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THE ALLOCATION OF LABOUR TO PERENNIAL CROPS

Decision-making by African Smallholders

NRI Socio-economic Series 3

M Blowfield

NATURAL RESOURCES INSTITUTE
Overseas Development Administration

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Foreword

This series is based upon work carried out under the socio-economics research programme at NRI. Its purpose is to provide an easily accessible medium for current research findings. Whilst it is hoped that the series will be of interest to those concerned with development issues worldwide, it may be of particular relevance to people working in developing countries.

The topics covered by the series are quite diverse, but principally relate to applied and adaptive research activity and findings. Some papers are largely descriptive, others concentrate on analytical issues, or relate to research methodologies

The aim is to present material in as straight-forward a fashion as possible so that it can reach a wide audience.

We are interested in the views and opinions of readers and welcome any feedback to this series.

Alan Marter
Socio-economics Research Programme

Summary

The production of perennial crops by smallholders has played an important part in many developing economies, something that is no less true in the stabilization and structural adjustment era today than it was in colonial or post-colonial times. Yet, as this review shows, knowledge about smallholder perennial crop production systems is sporadic and incomplete. This is especially so concerning the non-price related opportunities and constraints which determine under what conditions smallholders are inclined to produce perennial crops.

This is a review of material published since the 1940s which shows the factors involved in labour decision-making: the interaction of family and hired labour, long- and short-term contracts; the effect of different kinship systems; and of gender and age. It also looks at the threats posed by HIV/AIDS and natural disasters. The review shows how labour can determine what crops are grown as well as the way crops and seasonality impose their own restrictions on the choice of labour.

The conclusions show the importance of taking account of the decision-making process concerning labour during policy planning as well as the limitations labour imposes on perennial crop production. They also identify gaps in current knowledge and suggest areas for further research.

Introduction

BACKGROUND AND OBJECTIVES

Perennial crops are an important source of foreign earnings in 'debt crisis' affected Africa, and adjustment policy has sought to encourage their export through developing a climate of economic liberalization.

Despite the role of large estates in producing export crops, smallholders continue to be significant contributors to household and national income in many African countries. Yet it is generally accepted that production and crop value show declining trends, and smallholders express little interest in recommended agronomic improvements or in replanting diseased and/or old trees. Institutional interest in smallholder perennial crop production is similarly waning. National and international research institutes are devoting less resources to the needs of the smallholder, while NGOs and community-oriented organizations seem hesitant to become involved in what is often seen as an unstable sector.

The growth in interest in social forestry and emphasis on poverty has also drawn attention away from perennial crops. Although it is recognized that the poor require disposable assets that are easily realized in order to reduce their vulnerability to contingency outlay (Chambers and Leach, 1987), trees are considered to be more accessible to the poorest sections of society than perennial crops (Chambers, 1990).

But these are symptoms of a problem with a number of causes. The decline in the smallholder plantation system has variously been blamed on land tenure arrangements, inadequate price incentives, pest and disease incidence, decreasing real returns to production, and unsuccessful technical recommendations. But one of the main factors affecting smallholder perennial crop development is labour.

Labour is one of rural Africa's scarcest investment resources. Historically many areas of comparatively high natural resource potential have needed immigrant and slave labour for their development, and it was in this way that commercial tree crops came to be planted by smallholders in parts of West and East Africa such as Ghana, Nigeria and Zanzibar.

The rural African labour market is very complex, and although there is a standard image of the African peasant utilizing family labour resources, not only are family labour arrangements highly diverse but equally there are various forms of non-family labour significant to the smallholder sector.

This review is part of a Renewable Natural Resources Research Strategy (RNRRS) project aimed at contributing to a clearer understanding of the decision-making process with respect to labour. As this review shows, there has been a considerable amount of work done on labour but there are significant gaps in our knowledge of how it is invested. Equally, where labour investment strategies are understood and acknowledged, it is not evident that this knowledge has been incorporated into decision-making models.

The aim of this project overall is, then, to further explore smallholder decision-making with respect to investment of labour in agriculture, particularly for new planting and for long-term investment operations in established perennial crops. In doing so the project helps to address gaps in under-researched areas, and will formulate appropriate modifications to existing decision-making models.

This review provides an overview of the research and thinking to date on this topic. It covers a range of factors affecting smallholder decision-making and decision-making models, and identifies those areas of labour investment which appear under-researched.

SCOPE OF THE REVIEW

The review is confined to Africa and does not consider smallholders in other continents. Geographically it

inevitably reflects the scope of labour research to date, and there is therefore a possibly unrepresentative emphasis on certain regions. The majority of the material available was written in English and certain English language documents published overseas proved difficult to acquire. Both of these factors have limited the extent of the review. In particular there is limited coverage of smallholders in French-speaking West Africa.

There is some overlap in the use of the term 'tree crops' between older literature on smallholders and more recent literature on social and agroforestry. Chambers and Leach (1987), for instance, draw a clear distinction between 'trees' and coffee, cocoa, and other perennial tree crops (Chambers, 1990; Chambers *et al.*, 1987)*. Such distinctions are to an extent artificial and detrimental to an understanding of the strategies of the poor in general. This review only deals with 'trees' such as coffee and cocoa where they affect the labour investment strategies of perennial crop smallholders.

The term 'smallholder', while less controversial than farmer categories such as 'peasant', may also give rise to problems. The size of farm varies considerably between countries, regions, and individuals or groups. A holding may comprise a number of farms sometimes located far apart. Tenurial relationships between the smallholder and the land and/or crop are various, and do not help define the smallholder as a category. And, as the review shows, defining the smallholder as the primary decision-maker is not always possible. Decisions relating to the production system do not necessarily rest with one person, and may not rest with those closely associated with a particular farm.

Understanding change is an inherent part of understanding decision-making as change is a response to an existing or prior condition. Although some of the literature discusses indigenous institutions and systems (for example, Berry, 1975; Hill, 1963; Mikell, 1991; Beckman, 1976), few of the case studies allow analysis over a period of time because most data represent a

* Godoy (1992) is the only author in this review who considers 'trees' and 'perennial crops' together.

snapshot of a given moment in history. Exceptions would be Okali's (1971) work on Akokoaso which attempted to build on an earlier study in the same location by Beckett (1947), and Dei's (1992) work in Ayirebi and Asokore. As Okali (1971) has acknowledged, the absence of a thorough and consistent historical perspective means that changes can be missed and our knowledge may be lacking in dimension.

Later field research will focus on perennial tree crops, however the literature review also covers other types of perennial crop where the observations and findings appear relevant to an understanding of smallholder perennial crop production.

As will be explained below, perennial crop production systems are the result of the interaction between various determinants. This has given rise to highly heterogeneous systems which differ not simply between countries but different districts (Hill, 1970). A review of this sort is inclined to seek out consistency rather than micro-diversity, but in reading this review the underlying heterogeneity should not be forgotten.

Key factors affecting perennial crop production

Perennial crops are cultivated by smallholders across Africa. Some of the main regions are listed in Table 1. Historically the crops have been of great significance to many African economies being major exports as well as creating significant employment. They remain significant today in the era of adjustment* when, in order to achieve a more sustainable balance of payments and to reduce

* Adjustment policies include stabilization (immediate), structural adjustment (medium-term) and long-term adjustment (Palmer, 1991)

domestic inflation, countries must increase exports not simply compress imports (Commander, 1988)*.

Table I Examples of smallholder perennial crop growing regions in Africa

Country	Region	Perennial Crop
Nigeria	Yoruba	Cocoa
	Southwest Area	Cocoa, oil palm, Rubber
	Eastern Region	Oil palm
Ghana	Easten Region	Cocoa
	Western Region	Cocoa
	Ashanti Region	Cocoa
Uganda	Western Region	Tea
	Buganda	Coffee, cotton
	Northern Region	Cotton
Malawi	Chikawa District	Cotton
Tanzania	Sukumaland	Cotton
	Kilombero Valley	Cotton
	Usambara Mountains	Coffee
	Bukoba District	Coffee
	Kilimanjaro District	Coffee
	Mbeya	Coffee
	Arusha	Coffee
Zanzibar	Cloves	
Côte d'Ivoire	Moronu	Cocoa
	Katiali	Cotton
Kenya	Nandi District	Coffee

Source: Adapted from Cleave, 1974; Mbilinyi, 1976; Gastellu, 1987; Bassett, 1988

Smallholder agriculture generally is the core of most sub-Saharan African economies (Commander, 1988). In contrast to the operations of agribusiness, the commercialization of smallholder perennial crops

*For an overview of the impact of adjustment policy on African agricultural labour see Smith, 1991.

represents the historical point of interaction between two production systems—subsistence-oriented and cash-oriented (Hill, 1970).

To a large extent it has been assumed that production and marketing of cash crops was the result of the influence of Western trade and culture, and consequently that the economic behaviour of the smallholders essentially followed the laws of Western capitalism (Godoy, 1992). In Tanzania for instance, the growth of coffee farming has been attributed to mission-inspired entrepreneurship (Mbilinyi, 1976), and in a more general setting the development of smallholder perennial crop production has been explained by the 'vent for surplus' model focusing on the importance of land surplus and elasticity of labour supply (see Berry, 1975; Mikell, 1991; Cleave, 1974). Common features of these economies are that they are relatively small with weak trade and political leverage.

The idea of weak economies heavily influenced by external factors is most strong in literature based on core-periphery models of development. Here the smallholder is seen as powerless against the forces of the core (as discussed for instance in Mikell, 1991). The same powerlessness is evident also in some Marxist-influenced literature. Bonat and Abdullahi (1989) argue that the greatest influence on smallholders today are economic adjustment policies which they regard as being part of the deepening crisis of the world capitalist system.

Polly Hill (1986, 1970, 1963) has disputed the introduced nature of agricultural entrepreneurship in a number of publications on West Africa, and argues that indigenous methods of marketing and production owe nothing to western trade and much to older trading influences from northern Africa (Hill, 1970). She is supported by Berry (1975) who, drawing on western Nigerian fieldwork, argues that indigenous institutions are able to facilitate economic growth and change.

Where indigenous economies have been recognized, it has largely been assumed that they are too small, too simple, or too local for study (Hill, 1970), and that they are in a process of terminal decline. Where they are

studied there are methodological problems. Hill (1970) limits her attention to cash activities because they are easier to study than pre-monetary or subsistence economies. And Farrington (1977) says there are problems in applying standard tools from analytical economics such as the production function, to smallholder agriculture because of inter-farm variations in the efficient use of resources which he regards as inherent in peasant agriculture.

NON-LABOUR FACTORS

The problem of economic analysis does not detract from the overall economic importance of the smallholders. Sub-Saharan agriculture in general employs 70-80% of the labour force and accounts for 25-40% GDP (Commander, 1988). Ghana's smallholders, for example, are the world's third largest cocoa producers with total production figures of 240 000 tonnes (Public Ledger, 1992).

Godoy (1992), looking at all types of tree crops, identifies five determinants of smallholder tree cultivation:

- (a) output prices;
- (b) tenure;
- (c) credit, information and technology;
- (d) government policy;
- (e) labour.

Output prices

Godoy's (1992) conclusion that output prices are the major determinant is in line with mainstream economic thought which, in simplified terms, argues that given the proper price incentives smallholder production output will increase accordingly (Jonah, 1989). As Commander (1988) says:

African farmers like most other farmers are conventional price-takers.

While not wishing to document the entire output price debate which is one of the key elements of

adjustment policy, this argument needs to be mentioned because within it is an assumption that labour investment is governed by opportunity cost (Smith, 1991). Godoy says that smallholders respond to long-term increases in real price and also relative price where, for example, the price of alternative crops falls more rapidly.

The emphasis here is on long-term because, as Commander (1988) points out, nominal price shifts are often offset by a decline in agricultural versus non-agricultural terms of trade. Also, unlike annual crops, the long period required to establish many types of perennial crop means that smallholders cannot shift from one crop to another in response to short-term price changes.

Citing cases from Nigeria, Indonesia, Bolivia and Kenya, Godoy (1992) says that relatively favourable prices induce smallholders to invest in tree crops. Commander (1988) says that real producer prices for cocoa in Ghana fell to just 15% of their 1963 levels, and that this caused many farmers to move out of cocoa production. By 1986 the producer price had reached 44% of the 1963 level and output rose by more than 35% compared with 1982-83 levels, although still less than in the 1970s (*see* Table 2).

However, neither Godoy nor Commander argues that output price is the sole determinant of overall output. Commander (1988) points out that supply elasticities are rarely significant in sub-Saharan Africa, therefore price shifts alone are not sufficient to achieve growth. Indeed, raised prices may have little impact on production as has been witnessed in India where agricultural labourer's incomes actually declined and larger landholders gained at the expense of smallholders.

Reliance on price reform along standard neo-classical lines as the 'cutting edge' of a remodelled agricultural development process can only be a partial solution and may, if applied uncritically, have undesirable social consequences. (Commander, 1988 p 101).

Tenure

Insecurity of land tenure, and ownership of trees or tree products, for instance, gives rise to uncertainty over

future benefits and acts as a disincentive. But it is argued that the smallholder's reference point remains output price, so that if the price is high enough trees may be planted even if the farmer's tenure is insecure. As proof of this Godoy (1992) cites examples from Bolivia (cocoa) and Indonesia (coffee) where farmers have not had secure tenure but still planted trees. At least insofar as the Indonesian example is concerned there is reason to doubt Godoy's argument. Contrary to what Godoy states, from his own field experience it could be argued that farmers in Indonesian South Sumatra probably do not see themselves as planting on Government land, but rather doubt the legitimacy of the Government's claim to traditional land. They probably chose tree crops because they provide a concrete sign of labour invested in land (and therefore enhance the people's claim to the land), and not because of output price.

Table 2 Production of cocoa and coffee in Ghana and Tanzania 1979-1990

	1979/81	1988	1989	1990
Cocoa in Ghana				
Area harvested (ha)	200 000	889 000	900 000	900 000
Yield (kg/ha)	223	278	329	272
Production (mt)	268 000	247 000	296 000	245 000
Coffee in Tanzania				
Area harvested (ha)	109 000	110 000	112 000	114 000
Yield (kg/ha)	500	448	465	439
Production (mt)	54 000	49 000	52 000	50 000

Source: FAO (1990)

There is also reference to changes in the structure of land ownership due to adjustment policies. In Nigeria it has been said that the austerity measures are causing peasants to abandon their land for waged employment on large estates or in urban areas (Bonat and Abdullahi, 1989). The impact of this on rural labour elsewhere, especially amongst women, has been researched (*see*

Mackintosh, 1989). Banugire (1989) has commented that the urban rich are now displacing the rural rich as the major land purchasers, motivated by social rather than economic reasons. However, these changes in tenure as they affect the perennial crop smallholder have not been studied in depth.

Credit, information and technology

Godoy says that the smallholders rarely cite the lack of formal credit as a constraint, an observation partly supported by Hill (1963) using the migrant cocoa growers of southern Ghana as an example of indigenous capitalists who expanded the cocoa farming system without access to Western-model financial institutions. In recent times Government-backed credit schemes have been criticized for being accessible only to wealthier farmers with others depending more on traditional institutions (Dei, 1992).

Okali (1983) says that cocoa farmers in the Ashanti Region of Ghana invest little in technological inputs and have only sporadic access to hybrid trees. Indeed smallholder access to inputs has been and remains problematic. Fertilizers and pesticides in Ghana, for example, were distributed by an inefficient Government monopoly, and when this ended the World Bank insisted that prices be raised thereby pricing such inputs out of the reach of many smallholders (Commander, 1988). Similarly, Government credit schemes have been noted as being more accessible to wealthier smallholders (Dei, 1992).

Just as traditional forms of credit tend to be overlooked by economists, so too do indigenous technologies. Although access to outside technology may vary, the smallholder is always able to use and adapt indigenous technology. For instance, in the Côte d'Ivoire it has been observed that to overcome labour bottlenecks, agricultural practices are adapted, cropping patterns are changed, and a strategy of planned crop neglect developed (Bassett, 1988).

There is some evidence that the choice between using

formal and traditional systems of credit, information and technology is determined by economic class. In Ayirebi, Ghana, despite improved farmgate prices in the 1980s, production of cocoa and oil palm only rose amongst wealthier farmers, whereas others continued to concentrate on food production. Not only did wealthier farmers have better access to formal credit, the Government extension programme was geared towards perennial tree crops, and thus exacerbated class-based differences in the production system (Dei, 1992).

Government policy

It has been argued that labour cannot be properly understood without reference to the political-economic perspective examining macro factors such as foreign capital and the State (Bassett, 1988). Mikell (1991) and Beckman (1976) provide the political background of smallholder production in Ghana; Bassett (1988) provides an overview of the same for French-speaking West Africa; and Bryceson (1990) and Maddox (1991) discuss macro-level political impact on smallholders and labour in Tanzania.

One of the major obstacles to output price incentives in recent history has been government policies such as overvalued exchange rates that cause low farmgate prices and thereby reduce incentives to plant, or at least increase the incentive to smuggle (Godoy, 1992). In Tanzania, for instance, the official price for export crops in 1984 was 46% below 1970 levels even though the average price for these crops on the world market was 15% higher than in 1963 (Commander, 1988). While in Ghana the price to producers has increased less than the increase in the Government's selling price (Jonah, 1989).

Although more recent literature regards structural adjustment as if not desirable at least a *fait accompli*, it needs to be remembered that government policy has always been subject to change. Adjustment therefore represents a phase in a historical continuum. In the 1970s the agenda was set by the integrated rural development

approach focusing on 'progressive farmers' who would provide a model that would trickle down to small farmers (Bonat and Abdullahi, 1989). This was followed by the basic needs approach focusing on small farms which turned out not to have benefited from the trickle down approach.

Writing at a time when government price control mechanisms were the norm, Hill, (1970) argues that stable prices and the notion of a 'right price' were concepts rooted in indigenous economics in West Africa and this was the reason for local support of marketing boards. And it is not always the case that government policy is a one-way, top-down process. Perennial crop farmers have been shown to have considerable political influence at various times in history. See Beckman's study of the United Ghana Farmer's Council (1976), and Mikell's analysis of cocoa politics (1991).

LABOUR

The fifth determinant of smallholder tree crop production cited by Godoy (1992) is labour which, he says, is the least understood of all the determinants. He argues that an important attraction of perennial crops is the low labour cost compared with labour-intensive annual crop cultivation, and perennial crops are expected to be more prevalent where wages are high and/or labour is in short supply.

The above argument assumes the predominance of production systems based on free labour. Yet the literature reveals that free labour, in the Classical and Marxist economics sense of the term, is not the only nor even the predominant type of labour used on smallholdings. Many people are not 'employees' as they work fully or partly on their own lands. Some who work on others' lands are not waged labour in the accepted sense, and many perennial crop production systems depend greatly on family labour, with intra-familial relations taking a variety of forms.

Patterns of employment of non-family labour are

similarly diverse, distinguishable by such features as type of work, domicile and ethnic grouping.

Gender is another significant variable in the production systems with many elements distinguishing decision-making by men from that by women be they family or not. Age is a similar cross-cutting factor.

A further factor is HIV/AIDS. While illness and disease have always had an impact upon production, the radical forecasts for the spread of HIV/AIDS throughout Africa and its specific epidemiology warrant a review of its implications for labour. This is in addition to the effects of social obligations and health upon labour supply.

The production of perennial crops cannot be considered in isolation. Decisions on which crops to plant are made in the light of other opportunities and responsibilities such as off-farm employment, other on-farm activities and reproduction.

Aside from the above social factors, non-social factors also affect the production system: climate and seasonality help determine how much labour is required at a given time, and crop type and diversity relate to the amount, type and distribution of labour.

Factors influencing investment in labour

HIRED LABOUR

In the bulk of the literature a distinction is drawn between family and hired labour, although in the past the establishment of perennial crops in some countries (e.g. cocoa in Nigeria and cloves in Zanzibar) also depended on the use of bonded labour (Berry, 1975).

Hired labour is commonly held to have been non-existent before the coming of perennial crop production (Adegboye, 1973; Hill, 1986), but has long been an essential part of the labour force (Hill, 1986*; Berry, 1975;

Mikell, 1991) with some observers stating that it has replaced the family as the main unit of agricultural production (Cleave, 1974; Benneh, 1970). Declining yields may act as a disincentive to utilize hired labour (Beckett, 1972; Okali, 1973), although this is not always the case (Dei, 1972).

A number of factors have influenced the growth in hired labour usage: changes in kinship relations and traditional institutions have been cited (Okali, 1983; Hill, 1963; Berry, 1975; Mikell, 1991; Bassett, 1988), as has the reduced availability of family labour due to increased education opportunities (Benneh, 1970), out-migration, and alternative rural employment (Adomako-Sarhof, 1974; Hart, 1974). In some regions, improved wages and working conditions plus the enforcement of minimum wage regulations has attracted a growing number of hired labourers (Dei, 1992).

Most studies consider hired labour in the location where labourers are working which, due to the extent of rural-rural migration, is not always the home of the labourer. Brydon (1987) is the only writer reviewed who tries to understand the strategies of hired labourers from the vantage point of their indigenous regions. Furthermore, the studies concentrate on hired labourers as labourers for smallholders, and do not consider the synergy of their labour deployment strategies.[†] As Hart (1974) points out for the Frafras in Ghana, hired labour may balance a combination of rural and even urban employment opportunities where considerations relating to each opportunity will have ramifications for the others.

Two factors appear to define the main types of hired labour: the type of hiring contract, and the domicile of the labourer.

* In an earlier book, Hill (1963) suggests that some ethnic groups are more dependent on hired labour than others because of the use of different technologies. Thus Shai hoe farmers were more able to adapt their own labour to the new technological demands than were the the Akwapim who used cutlasses. However, there are no ethnic-based analyses of the degree to which different forms of labour have been adopted.

† Beckett (1947) lists nineteen different types of off-farm employment undertaken by owners and/or labourers.

Labour contracts

In western Nigeria a hired labourer is employed on either an annual or a casual contract (Berry, 1973). The labourer on casual contract is paid a daily or piece rate, given upon completion of the contracted task. Those on annual contract receive food and lodging, and are paid at the end of the contract period, usually after harvesting. Similar employment conditions are found throughout West Africa (Okali, 1983).

Employers prefer annual contracts because they provide a guaranteed labour pool and, especially when product prices are low, mean they do not have to borrow money but can defer cash outlay until they are paid for the harvest (Berry, 1975; Hill, 1963). Many labourers also prefer this type of arrangement as although the pay is lower it is more reliable (Berry, 1975), even if it may mean individuals are forced into borrowing money usually at high rates of interest (Addo, 1973). However, the ability to employ annual labour depends to an extent on the size of the overall holding, and farmers with small holdings and young farmers (i.e. those without bearing or pod-producing farms) are often unable to afford to enter into longer term labour agreements (Addo, 1973; Okali, 1975).

Berry (1987) also refers to 'sharecroppers' but does not regard these as hired labour. However, studies referring to hired labour in Ghana identify a similar category, the *Abusa* man, whom Hill has described as part sharecropper, part caretaker, 'but above all an employee' (1987). *Abusa* man is remunerated with a share of the harvest (normally one-third*), and is responsible for the management of a farm or holding. Crop share is common throughout West Africa but less evident in the Nigerian cocoa belt (Berry, 1975; Benneh, 1970).

Robertson (1982) reported that the *abusa* system was on the increase but led to a trend of opening new farms rather than regenerating old ones. This is because of the *abusa* cycle whereby the contract between *abusa* and owner is for the life of the farm and these rights are inheritable.

* Where the harvest is divided in half, the arrangement is referred to as *abunu*.

The *abusa* begins on a new farm as a normal labourer, then becomes an '*abusa* labourer' with inputs provided by the owner. He then becomes an '*abusa* tenant' with the certain rights to cultivate for himself. The rights and position of the *abusa* become stronger as the farm gets older, so that it is not in the interests of the *abusa* to replant because he will lose his power, effectively becoming a labourer once more.

In addition to the *abusa*, Hill (1963) identifies the following hired labour categories:

- (a) *nkotokuano* labourer: receives a fixed sum for each load of cocoa harvested;
- (b) annual labourers: receive cash payment for labour provided over a six-month or one-year period;
- (c) daily labourers: paid on a daily basis and employed at certain times of the year;
- (d) contract labourers: paid a pre-agreed amount upon completion of a set task.

Abusa and annual labourers may additionally receive land from their employer (Okali, 1983; Addo, 1973), and the sale of labour may be part of a strategy to acquire one's own farm (Berry, 1975).

In Ghana 60% of cocoa farmers use annual labourers and/or *abusa*, while nearly all farms employ labourers on shorter contracts (Addo in: Okali, 1983). *Abusa* tend to be utilized more on bearing farms and are paid with a percentage of the crop, while accommodation and inputs such as pesticides are the responsibility of the farm owner (Addo, 1973). They are primarily employed by smallholders who are unable to manage their entire holding e.g. women inheritors, richer farmers, owners with extensive off-farm activities and absentee landlords (Berry, 1975). Owners of a number of separate farms may employ several *abusa* depending on the size of the overall holding, but the owner-farmer and spouse will commonly share some of the work with the *abusa* and take greater responsibility for certain tasks such as weeding (Okali, 1975).

While *abusa* are employed more on bearing farms, annual labourers are employed on younger farms. In a

case study from Dominase, Ghana, annual cocoa labourers usually worked on both new farms and young (non-bearing) farms if the employer also owned bearing farms. Where the employer did not yet have bearing farms, annual labour was used only on young farms and not to establish new farms, (Okali, 1975).

Some literature refers to a further category of labourers, contractors, who are employed during the establishment of a new cocoa farm (e.g. for two years) (Adomako-Sarhof, 1974). Contractors are especially employed by non-resident landowners.

As with labour employed on longer-term contracts, those on short-term contracts tend to be used for certain tasks (e.g. weeding), but payment is made upon completion of the task rather than being deferred as is the case with annual and *abusa* labour. However, maturity of the holding affects the extent to which hired labour is used. In Dominase, for instance, casual labour is used more on non-bearing farms than bearing farms. But on holdings where there are already bearing farms, casual labour is used more to establish new farms than on new holdings where most casual labour is used after the farm has been established (Okali, 1975).

Okali's findings show that the extent to which hired labour is used partly depends on the age of the holding and the extent to which the smallholder has bearing trees. Overall, in Dominase, older holdings meet 50% of their labour needs with hired labour, while on new holdings the figure is 32%. However, even on older holdings, hired annual and casual labour only accounts for the majority of labour inputs on bearing farms.

This supports the theory that hired labour becomes increasingly significant once a holding is established, but that prior to this savings are not invested in labour and establishment of new holdings depends on family labour (Hill, 1963; Berry, 1975). Equally, the amount of hired labour used is often related to the smallholder's economic class, with wealthier smallholders more able to afford hired labour than others (Dei, 1992).

It has also been noted, although not extensively researched, that migrant farmers are less likely to use

permanent labourers, and tend to use more casual and family labour (Addo, 1973).

Casual labour is important where perennial and food-crop cultivation are practised together, especially where the food crop is sold (Okali, 1973). Labour is more intensive and its demand more seasonal for food crops compared with perennial crops, and the necessary balance between the demands of food and perennial crops must be achieved when making decisions on labour. In parts of Nigeria, where access to land is limited, labourers may offer to work on perennial crops in return for land on which to grow food crops for subsistence (Adegboye, 1973).

Most of the above description is based on the situation in West Africa. Far less is known about labour contracts in other areas of the continent. In Tanzania, smallholders use hired labour for coffee production, and a distinction is made between 'temporary' and 'permanent' hired labour (Mbilinyi, 1976). The number of labourers employed varies significantly between holdings and between regions. In Arusha the average number of labourers per holding is 5.7, in Mbeya 1.4, and in Kilimanjaro 3.0. In all cases this mean figure is no greater and usually less than the number of family members involved in labour activities (Mbilinyi, 1976; Fernandes *et al.*, 1984). In Arusha almost 80% of farmers employ hired labour, in Mbeya 35% and in Kilimanjaro 55% (Mbilinyi, 1976).

Migrant and local labour

In some instances the capacity to use hired labour is seen as a reflection of status (Benneh, 1970). In West Africa annual labourers have a low social position and tend to be drawn from certain groups (Hill, 1986). Some ethnic groups have tended not to use hired labour because they are proud that their kinship network is able to meet their labour needs: such is the case with Krobo, Shai and Ga groups in Ghana (Hill, 1963). However, evidence from both East and West Africa shows not only that hired

labour is important for smallholder perennial crop production, but that this labour is drawn from indigenous and migrant sources.

In Arusha and Kilimanjaro 50% of hired labourers are immigrants, with 20% and 6% respectively coming from outside of Tanzania (Mbilinyi, 1976). In Nigeria the majority of labourers on cocoa holdings seem to be migrants (Galleti *et al.*, 1956), although this may be because the actual figure for local hired labour is harder to ascertain as many hired labourers are also farmers (Berry, 1975). In Ghana, Ashanti smallholders have long used hired labour from the country's Northern Territories (Benneh, 1970), and migration of labour from other countries to work on cocoa farms was once so great that the Government enacted legislation to deport foreign workers. Prior to this, 47% of longer-term labour on farms was from abroad, afterwards the figure fell to 25% but the current situation is unknown (Addo, 1973)*. However, the majority of hired labourers were from other areas in all but the Eastern and Western regions where most hired labour is local (Addo, 1973).

The home of the labourer affects labour decision-making, largely due to the circumstances of the labourer himself. Most migrant labourers are young, single men, and those labourers who do have families do not usually migrate with them because of the additional expense it would entail (Adomako-Sarhof, 1974). They tend to seek longer-term contracts because they normally lack social support networks which might allow them to adapt better to more unstable but potentially more remunerative casual work (Berry, 1975; Adomako-Sarhof, 1974). Hence the indigenous Yoruba in Nigeria favour casual labour contracts because they have an established social system in the cocoa belt (Berry, 1975), whereas the majority of *abusa* in Brong-Ahafo, Ghana, are non-Ghanaian immigrants (Adomako-Sarhof, 1974). The exception to this is where the immigrant labourer's ethnic group has

* In the late 1970s migration trends in Ghana reversed partly due to the declining smallholder cocoa sector. Not only was there less migrant labour coming to the cocoa growing regions, but Ghanaian labour was migrating to the oil regions of Nigeria (Palmer, 1991)

established network. This is true for the Hausa in Nigeria and ethnic groups from outside Ghana's cocoa growing regions (e.g. the Ibo) which have established trader networks in the cocoa belt (Berry, 1975; Adomako-Sarhof, 1974).

In Ghana the numbers employed in casual labour are higher than under other types of contract, and these people tend to be local residents (Hill, 1986), although some may have originally come from other regions and settled in the new area, bringing families from their home region (Hill, 1963) or inter-marrying with local inhabitants (Mikell, 1991). For the employer an advantage of using local casual labour is that payment can be deferred until after the harvest has been sold (Hill, 1963). Furthermore, some casual labour can be acquired without the need to pay wages, using local mutual assistance groups, debtors and, in the past, slaves (Berry, 1975).

FAMILY AND COMMUNAL LABOUR

The use of family labour

Although mention is made of communal labour (e.g. Berry, 1975), most of the discussion about non-hired labour focuses on the family. The family is at the core of the smallholder labour force, and numerous writers (Okali, Benneh, Hill, Beckett, Mbilinyi, Berry, Mikell) have recognized the difference between family and non-family labour as a fundamental distinction in their analyses of labour decision-making.

As mentioned earlier, family labour was extensively used in the establishment of smallholder perennial crop growing regions because of a reluctance to spend capital/savings on hiring labour (Hill, 1970; Berry, 1975):

Systematic large-scale employment of farm labourers marked the second, not the first, stage of the developing capitalistic process. (Hill, 1963 p 187).

A similar trend has been evident in more recent times in the opening of new holdings where family labour is used to a far greater degree than on established holdings (Okali, 1975). Indeed, the use of hired labour does not necessarily displace but rather supplements family labour (Mbilinyi, 1976). Even on bearing farms where *abusa* are employed, farmers and family members still work, especially at harvest time (Okali, 1973).

Both Hill and Berry (1970; 1975) cite the use of family labour as proof that traditional institutions are mobilized in the process of capital formation. But the importance of these institutions in establishing new holdings today is less certain. As mentioned in the Introduction, many writers have ignored the significance of traditional economies, but even those who recognize their importance feel they are in a process of decline. Berry (1975), for instance, says that the importance of traditional institutions is declining in the face of an increasingly commercial style of farm management, and Hart (1974) says urban migration amongst the rural young may diminish the role of traditional institutions. Using the case of cocoa in Ghana, Mikell (1991) argues that the introduction of perennial crops has led to greater exposure to additional political dimensions (local, national and international) which have changed labour patterns and weakened kinship networks. This is in line with Okali's opinion (1983) that various economic changes in rural communities have caused a breakdown in organized groups of kin.

Just as it is difficult to measure the rise in hired labour, so too is it difficult to assess the decline in family labour and whether the two are corresponding. Macro-level surveys tend not to have adequate subtlety to disaggregate perennial crop production from other agricultural activities or hired from family labour. Micro-level studies do not reveal overall trends and comparative studies are problematic. Dei (1992), drawing on fieldwork in Ghana from the early and late 1980s, says that there is a trend towards using hired labour, but household labour is still the major source.

It can also be argued that what might appear to be

decline is in fact adaptation. Bryceson (1990) has shown how in Tanzania non-commercialized, client and kin-based networks can quickly replace commercial ones when the latter break down. Dei (1992) has observed amongst indigenous farmers in Ghana that in response to a period of economic and environmental stress in the 1980s, middle and low income farmers especially turned to traditional institutions and networks. Hill (1963; 1986) says that the decline in kin groups and related institutions has long been prophesied, but they have shown themselves to be flexible and resilient in adapting to internal and external stimuli.

Whether one prefers to see such systems in a state of decline or change, case studies such as those by Okali show family labour remains crucial to most smallholders and is the source of the majority of labour inputs. Unfortunately, incompatibility of data and the absence of a historical dimension to most case studies mean that it is not possible to analyse changes in family labour patterns over time or to compare regions. Dei's (1992) case studies in Ayirebi, Ghana, show the importance of longitudinal data, demonstrating the responses of different economic classes to external events such as drought and price fluctuation. But this type of approach is limited. Thus it is not possible to show, for instance, whether factors such as urban migration and increased education opportunities are reducing the number of family members working on holdings, and if there are such trends whether rural population growth is hiding them (*see* Akwabi-Ameyow, 1973, on population growth).

Defining the family

In some of the literature the term family is itself problematic. Reflecting the often remarked upon shift from extended family to elementary family, many writers limit their discussion to the household, or imply the household when they refer to the family*. Describing

* Average smallholder household size varies. In Ghana it is 12 persons (Addo, 1973), in Tanzania the range of productive members is one to 10, (Mbilinyi, 1976).

who is involved in family labour, Mbilinyi, (1976) refers to 'farmers', 'wives', 'children', and 'other relatives in the house'. Cleave (1974) analyses family labour in terms of 'farmers', 'wives', 'other women', and 'children'; Beckett (1947) uses the categories of 'farmers', 'wives' and 'children'; Hill (1956) refers to 'farmers' and 'spouses'; and Adegboye (1973) distinguishes only between 'family' and 'hired' labour. One consequence of this oversimplification of the family structure is that people are defined in static roles. For instance, a woman in some of the above examples is defined as a wife when in reality her actions may equally be a consequence of her social position, for instance as niece, mother, or any number of other socially defined roles (Okali, 1983). To misquote Shakespeare: "A person at one moment plays many different roles".

A further problem is that different categories of family member have different labour patterns. Okali (1975) found that family labour (kinsmen and wives) was used more in the establishment of new farms. As holdings matured, there was a shift in the degree of involvement by different categories of family member. Male kinsmen's labour (mostly brothers or nephews) was used more on bearing farms, whereas that of female kinsmen (mostly sisters) was used more on young farms. While husbands divided their time fairly equally between new, young, and bearing farms, their wives worked more on young and especially new farms, except where the wife had a part share in the bearing trees (*see* Table 3).

Of the literature reviewed, Okali's work adopts the most sophisticated and revealing model of the family as a unit of production, and has remarked (1983) that, with few exceptions (e.g. Long, 1968; Parkin, 1972), earlier literature had ignored the dynamics of families within modern agriculture, and concentrated on other aspects of labour such as hired labour and migrant farmers. Problems in discussing the family as a homogeneous unit are seen further in the sections on gender and age.

Reasons for using family labour

Hill (1963) and Berry (1975) put forward a theory that

family labour is deliberately chosen in preference to hired labour during the early stages of establishing farms as has already been mentioned. Berry says that, especially for migrants, the main economic problem in establishing smallholdings is the availability of labour in the new perennial crop farming regions. The use of family labour was the option best suited to the needs of migrant farmers because the institutions already existed which could mobilize and organize human resources.

Table 3 Contribution of different types of labour to smallholder cocoa production over a twelve-month period

Type of labour	New farms		Other non-bearing farms		Bearing farms	
	1	2	1	2	A	B
Farmer	40	48	66	44	26	65
Male relatives	9	2	34	6	7	62
Female relatives	58	24	90	17	9	105
Other farmers	0	0	1	0	59	42
Annual labourers	18	0	0	0	0	0
Caretaker	16	0	0	0	293	13
Contract and daily labourers	75	37	141	25	43	58
Total man-days	216	111	332	92	437	345

Notes: 1 = Young and bearing farms in holding; 2 = only young farms in holding; A = farms operated by caretakers; B = farms operated by farmer.

Source: Adapted from Okali, 1973.

However, the distinguishing features of employing family labour compared with hired labour are often not explicitly mentioned. Drawing on studies from western Kenya, Palmer (1991) shows that economic class is a factor in this kind of decision-making. Rich farmers hire more labour, middle farmers use a mixture of hired and family labour, and poor farmers use predominantly family labour. Benneh (1970) has said that family labour may be used simply because hired labour is not available, and certain groups are better placed than others to acquire hired labour (*see* pages 14-16). Few of the studies reviewed

have the macro scope to provide data on the overall availability of labour, and those that do (e.g. Cleave, 1974) have not analysed decisions on family versus hired labour.

One of the reasons for using family rather than hired labour is the nature of the employment contract. It is commonly assumed that family labour is not paid in the same way that hired labour is. In Katiali, Côte d'Ivoire, one form of labour is the *léhééré* where suitors of brides work for their prospective in-laws for several years and they are then rewarded with a wife (Bassett, 1988). On Ghanaian cocoa farms some relatives work as supervisors and managers for no fixed return, while changes in intra-household relations (e.g. a weakening of customary laws protecting a woman's claim to a share of the produce) described elsewhere (see page 16-17), mean that women are sometimes unpaid labour on their husband's farms (Okali, 1983). But family labour is not generally free from any form of payment, reciprocation or remuneration. When and which family labour is used partly depends on the farmer's ability to meet the responsibilities and obligations which result (Addo, 1973), something that is examined later (see page 15).

To help understand these different types of transaction, Okali (1983) adopts Ekeh's model of labour exchange which distinguishes between 'restricted' transactions (a two-party transaction based on the principal of mutual reciprocity and direct benefit) and 'generalized transactions' which in turn can be subdivided between dyadic relationships ($A \leftrightarrow B$) and a chain exchange based on univocal reciprocity ($A \rightarrow B \rightarrow C$ etc). The medium of exchange influences the type of transactions. Money for instance is conducive to restricted transactions, but not to establishing the long-term and perhaps subordinating relationships that are common in generalized transactions. In the latter instance, land or developed farms may be seen as better means of exchange (Okali, 1983) because they are more permanent and create a long-term relationship.

Which type of labour exchange is chosen for any given transaction therefore may not simply reflect the

type of labour available but equally the objectives of the employer and employee. Drawing on the work of Barth and Schneider, Okali (1983) says that such choices are not based solely upon the desire to accumulate capital, but also to establish status and power. This is in line with Gregory's (1982) theory of the different (and often contradictory) logics that prevail in different economic systems, the interaction of which may cause unforeseen and, in terms of goals and objectives, self-defeating results (Blowfield, 1989).

Okali (1983) also points out that understanding transactions within the traditional economy is not feasible without including the element of time. For instance, a young wife may work on her husband's farm not for any immediate reward but in the expectation of what she will receive when she has adult children. This is true amongst cocoa farmers in Nigeria where young people were not paid to work on the farms of fathers, elder brothers and uncles, but could expect assistance from these people when starting their own farm (Berry, 1975).

However, Berry (1975) also observed that the generalized transaction was in decline as young people sought independence through non-agricultural employment outside of the kinship network. This emphasizes again the need to understand family labour patterns in the context of a dynamic kinship system, something that becomes evident in the cases detailed below.

Matriliny and patriliney

The literature on West Africa frequently refers to the different behaviour of smallholders from patrilineal groups to those from matrilineal groups. Hill (1963; 1970) described the impact that differing kinship systems had on migrant cocoa farmers. Those from patrilineal groups developed the company land system, characterized by the division of land into strips, where a group of farmers club together for the sole and commercial purpose of buying cocoa land (Hill, 1963, p 39). The land is

individually not communally owned, and there is never any intention of farming the land as a group. However, once the land comes to be inherited, inheritance patterns based on traditional customs and laws mean that the form of ownership begins to change: "the individual property acquired by the original farmer should always be considered as in a process of conversion to lineage property" (Hill, 1963, p 75).

Migrants from matrilineal groups developed the family land system where an area of land is divided for farming between members of the matrilineage. It is characterized by a mosaic patterned division of land (Hill, 1963). Matrilineal groups are considered to be susceptible to the types of change related to commercialization because of the impact of matriliney on the factors of production (Okali, 1963). In patrilineal groups where the main unit of production is father, mother, children, the unit of production is the same as the unit of inheritance (accumulation). But in matrilineal groups, although the unit of production might be the same, the unit of inheritance is different with land being bequeathed to the sons of the owner's siblings. In other words an individual belongs to two separate groups—a production-consumption group and an accumulation group (Gastellu, 1987).

It is simultaneous membership of these two groups, found for instance in Senegal, Côte d'Ivoire and Ghana, which commentators have seen as a weakness in matrilineal smallholder production. Amongst the matrilineal Akan of Ghana, for instance, up to 50% of cocoa farms were established with the assistance of loans from uncles, but increasingly these traditional assisting relationships have been in decline with brothers inheriting to the exclusion of nephews, and cross-cousin marriages no longer the norm (Mikell, 1991). Similarly an increasing number of women inherit land directly from husbands and brothers rather than through nephews or cousins (Okali, 1983). Such shifts, which have been given as evidence of matrilineal groups changing to patrilineal systems (Okali, 1983; Mikell, 1991), also reveal themselves in other ways such as increased disputes (often

witnessed by a growing number of accusations about witchcraft as has been observed in Ghana and Zambia), and the settlement of disputes in favour of those who have invested labour in farm development (Long, 1968).

And yet matriliney has not suffered the demise that had often been predicted (Hill, 1963). In Moronu, Côte d'Ivoire, contradictory pressures from the two groups have been avoided by vesting decision-making on production, consumption and accumulation in one person (Gastellu, 1987). In both Ghana and Senegal a tendency has been noted to circumvent rather than change customary rules. For instance, the elementary family appropriates cash from cash crops while continuing to use traditional property to meet descent group obligations (Okali, 1983; Gastellu, 1987). The example of the Abusi in southern Ghana has been used to show that matriliney has actually grown in strength because it has adapted to meet the commercially determined needs of the individual enterprising farmer while at the same time offering him the benefit of support from his matrilineage (Hill, 1963). More recently amongst the matrilineal Akan, although there was increasing individual ownership of land during the 1980s, lineage land still predominated (64% of farmed land) with low-income families especially depending on lineage rather than individually owned land (Dei, 1992).

Migrant and indigenous families

Several references have already been made to the work of Hill and Berry showing the central role of migrant families in the pioneering of smallholder perennial crop production in West Africa. Comparing a newly established community in Dominase with an established one in Akokoaso amongst the matrilineal Akan of Ghana, Okali (1983) has shown that there are differences in labour decision-making between the two communities such as the far larger number of female farmers in the established community than in the migrant one. This concurs with Hill's (1963) observation about women farmers in New

Juaben and parts of Akim where about 50% of farmers are female. Migrant farmers are less likely to be absentee landlords (Hill, 1963), use more family labour (especially for management) and spend longer on farms. Often they will secure access to land but then plant it over a long period of time* using young family labour rather than hired labour (Hill, 1963).

It has also been noted that matriliney may be more disrupted among migrant groups where ties with the original lineage become weakened by distance, and deep localised lineages have not had time to develop (Okali, 1983), although as both Okali (*ibid*) and Hart (1974) note lineage ties do not end just because of migration.

In Ghana, migrant farmers are more significant in certain regions such as Brong-Ahafo, Central and Western Regions (Addo, 1973). In the early 1970s they accounted for 12% of cocoa farmers and were typically younger than native farmers. This is a growing trend (Addo, 1973). Their relative youth may reflect the situation in their native regions if the indigenous social system has a strong age hierarchy, but as the following section shows, age remains a factor affecting production in all regions.

AGE

It has been argued that smallholder crop production in Africa functions according to Chayanov's model of age cycles (Hunt, 1978), and there are clearly facets of the production systems that are age-related.

Migrant hired labour and farmers tend to be young (Addo, in: Okali, 1983). Most hired labourers are single, while the farmers usually migrate with families providing the basic unit of production. As noted earlier, migrant labour tends to seek more permanent contracts. But as migrants become older and gain more experience they may settle within the perennial crop growing region (Hill, 1963; Mikell, 1991), causing a change in their labour patters bringing them in line with the previously

* Hill observed that some land has not been planted for 35 years after purchase (1963).

observed pattern for local hired labour (*see* Migrant and local labour, page 9).

Young farmers, migrants or not, face specific problems when making decisions about labour. As inheritance usually entails the division of holdings, even in indigenous communities the size of the holding is an indicator of the age of the owner, with older farmers using more land. Mention has already been made of the greater use made of hired labour on older holdings. This does not necessarily mean greater leisure time for the farmer, and for most farmers it is an indication of greater acreage with the farmer's own labour being divided between a number of separate farms (Cleave, 1974). Although it might be expected that experienced farmers would be able to work more speedily, this is not necessarily the case, and on Ghanaian cocoa farms older farmers spent more days than younger ones establishing a new farm (Okali, 1973).

The use of hired labour reflects a greater use of labour overall by older farmers. Not only do they have more resources to employ waged labour, they also have more relatives and larger nuclear families upon which to call (Okali, 1973). Where polygyny is practised by older farmers the size of the family labour force may be larger for farm-owning males although production does not necessarily increase proportionately to the number of wives (Okali, 1983). Although older farmers with larger holdings have access to more labour than younger farmers, larger farms actually use less labour per acre (Okali, 1973; Galletti *et al.*, 1956). In contrast with small farms where labour investment per acre is high, large farms exhibit a high return on labour per hour but a low return per acre, and larger farmers find it more profitable to expand acreage rather than increase the amount of time invested in a given area of land (Galletti *et al.*, 1956). In Ghana and Nigeria it has been noted that as holding size increases, there are diminishing marginal returns (Okali, 1975; Galletti *et al.*, 1956).

In the past in Ghanaian matrilineal societies nephews worked from an early age on their uncles' farms, but this has been in decline due to the demise of

cross-cousin marriages, a greater amount of farming for oneself rather than a landowner and outward migration of young men (Mikell, 1991). This reflects the growing patricentricity mentioned, but Mikell also notes that the type of land inherited by nephews when young especially in the Eastern Region (typically neglected, indebted and pledged farms), discouraged long-term investment and may have contributed to the shift in kinship focus.

As Okali (1973) has noted, the introduction of new, earlier bearing breeds of cocoa trees has not overcome the problem of the need for farmers to invest high quantities of labour during the early years of production. Young farmers without resort to income from older bearing farms are especially disadvantaged as they still do not have access to sufficient family labour nor the resources to spend on hiring labour.

An additional aspect of labour relating to age is the use of child labour. This was significant in the past (*see* Figure 1), especially to assist women in food crop cultivation. However, the expansion in education opportunities during the past few decades has reduced its availability (Akwabi-Ameyow, 1973), especially that of male children (Palmer, 1991). The contribution of child labour is rarely separated from family labour as a whole in the literature reviewed.

GENDER

The gap between women's economic responsibilities and their access to resources observed throughout Africa (Palmer, 1991) is evident amongst those involved in

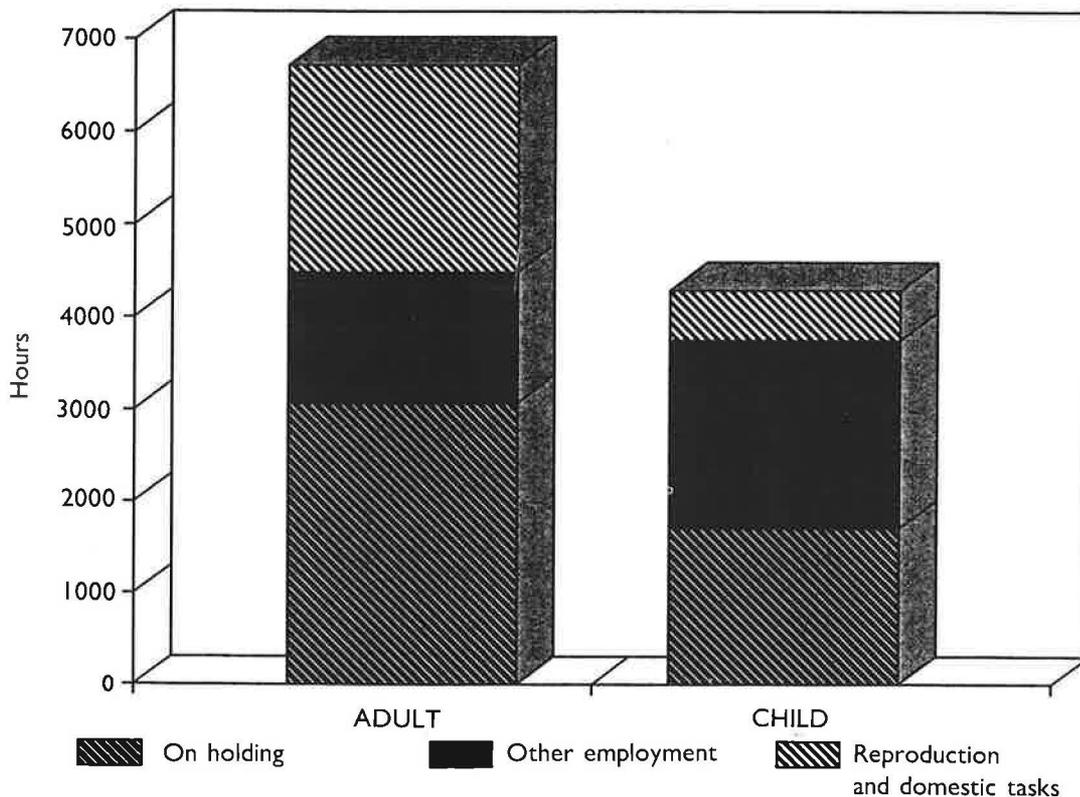


Figure 1
Comparison of adult and child labour inputs

Source:
Adapted from Cleave, 1974

smallholder perennial crop production and instabilities in production (e.g. due to outward migration) have only been balanced because of further increases in the productive labour of women (Okali and Mabey, 1975).

Use of female labour

As noted earlier, there is a tendency in some of the literature to adopt unsatisfactory models of the family, and a strong assumption that the elementary family or household is the basic unit of smallholder production. Yet, even within that literature, there is considerable evidence that gender is a distinguishing factor in labour decision-making strategies. There is strong evidence of a gender-based division of labour, although this is not as rigid as sometimes believed (Palmer, 1991). In Dominase, for instance, wives work mostly on young and new farms, and only on bearing farms when they have a share in the bearing trees, Men, however, divide their time fairly equally between farms of different degrees of maturity (Okali, 1975). Amongst hired labour, men are predominant in longer-term contracts* and overall receive higher wages than women (Hill, 1986). Although men have long made up the majority of hired labour, there have been instances where increased demand for hired labour has been met more by women as was witnessed in the 1970s in Eastern Region, Ghana (Okali and Mabey, 1975).

Where the cultivation of food crops is part of the smallholder's production system, this tends to be the responsibility of women (Hill, 1970; Mbilinyi, 1976; Fernandes *et al*, 1984), and has resulted in a theory of the 'feminization of subsistence agriculture' where women are excluded from cash-oriented production (Bassett, 1988; Sorensen, 1990). Where women have the primary responsibility for subsistence, men are free to concentrate on perennial crop production (Bassett, 1988), and can invest the returns as they wish, for instance in more land for perennial crops (Hill, 1970). In such situations women

* In a survey in Akokoaso, for example, all *abusa* and permanent labour were men (Beckett, 1945).

are therefore contributing to crop production by providing for the man and his children's subsistence without necessarily receiving the benefits accrued from that production. In matrilineal societies, for instance, where the production-consumption group is different from the accumulation group wives of male smallholders may especially be precluded from receiving direct benefit, although they may consider themselves beneficiaries of univocal reciprocity (*see* page 13).

Women's access to resources

However, caution is required in using the feminization of subsistence agriculture model as it presents oversimplified dichotomies associating men with cash and women with subsistence (Sorensen, 1990). Although there is an assumption in some of the literature that holdings and farms are owned by males and that the farmer is male*, women are often owners. In Samproso in the Ashanti Region of Ghana‡, almost one-third of farms were found to be owned by women (Benneh, 1970), in Akokoaso the figure was almost 40% (Beckett, 1947), and in New Juaben and parts of Akim about 50% of farmers were female (Hill, 1963). Female-owned holdings are far more prevalent amongst indigenous farmers. In the indigenous cocoa farming community of Akokoaso the majority of farmers (67%) were women. However, of farmers owning and farming their land, about 60% were male, while of farmers farming another's land almost 90% were women (Beckett, 1947), and women are especially dependent on male labour in establishing farms (Okali and Mabey, 1975).

Migrant smallholder communities tend to be dominated by male owners (Okali, 1983). Women in patrilineal migrant communities are rarely members of land-acquiring 'companies' in their own right, and farmers rarely purchase land for their daughters. Of those

* Hence the tendency to talk of 'farmers and their wives' (Beckett, 1947; Cleave, 1974; Mbilinyi, 1976).

‡ In 1970 10% of Ghana's total cocoa smallholdings were owned by women (Addo, in: Okali, 1983).

women who are registered as owning company farms, many are in fact representing non-resident brothers or have only usufructuary rights from their husbands (Hill, 1963).

Amongst both patrilineal and matrilineal groups in Ghana it has been observed that cocoa farming has given rise to a gender determined parallel hierarchy of farm ownership and employment of labour. However, although women own and manage holdings, these tend to be smaller and have less access to unpaid labour (Vellenga, 1986) (*see Women and hired labour, page 19*). Women are also more likely to own farms for food production than for perennial crops (Okali and Mabey, 1975).

The predominance of patriliney in Africa plus the trend towards patricentricity discussed earlier also help to account for the fact that most women farmers are dependent upon usufructuary rights to land. Such rights tend to be more insecure, and women are often only given enough land to fulfill their economic obligations to the family (Palmer, 1991). Okali (1983) has noted that patricentricity has caused insecurity amongst women in matrilineal Ghanaian coffee areas with women effectively becoming unpaid labourers on their husband's land. Women may prefer to work for themselves as they fear that co-operative work between husband and wife will cause later inheritance problems.

One effect of the tendency for men to dominate perennial cropping such as is found in migrant communities, is to deprive women of access and resources. It has been observed that as a response to this women turn to motherhood as a form of security as it provides a future labour supply. However, the greater time taken in reproduction means less time for production, thus reducing the women's opportunity to acquire a surplus for investment (Palmer, 1991).

Women's failure to engage in perennial crop production to the same extent as men should not be taken as an indication of disinterest. The above-cited Ghanaian case studies and literature on women in development suggests a strong desire to produce for cash, which

Palmer (1991) attributes to higher returns but could in some cases be part of a strategy to achieve greater land security. It remains the case that where perennial and food crops exist side by side, men are more active in the former, women in the latter (Okali, 1983). But as Palmer (1991) says:

"The presumption that women hold fast to self provisioning agricultural production . . . derives from observation of women's actions when they have no choice or when they fear that if they let go of self-provisioning output they will lose control of resources. It says nothing of alternative scenarios when their access to, and control over, resources are secured." (Emphasis added).*

To this it should be added that women may choose different types of perennial crops to men based on the labour flexibility inherent in the production of each type. In Malawi, for instance, women chose groundnuts over tobacco because the former provide greater stability in terms of time management and avoided peaks in labour demand (Chipande, 1987).

A key aspect in perennial crop production is the market. There is gender discrimination in access to resources or outlets for produce (Palmer, 1991), and women have been observed to be less represented than men in formal organizations (Addo, 1973) which are often used both to lobby for smallholders interests (Beckman, 1976) and to distribute farming inputs (Mikell, 1991). Women are less likely to benefit from technical innovations and extension services, yet are more likely to suffer the negative consequences of technology-led change. The land squeeze resulting from population growth, but also technological and investment changes in production, has resulted in a greater loss of land rights amongst women than men (Palmer, 1991). As a result more women have been forced into labouring and into

* Palmer (1991) also records a regional variation in the need to acquire cash. In West Africa men often have a customary obligation to provide family sustenance, whereas in East and Southern Africa women are more dependent on their own cash income as husbands do not view daily household expenses as an obligation.

changing their labour strategies, a phenomenon observed in agribusiness in Senegal (Mackintosh, 1989).

Women and hired labour

Hired labour is more common on female-managed holdings in some regions (Okali, 1973), although a case study from Malawi shows that female-owned holdings may be smaller because women are less able to mobilize family labour and do not have the resources to employ hired labour (Chipande, 1987). A growing trend is for women to comprise a higher proportion of the young labour force as men spend longer in education, returning to agriculture in smaller numbers and at a later age than women (Okali and Mabey, 1975). It has also been noted that women's access to labour is determined by socio-economic class. In Kenya, wives of poor Kipsigis tea farmers suffer the greatest shortage of labour, while wives of richer farmers have access through their husbands to hired labour which gives them more time for other activities (Sorensen, 1990). However, little appears to be known about the calculations women make at the margin: in choosing for instance between on-farm and off-farm employment; between new and traditional technologies; between when to work themselves and when to hire labour. And it has been noted that such decisions will again be affected by factors such as economic class and ecology (Palmer, 1991; Sorensen, 1990).

Women and wealth

Sorensen (1990) says that socio-economic differentiation between women is an under-studied area, and gender studies have tended to ignore the differences between women that arise out of emerging class formation. Relating to class, polygyny is usually associated with seniority and wealth. Successful perennial crop production can lead to more polygyny and thus an increase in the size of the family labour pool (Mikell, 1991). It also needs to be remembered that there may be

different types of wife (Mikell, 1991). For instance, Toro men in Uganda distinguish between wives and temporary wives each with different relationships to labour (Cleave, 1974).

Female-headed households (FHH) are commonly held to be amongst the poorest and most disadvantaged of women, characterized by gross under-capitalization, below average farm size, low degree of cash crop cultivation, low adoption of improved technologies, high rates of hiring out of own labour to other farmers, and low access to labour resources, especially for male-specific tasks (Palmer, 1991; Chipande, 1987; Mackintosh, 1989). Increased outward migration (Palmer, 1991) and growing rates of divorce and separation (Mikell, 1991) have led to increasing numbers of FHH*. Mikell (1991) has noted the high divorce rate amongst the matrilineal Akan in Ghana (approximately 40%) which she relates to an unwillingness for men to compensate their wives for labour inputs on cocoa farms.

Adaptation and influence

However, it would be wrong to assume that women are powerless to prevent or adapt to change. In Ghana it has been observed that conjugal labour contracts are subject to constant renegotiation (Whitehead, 1981). Kipsigis women in Kenya withhold their labour from tea farms if they disagree with how the benefits are distributed within the family (Sorensen, 1990). Mikell (1991) observes that the older generation of women in Akan, Ghana, had inherited more cocoa farms from their mothers than was evident amongst the younger generation of women, and explains this by saying that faced with growing patricentricity women are holding on to land throughout their lifetimes to ensure their security and autonomy. Although a consequence of this was that their daughters

* Not mentioned is the impact of war on some populations. Lack of comparative data means that the term 'increase' is usually impressionistic. Even where it can be shown that there is a real increase, this needs to be measured against population growth.

were less likely to inherit than matrilineal kin, it is nonetheless a response to protect the women's interests. Likewise, Mikell (1991) notes women using formal institutions such as the church to apply pressure to achieve greater inheritance for themselves and their children*.

Contrasts between traditional productive and reproductive behaviour amongst three generations of people receiving formal education have shown how women react to the decreasing solidarity of siblings and increased individualization of parental and conjugal roles (Oppong, 1988). These studies also give a greater understanding of the dynamics involved in changing patterns of time use, resource allocation, and the domestic divisions of labour and decision-making by spouses (Oppong, 1988; 1991).

Budgeting time

Many changes that are occurring have had a negative impact upon women, and often to the detriment of policy goals. Addressing adjustment policies, Palmer (1991) argues that not only have women failed to benefit from price incentives and market deregulation but that this failure, affecting over half of the agricultural workforce, means failure for adjustment policies themselves. At the core of this is the "implicit assumption that more labour time can be squeezed out of women for the more labour-intensive practices which result from . . . increases in (potential) land productivity" (Palmer, 1991).

Although not always apparent from time-budgeting data (e.g. Mbilinyi, 1976), women's labour is not solely employed for farm work, and to a far greater extent than men's is used in reproduction as well as production (Whitehead, 1981). It is common for women to work longer hours than men, although few studies consider the aspect of exertion as opposed to simply time (Cleave,

* Earlier studies by Beckett (1945) and Okali (1983) showed that previously women's and children's labour gave them no beneficial rights in their husbands/father's land.

(1974). Palmer (1991) has noted that the additional tasks women face in reproduction and family maintenance constitute a 'labour tax' that channels part of the women's labour to where market forces would not direct it. This balancing of demands upon women's labour is also seasonal. For instance, women tend to be heavily involved in weeding during the rainy season (*see* Cleave, 1974; Okali, 1975), a time when there is also greater illness (Palmer, 1991).

This need to balance restricts women's capability to engage in gainful work and entrepreneurship (Palmer, 1991), for if they wish to do so they are faced with a choice between allowing food output to fall or using compensating labour strategies which, for reasons given earlier, essentially means increasing the use of schoolchildren.

OTHER EMPLOYMENT OPPORTUNITIES

Although most pronounced among women, the need to balance different types of activity is true for all labour. For Ghana it has been reckoned that 35% of farmers have off-farm employment (Addo, 1973), and micro level case studies suggest the figure could be higher. Beckett (1947) lists 19 types of off-farm employment pursued by smallholders and hired labour in Akokoaso, and with the exception of *abusa*, the majority of people involved in cocoa production engaged in one or more of these activities. In the same region, Okali (1975) notes farmers also working as *abusa*, storekeepers, bricklayers and cocoa buyers, and although Hill (1963) has noted a reluctance amongst migrant farmers to invest in alternative enterprises, non-farm employment is common, especially amongst young farmers (Okali, 1973). Throughout Africa, off-farm paid labour has been referred to as the norm rather than the exception amongst smallholders (Netting, 1989).

Alternative employment does not only exist within the farm area. In Nigeria it has been suggested that the production of cocoa encouraged migration as once farms

were established there was little labour demand for long periods of the year (Adegboye, 1973), and as noted in the section on gender new agricultural practises have also added to migration from or within rural areas.

Writers such as Hill (1986) have appealed for labour patterns and production systems to be understood from a variety of perspectives, and Palmer (1991) has said that the livelihood strategies of the poor, in particular, comprise the balancing of numerous and various opportunities. The work of Bryceson (1990), Maddox (1991) and Hart (1974) provides insight into what some of these options are in Ghana and Tanzania, and shows that multiple opportunities are an important part of labour decision-making.

As urban generated wealth becomes increasingly significant, so too do urban and absentee landlords. Banugire (1989) has said that the urban rich are eager to invest in agriculture, not necessarily for economic gain but for status and power. And Palmer (1991) has noted that absentee landlords such as urban migrants often maintain a large degree of decision-making power over land and crops, so that in reviewing alternatives with a farmer one should first understand how much power the farmer has to take decisions.

HIV/AIDS

It may appear a truism, but the literature reviewed thus far has shown that key to all labour decision-making is choice. Hence, anything which reduces that choice needs to be regarded as containing potentially negative implications for the decision-making process.

If the current rates of infection with HIV in Africa continue, then HIV/AIDS will slow the growth rate of the labour force and alter its profile, especially impacting upon the most skilled and educated (Panos Dossier, 1992). The impact on rural areas is likely to be as great as in urban areas, especially in rural areas where there are high rates of migration, and areas near trading centres and on transport routes both of which are central to

perennial crop production (Panos Dossier, 1992). Already in Uganda, smallholders, the main export crop producers, have been especially hit by the virus.

HIV/AIDS infection does not simply mean higher morbidity rates. Production time is lost due to illness and the need to tend the sick, together with the need to meet increased social obligations such as funerals*, which in the pre-AIDS era accounted for a significant amount of non-production/non-reproduction activity (*see* Okali, 1973; Mbilinyi, 1976). Given the predominance of female labour in family maintenance and reproduction, the added burdens related to HIV/AIDS tend to fall to women.

Infection can also mean that farmers are no longer eligible for credit, and AIDS-related death can result in assets being seized because of loan default (Panos Dossier, 1992). Indeed, there are signs that loans are increasingly being restricted to projects where labour inputs are limited.

HIV/AIDS threatens to further exacerbate the rural poverty gap as the assets of AIDS-affected households are bought up by others.

The most vulnerable to the impact of HIV/AIDS are households dependent on a few working adults, short of land, less able to afford hired labour and with few sources of cash income. (Panos Dossier, 1992, p 95).

That description is almost the same as the list of poverty indicators for female-headed households used in the section on gender.

TYPE OF CROP

Different crop species and hybrids can place significant demand variables on labour. It is not simply that some species require more or less labour, but that the timing

* It should not be assumed that social obligations are inflexible. In Katiali, Côte d'Ivoire for instance, Bassett (1988) shows how funeral ceremonies are postponed to avoid labour shortage at critical times.

of those inputs may vary at different stages of the tree's life cycle (Okali, 1973). For instance, tree type x may require less labour when planting compared to seed y, but require more maintenance from then on. Similarly different trees at different ages demand differing amounts of labour, as do the establishment and maintenance different shade crops (Okali, 1973). And as different species are affected by different diseases, the type of species affects the amount of labour that will be required for disease prevention and cure (Asomaning, 1968).

Crops may be chosen for their suitability to local labour patterns. We have already seen that women chose groundnuts rather than tobacco in Malawi because they needed to maintain labour flexibility (*see* page 18). In parts of Tanzania the characteristics of the staple food, banana, made it easier to accommodate the introduction of a perennial crop, coffee (Mbilinyi, 1976).

It is not always the case that smallholders choose crops. For instance, certain crops were chosen as a result of Government policy in Burkina Faso, the Côte d'Ivoire and Mali (often as mono-crops) and in the Côte d'Ivoire certain crops were planted through administrative coercion (Bassett, 1988).

The main problem facing farmers relating to crops is the decision about which and how much of the labour resource will be allocated to the perennial crop and to the cultivation of annual crops, primarily food. In southeastern Ghana, in a region of mixed food and tree crops, rich farmers have increasingly been inclined to grow perennial crops while middle and low income farmers prefer food crops because they offer greater flexibility in the allocation of resources, especially during times of environmental and economic stress (Dei, 1992).

As noted earlier, food crops tend to absorb more female than male labour, and where there is a surplus this is not necessarily large and may not be the primary intention of production (Okali, 1983). In some regions food farms and perennial crop farms are not separate, and there is less competition for labour. This is the case in parts of Ghana where the food crop is grown on cocoa farms during the establishment period (Okali, 1975).

However, this is not true of cocoa farms in other parts of Ghana (e.g. Brong-Ahafo) nor in Nigeria (Okali, 1973), and Cleave (1974) says that generally farms are separate so travel between farms can account for a significant part of labour time.

Seasonal labour demand for food crops is often greater than for perennial crops (Bassett, 1988), and as noted earlier such peaks may clash with peaks in family maintenance and reproductive labour demands (Palmer, 1991). Also hired labour is rarely used in food cultivation, and often the only additional labour a woman can call upon is that of her children (Okali, 1975; Palmer, 1991).

SEASONAL AND CYCLICAL IMPACT ON LABOUR DEMAND

Rainfall

The seasonal demand for labour is affected by climate and type of crop. At a macro level, East Africa is characterized by bimodal rainfall, contrasting with West Africa where there tends to be a single rainy season (Cleave, 1974). However, this is subject to significant local variation and in Tanzania, for instance, Kilimanjaro has two rainfall seasons while Mbeya has only one (Mbilinyi, 1976).

In areas of bimodal rainfall labour demand is evenly distributed throughout the year (Mbilinyi, 1976; Cleave, 1974), whereas a single rainy season causes peaks and troughs in the labour demand (Okali, 1973). As Figure 2 shows, this seasonality of demand affects short-term, annual and family labour, a feature also observed in other smallholder communities where it may cause labour bottlenecks (*see* Cleave, 1974; Bassett, 1988).

Farm maturity

Peaks in labour demand can also be affected by the age of the farm, which also affects the type of work and hence the degree of flexibility in balancing labour demand and

options. For instance, on new cocoa farms in Dominase peak labour demand occurred in March with the planting of food and cocoa; on young farms the peak was from June until August, the height of weeding activity; and on bearing farms the peaks were from May until June and September until December for harvesting (Okali, 1975; 1983). In other cocoa-growing regions this pattern may be different (*see for instance* Okali, 1973).

On coffee farms, replacing unproductive trees consumes more labour on older than newer farms (Mbilinyi, 1976). On tea farms in Kenya, labour demand is heaviest on new farms during the rainy seasons; for the next three to four years the main labour consuming activity is weeding; and once the bushes are established plucking is the main activity. Each of these tasks requires different amounts of labour, and thus smallholders require either a readily available pool of labour or a flexible subsistence sector (Cleave, 1974).

Supply and demand

Peaks in labour use may sometimes reflect labour availability rather than demand (Cleave, 1974). In other agricultural production systems where labour is paid in a share of the crop it has been observed that there are no limits imposed by the farmer on the number of labourers (*see* Geertz, 1986). Similarly, the existence or otherwise of a labour peak is not always an indicator of true employment/under-employment as a labour surplus may be hidden by a slow work rates (Cleave, 1974).

The strategies adopted where there are seasonal labour shortages are less understood. A study from Côte d'Ivoire documents strategies to break up bottlenecks such as the adoption of labour-saving technology, adaptation of agricultural practices and planned crop neglect (Bassett, 1988).

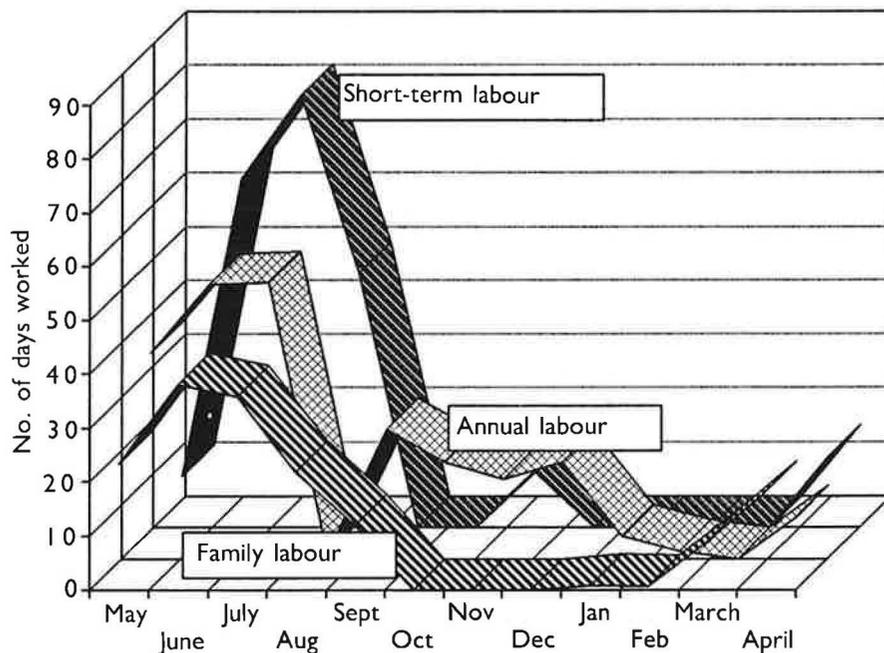


Figure 2 Seasonality amongst cocoa labourers in Ghana

Source: Adapted from Okali, 1973.

CONCLUSIONS

While not the only determinant of perennial crop production, labour is a significant factor in whether perennial crops are grown and the form of the production systems which develop. The history of perennial crops in Africa shows that it is possible to develop farms using what is loosely defined as family labour. However, expansion and the size of the holding often depend on how much labour can be accessed, with age, gender and economic class identified as factors affecting the degree of access to both family and hired labour.

The decision whether or not to invest labour in perennial crop production is not simply governed by farmgate prices. The flexibility to balance production and reproduction activities, especially amongst women, may determine whether, which and to what extent certain perennial crop types are grown. For poorer farmers, investing labour in food crops for cash and/or subsistence may be favourable to investing in perennial crops because food crops are more adaptable to changing external conditions, especially at times of economic or environmental stress.

Furthermore, although the literature reviewed does not correlate farmgate price with labour demand, fluctuations in price need not be synonymous with fluctuations in labour demand because there are a variety of means of remunerating labour. How different categories of labour are rewarded is not fully understood, but the evidence available suggests that for both family and non-family labour there is considerable diversity and flexibility.

Smallholder perennial crop production declined in the 1970s and early 1980s, and although there are signs in some countries that this is changing, output has yet to return to earlier levels. But although rural-urban migration is on the increase it is not clear to what extent the total number of people employed in smallholder production has declined, and whether any decline is a result of diminishing labour demand by smallholders or of enhanced opportunities outside of the smallholder sector.

Central to labour decision-making is choice. The choice between using family or hired labour; the choice between allocating labour to perennial crops or food crops; between short- or long-term labour contracts; between labour for production or labour for reproduction and family maintenance; between on-farm or off-farm employment. This should not be mistaken for freedom of choice as the parameters within which decisions are made are set by such conditions as the agro-ecosystem, social prescription and proscription, and political and economic climate. But at the margins there appears to be a continuous process of balancing causing labour to be located in varying quantities (as measured in time and to a lesser extent energy) to perennial crop production.

A decision is the result of balancing multiple considerations in the context of achieving a defined goal. Labour decision making is therefore governed by a diversity of interacting factors and conditions, the synergy of which becomes more apparent the more they are analysed in isolation. No single factor or condition, no single opportunity or constraint can be said to prescribe the decisions of those engaged in smallholder perennial crop production. Failure to recognize this or incorporate it successfully into models accounts for the problems that have arisen in attempting to establish an economic climate supportive of increased smallholder output. Not only has production not always increased commensurate with improved producer-price incentives, but what is perceived as an opportunity by one group may constitute a threat to another.

Models which examine only certain aspects of labour in the production system are useful in highlighting relevant factors and conditions but do not adequately explain their interaction. Such studies have shown the use of traditional institutions and mechanisms in the establishment of smallholdings, the way smallholder entrepreneurship can effect a trend of patricentricity in matrilineal kinship groups, the gender and age determined relationships between individuals and production systems, and the unique impact of migration on the establishment and operation of smallholdings. But

the feminization of subsistence agriculture model, for example, does not adequately explain the changes that are occurring in labour allocation because it ignores economic class. The model of patricentricity in matrilineal-based production systems does not adequately explain the distribution of resources because it does not incorporate gender and age-related hierarchies of access.

Given the considerable body of knowledge available, it is to be regretted that there is insufficient compatibility between studies to draw them together in the construction of more multi-dimensional models. There are also dimensions which have not received sufficient attention. Economic class is missing from most of the literature, presenting an image of, for instance, kinship-based or geographically determined homogeneity that is misleading. This weakness has been acknowledged in some gender-focussed literature but has only recently started to be addressed in field research.

Connected to this and factors such as kinship mechanisms, is the need to examine the definition of 'smallholder', especially given the evidence of changing production systems due to outward migration, shifts in ownership (e.g. urban investment in smallholdings), and the changes occurring in family labour investment. There is also a tendency for studies to address decision-making from the perspective of the employer rather than the employee. Where the factors and conditions behind labourers' decisions are considered, this is usually limited to the perspective of the smallholding locality. But given the evidence of increasing urban migration and changing patterns in migrant labour it seems equally necessary to understand migrant labour decision-making from the migrant's place of origin.

It is the more sophisticated models considering a variety of factors and conditions that are the ones best able to explain the decisions made by the smallholders. For instance, Okali's 1983 study helps us to understand the interaction of age, gender, kinship relations, hired and family labour. While Mikell's 1991 study shows the interaction of macro and micro level social, economic and political factors.

Although none of the literature reviewed provides a complete model for understanding the decision-making

Figure 3 Categories of labour employed in smallholder perennial crop production

Family labour	Non-family labour
Kinship categories	
Male labour	Female labour
Smallholder labour	Hired labour
Hired labour contract categories	
Migrant labour	Local labour
Migrant smallholders	Indigenous smallholders
Young smallholders	Old smallholders
Young labourers	Old labourers
Economic classes	

process, combined they help identify the factors and conditions necessary to construct a research matrix. Figure 3 lists the different categories for identifying labour, placing them in a simplified framework of their polar interests. The factors and conditions influencing a young male smallholder are, for instance, different to those of an old male smallholder; those of hired labourers different to those of the employing smallholder.

But the conditions and factors related to the young male smallholder, for instance, are not always different to those of the old male smallholder. Redefined as male labour, the two have a commonality that is not shared by old smallholders redefined as female labour. By optimizing the number of redefinitions in this way a comprehensive picture of the individual in relation to labour as a factor of production can be developed.

The model is also affected by external conditions (Figure 4), which impact differently upon the various social categories. There are problems in saying to what extent these are determinants of or determined by labour. Except where coercion has been used to introduce a crop, the choice of crop(s) is not removed from the actuality

Figure 4 External conditions affecting labour decision-making

Natural disaster (e.g. HIV/AIDS)	Alternative employment opportunities
Type of crop(s)	Seasonality and cycles
Political and economic climate (local, national and international)	Demographic change

of labour. But as a crop becomes established and is important enough to the smallholder's goals, so type of crop affects the choice of other crops and any subsequent changes in patterns of labour necessary for its success. This is most apparent in the balancing of labour between perennial crops and food crops.

The same issues of cause and consequence apply to demographic change, and population growth, for example, may be a consequence of changing labour patterns as much as a cause as women seek security in their offspring as a response to disruptive shifts in family labour systems. Nonetheless, over a period of time, consequences of one change can become the causes of

another, and definition of the impact of external conditions should not be a reason for excluding them from the development of multi-dimensional models.

The element of time is often missing in the discussion of decisions, meaning that the dynamic nature of change is disregarded. There are two consequences of this absence of the historical dimension. First, the historical context within which change occurs is missing. Second, a person's actions are observed at a given moment in their life, whereas the strategies they adopt may be based on considerations of future outcome.

The latter point reflects the lack of consideration given to goals. As mentioned earlier a decision is the result of balancing multiple considerations in the context of achieving a defined goal. While the literature pays a great deal of attention to the factors and conditions affecting decision-making, it rarely specifically asks what the goals of the actors are. Indeed, conclusions are commonly drawn from data concerning actions, while the opinions of the actors themselves are rarely documented.

Although there are many questions which arise about the ascertaining and perceiving of goals, it nonetheless seems peculiar to omit consideration of goals from the analysis of decisions.

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