		Kenya		Tanzania	
	Man Day	%	Man Day	%	Man Day	%	Man Day	%
Land Preparation	4.3	24	4.4	24	0.5	46	0.1	19
Weeding	3.7	20	6.1	33	0.4	30	0.3	40
Spraying	0.1	1	0.9	5	0.0	0	0.1	8
Pruning	3.3	20	2.9	19	0.1	7	0.0	3
Harvesting	5.8	35	4.2	23	0.2	17	0.2	30
Total farm input of own-labor	17.2	100	18.5	100	1.2	100	0.6	100
Livestock Activities	4.1		7.8		0.5		1.3	
Business	8.0		5.5		0.0		0.0	

Source: Field Survey 1991/92

Considerably less time is spent on business activities, with the Kenyan and Tanzanian households reporting 5.5 and 8 man-days per month, respectively. Means are somewhat deceptive here; only 25% of the Kenyan households and 18% of the Tanzanian households were engaged in a business. Those engaged, however, spent much time in these activities. Labor input on business is somewhat counter-cyclical, absorbing some of the slack during periods of low labor demand in the cropping cycle.

In both communities, trading (especially in second-hand clothes), operating small retail shops, tailoring, and retail selling of vegetables were widespread. Several of these activities were engaged in primarily on semi-weekly market days, but preparation for market days -- traveling to buy goods especially -- took considerable time. In Tanzania, households engaged less frequently in the above businesses, in favor of brewing and selling beer made from sweet bananas. About 10% of all households operated such a business. This activity, illegal in Kenya, is quite labor-intensive.

Reported children's labor is reported to be small in the survey, much smaller than our casual observations would lead us to believe. During school holidays, armies of school children

went to the fields, armed with hoes, many wearing school uniforms. Similarly, on weekends we observed many children actively engaged in farming activities. We suspect that the adult respondents significantly underestimated labor input by the communities' children.

Factors Affecting Labor Deployment

Several factors influence the efficiency and effectiveness of the local labor market, including the degree of landlessness, homogeneity in factor endowments, and synchrony in demand for labor across households (de Janvry et al 1991). Here we investigate in a straightforward manner some of the relationships among labor endowment, labor applied, land size, and education.

Farm size (operational area) and total labor used, both hired and household, are correlated at 0.38 for Kenya and 0.32 for Tanzania. Total farm labor per acre, however, is negatively correlated with farm size, at -0.32 for Kenya and -0.38 for Tanzania. Therefore, while labor used increases with area under operation, labor intensity decreases, indicating that local labor markets are imperfect. This result is common across many studies around the world.

Interestingly, however, household labor in Kenya (as opposed to household plus hired labor) is uncorrelated with farm size; the correlation between the two is -0.03. .The correlation between hired labor and farm size is 0.41 in Kenya. Hired labor clearly in this case is working to even out land/labor ratios, thereby improving the efficiency of the farming system. This result contrasts with the conclusion of Bevan, Collier, and Gunning (1989), who find that the hiring of labor fails to even out land/labor ratios..

In Tanzania, the relationship is less clear. There, household labor and farm size are positively correlated at 0.33, and the correlation between hired labor and farm size is a smaller 0.19. In the Tanzanian community there is no prevailing wage rate for a day's work; most labor hired is paid to do a particular task, not for a particular length of time. This difference may be in part responsible for the different ability of the labor markets in the two communities to move labor/land ratios together.

Participation in the Local Labor Market

Formal sector employment is important particularly in the Kenyan community, where at least one member from one-third of the households was employed. Occupations range widely, including school teachers, household servants, attendants in local shops, and workers at coffee factories. All salaried employees reportedly also engaged in farming on weekends and, during periods of peak labor demand, in the evenings. For the Tanzanian community, the situation was quite different, with considerably fewer persons engaged in salaried employment. Teaching was also important here, but other occupations such as working as household servants or in coffee factories did not occur in the sample.

The casual labor market was quite ubiquitous in Kenya; as shown in Table 6.3, 46% of the households in Kenya but only 18% of those in Tanzania report engagement as a laborer of at least one member at least 5 days during the survey year. Much of this is seasonal agricultural labor during planting, harvesting, and weeding, although some casual employment is also found in local trading centers. Overall, it is clear that the market for wage labor, formal and informal, is much smaller in the Tanzanian community.

Hiring labor is also more common among the Kenyan households; about two-thirds of the these households hired labor at some time during the year of our survey. The distribution of labor hired for agriculture and livestock operations, however, is highly skewed, with a median of 21 man-days per year, but with 4% of households hiring more than 200 man-days each. As shown in Table 6.4, only a small amount of hired labor is used in the care of livestock. Once again, it is clear that the labor market is much thinner in Tanzania.

The pattern of less hiring of labor in Tanzania holds for businesses also. One-quarter of the businesses in Kenya use hired labor, compared to 15% of those in Tanzania. Mean monthly use of hired labor among businesses is 8 and 5 man-days per month for the two communities..

Table 6.3 Selling of Labor by Households

Type of Labor Market	Mean monthly man-days			
	Kenya		Tanzania	
	No.	%	No.	%
Reciprocal or unpaid work	1.7	8	0.3	3
Casual work, small holdings	10.2	50	2.4	26
Salaried employment	6.7	33	4.4	48
Other casual work	1.9	9	2.0	22
Total, Households with casual laborers	20.5	100	9.0	100
% of Households with casual laborers	46		18	
Total monthly man-days, all households	9.4		1.6	

Source: Field Survey, 1991/1992.

Table 6.4: Mean monthly Man-days for Hiring-In Labor.

Type of Work	Kenya		Tanzania	
	No.	%	No.	%
Farming Activities	5.95	94.6	2.13	92.2
Livestock Activities	0.34	5.4	0.18	7.8
Total	6.29	100.0	2.31	100.0

Source: Field Survey, 1991/1992.

In addition, 42% of the households in Kenya and 11% in Tanzania report using donated or reciprocal labor. Such labor is sometimes rotating, with women's or church groups working together on different shambas on different days. In such cases, the recipient of the labor would usually provide a meal for the laborers. More frequently in these communities during our survey, however, such labor was not reciprocal but instead was simply donated by relatives or fellow church members to elderly, sickly, or bereaved neighbors. Although such labor was important for a few households, its incidence was rather low; only 7% of the Kenyan households used more than 20 man-days of such labor during the year, and the mean was 5 days. In Tanzania, these types of labor exchanges were even less frequent; the mean was less than 2 days per year.

Determinants of Formal Employment

Many respondents, particularly those from Kenya, view participation in formal employment as a key method of improving welfare. Chapter 4 shows that improvements in income are closely associated with increases in salary income. This is consistent with the hypothesis of Bevan, Collier, & Gunning (1989) that households in East Africa face barriers to entry for increasingly profitable investments, with salaried employment being the nadir of the scale.

For these reasons, this section examines how participants who earn salary income differ from other adults in the two communities. This analysis begins by selecting from the entire sample those resident household members who were of age (12-60) and not in school. This results in a sample of 309 from Tanzania and 252 from Kenya. Of these, 11% in Tanzania and 10% in Kenya listed their primary occupation as a salaried position.

Characteristics of salaried employees versus non-salaried employees in the reduced sample are outlined in Table 6.5 Those in regular employment in the two communities are similar to others in terms of age and marital status. A higher percentage are males, although this distinction is much less important in Tanzania than in Kenya. The salaried employees are more highly educated than the others, particularly in Kenya, where the difference in the mean years of education is 3.6. The educational difference is most striking, however, when noting the percentage who have completed secondary school. Over forty percent of the Kenyan salaried employees had completed secondary school, while only 13% of their agemates not in such employment were as highly educated. There is a similarly large difference in Tanzania; 29% of the salaried employees have completed secondary school, while only 6% of the others had done so.

In Kenya, almost half of the salaried employees are heads of households, while in Tanzania only slightly more than one-fifth are heads. Wives and relations outside the immediate

Table 6.5: Characteristics of Salaried Employees

	Tanzania		Kenya	
	Salaried Employees	Others	Salaried Employees	Others
Mean Age	33	34	33	34
% Male	52	41	80	39
Mean Years of Education	8.0	5.8	9.3	5.7
% Completed Secondary	29	6	44	13
% Married	53	55	53	58
Relation to Head of Household (%)				
Head	21	23	48	25
Wife	15	23	4	31
Son	27	20	32	19
Daughter	18	14	16	19
Other	18	23	0	6

Notes: The sample is limited to resident household members aged 12 to 60 who are not students.

family are more highly represented among salaried employees in Tanzania compared to Kenya. The other relations in Tanzania include grandchildren and two live-in, non-relative servants.

Salaried employment is thus rather different in the two communities. In Kenya, these employed persons make considerably more money (as noted in Chapter 4) and are more highly educated. In Tanzania, a larger percentage of the salaried employees are in low wage jobs that do not demand as much education.

Interactions among these variables are estimated using probit analysis; results appear in Table 6.6. As is usual with probit analysis, along with any regression which includes a series of interrelated dummy variables, results of size and significance of coefficients are difficult to interpret from the equation itself. The only obvious results from the reported equation are that age and education have an impact. The quadratic relationship between age and the likelihood of salaried employment is rather similar in the two countries, peaking at 34 years in both cases. The probability of employment is more sensitive to age in Kenya, however.

Table 6.6: Probit Estimates for the Likelihood of Having Salaried Employment

VARIABLES	E S T I M A T E S	
	Tanzania	Kenya
Intercept	-3.15	-6.94
	(-3.45)	(-3.42)
Age	0.102*	0.229**
	(1.89)	(2.22)
Age Squared	-0.0014*	-0.0031**
	(-1.95)	(-2.28)
Sex	0.836**	6.50
	(2.32)	(0.00)
Married	-0.163	0.824
	(-0.55)	(0.93)
Head	-0.408	-5.12
	(-0.99)	(0.00)
Son	-0.488	-4.65
	(-1.22)	(0.00)
Daughter	0.211	1.95*
	(0.61)	(1.90)
No Education	-0.141	-10.5
	(-0.27)	(0.00)
Completed Primary	0.352	0.136
	(0.74)	(0.32)
Completed Secondary	0.734**	0.622*
	(2.22)	(1.95)
Post Secondary Ed.	1.58**	1.09*
	(2.57)	(1.66)
Pearson Chi-Square	311.4	181.9
L.R Chi-Square	184.8	119.5
Log Likelihood Ratio	-92.4	-59.8
Observations	309	252

Note: Numbers in parenthesis are t-ratios. One, two and three stars imply 10%, 5% and 1% significance levels respectively.

Table 6.7 uses the probit function reported in Table 6.6 to compute predicted probabilities of employment for household members with selected characteristics. This helps to clarify the meaning of the coefficients. The importance of age and education are clear from this table. Completing secondary education as opposed to primary improves the chances of getting salaried employment quite substantially. Indeed, a 40 year old male head of household in Kenya who has completed secondary school has more than a fifty percent chance of being employed. Had he only completed primary school, the chance of employment would have been only 34%.

Table 6.7: Likelihood of Salaried Employment (%)

	Tanzania		Kenya	
	Male	Female	Male	Female
Married Head of Household, Age 40, who has:				
Completed Primary	34	0	24	6
Completed Secondary	53	0	38	13
Married Head of Household, Age 50, who has:				
Completed Primary	18	0	18	4
Completed Secondary	34	0	29	8
Child of Head of Household, Age 20, who has:				
Completed Primary	5	6	17	13
Completed Secondary	13	15	28	23

Source: Calculated from probit functions reported in Table 6.6.

Even more striking is that the probit equation yields zero probability of employment by female heads of household in Kenya, regardless of their level of education. No female heads of household in our sample were employed. Another disturbing item from the table is the very low percentage of 20 year old secondary school graduates who can expect to be employed in Kenya. The probability of employment for these residents is only 13 to 15%. Perhaps because of the relative scarcity of secondary education in Tanzania, job prospects appear brighter for young secondary graduates there. The implications of this for the agricultural economies of the communities are examined in Chapter 12 below.

Summary and Conclusions

Labor markets are prevalent and complex in both communities, although more prevalent and complex in the Kenyan community. The types of occupations in which resident household members engage vary across ages and to some extent by sex, but farming dominates. Agriculture and livestock operations absorb much household labor, while households particularly in Kenya both buy and sell labor for agricultural work

Simple correlations suggest that the perverse action of labor markets found by Bevan, Collier, and Gunning (1989) in East Africa may not hold today in either community, and definitely not in Kenya where the limited labor contracts seem to be gradually improving the allocative efficiency of the local household production systems. Nevertheless, it is clear that there are marked imperfections in the labor market. Large discrepancies remain between labor/land ratios

across different households. In the absence of any organized market, transactions costs of hiring labor are high, particularly in Tanzania where there is no prevailing wage rate for a day of casual work, making it is necessary to renegotiate a rate for piece-work each labor transaction. Reciprocal labor, on the other hand, is seen largely as insurance against unusually high and unexpected needs. This kind of labor exchange has limited impact given that all households face peak labor demand at the same time, making such donations particular costly to the giver exactly when they would be of most use to the recipient.

In addition to agricultural work, a sizable proportion of the adults are able to find salaried employment, while others are looking for such work; another group engages in on-farm businesses. Salaried employment provides a much larger proportion of income in Kenya, although the percentage of adults engaged in such work is not markedly higher than in Tanzania.. Given the relatively high remuneration, many residents particularly in Kenya actively seek such work. Highly educated, middle-aged, male heads of household have a good chance of getting such a job, while the young have low probabilities, even with secondary education. This is likely to have profound effects on the agricultural economy in the years ahead, as more and more educated persons are forced to work in the agricultural sector.

In sum, the labor markets are important to these communities, and there is significant participation. While the markets work to correct some of the differences in endowments, flaws in the labor markets keep households from moving to the most efficient ratio of land to labor.

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