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**Global agri-food chains:
Employment and social issues in fresh fruit and
vegetables**

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Multinational
Enterprises
Programme

Job Creation
and Enterprise
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Preface

The primary goal of the ILO is to contribute, with member States, to achieve full and productive employment and decent work for all, including women and young people, a goal embedded in the ILO Declaration 2008 on *Social Justice for a Fair Globalization*,¹ and which has now been widely adopted by the international community.

In order to support member States and the social partners to reach the goal, the ILO pursues a Decent Work Agenda which comprises four interrelated areas: Respect for fundamental worker's rights and international labour standards, employment promotion, social protection and social dialogue. Explanations of this integrated approach and related challenges are contained in a number of key documents: in those explaining and elaborating the concept of decent work,² in the Employment Policy Convention, 1964 (No. 122), and in the Global Employment Agenda.

The Global Employment Agenda was developed by the ILO through tripartite consensus of its Governing Body's Employment and Social Policy Committee. Since its adoption in 2003 it has been further articulated and made more operational and today it constitutes the basic framework through which the ILO pursues the objective of placing employment at the centre of economic and social policies.³

The Employment Sector is fully engaged in the implementation of the Global Employment Agenda, and is doing so through a large range of technical support and capacity building activities, advisory services and policy research. As part of its research and publications programme, the Employment Sector promotes knowledge-generation around key policy issues and topics conforming to the core elements of the Global Employment Agenda and the Decent Work Agenda. The Sector's publications consist of books, monographs, working papers, employment reports and policy briefs.⁴

The *Employment Working Papers* series is designed to disseminate the main findings of research initiatives undertaken by the various departments and programmes of the Sector. The working papers are intended to encourage exchange of ideas and to stimulate debate. The views expressed are the responsibility of the author(s) and do not necessarily represent those of the ILO.

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¹ See http://www.ilo.org/public/english/bureau/dgo/download/dg_announce_en.pdf

² See the successive Reports of the Director-General to the International Labour Conference: *Decent work* (1999); *Reducing the decent work deficit: A global challenge* (2001); *Working out of poverty* (2003).

³ See <http://www.ilo.org/gea>. And in particular: *Implementing the Global Employment Agenda: Employment strategies in support of decent work*, "Vision" document, ILO, 2006.

⁴ See <http://www.ilo.org/employment>.

Foreword

This paper examines corporate social responsibility in fresh fruit and vegetable supply chains. Together with the companion paper, *Global agri-food chains: Employment and social issues in fresh fruit and vegetables*, the aim is to understand better some of the industry forces shaping choices brands and suppliers make concerning CSR.

CSR issues are specific to each industry structure. Key factors include: the degree to which production is concentrated in relatively few suppliers; the power relationship between the brands and the suppliers, which is a function of, inter alia, how easily production can be moved between suppliers; and the level of commitment brands are willing to make to support suppliers in their efforts to upgrade labour practices. Not least, national legal frameworks of countries in which production is concentrated strongly influence whether internationally recognized fundamental principles and rights at work are realized in practice at the factory level.

However, there is a common thread throughout all industries: companies need simple, effective, yet credible solutions to the challenge of reconciling competitive pressures and social concerns, whether as brands or as suppliers. This implies that solutions must benefit workers and make good business sense in order to be sustainable.

There are some important conclusions to draw from this study. The integration of supply chains provides opportunities for adoption and testing of new approaches to corporate social responsibility. The key voluntary initiatives—fair trade, ethical trade (codes of conduct) and collective agreements—have provided some benefits, but significant challenges remain. There appears to be a growing synergy between approaches, with the growing realization of the critical need to increase involvement of workers, particularly through their representatives, if the desired goal of respect for workers' rights is to be reached and sustained.

The ILO Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy (MNE Declaration) is designed to guide private initiatives, both company policy such as codes of conduct for suppliers, and industry-wide initiatives. It is the only international CSR instrument which has the full backing of workers, employers and government. This tripartite origin makes it both highly credible and yet sensitive to the concerns of enterprises facing tough competition. The MNE Declaration provides the backdrop for the CSR initiatives outlined in this paper.

As this research notes, many of the challenges with regard to protecting workers' rights that are being faced by the fresh fruit and vegetable sector are similar to those faced by other labour-intensive export oriented sectors. An examination of the findings of this research may therefore provide a useful starting point for understanding the key issues and for promoting dialogue on how best to protect workers' rights while helping producers both in fresh fruit and vegetable supply chains, as well as in other sectors, to retain, or even enhance, their competitiveness.

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Executive summary

The agricultural sector represents a critical source of incomes and employment, with around 2.5 billion people worldwide dependent on agriculture for their livelihoods (Vorley, 2003). This is particularly so for the poorest countries: between 40 and 60 per cent of the world's poor live in rural areas and there is good evidence that, of all economic sectors, *agriculture* is the most successful in stimulating growth rates and reducing poverty (Humphrey, 2005a). **This paper is a review of the key employment and social dimensions of agriculture production and trade, focusing on the fresh fruit and vegetable export sector.**

There have been profound changes in the way the global agri-food⁵ sector is structured and organized in recent decades. Production and provisioning systems are becoming more globally integrated as a result of expanding trade, increased foreign investment and overseas sourcing. The type of products that are produced, traded and consumed is changing. Whilst traditional staples, like grains or coffee, face stagnation and decline, trade in higher value products, such as fish, fresh fruit and vegetables and processed food and drink, is expanding. The nature of firms which participate in the trade and the balance of power between them is also shifting. High rates of corporate concentration and growing vertical integration means that in some products and markets just handful of large companies dominate major segments of the value chain. This has been accompanied by a transformation in the way the trade is organized. Anonymous wholesale markets are giving way to tightly knit, highly co-ordinated supply chains, led by international supermarket chains and branded food manufacturers, who are increasingly able to control what is produced, where, how, by whom and on what terms.

These structural changes have significant – but also complex, variable and contradictory – implications for the farmers, workers, their family members and local communities who are involved in producing agricultural and food products for export. This paper seeks to examine and untangle some of that complexity.

In particular, the paper's objectives are to:

- Identify key trends and characteristics of contemporary agri-food systems, focusing on global fresh fruit and vegetable (FFV) value chains
- Build a typology of the main employment and social issues involved in the production and processing of fresh fruit and vegetables, and show how these are linked to the overall structure and operation of FFV value chains

The paper is based on a review of existing sources and does not involve primary research. Indeed, a core purpose of the paper is to provide the reader with a summary and analysis of the existing literature in order to help inform future discussions within and outside the ILO around understanding the complexities of global agri-food value chains and the key social and employment issues in this sector. A sister paper, 'Voluntary social initiatives in fresh fruit and vegetable value chains' (Best & Mamic, *forthcoming*) takes the analysis forward by examining some of the key voluntary initiatives – like fair trade, ethical trade and collective agreements – designed to address employment and social issues in the FFV sector.

⁵ The term 'agri-food sector' refers here to the collection of markets, firms and farms that work to produce and distribute food and agricultural products to the final consumer. This involves input supply, production, processing, distribution and retail activities. See the subsequent section on 'key definitions and glossary' for an expanded description of the term 'agri-food sector.'

There are good reasons to focus on fresh fruit and vegetables. First, making up 17 per cent of world agricultural exports, fruit and vegetables constitute among the largest and fastest growing of all traded agriculture products (Weinberger and Lumpkin, 2005). Second, producing and processing fresh fruits and vegetables is generally far more labour intensive than for other products, like cereals, meat or grains. As such, the types of employment and social issues involved are more significant. Third, the production characteristics of fruit and vegetables create a broader range of employment and social issues. For instance, while coffee production is concentrated amongst small farms in developing countries, fruit and vegetable crops are grown on farms of varying sizes and in both developed and developing countries. Finally, it is envisaged that this analysis of the fresh fruit and vegetable sector will provide a useful foundation for undertaking complementary research into other agricultural commodities. The paper is divided into three chapters:

- **Chapter one** provides a brief overview of key trends in global agricultural trade and in the structure and operation of agri-food chains.
- **Chapter two** reviews the structure and operation of fresh fruit and vegetable value chains. It maps out the composition of FFV trade flows and the characteristics of production. It then examines the role of retailers in governing chains and the effects this has on the risks, pressures and competitive position of producers. In terms of products and exporting markets, key ones covered include bananas (Latin America), apples, grapes and citrus (South Africa and Chile), tomatoes (Mexico), green beans and snow peas (Kenya, Guatemala). The United States (US), Europe (EU) and the United Kingdom (UK) are the main importing markets discussed.
- **Chapter three** builds a typology of the employment and social issues involved in FFV production. The main focus is on the employment experience of wage labourers in the fields and packing houses and how these are shaped by the nature of FFV products and value chains. Social issues in small-holder production are also considered.

Notwithstanding the important variations which exist between different products, import and export markets, the paper identifies a number of common headline themes and issues:

1. Global agri-food systems are characterized by (at least) four key trends, which are critical in shaping the competition position of producers. A first trend is the increased vertical co-ordination of agri-food chains, which sees agri-food distribution channels shifting away from traditional wholesale markets and toward tightly knit, highly co-ordinated networks of suppliers. The second is the rise of powerful global buyers – especially international supermarket chains and branded manufacturers – which construct and govern highly co-ordinated food supply chains. By virtue of their market and governance power, buyers can dictate the terms under which suppliers and growers upstream⁶ access international markets, specifying the functions they undertake, the performance standards they reach, the costs and risks they bear and the income they receive. The increased concentration at multiple stages in the chain, from input supply to retailing, is a third feature. This increases the pressures in production segments of the chain, which are generally more fragmented, and drives consolidation there. A fourth factor is the growth of public and private food standards, which set increasingly stringent production and management processes for

⁶ The term ‘upstream’ refers to functional activities in the chain which are closer to *earlier* stages of a product’s lifecycle, such as primary production. The converse of this is ‘downstream’, which refers to *later* stages in the lifecycle, closer to consumption. The term is used in a relative sense. For example, firms involved in processing food are simultaneously ‘upstream’ of the supermarkets which sell food to consumers, but ‘downstream’ of farmers who produce the primary products.

- farmers and exporters to follow (agricultural methods, health and safety procedures, food transport systems, environmental and labour management).
2. Fresh fruit and vegetable chains are characterized by all three of these trends. Chains are increasingly short, integrated and buyer-driven. Strong governance by large retailers has led to a restructuring of the chain, with growing concentration at all stages and the imposition of tough quality and food production standards. Even in the banana trade, which has long been dominated by a handful of vertically integrated multi-national producers, retailers are increasing their power. For producers, selling fresh fruits and vegetables to global buyers can deliver better and more stable incomes than for other crops, or than in open market transactions. However, buyer governance of chains, market power disparities and demanding production standards also raise entry barriers, exposing producers to high costs and risks while squeezing incomes. As a result, it is increasingly the large and better resourced farms and exporters which are able to access global buyers, leading to the marginalization and exclusion of many medium sized and smaller producers. This carries serious risks for workers, as producers seek to manage competitive pressures by increasing work intensity, cutting labour costs and switching to more flexible employment arrangements.
 3. The experience of workers and smallholder families, who are located at the most vulnerable point in FFV value chains, are similarly complex, variable and contradictory. Workers and smallholder families cite several positive benefits: incomes in export horticulture are often higher than local alternatives and for some women undertaking waged work has had an empowering effect. At the same time, much of horticulture work is flexible, informal and precarious. This creates considerable stress and insecurity for an already vulnerable population, with few assets to cushion against the risks of unemployment and uncertain incomes. Other key issues highlighted include the problems faced by women and migrant workers, who frequently perform the lowest paid, least secure work; the health risks of long hours, arduous physical work and exposure to toxic chemicals; and the generally low levels of worker voice and bargaining power.

The sources of these problems can be tracked to factors which are 'internal' to FFV products and to the value chains they are embedded in, such as seasonal production requirements or buyer demands for low prices. They are also linked to 'external' factors, such as national labour laws or the specific assets and characteristics of workers and their families.

Although the types of employment issues raised are similar to those in export manufacturing, horticulture production – and agriculture more generally – does involve distinct dynamics. These relate to the physicality of agricultural labour, its (isolated, dispersed) rural context, the involvement of small-holder families, the high rates of migrant workers, both in developed and developing countries, and the widespread use of informal work arrangements.

Key definitions and glossary

Before starting the analysis, a few comments about the terminology used in this paper are made. Studies sometimes use terms like ‘agricultural sector’, ‘food industry’, ‘agri-food sector’ and ‘agribusiness’ without making clear what the distinctions and overlaps between these are.

‘**Agriculture**’ as it is understood here follows the United Nations definition,⁷ including that used by the ILO,⁸ and is focused on primary production activities. This includes crop growing, raising animals, hunting, forestry and logging activities, and agricultural and animal husbandry service activities (excluding veterinary services). The UN definition also includes ‘primary processing’ activities which are carried out by the producer. This could include, for example, packing or storing the crop.

The ‘**food industry**’, as defined by the UN classification,⁹ includes all firms and activities involved in manufacturing the products of agriculture and fishing into food and drinks for humans and animals, and for intermediate products not directly used for food products (e.g. the hides from animals). It involves preserving, preparing and processing activities. In practice it can be hard to draw a rigid distinction between ‘primary processing’ carried out by the agricultural producer (see above) and ‘food processing’. For example, some large commercial farms may both grow vegetable crops and wash, cut and pack them into a ready made stir-fry mix, ready for the supermarket shelf.

The ‘**agri-food**’ sector (or ‘agri-food’ value chains), as it is used here, is much broader than both primary production and food processing these terms, covering all economic activities from input supply to final sale. As such it encompasses not just *primary production* and food *manufacturing*, but also *agricultural input suppliers*, such as companies producing seeds, fertilisers and farm machinery, as well as those who distribute and sell products to consumers, such as *wholesalers, food retailers and food service companies*.

‘**Agribusiness**’ is a term increasingly used in the literature, but sometimes with different connotations. It can refer simply to any business involved in the agri-food sector. However, often it carries the idea of large-scale, industrialized and vertically integrated corporations, embracing activities such as input supply, production, processing and distribution (although not retail). This paper covers both large and small-scale farms and firms. To ensure clarity and accurately represent the multitude of parties involved in the global value chain, it minimizes references to ‘agribusiness’ and instead refers to the specific firm/farm type (e.g. ‘large producer’, ‘smallholder’ or ‘multi-national food manufacturer’).

The following glossary provides a guide to other key terms used in this paper.

⁷ The UN Classification follows the International Standard Industrial Classification (ISIC) system. Agriculture falls under Section A, Division 01 of the ISIC Rev.3.1. Section A. For more information, see www.unstats.un.org/unsd/cr/registry/regcst.asp?CL=17&Lg=1

⁸ See ILO Convention No. 184 on Occupational Safety and Health in Agriculture (Article 1).

⁹ See ISIC Rev.3.1 Section D Division 15
www.unstats.un.org/unsd/cr/registry/regcs.asp?C1=17&Lg=1&Co=15

Glossary¹⁰

Automatic inventory replenishment (also ‘sales-based re-ordering’) – System where suppliers is electronically integrated into the buyers inventory management system. The supplier holds a minimum capacity for a buyer (e.g. over a 6-12 month period) and continuously supply variable volumes against orders automatically generated from electronic point of sale data, rather than waiting for product orders from the buyer.

Category management – The process of making data-based decisions on shelf allocation, product mix, pricing and merchandising strategies within a category of products, with the goal of improving category profitability. Often involves the re-organization of relationships between retailers and manufacturers/suppliers, where retailers outsource to a highly competent supplier all planning and management functions for a particular product line. A core idea is that the retailer and category manager develop longer-term strategic partnerships, based on collaboration, information sharing, trust and a better understanding of the consumer.

Collective agreements – Agreements on employment issues negotiated between a company and a group of workers. The most common type of agreement is that struck between an employer and a recognized trade union/worker body, which represents workers who are directly employed by that employer. The subject matter typically focuses on company pay levels, employment benefits and conditions.

Concentration – A measure of market dominance by a few large firms. Increases in concentration generally reflect declines the number of firms competing in a market.

Contract farming – In contract growing, the farmer provides the land, labour, buildings and equipment. The buyer, for example a chicken processor, provides a range of other inputs (chicks, animal feed, veterinary services, farm management skills) and makes all the key decisions, like feed rations, production schedules and operation procedures.

Due diligence – A requirement of those engaged in food handling in the agri-food value chain to be proactive in their efforts to ensure that food in their possession is safe and free from contaminants.

Electronic data interchange – Bilateral electronic transactions between retailers and suppliers used for invoicing, ordering and other procurement activities.

Ethical trade – Voluntary initiative which aims to improve the employment conditions and human rights of workers in large, mainstream companies and their suppliers through the application of voluntary Codes of Conduct, which set minimum employment standards. Code implementation is typically audited by company staff or independent auditors.

Fair trade – ‘A trading partnership based on dialogue, transparency and respect, which seeks greater equity in international trade.’ (Fairtrade Labelling Organization). The core goal is to improve access to international markets for excluded or disadvantaged small producers (peasant farmers, co-operatives) in developing countries, through better prices and longer-term trading relationships. In recent years, the remit of fair trade has been extended to consider the employment conditions of organized workers in medium and large commercial farms and factories.

¹⁰ The terms defined here draw particularly on glossaries provided by Calvin and Cook et al. (2001) and Vorley (2003; p. 6-8) and the Penguin Dictionary of Economics (7th Edition, 2003).

Food security – Food security is achieved when ‘all people at all times have both physical and economic access to the basic food they need’ (FAO Committee on World Food Security).

Governance – ‘Authority and power relationships that determine how financial, material, and human resources are allocated and flow within a chain.’ (Gereffi, 1994)

High value agricultural exports – Agricultural products which require little or no extra processing and are ready for consumption (like fresh fruits and vegetables).

Horticulture – The cultivation of flowers, fruits, vegetables and ornamental plants. In this paper it is used as an alternative to ‘fresh fruits and vegetables’, and only refers to these two product groups unless otherwise stated.

International Commodity Agreements (ICAs) – Supply control programmes to raise commodity prices by taking crops out of production, or to stabilize prices by using buffer stocks. Examples in agriculture include the International Coffee Agreement (1962-1989), the International Cocoa Agreement (1972-1988) and the International Natural Rubber Agreement (1987-1999).

International Framework Agreements (IFAs) – An agreement negotiated between a multinational company and a global union federation concerning the international activities of that company. The main purpose is to establish a formal ongoing relationship between the company and the global union federation in order to solve problems and work in the interests of both parties.

Monopoly – A market in which there is only one supplier, who can set prices.

Monopsony – A market in which there is only one buyer of the item sold. This can result in monopsony price distortions, which are lower than competitive prices for produce purchased by processors or retailers.

Multinational enterprise – An enterprise with activities in two or more countries. Commonly MNEs are defined as enterprises with at least 25 per cent of their production or service facilities outside the country of its origin.

Non-traditional agriculture exports – agricultural products not produced in a country before (like Snowpeas in Guatemala, roses in Zambia); products that were originally produced for the domestic market but have expanded into export markets (mango, papaya, other tropical fruits); or traditional products reoriented to new market niches (export of bananas to the Soviet Union).

Oligopoly – A market dominated by a few large suppliers, each of which has some influence over sales prices and can charge buyers a price above the competitive price.

Oligopsony – A market in which there are few large buyers, i.e. when several firms have collective buying power.

Own-label (or ‘private label’) – Range of products carrying the retailer’s label and produced to the retailer’s specification; typically but not necessarily sold at a lower price than main brand competition (UK Competition Commission).

Slotting fee (or ‘shelf-space fee’) – A lump sum paid by suppliers to retailers for introduce new products to supermarket shelves.

Spot market – A market in which commodities such as grain are bought and sold for cash and delivered immediately. This is in contrast to a ‘forward’ or ‘futures’ market, in which

promises are made to buyer or sell commodities at a future date at a fixed price. ‘Spot’ means ‘immediately effective’, so that spot price is a price for immediate delivery.

Smallholder –The definition of a smallholder varies between countries and sectors. In this paper, the term is used to refer to ‘farms that are owned or managed by families, with a strong reliance on family labour, limited use of hired labour and little or no mechanization’ (NRI, 2002).

Supermarket/Hypermarket – Large self-service retail stores, whether as part of a chain or independents. Supermarkets are generally 350-4,000 square metres in size and have three or more cash registers operating simultaneously. Examples include Tesco (UK) or Kroger (US). Supermarkets carry about 5,000 products while hypermarkets like Wal-mart (US) carry in excess of 20,000.

Supply chain management – A procurement model designed to streamline the sourcing and distribution system by eliminating cost inefficiencies. This often involves marketing programmes between buyers and preferred suppliers, including contract buying as opposed to daily sales. Focusing procurement on preferred suppliers allows retailers to exercise greater control over product volumes, quality, pricing, promotions and food safety standards.

Traceability – A framework to track a product between farmer, processor, retailer and consumer means of recorded identifications. Traceability facilitates identity preservation, animal and plant health management, crisis management, specification of product attributes and product recall.

Transaction costs – Costs other than the money price that are incurred in trading goods or services.

Vertical integration – A single firm undertaking successive stages in producing or distributing a product. Firms may integrate forward (‘upstream’) to retailing activities or backward (‘downstream’) toward input sourcing and production.

Value chain – All the functional activities and firms involved in producing and distributing a product or service, including design, input supply, production, processing, trading, distribution, retail and final disposal of the product after use.

Wet market – Fresh markets for produce in central square or street

Chapter 1: Key trends in global agri-food sector

This introductory chapter provides a basic overview of global agricultural trade and the structure of agri-food chains today. It explores phenomena such as increased vertical co-ordination, buyer influence, market concentration and the proliferation of food standards. As the following chapters on the fresh fruit and vegetable sectors will show, these trends have a critical impact on the competitive pressures on farmers and exporters – and in turn the employment conditions of workers involved in upstream production and processing.

Key trends in global agri-food sector: Chapter summary

The global agri-food sector is becoming **increasingly integrated** through expanding trade. However, the pattern of growth is uneven.

The majority of trade takes place between industrialized countries. And whilst non-traditional products are expanding (horticulture, seafood), traditional tropical products have experienced substantial price declines (coffee, tea, cocoa, cotton, sugar). Altered consumer tastes, and variable patterns of market and trade liberalization, are key explanatory factors.

Whilst profitable overall, the distribution of benefits between different agents in the food chain is highly skewed. Producers – both in rich and poor countries and across different product markets – are facing intense price pressures, increased risks and higher costs.

A defining feature of contemporary agri-food systems is the trend toward '**vertical co-ordination**' of supply chains and **growth of buyer power**.

Disparities in **market power** enable large global buyers – especially retailers and branded manufacturers to set and enforce the terms under which upstream suppliers and producers participate in the trade.

This, combined with the rapid growth of increasingly stringent and complex standards, governing the health, safety, labour and environmental conditions of production, are **raising market entry barriers**.

As a result, it is increasingly **large and better resourced** farms which are able to access global value chains, leading to the marginalization and exclusion of many smaller producers.

1.1 Global trade: Growing integration, growth of non-traditional exports

The global agri-food sector is becoming increasingly integrated through expanding trade. In 2000-2001 world agricultural trade (exports plus imports) was worth US\$467 billion, up from \$243 billion in 1980-81 (Aksoy, 2005). Increased integration in world markets is seen in the ratio of trade to output, with global agricultural trade growing at more than three times the rate of agricultural output growth (FAO, 2005).

The pattern of growth and integration is uneven. The majority of agricultural trade flows are intra-regional and half of all trade takes place between industrialized countries (Aksoy, 2005). The European Union represents the largest trading bloc, accounting for around 30 per cent of world agriculture trade flows, and NAFTA the second largest. Meanwhile, developing countries have seen their absolute share in world agricultural exports decline since 1960, from 40 per cent to 30 per cent today (FAO, 2005).

The composition of food products that are produced and traded has changed in recent decades (see Table 1). The largest, and fastest expanding product groups are horticulture (fruits, vegetables and cut flowers) and seafood (fresh and processed), which in 2000/2001 accounted for 18.9 and 12.2 per cent respectively of world agricultural exports. Meanwhile, many traditional agricultural commodities – like coffee, cocoa and tea, grains, sugar and textile fibres – have experienced significant declines. Between 1982 and 2001, the price

index of traditional commodities declined by 47 per cent and real prices for tea, coffee, cocoa, sugar and bananas are expected to remain stagnant at least until 2010 (Vorley, 2003). These price declines are linked to problems of oversupply, to low demand elasticities and – in the case of a protected product like sugar – to expanded production in industrial countries (Aksoy, 2005).

Developing countries have been particularly hard hit by the collapse of traditional export commodities. However, over the last decade they have managed to recover some lost ground. This stems from two key factors. First, many developing countries have diversified into dynamic non-traditional products and processed food, such as fresh fruit and vegetables. Second, developing countries have expanded trade amongst themselves, following liberalization of their agricultural sectors and increases in consumer demand (as their populations, incomes and food consumption rise) (Aksoy, 2005; Gehlhar and Regmi, 2005).

Table 1: Changing structure of world agriculture trade (per cent of total world trade)

	Total for developing countries		Total for industrialized countries		World exports	
	1980/81	2000/01	1980/81	2000/01	1980/81	2000/01
Traditional tropical products						
Coffee, cocoa, tea	18.3	8.5	2.5	3.6	8.5	5.4
Natural fibres	8.0	3.3	4.5	2.6	5.9	2.8
Sugar and confectionary	10.5	4.3	3.9	2.3	6.4	3.1
Nuts and spices	2.4	2.8	0.7	0.8	1.3	1.5
Subtotal	39.2	18.9	11.6	9.3	22.0	12.7
Fish & horticulture						
Fish, fresh and processed	6.9	19.4	5.5	8.0	6.0	12.2
Fruits, vegetables and flowers	14.7	21.5	13.1	17.3	13.7	18.9
Subtotal	21.6	40.9	18.6	25.3	19.7	31.1

Source: Adapted from COMTRADE data compiled by Aksoy (2005); table 2.13, p. 30.

1.2 Structure of agri-food value chains

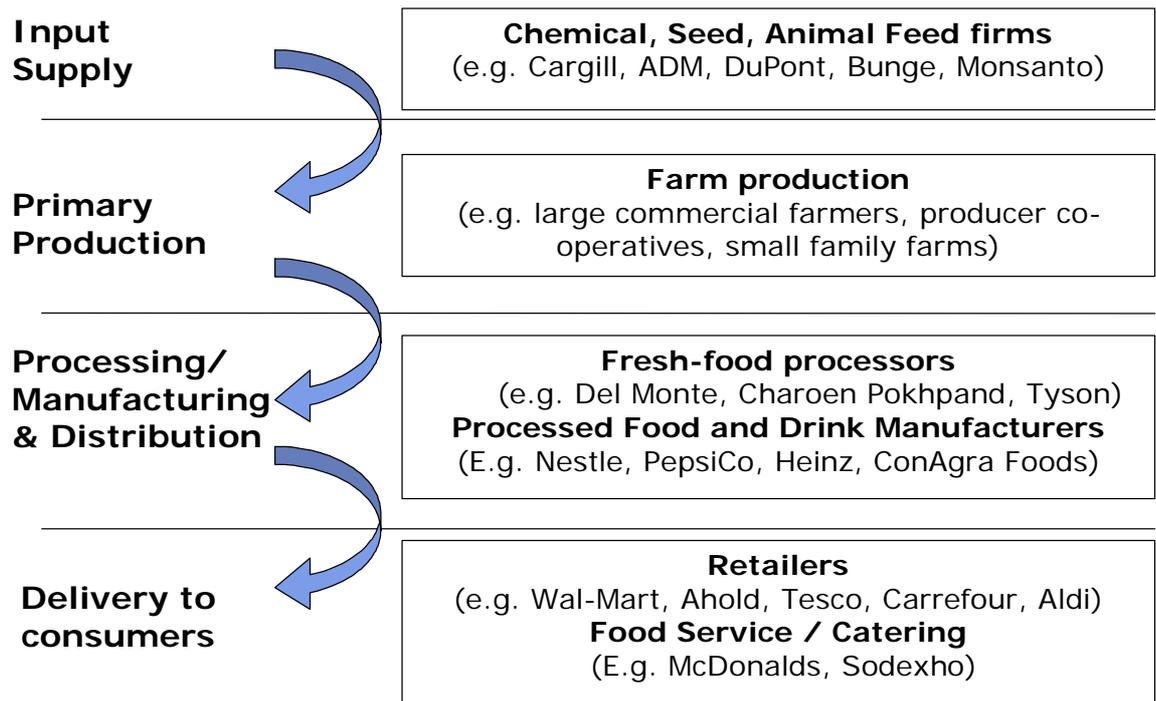
Growing integration of global markets has been accompanied by significant changes in the way trade and production is organized. This paper uses value chain analysis as a method for describing and analysing *how* food production and trade is organized and the competitive position of firms and farms involved at different stages in the chain. Appendix A describes key elements in value chain analysis and related frameworks. At its simplest, a ‘value chain’ refers to all the functional activities and firms involved in producing and distributing a produce or service, from input supply and product design through to its final disposal by the consumer.

Figure 1 describes the key functional steps and types of firm involved in the agri-food chains. The physical flow of products runs from input supply (at the top of the diagram) to

final sale to consumers (at the bottom). In brackets are examples of major multinational enterprises (MNEs) involved in the different value chain segments. For a more extensive list of the top global input suppliers, manufacturers and retailers involved in agri-business, see Appendices B, C and D.

It should be noted that this diagram is highly simplified. A number of important actors are not included such as importers/exporters, transport and logistic firms, research institutes, trade associations or firms involved in product disposal or recycling. Moreover, there are significant differences between products/markets in terms of the structure of chains and nature of firms participating in them. (See Vorley, 2003 for a comparison of value chains across several food chains).

Figure 1: Simplified agri-food value chain



Sources: Bolling and Gehlhar, 2005; Humphrey, 2005a; Vorley, 2003.

Scholars using the value chain methodology to examine contemporary agri-food trading networks, such as Humphrey (2005), Ponte and Gibbon (2005) and Vorley (2003), identify four key features which critically shape the position of producers – and in turn workers – involved in upstream production and processing:

1. The growth of vertical co-ordination,
2. Buyer governance,
3. Market concentration and
4. Growth in food standards.

These trends are described briefly below and – as will be seen in the chapters which follow – are all fundamental to the way fresh fruits and vegetables chains are structured and operate.

1.2.1 *Increased vertical co-ordination of supply chains*

The way trade takes place has changed. The traditional structure of trade – where exchange takes place through anonymous market relations and price is set through the

forces of supply and demand – is increasingly being replaced by tight firm-to-firm exchanges, involving significant co-ordination across firm boundaries. In the food sector, this entails a shift away from distribution through wholesale markets and toward direct contracting between producers and their customers (retailers, exporters, manufacturers). This organizational trend is often referred to as ‘vertical co-ordination’. It often involves buyers setting tight parameters for suppliers over product standards, processes and delivery.

There are a number of drivers behind chain co-ordination, including: the need for collaboration and information exchange between firms in order to improve product quality, consistency and differentiation; the need to manage food safety and ensure traceability throughout the chain; and efforts to drive down costs through more efficient supply chain management.

Levels of vertical co-ordination varies between chains and in general is higher for products where quality and uniformity are more important, such as poultry or fresh fruits and vegetables, and lower in undifferentiated, bulk commodities like wheat, soy or sugar (Vorley, 2003).

1.2.2 Growth in buyer governance of chains

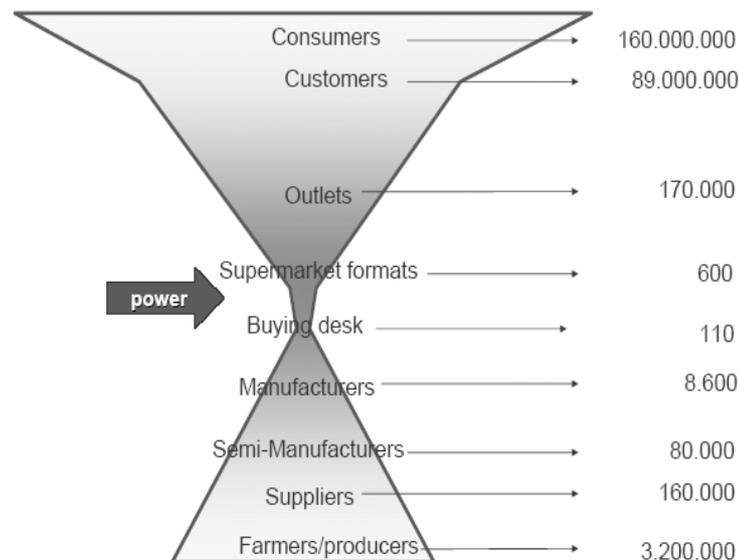
A second key feature of agri-food chains is the existence of powerful ‘lead firms’, which govern chains. These lead firms exert substantial control over suppliers they source from, enabling them to accrue rents, determine who is included and excluded from chains, set the standards which other firms must perform to and transfer risk to less powerful players.

The types of lead firms vary from one agri-food chain to another and include retailers, branded marketers, industrial processors and international traders. For instance, Ponte and Gibbon (2005) find that in the coffee and cocoa sectors it is the manufacturers and branders that exert control over suppliers; whilst in the UK fresh fruit and vegetables sector, retailers are in the driving seat. The common characteristic, however, is that – like in the clothing and footwear sector – agri-food chains are often ‘buyer-driven’, with those who source products exerting control over suppliers who produce them.

The source of buyers’ dominance lies in their market power. This stems from, first, the overall scale of buying firms’ purchasing power: large buyers have more opportunities to force suppliers to comply with their wishes than small ones. It also refers to the great disparities of market power between buyers and other actors in the chain (i.e. where a small number of buyers deal with large numbers of suppliers).

An example of market disparities is the European agri-food sector, where growing consolidation amongst retailers confers on them significant influence over suppliers at all levels of the chain. This covers not just farmers, but large manufacturers and distributors as well. The powerful position of retailers is aptly illustrated in figure 3 below. This describes how 160 million consumers are fed by 3.2 million producers and farmers and shows the varying levels of concentration at different points in the chain. A key point of interest is the 110 buying desks of supermarkets. By virtue of their location at the narrowest point of the hourglass, these buyers command immense power, acting as gatekeepers between farmers and consumers (Humphrey, 2005a).

Figure 2: Supply chain funnel in Europe (figures relate to number of actors)



Source: Reproduced from Grievink (2003).

The exertion of market power and control by buyers over other firms in chains is often referred to as ‘buyer governance’.¹¹ The goal and form of chain governance varies, depending on the context.

Key activities it can involve include lead firms:

- Defining or changing supplier prices, payment terms and other contractual matters;
- Demanding new services and changing the functional division of labour between firms in the value chain;
- Demanding higher performance standards of suppliers, in terms of product quality, lead times, delivery accuracy, process standards, record keeping, compliance with labour Codes of Conduct; and
- Transferring the burden of risk to other firms in the chain, for example by demanding just-in-time supply or setting suppliers’ prices after produce is shipped (exposing suppliers to the risks of market volatility, changes in exchange rates or inflation). (Gibbon (2005), Gibbon and Ponte (2005) and by Napier (2004a; 2004b).

Examples of each of these activities will be given in the next chapter in the context of the FFV value chain.

A final point to emphasize is that, whilst there is an overall trend toward ‘buyer governance’, the degree of buyer driving varies. For instance, in the food sector, Ponte and Gibbon (2005) note that levels of buyer driving is stronger in FFV, coffee and cocoa chains (led by retailers, branded marketers and industrial processors) than for cotton, fish and cashew chains (led by international traders).

¹¹ As Gereffi originally defined it, governance refers to: “authority and power relationships that determine how financial, material, and human resources are allocated and flow within a chain.” (Gereffi, 1994:97). ‘Vertical co-ordination’ is closely associated with ‘governance’, but is not synonymous; lead firms can govern chains, without directly co-ordinating them. For example, a firm may set instructions on product design, process specifications or production scheduling and logistics but transfer to a trusted lead supplier the responsibility for enforcing these further down the chain (Ponte and Gibbon, 2005).

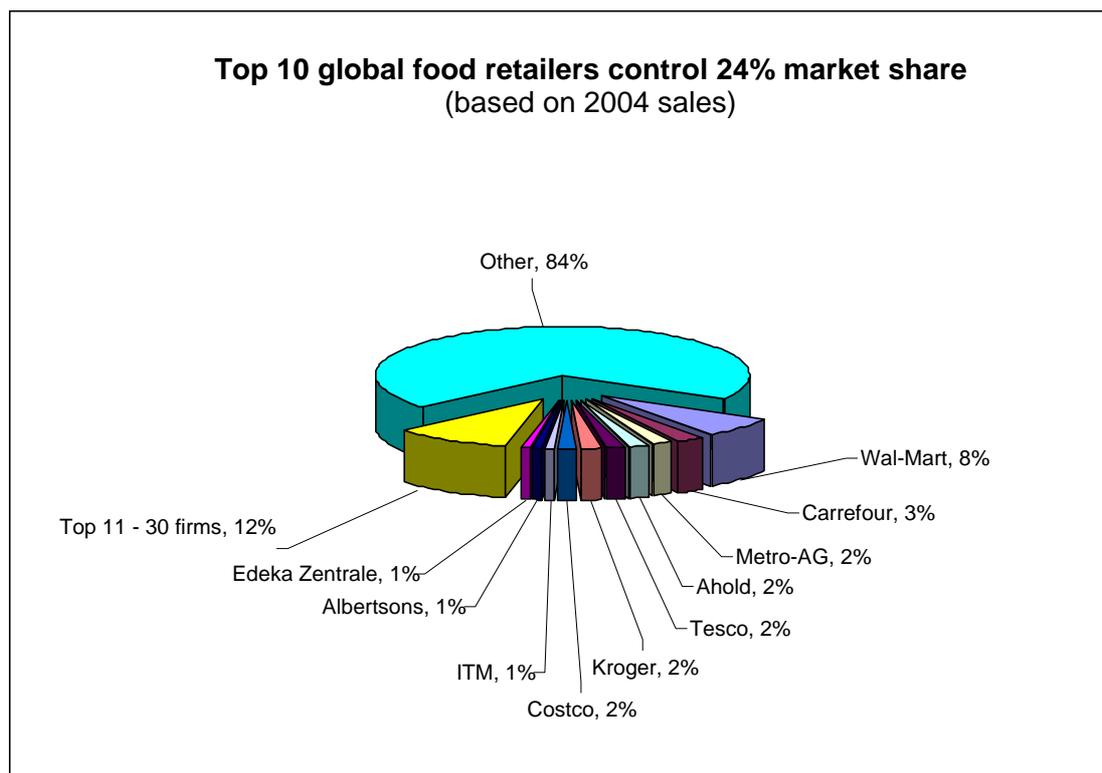
1.2.3 Growing market concentration across chains

A third characteristic of global agri-food chains is the growing concentration at all stages of the value chain. This is occurring not just amongst retailers, but also in upstream activities of food processing/manufacturing, agricultural input supply and, for some chains, in the production segments too. In part, upstream concentration is a response to downstream concentration. For example, as manufacturers seek to counter the growing power of retailers; or where demands from big buyers for larger product volumes leads to increased sourcing from a small number of large, better resourced suppliers/producers who can meet these requirements.

Retailers

The food retail sector has seen massive concentration, consolidation and internationalization in recent years. These trends are closely linked to stagnation in consumer markets in North America and Europe (reflecting ‘Engel’s law’ which predicts that as people’s incomes rise, their overall share of expenditures on food decreases). Faced with stagnant demand, retailers look for profits through increasing scale economies, which involves building bigger stores, undertaking mergers and acquisitions, developing larger product ranges and extending geographically into new consumer markets (Ponte and Gibbon, 2005). Figure 3 illustrates the concentration in food retail globally, showing how in 2004, the top 10 food retailers controlled a 24 per cent market share of global food sales.

Figure 3: Concentration of global food retailers



Source: ETC Group, 2005.

Retailer concentration is most marked in the United States and Europe. In the US, for example, the top five food retailers have increased their share of the domestic market from 27 per cent in 1992 to 43 per cent in 2000. Whilst in Europe, the five largest food chains in Europe increased their share of total retail food turnover from 13 per cent in 1990 to 26 per cent in 2000 (Humphrey, 2005a; Dobson, 2002).

Although strongest in North America and Europe, supermarket/hypermarket power in national markets is spreading across the globe. For instance, research on Latin America by Thomas Reardon and his colleagues estimates that by the year 2000 supermarkets had risen to occupy, on average, 50-60 per cent of national food retail, with the highest rates in countries like Brazil and Argentina (Reardon and Berdegué, 2002; Reardon et al., 2005). The supermarket sector in Latin America is increasingly foreign owned, with global multi-nationals – like British Tesco, French Carrefour and Casino, Dutch Ahold and Makro and US Walmart – constituting on average 70-80 per cent of the top five supermarket chains per country.

Food manufacturers/processors

At an aggregate level, concentration rates in food manufacturing are lower than for other manufacturing sectors or consumer products (Bolling and Gehlhar, 2005). However, within specific products and countries, firm dominance can be extremely high. There is a clear trend among food manufacturers to narrow their brand base in order to become market leaders in a few core categories and thereby increase their market leverage in the face of a fast globalising and consolidating retail sector.

The most concentrated markets for *manufactured* food products include pet foods, soups, breakfast cereals and baby food (Bolling and Gehlhar, 2005). For example, Nestlé and Mars together account for 40 per cent of the US pet food market, following takeovers of the US-owned firm Ralston Purina (Nestlé) and French owned Royal Canin (Mars) in 2002 (Ponte and Gibbon, 2005).

Concentration levels have also increased amongst *processors of fresh food*, such as meat and poultry. For example in Thailand, 80 per cent of poultry processing/production is in the hands of ten large companies (Vorley, 2003). Studies of the pork, beef and poultry sectors in the US have noted similar trends there. In the US pork sector, the four-firm concentration ratio of pork packers (Smithfield Foods, Tyson Foods, Swift & Co., Hormel Foods) increased from 37 per cent in 1987 to 64 per cent in 2003 (Hendrickson and Heffernan, 2005).¹²

Concentration in production

In general, production activities remain far more fragmented than other parts of agri-food chains, particularly for products like coffee, cocoa and some horticulture products, which favour small-scale production. As already stated, it is this disparity that confers on buyers' power over suppliers.

That said, there is evidence of increased concentration in the production segments in certain agri-food chains. For example, consolidation and integration by pork processors in the US has been accompanied by increased scale in production activities, with the share of production units with more than 1000 hogs increasing from 37 per cent in 1992 to 71 per cent in 1997 (Humphrey, 2005a).

Concentration in input supply

Finally, the input supply sector (chemicals, seeds and animal feeds) is characterized by major corporate concentration, with firms like Du Pont, ICI, Elf-Acquitaine, Monsanto, Cargill, Rohm and Haas and Unilever dominating the industry. For example, Humphrey reports that in the 1980's, 90 per cent of global agro-chemicals sales came from 20 companies; by 2002 this had reduced to just seven companies (Humphrey, 2005). (See Appendix D for a breakdown of the world's top ten seed and fertilizer companies).

¹² This term refers to the market concentration ratio (relative to 100 per cent) of the top four firms in a specific food industry (Hendrickson and Heffernan, 2005).

1.2.4 Proliferation of public and private food standards

A fourth key characteristic of the global agri-food sector is the proliferation of public and private standards,¹³ which govern the multiple outputs and processes involved in producing, manufacturing and distributing food products.

Public standards are those set by public actors, like governments or international bodies, are often mandatory or linked to mandatory rules, and typically focus on animal health and food safety. An example is the United Nation's Codex Alimentarius on food safety. 'Private standards' refer to those developed on a voluntary basis by private actors, like companies, producer associations, NGOs or multi-stakeholder groups. They tend to focus on a broader range of criteria than public standards, including quality, social and environmental issues. An example is the 'Nature's Choice' label developed by UK supermarket, Tesco, which is marketed as indicating superior safety, quality and environmental standards in production and processing (Humphrey, 2005a). Other types of private standards include local origin branding, organic goods and NGO-led initiatives like Fairtrade labelling or the Marine Stewardship Initiative.

Standards have always been a feature of the food trade, as with the grading of coffee beans to differentiate their aroma and taste. What has changed in recent years is:

- the increasing volume of standards
- their greater stringency
- the broader scope of criteria which they cover, from food safety to labour standards
- the broader range of actors imposing standards, most notably with the increase in private standards set by buyers or multi-stakeholder groups.
- the growing emphasis on *process controls*, which set standards on how products are grown, harvested, produced and transported, rather than just stipulating the characteristics of the final product (e.g. pesticide residue levels)
- the growth of monitoring and documentation systems throughout supply chains as a mechanism to enforce standards and ensure product traceability.

There are several drivers behind these trends. For example, the growth in food safety standards follows from increased consumer concerns over food scares in industrialized countries (salmonella, E. Coli, BSE, bird flu). The switch in emphasis from product to process relates to the time and expense of scientifically testing all final products. Complex monitoring of supply chains emerged from new legislative requirements, like those in the EU, which confer to food business operators (retailers, manufacturers, importers) the responsibility of ensuring that food safety risks are managed at all stages of the supply chain.

The growth in private standards, particularly those set by companies, link to changing consumer demands in industrialized countries. Market saturation for commodity goods and growing consumer interest in product quality, in relation to factors like taste, nutrition, appearance or the social and environmental impacts of product, has led to a proliferation of differentiated products and a trend toward 'quality-centred competition' (Henson and Reardon, 2005). Retailers and manufacturers use standards – and the brand labels, monitoring and certification processes which accompany them – as a means to enforce

¹³ Standards can be defined as a set of 'agreed criteria ... by which a product or service's performance, its technical and physical characteristics and/or the process and conditions under which it has been produced or delivered can be assessed'. (Nadvi and Waltring, 2002, p. 6 in Making Sense of Global Standards INEF Report 58/2002. Duisberg, Germany; INEF-University of Duisburg and cited in Gibbon and Ponte, 2005).

quality instructions to suppliers, to reassure consumers and to indicate product differentiation. Private standards are also a mechanism to manage reputational risks (e.g. from an NGO campaign on labour standards). By harmonizing product requirements over a large and geographically dispersed supply base, standards can also lower buyers' transaction costs.

The growth of standards when coupled with other changes that are taking place in agri-food chains is having a profound impact on producers. Listed below are some of the key factors impacting producers which will be expanded on in the next chapter on FFV value chains.

1.3 Impacts upon producers

Literature on the agri-food sector gives significant attention to the intense competitive pressure on primary producers, which is leading to falling farm incomes and the exclusion of many small and family farms. This competitive pressure affects producers across developed and developing countries. The causes of declines in agricultural incomes are complex. As Vorley (2003) explains, a fundamental problem is global over-supply, which is driving low prices. This is linked to factors such as:

- trade liberalization and growing global competition;
- de-regulation of domestic markets and the end of producer-led international commodity agreements (e.g. the International Coffee Agreement);
- on-going producer subsidies in rich countries (cotton, sugar) and their dumping of surplus products onto world markets (milk powder, meat, sugar);
- trade rules which restrict market access (e.g. high tariffs on processed products from developing to industrial countries);
- technological change and reduced transport costs, which facilitate global sourcing and increase competition (Vorley, 2003).

However, what researchers like Bill Vorley increasingly emphasize is that, even if the trade rules restricting access described above were reformed, the overall structure and operation of contemporary food value chains are such that many producers would still face problems of low incomes and growing marginalization. In particular it is the four key characteristics of agri-food chains – increased vertical co-ordination of supply chains, the growth of buyer influence over suppliers, rising market concentration at multiple points in the chain and the imposition increasingly stringent standards governing production processes – that have resulted in growing pressure on producers in terms of price, risk and performance requirements. In order to provide a contextualized explanation of the pressures that producers are facing, these four features will be considered in-depth in the next chapter which provides an insight into the fresh fruit and vegetable (FFV) value chain.

This chapter has discussed key trends in the structure of global agricultural trade patterns and in the organization of global agri-food chains. It has emphasized how the global agri-food sector is increasingly dominated by powerful global buyers – especially international supermarket chains and branded manufacturers – which construct and govern highly co-ordinated supply networks. Other notable features are the increased concentration at multiple stages in the chain, from input supply to retailing and the growth of public and private food standards. For producers, accessing these global chains can bring higher incomes and stronger guarantees of an outlet for their produce. However, the growth in retailer driving, market concentration and food standards also raise market entry barriers. As a result, it is increasingly large and better resourced farms which are able to access global value chains, leading to the marginalization and exclusion of many smaller producers. The next chapter examines these trends in the context of the global fresh fruits and vegetables sector.

Chapter 2: Fresh fruit and vegetable (FFV) value chains

This chapter reviews the global trade in fresh fruits and vegetables (FFV). The focus is on *fresh* items, since these make up the majority of world fruit and vegetable exports (fresh and processed). The analysis is divided into three parts:

- The first part reviews current trade patterns in fruit and vegetables and the factors driving its expansion.
- The second part discusses key characteristics in the production and organization of trade. It describes the structure of FFV value chains, in terms of the functional steps involved, the firms and farms which take part and the relations of power between them.
- The third part examines the conditions faced by FFV growers in producer countries.

It should be noted that the analysis frequently uses the term ‘horticulture’ interchangeably with ‘FFVs’ (for example, ‘horticulture production’ or ‘horticulture products’) as is common in the literature reviewed. Where it does so, it is excluding other horticulture products grown for export (cut flowers and ornamental plants), unless otherwise stated.

Fresh fruit and vegetable value chains: Chapter summary

Relatively unfettered by trade restrictions or government intervention, the global trade in the FFV sector is growing rapidly.

FFV chains are increasingly short, integrated and buyer-driven. Strong retail governance has led to a restructuring of the chain, with growing concentration at all stages, an increase in contract growing and imposition of tough quality standards.

Even in the banana trade, which has long been dominated by a handful of vertically integrated multi-national firms, retailers are increasing their power.

For producers, selling FFVs to global buyers can deliver better returns than for other crops or open market transactions.

However, intense global competition, together with the pressures of buyer power and raised entry barriers in retailer-led chains, exposes producers to high cost pressures, insecurities and risks. As a result, many smaller exporters and farmers face marginalization and exclusion from global markets.

2.1 Global trade patterns in FFV sector

2.1.1 Expanding trade

The global trade in fruits and vegetables¹⁴ has become steadily more important, with volumes increasing five-fold between 1961 and 2001, from 24 to 125 million metric tons. Now the largest of all traded agricultural product groups, in 2000/2001 fresh and processed

¹⁴ Exports of fruits and vegetables often come under the brackets of ‘High Value Agriculture Exports’ (HVAE) or ‘Non-Traditional Agriculture Exports’ (NTAE). HVAE refer to products which require little or no extra processing and are ready for consumption (like fresh fruits and vegetables). NTAE refer to products not produced in a country before (like Snowpeas in Guatemala, roses in Zambia); products that were originally produced for the domestic market but have expanded into export markets (mango, papaya, other tropical fruits); or traditional products reoriented to new market niches (export of bananas to the Soviet Union) (Dolan and Sorby, 2003).

fruit and vegetables exports were worth US \$71.6 billion and made up 17 per cent of world agricultural exports (Diop and Jaffee, 2005; Weinberger and Lumpkin, 2005).

Fresh produce constitutes the bulk of fruit and vegetable exports, at 63 per cent of the total share in 2000/2001, with the remainder made up by processed products. Overall, the largest traded goods are bananas, citrus, apples, tomatoes and grapes, whilst the fastest growth rates are amongst non-traditional commodities, such as mangoes, frozen potatoes, fruit juices, mushrooms and garlic. Based on 2000/01 data, the composition of the FFV trade can be broken down further:

- fresh fruit exports are dominated by bananas (25 per cent), citrus (20 per cent), grapes (11 per cent) and apples (10 per cent)
- fresh vegetable exports are fragmented among a larger number of items, including tomatoes (17 per cent), beans, peas and lentils (14 per cent). Other relatively major commodities include onions, potatoes, asparagus, mushrooms and peppers.
- processed products are dominated by processed vegetables, such as canned mushrooms, dried mushrooms and tomato paste (55 per cent) and fruit and vegetable juices (20 per cent) (Diop and Jaffee, 2005).

A number of trends lie behind the expanding trade in the FFV sector. These include rising incomes and changing consumer demands, liberalization trade regimes and domestic markets, and technological advancements (Diop and Jaffee, 2005; Huang, 2004; Vorley, 2003).

2.1.2 *Rising consumer demand for FFV*

While food products as a whole are relatively income inelastic, people's spending on FFVs tends to increase as their incomes rise. This, combined with urbanization¹⁵ and a greater awareness of the link between diet and health, has increased consumer demand for, and trade in, fruit and vegetables. This is especially the case in richer countries. In the United States, for example, per capita expenditure on fruit and vegetables is projected to rise more than for any other product group between 2000 and 2020. As well as buying more fruits and vegetables, consumers are demanding more variety, greater freshness and quality, and crucially, year-round availability. This has led to increased global sourcing of products. Take table grapes, for example. In the United States domestic supplies from California are now supplemented during their off-season by imports from Chile and Mexico (Huang, 2004). Whilst EU supplies of grapes come from southern EU producers from July to September, from Chile and South Africa between January and March, and from Brazil for the months in between (Dolan and Sorby, 2003).

2.1.3 *Liberalization of trade rules and domestic markets*

Trade liberalization has played an important role in facilitating the global integration of FFV markets. Compared to other agricultural sectors, trade protection for fruits and vegetables is much lower. The creation of NAFTA,¹⁶ for example, stimulated massive

¹⁵ Urbanization increases FFV import demand as i) the concentration of population reduces the logistical and transaction costs of imports, especially where cities are located close to ports, and ii) the growth of migrant and ethnic communities increases demand for, and exposure to, new or exotic products (Huang, 2004).

¹⁶ The creation of NAFTA (North Atlantic Free Trade Area) in 1994 eliminated many tariffs and quantitative restrictions between the United States, Mexico and Canada. For horticulture crops all tariffs were set to be eliminated by 2003, except for a few products.

growth in US imports of FFV from Mexico and Canada during the 1990s. For instance Mexican growers' shipments of winter tomatoes grew from 28 per cent of the US market in 1991 to 42 per cent in 1997 (Oxfam, 2004a).

In developing countries, and particularly in Latin America, structural adjustment policies – including currency devaluations establishing competitive exchange rates and the liberalization of domestic financial markets – were important in stimulating FFV exports and encouraging foreign investment in production activities (Thrupp, 1995).

Linked to this, FFV trade expansion is driven by the search by global buyers and investors for lower prices and production costs. Horticulture is more labour intensive than other food sectors, with many crops being hand-picked and processed. Consequently, many US and European traders have increased their sourcing and investment in production and processing activities in developing countries, where labour are costs are lower (Huang, 2004).

2.1.4 *Technological change*

Finally, the globalization of fruit and vegetable supplies would not be possible without advances in transportation and technology. Transport improvements have reduced delivery time and shipping costs, whilst innovations in post-harvest and distribution technology help overcome traditional constraints of location and perishability. In particular, advances in 'controlled atmosphere' (CA) technology has enabled the creation of an integrated cool chain, whereby highly perishable products, like lettuce, asparagus, peaches, mangoes and avocados, can be moved around the world with no loss of freshness.¹⁷ In addition, new electronic technologies enable shippers to track their cargo and monitor product performance without any physical checks, helping them to shorten delivery times, maintain quality and better manage liability risks (Huang, 2004).

2.1.5 *Geographic composition of FFV trade*

Fruit and vegetable exports make up just over a quarter (17 per cent) of total world agriculture exports (Weinberger and Lumpkin, 2005). The EU, NAFTA and a handful of middle income countries dominate the global trade, most of which is intra-regional. The largest import markets are the United States and European Union. In terms of shifts, the fastest growing import market is Japan, which sources mainly from Asia and especially China (Diop and Jaffee, 2005).

**Box 1:
Growth of China exports**

Nearly 20 per cent of all arable land in China is cultivated for fruit and vegetable production, which makes it the largest global producer. At present, only a fraction of produce is exported; just 1 per cent in the case of vegetable production. However, investment is pouring in and exports are growing rapidly, with its major markets being Japan, Hong-Kong, Russia, South Korea and Singapore. Currently ranked eighth in world exports of fruits and vegetables, China has recently replaced the United States as the number 1 supplier in fresh and processed vegetable to Japan.

Sources: Vorley, 2003; Weinberger and Lumpkin 2005.

As already mentioned, FFV products represent an increasing share of total agriculture exports for developing countries. As such, fruit and vegetable exports are now worth three

¹⁷ CA allows operators to control oxygen, carbon dioxide and nitrogen levels in a refrigerated container, which slows ripening, retards discolouration and maintains freshness (Huang, 2004).

times the value of developing country exports of grains and livestock products, five times that of sugar and seven times that of fibres. Behind this shift lie collapsing world prices and fluctuating demand for traditional commodities, and the higher value of horticulture products, which encouraged many countries to enter the market. Development agencies and lenders played a key role here, promoting horticulture production and export orientation in order to stimulate economic growth in developing countries (Dolan and Sorby, 2003; Thrupp, 1995).

A few low-income countries have achieved remarkable success. Kenya, which currently supplies 25 per cent of the world's green beans, is a much lauded example. Together Guatemala and Kenya lead the world market for green peas (Diop and Jaffee, 2005). However, supply-side constraints have meant that many new entrants have not sustained success over time. As a result developing country exports are heavily concentrated amongst a handful of middle income players in Latin America (Mexico, Chile, Argentina), and increasingly by China (see Box 1). For instance, Chile, Costa Rica, Ecuador and Mexico account for 43 per cent of developing country exports of fresh fruit, while for fresh vegetables, 67 per cent of developing country exports come from just four suppliers: Argentina, China, Mexico and the Syrian Republic (Diop and Jaffee, 2005). Table 2 summarizes the distribution of some key fresh fruit and vegetable exports among developing countries.

Table 2: Concentration of fresh fruit and vegetables exports among developing countries, 2001

Product	Leading suppliers	Joint percentage of world exports (value)
Asparagus	Peru, Mexico, Thailand	94
Mangoes	Brazil, Mexico, Philippines	62
Pineapples	Costa Rica, Cote d'Ivoire	61
Bananas	Ecuador, Colombia, Costa Rica	60
Avocados	Chile, Mexico	53
Tomatoes	Mexico, Syria	52
Grapes	Chile, China, Mexico	38
Green beans	Jordan, Kenya, Mexico	49
Green peas	Guatemala, Kenya, Zimbabwe	38

Compiled by: Diop and Jaffee, 2005; Table 3.14, p. 244.

2.2 Key features of FFV products

In examining the key features of FFV products and global value chains, the analysis is driven by the available literature and focuses on chains supplying UK, and to a lesser extent, US and Continental European import markets. Products included are: green beans and green peas (Kenya, Guatemala, Zimbabwe), tomatoes (Mexico), grapes, apples, pears

and citrus (Chile, South Africa) and bananas (Latin America and the Caribbean). Table 3 provides a summary of key features highlighted in this paper.¹⁸

Table 3: Key features of fresh fruit and vegetable production and trade

Product and market characteristics	Value chain structure and governance	Producer pressures
Generally high prices and values compared with traditional crops	Growth of short, retailer-driven chains	Increased price competition from liberalized markets
More variable yields and prices than traditional crops	Increasing vertical co-ordination	High entry barriers, risks and price pressures in retailer-led FFV chains
Global over-supply in some products	More stringent quality and performance standards	New performance standards on quality, supply, cost competitiveness, food safety and ethical trade
High perishability for most products, needing specialist technologies and transport	Growth of category management	Power asymmetries due to downstream concentration
High capital intensity and operating costs	Increasing concentration and internationalization of firms – although lower than other food chains	Marginalization and exclusion of smaller firms and farms
Diversity of farm sizes compared with traditional crops	Rise of vertical integration and contract growing	
	Large power asymmetries between production and other segments	

2.2.1 *Product and market characteristics*

The production and market systems for fresh FFV bear a number of features similar to other agricultural goods. This includes, for example, the intense global competition among producers linked to liberalization and global over-supply (e.g. bananas and apples); the trend toward mono-cultivation; heavy dependence on pesticide inputs; strong emphasis on speed of delivery and the need to meet food safety requirements (Thrupp, 1995; Arias et al., 2003; Barrientos and Kritzinger, 2004). However, fresh fruit and vegetables also possess certain characteristics which create very distinct dynamics. These are highlighted up-front, since they help explain why value chain activities are structured as they are, and the risks and pressures faced by producers.

First, fresh produce is highly perishable. Whilst some crops, like potatoes, can be stored for a few months, many horticulture crops deteriorate rapidly after being picked. For instance, the supermarket shelf-life of a lettuce or packet of strawberries is just a few days. This is especially so for produce grown in warm climates. As Dolan et al., (1999) explain, for every one hour delay in the removal of field-level heat, horticulture crops lose eight hours of shelf-life. In addition, some items are very fragile, bruising or squashing easily.

This feature creates significant demands and risks throughout the chain, but this is particularly the case for producers and exporters. Lead times are often very short. An extreme example is the Kenya-UK vegetable trade, where a Kenyan vegetable exporter will typically pick, pack and air-freight produce to the UK on the same day the order is received (Oxfam, 2004b). Costly, specialist technology and transport, and very rapid and efficient

¹⁸ Key sources include: Thrupp, 1995; Barrientos et al., 1999; Dolan et al., 1999; Vorley, 2003; Dolan and Sorby, 2003; Humphrey and Dolan, 2004; Gibbon and Ponte, 2005.

links between the different functions, are critical in order to maintain freshness, avoid spoilage and ensure timely delivery. Without these producers face very high post-harvest losses and limited access to export markets.¹⁹ Perishability also exposes producers to the risk of market downturns, since they are unable to store products and wait until prices rise as producers of other products may do.

A second feature is the seasonality of production. A few crops like bananas have very limited seasonal effects, so that planting, harvesting and processing activities take place on a daily, year-round basis. However, other crops, like apples, grapes and pears, do have seasonal production cycles. Seasonality can create new opportunities for producers. For instance, Guatemala developed an export raspberry industry by selling into the US market during two short market windows between the Chilean and Californian raspberry seasons (Huang, 2004). However, seasonality also creates significant risks for horticulture producers, especially given the trend toward monocultivation. Annual profit and incomes depend on unpredictable and varying market and weather conditions during a few months of the year. Also, the sharp peaks and troughs in activity create significant challenges and pressures in terms of labour management.

A third set of factors relate to climate and natural hazards. Despite technological advances – such as drip-feed irrigation systems, cool chain storage, seed technology, fertilizers and pesticides and so on – horticulture crops are susceptible to damage from pest infestations or extreme weather (Barrientos et al., 1999). This is particularly so when temperate crops, like broccoli, asparagus and strawberries, are transferred to the tropics, where they are vulnerable to new pests and diseases (Thrupp, 1995).

These factors of perishability, seasonality, climate and natural hazards contribute to the unpredictable market and price fluctuations, which mark the horticulture trade (Weinberger and Lumpkin, 2005; Thrupp, 1995). A key point, which will be expanded upon in the following section, is that each firm tries to offset these natural and market risks by passing them on to other, less powerful actors in the chain – with much of the burden falling onto producers and their employees (Oxfam, 2004b)

2.3 Mapping the global FFV value chain

Traditionally, marketing channels for fresh fruit and vegetables have been long and fragmented. Many producers, exporters and importers sell to many buyers, with transactions taking place in wholesale markets and based on observable spot market prices. This system is being transformed. Increasingly, FFV value chains are short, direct, co-ordinated and retailer-driven. This is particularly the case for chains supplying the UK and US markets. In these countries, a small number of large, powerful retailers purchase year-round supplies directly from importers/suppliers, bypassing wholesale markets.

Another characteristic of FFV value chains is the changing nature of firms which participate in the trade. Typically, FFV chains are far less concentrated, integrated and internationalized than for other food products. However, this is changing, particularly in the fresh fruit industry. Chains are becoming more concentrated, especially at higher tiers of the chain. There is growing integration between trading (import/export) and production segments in some product chains. Firms are also becoming more internationalized, through

¹⁹ Focusing on South East Asia, Weinberger and Lumpkin (2005) estimate that post-harvest losses due to perishability can be as high as 60 per cent for cabbage and tomato crops, 50 per cent for head lettuce and cauliflower, 30 per cent for bell peppers and 17 per cent for Chinese cabbage. The authors attribute a recent fall in Viet Nam's FFV exports to the countries' outdated storage and post-harvest technologies.

alliances and investments in foreign production, marketing and trading activities. These changes stem directly from retailers' rationalization of their supply bases and the demands they set (for larger volumes, higher and more consistent quality, year-round supply, reliable delivery, category management functions, supply chain efficiency). They also relate to the diversification of large, vertically integrated multinational firms, like Dole and Del Monte, from bananas into other fruits and vegetables.

Notwithstanding the common characteristics identified above, there is significant variation in the way FFV value chains are structured depending on the import and export market, and the product. Given this diversity, it is not possible to present a *generic* value chain map for the global FFV sector. For instance, the banana value chain is very different to that of green vegetables. Whilst the latter exhibits quite low levels of concentration, integration and internationalization, the banana value chain is heavily dominated by three multi-national banana firms (Dole, Del Monte, Chiquita), which are integrated across production, processing, distribution and marketing activities, and account for around 58 per cent of global banana exports (see Box 3).

2.3.1 *Functional activities*

Broadly there are four key functional activities involved in FFV chains: growing, processing, distributing and selling. *Stage one* is crop production and harvesting in the fields by producers. Once the product is picked growers have to transfer it very quickly to cool storage (or at least an insulated vehicle) and then transport it to a packhouse. Producers range from small family farms to medium and large size commercial farms. Whilst some farms operate independently, others may be contracted to larger farms and exporters, or owned by a vertically integrated exporter.

The *second stage* involves processing and packing the produce, before storing and transporting it to the importing country. Packing plants are often owned by domestic or foreign owned exporters, involve sophisticated technology and look like modern, assembly-line factories. On arrival at the plant, the produce is fumigated and kept in cold storage facilities in which gases are emitted to repress the maturing process. It is then washed in chilled chlorinated water, selected, wrapped and/or packed. Some items, especially vegetables, will undergo further processing, like being trimmed, sliced or peeled.

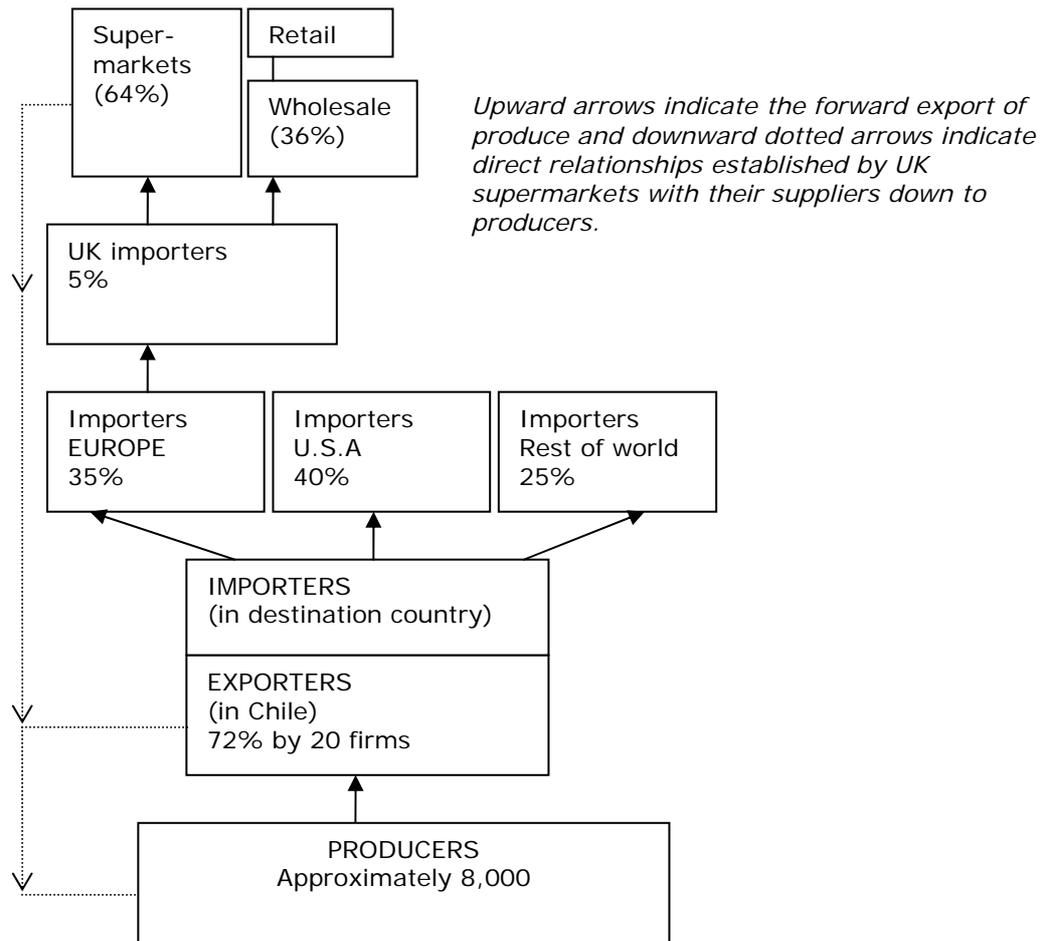
The *third stage* is distribution (import and export) and further processing. The packed produce is loaded into refrigerated containers and transported to the port or airport, where it is assessed and certified for quality before being loaded. Export firms are responsible for co-ordinating internal transportation and shipping/airfreight, and oversee export procedures. The transport is usually undertaken by specialist firms or in some cases, directly controlled by an integrated exporter/importer. From the point of embarkation, the process is managed by the importer, who co-ordinates the transport, storage and any further processing of products, through to arrival at supermarkets, wholesale markets or other food retailers (e.g. caterer or restaurant). Processing activities could include, for example, further ripening, repackaging, labelling or assembling mixed product combinations sourced from different countries.

The *fourth stage* is the final retail sale to the consumer (Barrientos et al., 1999; Dolan et al., 1999). (See figures 4 and 5).

2.3.2 *Two examples*

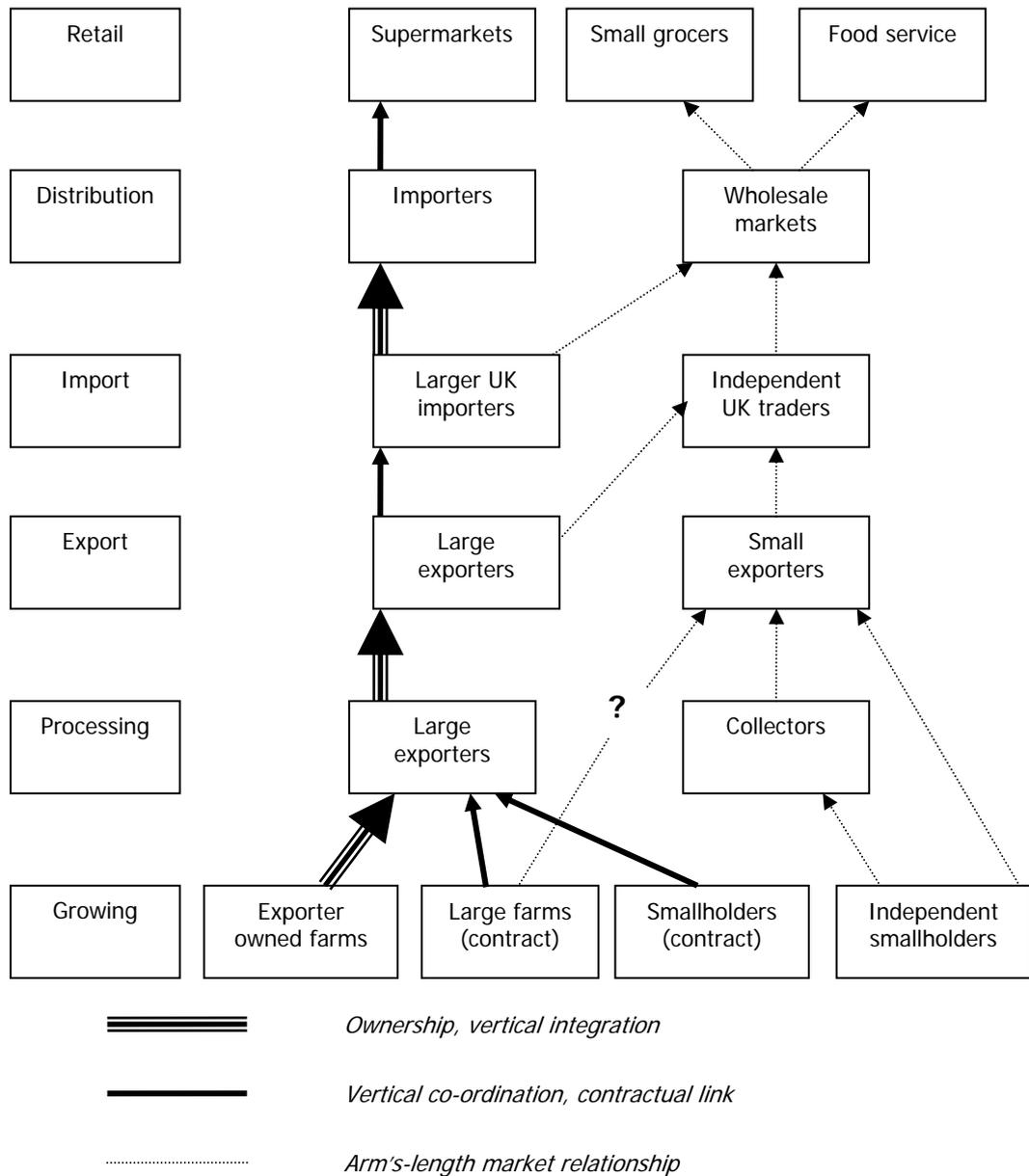
Figures 4 and 5 reproduce value chains maps of the Kenya-UK fresh vegetable trade (developed by Humphrey, 2005b; Dolan and Humphrey, 2004) and the Chile-UK fresh fruit trade (developed by Barrientos et al., 1999).

Figure 4: Global value chain of Chilean fruit, 1993-1994



Source: Barrientos et al., 1999; Fig. 4.3 p. 80.

Figure 5: Kenya-UK fresh vegetables chain



Sources: Humphrey, 2005b; Dolan and Humphrey, 2004.

2.3.3 Differences and similarities between the two examples

There are differences and similarities between the Kenyan and Chilean chains. For instance, in Chile, the production base is reasonably fragmented and primarily Chilean-owned, with around 8,000 medium sized commercial farms producing fruit for export. Whilst some larger producers have their own packing facilities (with boxes provided by the exporter), overall there is little vertical integration between production, packing/distribution segments. In Kenya, by contrast, the majority of fresh vegetables produced for export are sourced from a small number of large, integrated, exporter-owned farms (40 per cent) and large commercial farms supplying under contract (42 per cent). Smallholder supply (18 per

cent) has declined significantly in recent years.²⁰ Relations between Kenyan exporters and contracted producers are close, with exporters exerting tight product, process and monitoring controls over growers. The tendency toward concentration, co-ordination and vertical integration in Kenya is driven by exporters' needs to meet supermarket quality and safety standards, to ensure continuity of supply, and to reduce costs.

A similarity between the two chains is that in both countries, the export stage is quite concentrated. In Kenya, 75 per cent of fresh vegetable exports are controlled by just five, Kenyan-owned firms. Data on Chile from the mid 1990s showed that, although 300 companies were exporting fresh fruit, nearly half of these (46 per cent) were handled by just six firms (and four of which were foreign owned).²¹ For both countries, some exporters are forward integrated into distribution activities. For instance, Dole exports fruit from Chile on its own ships, whilst the Kenyan vegetable firm, Homegrown, air-freights produce to the UK on a daily basis via its joint venture partner MK Airlines.

The case material reviewed provides less information on the firms involved in importing activities. What the Kenya research does emphasize, however, is that as supermarkets have reduced their fresh produce supply base – typically to three suppliers per product category (e.g. citrus, salads) – import segments are becoming more concentrated. Also, importers have acquired new roles beyond traditional trading/processing activities, which require them to establish closer relationships with exporters. Such roles include quality assurance, product innovation, building global networks of suppliers and – in some cases – category management responsibilities (Dolan et al., 1999; Humphrey and Dolan, 2004). Box 2 provides more detail of the various categories of FFV suppliers importing products to the US fresh produce market. The composition of retail activities in FFV chains will be discussed more fully in the next section.

²⁰ These figures represent sourcing base of Kenya's four leading fresh vegetable exporters in 1998. (Dolan et al., 1999).

²¹ Foreign owned exporting firms were: Dole-Chile (11.2 per cent of total exports), UNIFRUTTI (9.2 per cent), UTC (7.1 per cent) and ZEUS (3.9 per cent). The two Chilean export companies in the top six were David del Curto (10.2 per cent) and COPEFRUT (4.3 per cent) (Barrientos et al., 1999)

Box 2:
Identifying lead suppliers/importers in US FFV sector

In 2002, fresh fruit and vegetables sales in the US surpassed US\$81 billion, split roughly 50:50 between retailers (supermarkets, grocers) and food service establishments. FFV supply bases are becoming more concentrated in the US, with retail buyers reporting that – for a selected group of products – their top four suppliers provide from 85 to 97 percent of purchases.

Several types of firms handle FFV imports to the US:

- **Traditional importers** (or 'shippers'), with no production ties domestically or overseas. These are mainly marketers and charge a sales commission to foreign growers they buy from
- **Integrated grower/shippers.** These are US growers who have developed import ties with a number of countries to augment their domestic production and ensure year round supply for a wide range of products.
- **Marketing arms** of large producers in other countries, including large multi-national firms with brand name recognition e.g. Del Monte, Dole and Chiquita.

Importers' ties with foreign producers range from simple **contractual relations** to **joint ventures** and mergers with foreign growers, and even **direct ownership** of farms.

Large foreign suppliers are following the same trend toward **integration and co-ordination** in reverse. For example, by expanding into production in the United States or establishing marketing arms there.

Some foreign members are also included in US grower co-operatives, provided they meet specified quality standards

An example of the trend toward cross-country alliances is **Global Berry Farms**. Formed in 2000 as a joint venture by Michigan Blueberry Growers Marketing (a co-operative) and Chilean firm, Hortifrut (a private firm), Global Berry Farms markets all fresh fruits for Michigan Blueberry Growers worldwide and Hortifrut's in the North American market. It offers year-round delivery of complete berry categories (blueberries, blackberries, raspberries and strawberries) to retailers in the Americas and, increasingly, in Europe.

Sources: Huang, 2004; Cook, 2004.

2.4 FFV value chains: Role of large retailers

The global FFV sector is increasingly 'retailer-driven'. As discussed in chapter 1, the term is used to denote the idea that trade networks are controlled by powerful buyers which are able specify to suppliers and growers the functions they undertake, the standards they perform to, the risk they bear and the level of income they receive. An important dimension of retailer driving is the high degree of co-ordination and interaction amongst tightly knit networks of suppliers.

Three points of clarification are highlighted upfront. First, in using the terms 'retailer power' and 'retailer driving', the analysis is referring to larger food retailers (supermarket, hypermarkets, club stores, discount stores), excluding smaller independent grocers, which lack sufficient market share to 'govern' chains. Second, although the food service industry accounts for a high share of FFV sales to the consumer (around 50 per cent in the US), this industry is not included since little research has been conducted in this area. Third, reflecting the available literature, the discussion focuses mainly on FFV supplies to retailers in the UK and US. Less is known about the operation of chains supplying import markets with lower degrees of retail consolidation, or about the competitive position of producers which participate in those chains.

2.4.1 Power derived from market concentration

The source of retailers' power over FFV suppliers lies, first, in their growing domination of FFV sales. In the EU, supermarkets sell more than half of all fruits and vegetables in the retail market, with this figure reaching as high as 82 per cent in the UK (Dolan and Sorby, 2003). The pace of supermarket growth has been fast, having a dramatic

impact on traditional retail outlets. For instance, in the UK within just three years (1994-1997) the share of FFV sales amongst greengrocers and market stalls fell from 26 to 15 per cent, with almost all the difference taken by supermarkets (Dolan et al., 1999). A series of studies on the US market, by Linda Calvin, Roberta Cook and their colleagues, highlights the same overall trend, with conventional grocery outlets (small stores, markets) losing out to large supermarkets and hypermarkets (Calvin, Cook et al., 2000; Cook, 2004). Growth in supermarket sales of FFV produce has also occurred in some developing countries. For instance, supermarkets in Brazil account 50 per cent fresh fruits and vegetables sold (Reardon and Berdegue, 2002).²²

The second source of retailer power lies within the disparities of relative market shares between them and their suppliers. Highly consolidated retailers have enormous buying power. Moreover, as the UK Competition Commission inquiry into UK supermarkets highlighted, even the largest supplier only constitutes a small overall share of a supermarket's sales, creating a great imbalance in the degree of transactional dependence between retailers and their suppliers. Although it did not provide precise figures, the Commission singled out fresh produce suppliers as the most dependent (of all food produce firms) on supermarkets for their sales (UK Competition Commission, 2000).

As noted earlier, the degree of retailer-driving of FFV chains does vary between different FFV products and markets. For instance, Peter Gibbon found that retailers in France exercise much less control over FFV suppliers than in the UK. He ascribes this difference to the lower relative share of French supermarkets in FFV sales (only 37 per cent) and to France's domestic laws, which foster the continuance of arms-length sourcing through wholesale markets.

2.4.2 Retailer governance driven by competitive strategies and food standards

In the UK, there are two main factors – retailers' competitive strategies and increasing regulatory requirements on food standards – which together require supermarkets to exert tighter control over product and process standards that are accredited with driving the trend toward increased buyer driving and value chain co-ordination in FFV trade (Humphrey and Dolan 2004).

Fresh produce is central to retailers' competitive strategies. Fruit and vegetables are highly profitable for retailers, generating one of the highest returns per square metre of shelf space. Oxfam (2004b) estimates that gross profit margins for retailers on FFV are typically 30-40%. In addition, FFVs are also considered 'destination goods', attracting customers into the store. The standards of FFVs are often seen by shoppers as an indicator for the quality for other products sold there. Recognizing the importance of FFV products, supermarkets' competitive strategies have focused expanding volumes, ensuring year round availability, and increasing product quality, variety and differentiation. Instead of loose, standard products, supermarkets have sought to differentiate from their competitors through, for example, increasing the processing and packaging of fresh produce (e.g. pre-trimmed green beans in cellophane-covered plastic trays) and expanding speciality ranges, like exotic fruits or organic produce (Dolan et al., 1999).

In wholesale markets buyers have no knowledge of the product source, no control over its quality, can only purchase standard products and have limited supply reliability since

²² Reardon and Berdegue (2002) point out that, although considered strategic for profits and attracting customers, supermarket shares of FFV retailing are much lower elsewhere in Latin America. In Mexico, Argentina and Chile supermarkets account for 50 per cent of all food retailing, but only 30 per cent of FFV sales in Mexico and Argentina, and just 3-8 per cent in Chile.

they compete with other buyers. Supermarkets have consequently shifted to direct sourcing with contracted suppliers, which *does* allow the contact necessary for retailers to specify the product and process standards they require. It also allows advance planning and greater supply reliability. It is important to note that a very high share of fresh fruits and vegetables are 'own label', so retailers have more influence and control over these than for many other food products.

A second factor behind increased buyer co-ordination relates to new regulatory requirements. In the UK context this emerged from the 1990 Food Safety Act and more recently, EU rules on pesticide residues, which make retailers responsible for any food safety lapse occurring anywhere in the supply chain. To manage this risk, retailers cascaded extensive monitoring and audit requirements throughout the chain. Supermarkets' voluntary labour Codes, implemented in response to consumer concerns about the conditions for farm workers, is an additional cause, and feature, of this tightening system of buyer control (Tallontire and Greenhalgh, 2005).

Research on the US FFV sector comes to similar conclusions, highlighting retailer goals for improved product quality, uniformity, differentiation, and consistency of supply, as a key driver in the growth of direct contracting with suppliers (Calvin and Cook et al., 2001; Huang, 2004). This appears especially prevalent among 'mass merchandisers' (club stores and supercentres), like Wal-Mart. For these firms, switching from daily orders and sourcing via intermediaries toward direct, longer-term supply contracts is a critical for implementing new procurement technologies and systems, like electronic data interchange (EDI) automatic inventory replenishment and category management. For instance, interviews with a group of mass merchandisers and their grape, orange, tomato, grapefruit suppliers showed that between 1994 and 1999, the share of long-term contracts (annual/multi-year) had increased from 13 per cent in 1994 to 29 per cent in 1999. Amongst bagged lettuce suppliers, 100 per cent of their product was purchased under long-term contracts (Calvin and Cook et al., 2001).

2.4.3 *Dimensions of retailer driving of FFV chains*

Retailers exert their power over FFV suppliers in several ways. Cumulatively, these factors raise market entry barriers for newcomers through:

i) Higher performance standards

Retailers have set ever increasing *performance standards* for suppliers, including:

- Shorter lead times, improved delivery accuracy and greater reliability of supply. Some supermarkets apply sales-based re-ordering systems to their FFV ranges whereby orders are generated automatically from existing sales data. The time pressures on these can be very tight, as orders are modified every week, day or even 12 hours.
- Improved and more consistent product quality (size, freshness, appearance), with higher processing level (washed, cut, packaged).
- Higher process standards, both to meet quality demands and to ensure compliance with government or supermarket rules on environmental management, labour conditions or food safety (Thrupp, 1995; Humphrey and Dolan, 2004; Huang, 2004; Gibbon and Ponte, 2005).

These demands affect firms at all levels of the supply chain and require high levels of communication and co-ordination between them. For example, in the Kenya FFV chain, new supermarket specifications on product quality or food safety require significant monitoring, information sharing and technical collaboration between importers, exporters

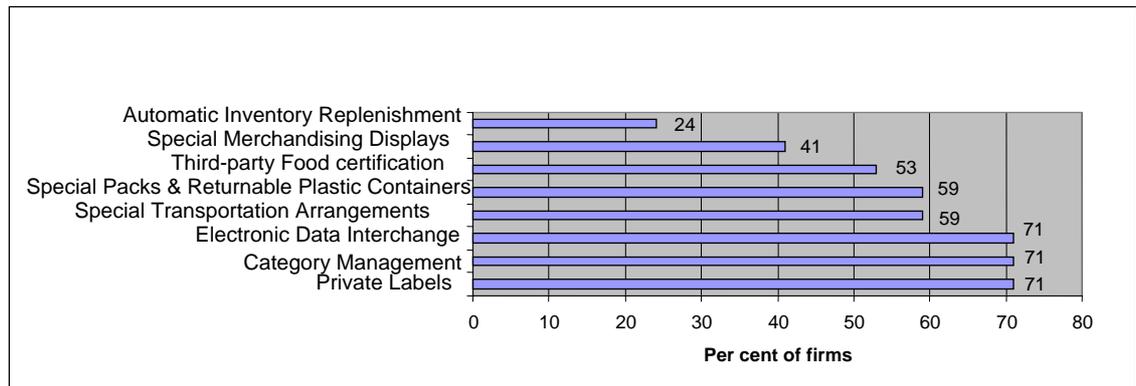
and growers in order to translate these into viable production processes and guarantee product traceability (Dolan et al., 1999).

ii) *New functional requirements and services*

Retailers in the UK and US have also used their power to pass new functional requirements onto FFV suppliers, changing the division of tasks along the value chain. An example is their transferral of supply chain co-ordination tasks – such as sourcing, ordering, delivery, monitoring and supplier upgrading – to a small group of preferred first tier suppliers/importers. Some large retailers in the UK and the US have taken this process a step further by introducing category management to their fruit and vegetable ranges²³ (Calvin and Cook et al., 2001; Humphrey and Dolan, 2004;). For instance the UK retailer Asda/Walmart now uses only one citrus supplier, Thames Fruit, which manages the whole citrus range (Gibbon and Ponte, 2005). The benefit for supermarkets is that they can reap the rewards of co-ordination, like higher product and process standards, traceability and just-in-time supply, without bearing the costs and risks associated with inventory management (Humphrey and Dolan, 2000; 2004; Gibbon and Ponte, 2005).

Research with a group of retailers and FFV suppliers in the US found that services requested by retailers had increased over 1990s. Some of these requirements, like automatic inventory replenishment or EDI, imposed substantial fixed costs, which was seen a particular problem for smaller importers/growers. In terms of *new* services, the most frequent new request was for third party food safety certification. Chart 1 details the various types of new functions and services requested by US retailers.

Chart 1: Share of US retailers receiving various services from FFV suppliers (1999)



Source: Cook and Calvin et al., 2001; Fig. 4, p. 37.

iii) *Downward price pressures and imposition of fees*

Another way buyers exert their power is to *reduce supplier prices*. Take the banana sector. Growing concentration amongst retailers – and intense competition between them – is changing power structures in the banana value chain and increasing pressure on multi-national banana distributors (e.g. Dole, Chiquita, Del Monte) to cut costs. Box 3 provides more details of growing retailer power in global banana value chains.

²³ As outlined in Chapter 1, this makes a single, highly competent supplier/importer responsible for an entire product line – much like contract manufacturing in electronics and garments.

Box 3:

Growing retailer power in global banana value chains

The global banana sector is a classic oligopoly, with the majority of banana marketing and trading activities controlled by a small number multi-national corporations, involved in production, sourcing, shipping, ripening, packing and distributing bananas.

In 1999, the top three companies, Chiquita, Dole and Del Monte Fresh Produce, accounted for 65 per cent of global banana imports and 60 per cent of exports. Including the 4th and 5th largest firms (Ecuadorian exporter, Noboa, and Ireland-based, Fyffes), that import share rises to 84 per cent (in 1999).

The majority of banana exports come from Latin America (80 per cent), especially Ecuador, Costa Rica and Colombia. The Philippines is a major supplier to Japan, whilst European markets are also supplied by producers in Latin America, West Africa (Cameroon, Cote d'Ivoire) and the Caribbean (Windward Islands, the Dominican Republic and Suriname).

Most export production takes place on large plantations (above 1,000 hectares), which use technologically sophisticated production techniques, and are owned by or contracted by multi-national firms. Overall, it is estimated that about half of the bananas marketed by Dole, Del Monte and Chiquita originate from their company-owned plantations.

Important exceptions are Ecuador and the Caribbean, where domestic-owned, medium and small producers predominate.

In spite of its oligopolistic nature, the trade in bananas is extremely competitive. Unit margins for multi-national firms are low and profits are based above all on the large quantities of bananas they market.

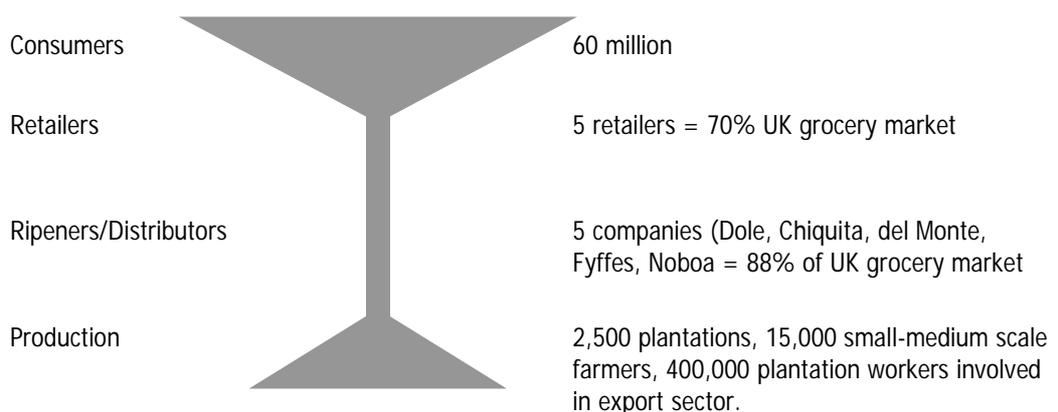
The structure of the banana chain is changing. Global over-supply and declining prices, and consolidation in the retail sector, means the balance of power and profits are shifting upwards, into the retail segments. In response, banana firms are restructuring their operations by:

- Selling off/outsourcing production and transport facilities, to focus on higher value marketing and distribution.
- Diversifying out of bananas and expanding their ranges of other fruits and vegetables.

For instance, within Dole, non-banana fresh fruits and vegetables, and packaged fruits and juices, now make up around 65 per cent of turnover. Del Monte Fresh Produce is the world's leading pineapple and melon exporter. Chiquita markets a range of fruit and vegetables, like mangoes, kiwis and citrus, avocados, asparagus and potatoes, under a variety of brands (such as Consul, Amigo and Premium).

Sources: Arias et al., 2003; Vorley, 2003.

Global Banana Bottleneck – from Latin America/Caribbean to the UK



Source: Vorley, 2003, fig. 7.1

This shift in power is reflected in the widening income disparities between retailers and banana suppliers. For example, a recent report by the FAO shows how the spread between retailers' prices vis-à-vis that of wholesalers and importers in the US, France and Japan has increased significantly since 1985. According to the authors, this may derive from cost increases (packaging, storage, food safety), but also, 'monopsony rents due to higher market concentration at the retail level' (Arias et al., 2003; p. 13). In the UK, these pressures escalated spectacularly in recent years as supermarkets engaged in a banana price war, negotiating big discounts with suppliers in order to expand their market share (see Box 4).

Box 4:
Supermarket power: Banana price wars in the UK

In 2002, Asda/Walmart negotiated a huge volume discount with banana giant, Del Monte. This provided a platform for Asda/Walmart to slash retail prices from £1.08 to £0.94 per kilo in August of that year. With other retailers forced to follow suit, a price war ensued so that retail prices fell to £0.81 by the spring of 2003. This forced deep price cuts on suppliers, which were consequently passed on to producers and workers upstream.

Vorley (2003) estimates that at a £0.81/kg retail price it would be impossible for a grower in Costa Rica to be paid the legally minimum price for a box of bananas, and in turn impossible for growers to pay workers the legal minimum wage.

Source: Vorley, 2003.

However, frequently the problem for FFV suppliers and growers is not simply the price level. Rather, pressures arise from the *methods of pricing and payment* adopted by supermarkets, and the cost of *additional fees and services* retailers demand.

For instance, whilst contracts (between retailers and suppliers) typically specify the quality and quantity in advance, the final price is often only agreed once the produce reaches a distribution centre. This is usually set in line with current world market prices. Importers and other intermediaries will usually deduct their own fees (for marketing, packing, distributing), and then pay growers the residual of the price they have obtained. This exposes growers to considerable risk as trend in world prices for many FFV items has been falling in real terms. Moreover, farmers have little alternative but to accept the price set: not only has the produce already been dispatched, but once the growing season is underway it is hard to for farmers to find alternative sources for their crops (Barrientos et al., 1999; Barrientos and Kritzing, 2004; Napier, 2004a).

Suppliers at all levels of the chain also come under pressure where buyers increase their demands, but with no commensurate increase in price. For instance, research by Oxfam in South Africa describes how table grape farmers there had to introduce costly new packaging requirements at the behest of UK supermarkets, but the prices they received remained the same (Oxfam, 2004b). One farmer explained this:

'Tesco [a UK supermarket] wanted us to change their grape packaging from open to sealed bags. The new bags were three times as expensive – from 2.8 (US \$0.44) rand to 8 rand (US \$1.2) per carton. And the productivity in the packhouse went through the floor because it took 20 to 30 per cent longer to seal those bags. But the price stayed exactly the same – it wasn't even discussed. And then the other supermarkets all demanded it too. That's the way it goes' (Oxfam, 2004b; p. 74)

The Oxfam report also found evidence of UK supermarkets negotiating prices below the cost of production, charging fees to suppliers and running promotions to capture market share, but passing the cost for these onto the farmer. Another example is of this is requirements like 'open book costing', whereby the supermarket demands financial transparency of suppliers in order reduce inefficiencies and cut costs, but with little benefit returned to suppliers. According to one manager of an apple packing plant in South Africa: *'they [supermarkets] take 80 per cent or the entire amount of savings with only a small*

proportion to the producers.. if you mention their margins you run the risk of losing your toehold with them.' (Oxfam, 2004b; p. 75)

In the US, similar types of practices have been reported. Research on the US fresh produce sector highlights the growing incidence and magnitude of fees demanded by retailers over the 1990, especially slotting fees and volume discounts.²⁴ Looking at the top 5 largest retailers interviewed, it was found that cost of charges ranged from around 1-2 per cent of suppliers' sales for most fresh fruits and vegetables, and as much as 1-8 per cent for bagged salads.²⁵ The authors emphasized that, even if the level of fees as a share of supplier sales might appear low, such fees could make a significant difference between profit and loss for suppliers. This is because market prices for fresh produce are often at or below total production or marketing costs, covering only variable costs (Calvin and Cook et al., 2001).

iv) Transferring risk to suppliers

Finally, retailers use their buying power to off-load *risk* onto firms and farms lower down the chain. Many of these practices have already been mentioned, such as transferring inventory management responsibilities to suppliers, requiring just-in-time supply and the various pricing and payment methods discussed above. To these can be added the insecurity of suppliers' relationships with buyers. At higher tiers, contracts (where they exist) tend to be re-negotiated on annual basis. Lower down the chain, suppliers often do not even have a written contract; agreements are verbal. This makes firms and growers very vulnerable to sudden changes in supermarkets' demands or product rejection, and places on them the burden of finding an alternative outlet for unwanted produce (Napier, 2004; Oxfam, 2004b).

As one apple packhouse manager in South Africa commented: *'They chop and change their minds constantly. It takes one month for us to get the fruit there, but it takes two minutes for them to change their minds then the only thing we can do is dump it somewhere else'* (Oxfam, 2004b; p. 69)

2.4.4 *Impact of retailer power: Growing market concentration amongst importers and producers in some FFV chains*

The FFV supply sector, with the exception of bananas, has relatively low levels of concentration, internationalization and vertical integration compared with other food sectors. However, this is beginning to change, with growing levels of *market concentration*, internationalization and integration across various types and segments of FFV value chains.

The growth in *market concentration* is particularly notable amongst the first tier of suppliers and importers. For instance, the UK-based vegetable supplier, Geest, has dramatically expanded its prepared salads business since the 1990s, so that it now accounts for 40 per cent of sales there (Vorley, 2003). In the US, concentration rates in this sector are even higher. In 1999, although 54 firms supplied fresh cut salads to mainstream supermarkets, the two largest accounted for 76 per cent of sales (Calvin and Cook et al., 2001).

²⁴ See Chapter 1 and the glossary for an explanation of these types of charges.

²⁵ This averaged at \$5,200 and \$8,700 per million dollars of sales for grape and oranges, \$10,100 for grapefruits and just \$1,300 for tomato shippers.

Downstream concentration often has a ripple affect upstream, with larger buyers (category managers, importers, exporters) favouring larger growers. As discussed earlier, FFV production activities *can* be quite fragmented, with significant participation by large numbers of medium or small-sized growers in some products and markets (e.g. Chilean fruit, Guatemalan snow peas). However, in some chains there *is* clear evidence of growing concentration in production. An example of this is Kenya's vegetable export sector, where both export and production activities are increasingly dominated by just a handful of large firms and farms (see Box 5).

Levels of internationalization and vertical integration are also increasing for some product sectors, with a spate of new mergers and alliances amongst suppliers, both within and across national boundaries (Calvin and Cook et al., 2001; Ponte and Gibbon, 2005). The US tomato sector is an example of this. For instance, research on California's 25 tomato suppliers found that, between 1994 and 1999, the top four tomato firms increased their share of Californian tomato supplies from 36 to 43 per cent. Also, as the elimination of trade barriers (under NAFTA arrangements) has fostered increased sourcing from Mexico, several Mexican growers have *forward integrated* and *internationalized* their activities, by acquiring marketing operations in the United States (Huang, 2004). [It is important to highlight that patterns of integration do vary between chains. This is particularly striking in the banana sector, where multi-nationals are actually de-verticalising by selling off owned farms and focusing on a narrower range of higher value marketing and distribution activities (Arias et al., 2003)]

Trends toward concentration, integration and internationalization are closely linked to the rise of retailers and their governance of the FFV value chain. As retailers grow their demands have changed. They require higher volumes and greater consistency of quality in order to ensure fully-stocked, uniform products across their stores. They demand a wide range of products, competitive prices, high product and process standards, year round supply, highly sophisticated logistics and comprehensive monitoring and audit systems. Retailers have also sought to reduce the numbers of suppliers they deal with in order to cut transaction costs. For instance, one UK supermarket reportedly reduced the number of fresh produce suppliers from 800 in the mid 1980s to around 80 by the year 2000 (Dolan and Humphrey, 2004).

In total, these requirements tend to favour a small base of large suppliers, which are endowed with greater financial and organizational assets, and which have the economies of scale necessary to achieve the cost reductions and co-ordination needs retailers are looking for. The higher capital and risk requirements involved in foreign sourcing or production – necessary to meet product variety and year-round supply demands – also favours larger importers/suppliers, further driving consolidation (Dolan et al., 1999; Huang, 2004; Dolan et al., 1999; Humphrey 2005a).

Box 5:

Retailer governance in Kenya's vegetable export sector: Growing concentration and declining small-holder supply

Kenya's horticulture sector has grown significantly in the last two decades, making it the leading exporter of leguminous vegetables to the EU.

When Kenya's export sector first took off entry barriers were low and so that by the mid 1980s about 100 export firms were involved in the trade. However, **growing supermarket control** over the 1990s called for higher levels of capital and technical capacity with the result that, by the end of decade, three quarters of all exports were in the hands of just 7 firms.

Retailer governance fostered **increased concentration in production** too. In the early 1990s, most exports (75 per cent) were still grown by small-holders; by 1998, this share had fallen significantly so that Kenya's four largest exporters were sourcing just 18 per cent of produce from small-holders.

Poorer resourced small-holders were perceived by supermarkets to be unable to meet quality and process controls (on food safety, the environment, cool storage etc.); whilst exporters were also concerned about costs of monitoring large numbers of small farms.

The bulk of the crop is now grown on large commercial farms. Many exporters have acquired their own growing capacity in order to get better control over supplies and traceability, and to strengthen their capabilities in product innovation, which is critical in order to increase their value to supermarkets and minimize their risk of substitution.

Kenya's largest exporter, Homegrown, has also **integrated forward** into distribution and marketing. It has its own air freighter, which travels every evening to the UK and has established a dedicated importer in the UK.

However, despite this pattern of concentration there is still a big **imbalance in the levels of transactional dependence** between Kenyan exporters and UK importers. Whilst Kenyan exporters send 70-100 per cent of their output to the UK, UK importers source from various countries, in order to spread risk, encourage supplier competition and ensure security of supply. The largest Kenyan exporters are trying to bolster their position by **diversifying production bases** to other countries in the region, and by **forward integrating** into importing businesses.

Sources: Dolan et al., 1999; Dolan and Sutherland, 2002; Humphrey and Dolan, 2004.

Another cause of concentration and internationalization in the FFV trade is the participation of multi-national firms like Dole, Chiquita, Fyffes and Del Monte. As discussed earlier, sharp price falls during the 1990s have encouraged these firms to expand their product range into other fruits, to insulate themselves against future price fluctuations. For instance, Fyffes has formed alliances with large citrus suppliers and marketing boards in South Africa (Capespan), Morocco (Marco) and New Zealand (Enza and Zespri), and is now the largest fresh produce distributor in Europe.

This section has highlighted key characteristics of FFV value chains. It has drawn particular attention to the growth of retailer power and chain co-ordination, as well as the increasing consolidation, internationalization and integration amongst some FFV suppliers and product chains. Understanding the structure and operation of FFV chains is important since these shape the opportunities, risks and benefits facing producers – and in turn workers – which participate in the chain. The final part of this chapter starts to address this issue, by examining the competitive position of exporters and growers.

2.5 FFV producer context

The advent of global sourcing in the FFV trade has created new opportunities for producers in low and middle income countries. The high value of horticulture crops compared with other crops can deliver higher incomes and represent a major source of export earnings. For example, South Africa only exports 27 per cent of its apple crop, but these exports comprise 65 per cent of the country's total profits from crop production (Dolan and Sorby, 2003). For firms supplying direct into supermarket supply chains,

conditions can be better than on the open market. For instance, farmers in Kenya (leguminous vegetables) and South Africa (apples) who supply under contract to UK/European supermarkets report they generally receive higher than average prices than on the open market, as well as more regular payment and a more stable outlet for their produce (Omosa, 2002; Barrientos and Kritzinger, 2004).

However, producers supplying global markets also face immense competitive pressures. This is driven by a complex mesh of factors. Globalization and trade liberalization have exposed farmers to more intense competition. This is compounded by a situation of global over-supply for some products, like bananas and apples. Industry de-regulation has eroded producer power in sectors like citrus or deciduous fruit. At the same time, the rise of retailers puts pressure on farms to meet ever tightening performance standards. As a result, producers often find themselves caught in a pincer between lower prices and tightening buyer demands. In South Africa, this confluence of globalization, de-regulation and retailer governance has led to a significant restructuring of its citrus and deciduous fruit industry.²⁶ (See Box 6).

Catherine Dolan and her colleagues usefully summarize the new types of assets and capacities exporters need if they are to meet tightening supermarket and regulatory requirements (in the UK). Exporters need strong organizational capabilities to ensure production and processing systems deliver a reliable supply of safe, quality produce; this encompasses both in-house systems and that of suppliers. Management capacity is critical for creating effective monitoring and documentation processes, to ensure product traceability and demonstrate compliance on quality, food safety and ethical trade.²⁷ Investments in post-harvest facilities, such as refrigerated vehicles and packing houses, involve a sizeable outlay of capital. One African firm estimated that ‘high care’ facilities – necessary for producing ready-to-eat products, like a vegetable stir fry mix – would cost around US\$ 500,000. Further, retailer demands for reliable, just-in-time supply require a high level of logistics capability. This ranges from booking transport to establishing sophisticated IT systems, which track produce and monitor its quality. The high volume of product required by retailers is one of several factors (co-ordination costs, investment needs, competitive prices) which favour *scale* in export activities. Finally, establishing close relations with importers is important for gaining technical and market knowledge, as well as for innovation²⁸ (Dolan et al., 1999).

²⁶ ‘Citrus’ covers limes, lemons and oranges; ‘deciduous fruit’ includes apples, plus, pears, peaches and apricots.

²⁷ Documentation on food safety would cover, for example, seed procurement, planting schedules, pesticide and fertiliser use, spraying, and personal hygiene (Dolan et al., 1999).

²⁸ Innovation is crucial since developing new products or formats is one way for exporters to add value and achieve more secure, long-term relationships with retailers Dolan et al list some examples of innovation undertaken by Zimbabwean exporters in collaboration with importers, which include Cape Gooseberries, King Passion and Runner Beans (Dolan et al., 1999).

Box 6:

Declining producer power in South Africa's export fruit sector

Prior to liberalization, supply and prices of South Africa's citrus and deciduous fruit exports to Europe were managed through a single channel export system (Outspan for citrus, and Unifruco for deciduous fruit). Many farmers joined co-operative arrangements, for pooling activities like packing and cold storage.

Government de-regulation from the mid-90s led to the dismantling of South Africa's fruit export monopoly and the withdrawal of government subsidies. This has exposed producers to much tougher competition, leading to a significant restructuring of the trade.

Producers have lost their power as importers and traders are no longer negotiating with a single body, but a multitude of small and medium-sized growers. Whereas previously they only conformed to minimum buyer requirements, growers now must pay attention to supermarkets' demands.

The largest, most credit worthy farms – able build their own packing house, operate on a quick response basis and provide traceability – have met these demands, selling direct to UK supermarkets.

However, the withdrawal of large growers from the co-operative system raised co-operatives' unit costs. Faced with high debts, many co-operatives privatized, expelling weaker members in the process.

Black growers have been the worst affected by this, as they were the most indebted and through expulsion have lost access to vital technical support (e.g. plant-breeding, extension, packing, cool chain).

At the end of the 1990s, it was estimated that around 84 per cent of South Africa's fruit exports were concentrated within ten large companies.

Sources: Barrientos et al., 1999; Gibbon and Ponte, 2005.

Buyer and regulatory demands also require increased capabilities and resources of the farms which grow the crops. For instance, higher product and process standards (on food safety, quality, environment) involve changes to agronomic practices such as reduced fertiliser and pesticide use, revised planting schedules, new spraying and personal hygiene regimes and increased record keeping (Dolan et al., 1999). Where these are external standards, producers may also be required to pay for regular audits. For instance, EUREP-GAP annual farm audits come to around UK £300; for a grower in Ghana this may absorb up to 70 per cent of profit (Vorley, 2003). Another example is buyer demands for product freshness, which require investment in field-level cooling facilities. Research on African horticulture by Gibbon and Ponte (2005) points out the capital and land needed to make such purchases viable are prohibitive to many smaller-scale growers.²⁹

New supermarket and regulatory standards have raised market entry barriers to producers, leading to the exclusion of many smaller firms and farms – either through their expulsion from chains or from their inability to enter. Take Kenya, for example. In the early 1990s small-holder production accounted for 75 per cent of all horticulture exports. Although aggregate figures are not available, firm level research gives a clear indication of small-holder decline: by 1998 the four largest Kenyan exporters reported drastic cuts, with small-holder production accounting for just 18 per cent of their total exports (Dolan et al., 1999; Dolan and Humphrey, 2004).

In Kenya this process of exclusion has been particularly sharp and rapid. In other product chains, small-holders have retained a firmer foot-hold. Indeed, small producers have certain assets which favour their inclusion in horticulture value chains. This is because for some vegetable crops, there are few advantages to production scale. Moreover, small-holders have the benefit of family labour, which is usually unpaid (Thrupp; 1995;

²⁹ Estimates from Tanzania suggest that growers needed about 12 hectares of contiguous land for investment in a modern cool store to be economically efficient; a feature which would exclude small-holders and even many small-scale commercial farmers. In Kenya, some growers use charcoal-fuelled stores as a cheaper alternative. However, with a price tag of US\$ 1,600 this is still beyond the reach of most small-holders (Gibbon and Ponte, 2005).

Raynolds, 2002; Humphrey, 2005a). As a result, rates of small-holder participation in FFV value chains can be quite high. For instance, in the Dominican Republic about 7,000 small-holders produce tomatoes under contract to export firms. In Guatemala, 8000 small-holders grow snow peas for export, selling through co-operatives; and at least 4,000 others are involved in production of other vegetables such as broccoli and cauliflower (Thrupp, 1995).

However, the difficulty for smallholders and other resource poor farmers is the increased precariousness of their position over time. In Guatemala, after a period of rapid growth during the 1980s, many snow pea farmers supplying US markets have struggled to cope with prices fluctuations. Falling prices, combined with increased quality and technical requirements, and new regulations on pesticide residues, led many to withdraw from the trade during the 1990s (Thrupp; 1995; Hamilton and Sullivan, 2001). Box 7 outlines some key barriers smallholders face in accessing global FFV chains.

Box 7:

Smallholder characteristics and barriers to FFV export markets

The definition of a smallholder varies between countries and sectors. In this paper, the term is used to refer to 'farms that are owned or managed by families, with a strong reliance on family labour, limited use of hired labour and little or no mechanization' (NRI, 2002; p. 2).

For certain horticulture crops, smallholder production is an advantage. For example, snow-pea production requires constant and careful choices about when to harvest a particular plant or pod – a feature which favours small family farms that supervise their own labour.

However, smallholders also face many constraints in accessing horticulture export markets. These include:

- Minimal resources and capital, lack of access to credit
- Limited managerial skills and low levels of education Poor rural transport and communications infrastructure
- Poor rural transport and communications infrastructure
- Limited dissemination of market information
- Higher input costs compared with traditional crops (e.g. unaffordable cold storage)
- Long gestation period for some fruit trees and crops, which need large initial investments that pay off only after some years.
- Variable volume and quality of horticulture yields, and greater price volatility, than traditional crops
- Product perishability, which requires cooling and processing soon after harvest.
- Product quality and safety standards, which incur high monitoring and training costs for the exporter (if contracting with many dispersed smallholders).

Sources: NRI, undated; Barham et al., 1996, Omosa, 2002.

Gibbon and Ponte's study looking FFV production in Sub-Saharan Africa use the notion of 'marginalization', to denote the idea that even where farms are included in buyer-led chains, they are frequently relegated into lower value, high risk segments. Raised entry barriers and growing concentration at higher supply tiers also make it very difficult for producers to upgrade into higher value activities.

The marginalization of producers, which arises from power imbalances between them and more concentrated suppliers and retailers downstream, is reflected in the highly skewed distribution of income along the chain, in which retailers take the lion's share. As Humphrey explains, concentration at particular points in the value chain creates oligopolies and inequalities in market power. This tends to reduce the profit made by firms and farms at other stages in the value chain.' (2005a; p. 27) For instance, Dolan et al. (1999) found that, for UK imports of mange-tout from Zimbabwe, 45 per cent of the retail value is retained by supermarkets to cover costs and to ensure profits, whilst the producer share was 12 per cent (see Table 4).

Table 4: Income distribution for African FFV exports to the UK (percentage of final price)

	Mangetout from Zimbabwe	Fresh vegetables from Kenya
Total price	100	100
Supermarket	45	46
Importer	12	6
Air freight and handling	20	21
Packaging	5	13
Exporter	6	-
Producer	12	14

Source: Dolan et al., 1999; table 4 p. 13.

Similar disparities have been noted for the banana value chain. Table 5 shows how for every £1.00 of retail value of loose Ecuadorean bananas to the UK, just 10 pence remains with the producer and 1.5 pence with plantation workers.

Table 5: Income distribution for Ecuadorean banana exports to the UK in 2003 (percentage of final price)

	Bananas from Ecuador to UK*
Total Price	100
Supermarket	40
Ripener/distributor	17
International trading company	31**
Plantation owner	10
Plantation workers	1.5

* Based on June 2003 prices for loose Ecuadorean bananas.

** This includes an EU tariff of c. 5 per cent on the final retail value

Source: Banana Link, cited in Vorley, 2003; Figure 7.2 p. 53

This chapter provided has provided an overview of the main characteristics of the global horticulture trade. A key point to take from this discussion is that a shift toward direct supermarket sourcing, has benefited some firms and farms in producer countries, but marginalized and excluded others. Increased buyer and regulatory demands on growers have raised entry barriers, requiring financial and managerial assets which many smaller players lack. Where export firms and farms *are* inserted into supermarket supply chains, they face high demands, risks and cost pressures. The next chapter takes this analysis forward, identifying how the structure and governance of FFV value chains shape the employment and social contexts of production, and the strategies employers use to manage these.

Chapter 3: Employment and social issues in agri-food chains: A review of fresh fruit and vegetable production and processing

This chapter discusses the key employment and social issues involved in the production and processing of fresh fruits and vegetables for exports. The parameters of the 'social' can be drawn extremely widely to encompass factors like the poverty impacts of changing land ownership structures, or the environmental and food security implications of new land use patterns, which arise from export horticulture booms. The focus here is on the *employment experience of wage labourers* in the fields and packing houses. It also discusses the gender impacts which extend beyond the workplace and to the social issues involved in smallholder production. In each case it summarizes key findings from the research and factors seen to cause or mediate the impacts described.

Labour and social issues in export horticulture: Chapter summary

The employment and social impacts of export horticulture production are complex, contradictory and often highly variable.

A common problem, affecting workers across different work sites and national settings, is the informal and often precarious nature of much of horticulture work. This creates considerable stress and insecurity for an already vulnerable workforce with few assets to cushion against the risks of unemployment and uncertain incomes.

Specific attention needs to be given to women and migrant workers, who tend to be concentrated into insecure, low skill jobs, without access to employment benefits. Other problems highlighted include health and safety risks, long working hours and low levels of worker voice and bargaining power.

These types of problems have to be set alongside the positive benefits cited by workers themselves. Wages in export horticulture work are often higher than local alternatives and, at least for some women, the experience and incomes from waged work has had an empowering effect.

Although many issues raised here are similar to those found in other labor-intensive export sectors, horticulture work also has distinct features (e.g. seasonality, rural location), which create specific social dynamics. An example is the existence of large, highly mobile and hard to organize, migrant workforces, laboring as casual workers at harvest time.

In general, the social and labor issues in smallholder production are less well understood than those on large farms. A key point is that, while export horticulture can be a good source of livelihood, the distribution of work burdens and income benefits between family members can be uneven

There are multiple factors which cause or mediate the social impacts felt by workers. These fall into two main categories: those which are 'internal' to the value chain, such as levels of buyer power, and those which are 'external', such as national labor laws. A key message here is that working conditions are critically shaped by the governance structure of FFV value chains, as producers and exporters seek to offset the risks and pressures imposed by powerful global buyers through cutting labor costs and shifting to more flexible forms of employment.

3.1 Framework for identifying multiple causes of labour and social issues

There are multiple causes of the employment and social issues which arise in export horticulture. Moreover, the particular impacts of such matters on a worker, or group of workers, are likely to be mediated by a complex mesh of varying personal, social, economic, political or local factors. To help frame the analysis, this chapter starts by briefly presenting a framework for categorizing these different causes and mediating factors. This draws particularly on analytical frames developed by Lindsey Napier in her exploration of the distribution of risk in global value chains (2004b) and on the links between chain governance structures and worker vulnerability (2004a).

The nature of working conditions in FFV farms and packhouses, and the impact of these on workers, are shaped by two main sets of factors: those which are internal and those which are external to the value chain. Table 6 gives a non-exhaustive list of examples.

Table 6: Examples of factors shaping employment and social conditions in FFV production

Pressures and context external to the value chain	Pressures and context internal to the value chain
<p>Global trade and finance:</p> <ul style="list-style-type: none"> ▪ fluctuating exchange rates ▪ global pressures on prices ▪ unpredictable capital flows <p>National policy and regulation:</p> <ul style="list-style-type: none"> ▪ scope of labour laws ▪ effectiveness of labour inspectorates ▪ access to legal system <p>Characteristics and internal capacity of workers, small holders and their families:</p> <ul style="list-style-type: none"> ▪ physical assets e.g. land ▪ financial capital and credit ▪ human capital e.g. skills levels, bodily health ▪ number of family dependents ▪ strength of social networks 	<p>Product and production characteristics:</p> <ul style="list-style-type: none"> ▪ crop seasonality ▪ product perish ability ▪ rural location <p>Buyer purchasing practices (in retailer-governed chains):</p> <ul style="list-style-type: none"> ▪ Instability of producers' relationship with buyers, lack of contracts ▪ Tight ordering timescale, just-in-time supply, variable orders ▪ Pricing strategies e.g. post shipment pricing ▪ Imposition of new demands e.g. packaging requirements, storage facilities ▪ Requirements for higher labour standards through MNE Codes of Conduct

‘External’ factors are those which are determined largely from outside the chain. These may emanate from global market trends, like fluctuating exchange rates or global oversupply, which impact on the competitiveness of producers and – in turn – on workers. Another external factor is the national policy and regulatory environment. Workers’ personal characteristics and circumstances are also part of the external context, which mediate the impacts of employment and social problems on workers. Clearly, people in good health, on permanent employment contracts, with strong social networks, high skills, minimal family dependents and a store of savings are far better equipped to cope with employment pressures and shocks – like long hours, unemployment or a workplace accident – than those who are not.

‘Internal’ factors refer to the features, structure and operation of value chains, in this case, focusing on retailer-driven chains. For instance, buyer requests for sales-based re-ordering and just-in-time supply creates variability in orders and unexpected peaks in production demands, leading to long working hours for workers. Product and production characteristics also have a critical influence on working conditions. An example is where crop seasonality creates fluctuations in employment demand, leading to a high rate of short-term or casual contracts. Although product and production characteristics can be considered broadly ‘internal’ to the chain it is important to recognize these are stand alone features and are not consequent on the governance structure of the chain.

As this last point suggests, these two categories – ‘internal’ and ‘external’ – are not rigidly separate. Indeed, in many instances they interact. For example, a producer may seek to mitigate problems of price volatility by hiring casual workers, who can be let go easily in the event of a market downturn (leading to income and employment insecurity for workers). The initial cause of price volatility may emanate from exogenous triggers, like exchange rates, global oversupply or changing weather patterns. Yet the actual distribution

of pricing risk between firms and farms is determined by the balance of power and mechanisms of governance which are endogenous to the value chain. For example, the retailer may use its buying muscle to delay price agreements until after the shipment is received, exposing producers to the risks of downward shifts in market prices.

It should be remembered that this framework is not exhaustive. The main purpose here is to make the link between, on one hand, the structure of global agri-food chains and the nature of agricultural production (as discussed in Chapters 1 and 2), and on the other, the conditions for workers involved in growing and processing those products. These causal and mediating factors will be picked up throughout the analysis.

3.2 Employment rates

Horticultural production and processing is much more labour intensive than traditional crops. This can be seen in Table 7, which compares labour inputs in vegetable and cereal production across several countries in Asia.

Table 7: Average number of labour days per ha for production of cereals and vegetables in Asia

	Cereals	Vegetables
Bangladesh	133	338
Cambodia	81	437
India	80	124
Lao PDR	101	227
Philippines	93	185
Viet Nam (northern)	216	468
Viet Nam (southern)	111	297

Source: Weinberger and Lumpkin, 2005; table 5.

Labour requirements do vary between different horticultural crops and the country they are produced in. For instance, figures cited by Thrupp (1995) show that snow pea production in Guatemala requires an average of 663 labour days per hectare; this makes it 11 times more labour intensive than corn or beans, estimated at 58 and 61 labour days respectively. And whilst broccoli is estimated to require 197 labour days per hectare in Guatemala, in Mexico the figure is much lower, at 27 days (see Table 8). Part of this difference is likely to lie in the smaller farm size and lower levels of technology usage in Guatemala.

Because of its labour intensity, the expansion of the FFV trade has been an important source of job creation, especially in large farms and packing houses. Reliable data on employment rates are hard to come by, partly because of the high numbers of unrecorded casual, temporary, seasonal or contract workers. Although no global estimates were found, national data gives some idea of the rate of job growth and the relative importance of the horticulture sector within producing countries. For example in Mexico between 1982 and 1990, jobs in the non-traditional agriculture³⁰ export sector were reported to have grown

³⁰ Exports of fruits and vegetables often come under the brackets of 'Non-Traditional Agriculture Exports' (NTAE) or 'High Value Agriculture Exports' (HVAE).

350,000 to 1.2 million (Dolan and Sorby, 2003). The greatest growth is in horticulture production and processing, which Barron and Rello (2000) state accounts for more than 20 per cent of total labour days within Mexico's agricultural sector.

In general, the strongest areas of job growth are typically in harvesting and processing activities, which are the most labour intensive. Recent research on Kenya illustrates this well. Humphrey et al. (2004) estimate that around 100,000 Kenyan's are directly employed in the horticulture sector. Within this sector, the fastest growth area at present is in exports of prepared vegetables, which are increasing at a rate of 11.2 per cent annually. Prepared produce is about 2.5 to 5 times more labour intensive than for unprepared vegetables. The authors estimate that if exports of prepared vegetables continue at the same rate, up to 14,000 more packhouse jobs could be created in the next five years.

Table 8: Comparative labour requirements of horticulture production in Central America

Crop	Labour intensity (labour days per hectare)	Seasonality
Guatemala		
Corn	58	
Beans	61	
Broccoli	197	
Cauliflower	276	
Snowpeas	663	
Melons	172	
Okra	448	
Mexico		
Cauliflower	21	89% in 3 months
Broccoli	27	92% in 3 months
Tomatoes	91	51% in 3 months
Asparagus	324	69% in 3 months
Strawberries	300	51% in 3 months
Central America		
Strawberries	150	High seasonality
Pineapples	100	Many permanent jobs
Melon	100	High seasonality
Yuca-Papaya	50	Labour at harvest
Mangos	< 50	Mostly permanent
Honduras		
Melon	210	Highly seasonal
Asparagus	133	Mostly permanent
Cucumbers	103	50 – 50 seasonal

Source: Thrupp, 1995; Table 9, p. 86.

3.3 Workforce characteristics

The term 'characteristics' is used here to encompass a range of features including people's social identities (e.g. age, ethnicity, gender), their personal circumstances (e.g. marital status, number of dependents), their skills and other assets (e.g. land, income, bodily health). Identifying these is important, since workers' different characteristics can give rise to very different sets of needs and varying experiences of employment.

Horticulture wage-workers are often quite young, between 20 and 25; numbers of female and migrant workers are high and growing; education levels tend to be low and poverty levels high. In some countries, particularly in Latin America, there are a lot of

indigenous people working in FFV production. Many horticulture workers are the landless, rural poor, with few livelihood alternatives. The participation of wage-dependent small-holders, who work on commercial farms to supplement their income, is also a feature of horticulture workforces (Dolan and Sorby, 2003; Barrientos et al., 1999a).

Notwithstanding these common features, there is considerable diversity between and within countries. For instance, Chile and South Africa's fruit sectors have wider than average age spread, with male and female workers typically aged between 20 and 39 years (Lund and Nicholson, 2003). Evidence on family status also varies. For example, surveys of horticulture workers in Kenya found that a minority of workers were married and, overall, relatively few had children or other family dependents (McCulloch and Ota, 2002; Dolan and Sutherland, 2002).³¹ In Chile and South Africa, by contrast, workers who are married or cohabiting are in the majority.³² Many women workers in these two countries have children and, in Chile, about a fifth of women workers are household heads (Lund and Nicholson, 2003; Barrientos et al., 1999a).

However, there is one important general trend that is worth highlighting. The expansion of FFV trade has been an important source of employment for two groups in particular: women and migrant workers.

3.3.1 *Women workers: Growing "feminization" of horticulture*

Dolan and Sorby (2003) describe horticulture export production as a 'female intensive' industry. The increasing numbers of women working in this sector is very striking, particularly in the packing and processing of fresh fruits and vegetables. For instance, in Chile, female employment in the fruit sector grew by 296 per cent between 1982 and 1992; this compares to a national growth rate in female employment of 69 per cent. Reviewing the literature from several countries, Dolan and Sorby (2003) note that women occupy more than 50 per cent of employment in the high value-added agriculture export industries of Chile, Ecuador, Guatemala, Kenya, Mexico, South Africa and Zimbabwe.³³

This dramatic increase in female employment mirrors trends observed in other labour-intensive, fast-growing export sectors. The explanations given for the growing female presence are very similar to those found for export manufacturing. Two important ones are that, first, employers are said to prefer women because of they are assumed to possess certain 'natural' feminine traits – dexterity, carefulness, patience, subservience – which make them a productive, reliable and compliant workforce. A second common reason given for increased female employment is their wages are lower than men's. Gender pay differentials may derive from a range of discursive strategies, which cast women's earnings as supplemental to that of male family members and which frame the jobs which women do as low skilled – and therefore, low paid. To this accounts, Dolan and Sorby (2003) also highlight supply-side factors as driving the increase in female employment. These relate to 'poverty-push' factors, whereby problems of high unemployment and landlessness force women into work; and to cultural factors, whereby women's 'traditional' responsibilities

³¹ The proportion of workers who were married was 35 per cent of men and 22 per cent of women.

³² The exception to this is male workers in Chile, 65 per cent of whom are single according to surveys reviewed by Barrientos et al (1999a).

³³ High value added food products are defined by Dolan and Sorby (2003) as commodities which require special handling or are processed, adding significant value beyond the farm. This includes FFVs as well as other agri-food products, like processed chicken, cut-flowers and vanilla.

mean they opt for jobs like food preparation, which they feel more comfortable with. Given its importance as a cross-cutting theme, gender analysis will be incorporated throughout this paper.

3.3.2 *Migrant and immigrant workers*

Migrant populations employed in horticulture encompass both internal and international migrants. Internal migration trends occur mainly within poor countries, whilst the flow of international migrants is usually – although not exclusively – from poor to rich countries. Decisions to migrate are typically attributed to the push factor of high poverty rates and lack of jobs in the areas where migrants originate from (Barron and Rello, 2000; Dolan and Sutherland).

The share of internal migrant workers involved in FFV production can be extremely high. Research on Kenya found that 100 per cent of packhouse workers surveyed, and 86 per cent of farm workers, were migrants from other parts of the country, with migration equally prevalent amongst men and women (Dolan and Sutherland, 2002). Similarly high figures have been given for Mexico. For instance, Barron states that in the San Quintin region of Northern Mexico, 80 per cent of the labour force involved in tomato, pepper, zucchini and cucumber production are internal migrants (Barron, 1999).³⁴

Research on Kenya and Mexico also highlights the heterogeneity of migrant workforces and their migration strategies. For instance, in the Kenyan case, migrant workers who had children usually migrated alone, passing responsibility for childcare to their family members (Dolan and Sutherland, 2002). In Mexico, meanwhile, many workers migrated for the season with their entire family, who were all involved in field and harvesting tasks. Some families migrated for short periods, returning regularly to tend family plots; whilst others went for longer periods and rented out their land to neighbours or relatives (Barron and Rello, 2000).

The employment rates of foreign migrant workers in developed countries can also be very high. In the United States, around 56 per cent of farmworkers in crop agriculture are overseas migrants. The majority of these are young Latino males, without legal work documents, recently arrived from Mexico, Central America (Guatemala, El Salvador) or the Caribbean (Haiti and Jamaica). About a third of migrant workers in the US are ‘follow-the-crop’ migrants, moving around in line with the harvesting seasons (Oxfam, 2004a). Another example is Canada’s Fraser Valley, which is famous for its fruit production, where around 80 per cent of fruit pickers are Punjabi, most of who are recent immigrants (Oxfam, 2004b). Similarly, in parts of Spain, which has had a booming horticulture sector since the early 1990’s, immigrant workers make up 90 per cent of the horticulture workforce. These come from a great variety of countries, such as Morocco, Senegal, Ukraine, Russia, Ecuador, Lithuania and Romania (Vorley, 2003).

Poverty and political instability or oppression also drives migration between developing countries. For instance, banana production in Latin America has attracted thousands of migrants from Nicaragua and Panama to Costa Rica, and from Guatemala, Honduras and El Salvador to Belize.

Migrant workers are often among the most marginalized and at risk of exploitation of all workers, and as such, require specific attention. Problems of poverty and an absence of

³⁴ Poverty and unemployment can create whole villages of seasonal migrant workers. Research by Barron and Rello (2000) on the village of Coatecas (Mexico) found nearly 90 per cent of 217 families surveyed had family members who were migrants; of these, around 72 per cent travelled to the state of Sinaloa to work in the vegetable fields there.

strong local social networks (e.g. due to their mobility/recent arrival) leave migrant workforces very vulnerable to exploitation and employment shocks. They frequently lack access to basic services, such as hygienic housing or social security (e.g. unemployment benefit, health care). This is particularly a problem for foreign migrants without a legal authorization to work. For instance, in the United States around half all 1.8 million agricultural crop workers are without legal documentation (Oxfam, 2004a). Moreover, undocumented workers' fear of losing their job means they lack the bargaining power to press for better wages and work conditions, and are often unwilling to complain about harsh treatment. Some of the most at risk workers are those hired by labour contractors, who sometimes take advantage of workers' vulnerability and make unlawful wage deductions, charge inflated prices on food, rent and transportation and – in extreme cases – subject workers to debt bondage (where illegal migrants are forced to work to pay off high smuggling debts). In addition, decisions to migrate often involve complex family and social impacts. For instance, where the prospect of higher incomes are offset by problems of the break-up of workers' families, or their co-migration to unfamiliar areas, where they may not speak the language or have access to stable schooling (Oxfam, 2004a).

3.4 Employment flexibility and insecurity

There is great diversity in the types of employment relationships between horticulture workers and their employers. The most salient trend is a growing 'flexibilization' of labour. A familiar feature in export manufacturing, this refers to the shift from regular, stable employment to various types of more informal and short-term work arrangements. While seasonality has meant that producers have always made use of flexible labour, this trend seems to be increasing. For producers and export firms, flexible work arrangements is a way to manage fluctuations in demand and the competitive pressures and risks brought by liberalized export markets and tightening buyer requirements. From the perspective of workers, flexibility usually translates as greater employment insecurity and risk. In general, migrant and women workers are the most vulnerable (Napier, 2004a; Dolan and Sorby, 2003; Lund and Nicholson, 2003). The discussion below examines the evidence of the different forms and incidence of flexible work in horticulture, its causes and effects, across various countries.

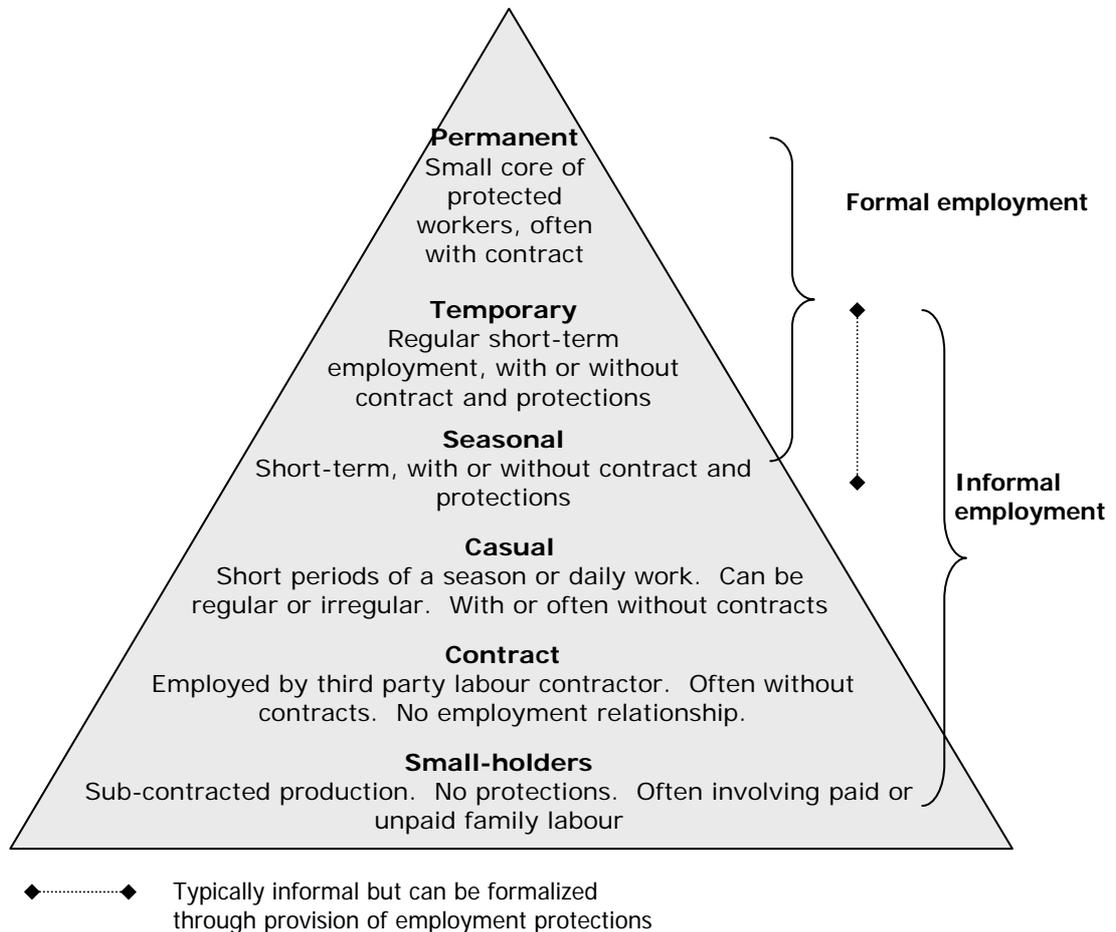
3.4.1 *Diverse forms of employment relationship*

A common strategy in horticulture is for employers to hire a small nucleus of permanent, skilled workers who are retained throughout the year, plus a larger periphery of low skilled workers on flexible arrangements who can be pulled in and out of work as needed. This approach has been observed in both farms and packhouses and across different national contexts (Barrientos et al., 1999a; Barndt, 1999; Dolan and Sorby, 2003; Barrientos and Kritzing, 2004).

Flexible work can take various forms. Figure 6 replicates a typology developed by Dolan and Sorby (2003) of the different types of employment relationships found in horticulture. Differences in national laws and common usage means there is often little clarity on what the various terms refer to. As such the job categories listed cannot be directly equated with any uniform set of employment conditions. For instance, amongst temporary and seasonal workers, levels of labour law protection, the issuing of contracts and length of work periods vary hugely from one country to the next. However, one useful distinction is the level of formality and proximity of ties between employer and employee. Permanent workers usually have more formal work arrangements, meaning that their work is covered by a contract, protected by labour laws (e.g. union rights, dismissal rights) and provides access to certain social security and employment benefits (health care, insurance, pensions, annual, sick and maternity leave). Non-permanent workers – such as temporary, casual and contract staff – tend to have more informal relationships, often working without

a contract and being denied access to key labour rights and benefits.³⁵ As the figure indicates, boundaries between the formal and informal are often blurred. Dolan and Sorby adopt the notion of an employment continuum to show how – in general – ties between employer and worker become progressively looser and more informal as you move from temporary and seasonal work near the top of the pyramid, down toward contract labour or unpaid labour in contract farming.

Figure 6: Continuum of employment relations in horticulture



Based on Dolan and Sorby, 2003; p. 29

Three further clarifying points on job status are worth noting. First, many researchers have noted the emergence of a ‘permanent temporary’ workforce in horticulture (Dolan and Sorby, 2003). This is where workers are continually hired, dismissed and re-hired on a series of back to back short-term contracts. ‘Permanent temporaries’ give employers access to a skilled, reliable workforce, but without them having to incur the costs of employment and rights benefits due to permanent workers.

³⁵ This paper uses the ILO’s 2002 definition of the informal work, which essentially refers to any type of employment relationship which is not regulated, regardless of job status or location. This encompasses work which is not covered by a job contract, by labour laws and/or is without access to worker benefits or social security protection. It includes informal wage workers in formal enterprises, such as temporary workers without contracts, as well as small employers, the self-employed, wage workers or unpaid family members based in informal, unregulated production units (Chen et al., 2004).

Second, contract labour – which is also on the increase – is slightly different from other forms of flexible work because it moves away from the direct employer-worker relationship, with the introduction of a third party contractor. Napier (2004a) identifies two main forms of contractor: those which simply source workers, who are in turn employed directly by the farmer; and those which contract workers themselves and are responsible for managing them on the farmer's land. This paper focuses on the latter case, where employment relations are not simply made flexible, but actually 'externalized' (Barrientos and Kritzing, 2004).

Employment relations are also externalized in smallholder production, which raises a third point. As previously noted, the labour intensity and more limited scale economies of horticulture production mean that in some areas significant numbers of small-holders are farming under contract. Contracting with smallholders can enhance flexibility and reduce costs for large farms and exporters, who are able to vary their orders as demand fluctuates and get access to a skilled, dedicated and often unpaid family labour force, including wives or female partners and children (Raynolds, 2002; Dolan and Sorby, 2003).

3.4.2 Causes of labour flexibility

There are two main drivers of labour 'flexibilization' in horticulture. The first relates to the seasonality of horticulture work and the impact of climate and weather. These features create a level variability and unpredictability in labour demand far more extreme than that for manufacturing.

Demand for labour fluctuates according to crop cycles, countries and climates. Employment peaks are usually concentrated in a three month period during the harvest. For example, 90 per cent of labour demand for cauliflower and broccoli production in Mexico is within just three months (Thrupp, 1995). Labour demand varies between crops, countries and climates.

In some instances, technological change has blunted the effects of seasonality, leading to more steady employment levels over the year. For instance, bi-ennial harvests on grape farms in North East Brazil – achieved through the construction of dams, irrigation systems and technical intensification – has necessitated a continual supply of labour, so that around three quarters of the labour force there is permanently employed (Dolan and Sorby, 2003).

Labour requirements in FFV production do not just vary between seasons; within each season there can be significant variability from day to day (du Toit, 2003). A well-planned farm will grow several varieties of crop(s), with different ripening sequences to ensure a long season and enabling workers to deal with each crop in turn. However, unpredictable weather changes can create considerable disruption, with farms and packhouses suddenly over-loaded with work. Flexible work arrangements, like seasonal or temporary labour, help to ensure farmers have sufficient numbers of workers during peak periods, whilst avoiding carrying extra workers when there is little or no work to be done (du Toit, 2003).

A second driver of labour flexibility is producers' need to manage the intense competitive pressures consequent on trade liberalization and tightening buyer demands (Dolan and Sorby, 2003). This mirrors similar processes in manufacturing (Standing, 1999). In order to remain competitive, producers seek to reduce their cost base by switching to temporary or casual contracts, which generally carry lower payroll and benefit costs. Flexible employment arrangements also help firms and farms to cope with the fluctuating demands of just-in-time supply. More limited employment protection and benefits (dismissal rights, social security contributions) mean that informal workers can be hired and removed at short notice, and at a much lower cost than permanent workers. Of course one difficulty is that buyer demands for quality and innovation also require producers to have skilled, experienced and adaptable workers, with whom there are good relations of

trust and communication; features not usually manifest in a casual labour forces. One solution to this challenge has been for employers to move to a system of 'permanent temporary workers', as described earlier. Box 8 charts the growth of flexible employment strategies adopted by fruit producers in South Africa.

Box 8:

Caught in a pincer: Using flexible labour strategies to cope with 'de-regulation' and 're-regulation' in South Africa's fruit sector

South Africa is major world producer of deciduous fruit. The vast majority of the crop goes to UK supermarkets. Heavily tied up with the history of white domination and Apartheid, the industry has gone through a major process of global integration and domestic restructuring since democracy came in 1994.

Collapsing prices due to global over-production, consolidating retailer power in world markets and domestic industry de-regulation through the abolition of Unifruco – South Africa's deciduous fruit single channel marketing system – has led to a loss of producer power, and exposed exporters to the twin pressures of falling prices and higher quality demands from buyers. At the same time as industry de-regulation, the South African government has 're-regulated' the labour market, improving employment conditions through measures like the minimum wage. This is backed up by demands from UK supermarkets for compliance with labour Codes of Conduct.

Farmers have adopted a mix of employment strategies to cope with these conflicting pressures, with a variety of effects for workers.

- For permanent staff on successful farms working conditions have improved and some equity ownership schemes introduced.
- But numbers of permanent staff are dwindling (through natural wastage or lay-offs) as farmers seek to manage increased labour costs by switching to off-farm temporary staff and contract labour. Sometimes even on-farm workers are managed by the contractor.
- As part of this trend, rates of migrant labour are increasing, both internally and internationally (from Zimbabwe, Mozambique).
- Whilst some earn good money, on average casual workers wages are about 26 per cent lower than those of regular workers. In some areas, wages are below the poverty line.
- Casualization is also leading to increased insecurity for workers, who lack key benefits given to on-farm and permanent staff, such as unemployment insurance, contributions to medical expenses, free housing, free electricity and water.

Sources: Du Toit (2003); Napier (2004a); Barrientos and Kritzingner (2004); Gibbon and Ponte (2005).

3.4.3 *Evidence of labour flexibility in horticulture*

In all the case material reviewed overall levels of flexible employment were high and the strategies employers used often heterogeneous. A few examples are given:

- **Temporary work.** High levels of temporary labour have been recorded in the fruit industries of Chile and South Africa, with temporary workers accounting for 85 per cent of the labour force in Chile, and between 65 and 75 per cent in South Africa³⁶ (Lund and Nicholson, 2003). In Costa Rica and Honduras, estimates for the mid 1990s suggest that over two thirds of employees working in FFV farms and processing plants were temporary (Thrupp, 1995).
- **Seasonal work.** In Zambia, three-quarters of the 7,500 strong workforce in export vegetable production are classified as seasonal or casual. Zambia is a good example of the 'permanent temporary' phenomenon. In a survey of 'seasonal' workers employed on casual contracts, Tallontire et al. (2004) found that their average work

³⁶ The South Africa figures refer only to employment in the deciduous fruit sector, excluding the citrus and grape industries.

period completed was actually between 10 and 12 months, with some having worked on a casual basis for the same firm for more than two years.

- **Casual.** Casual employment typically consists of daily wage labour, with wages paid at the end of the day. A survey of workers in Kenya's three largest horticulture companies found that 60 per cent of packhouse workers and 56 per cent of farm workers were on some form of flexible work arrangement, with the most common form being casual labour (defined as lasting between one and 90 days) (Dolan and Sutherland, 2002).
- **Contract labour.** Usage of contract labour varies significantly between countries. For instance, Dolan and Sutherland (2002) report only minimal use of contract labour in Kenyan horticulture. In South Africa, meanwhile, contract labour appears to be increasing: a survey by Du Toit and Ally finds that 53 per cent of fruit farms in South Africa's Western Cape were using contractors (cited in Du Toit, 2003³⁷). The use of contract labour also varies between different firms. Take the two Ecuadorean banana producers, Noboa and Reybancorp. While nearly nine out of ten of Reybancorp's staff are contract workers, Noboa directly employs all its 5,300 staff, and does not use contract labour (HRW, 2002).

3.4.4 Gender dimension: concentration of women in flexible work

While both men and women are affected by flexible employment, it tends to be women who are relatively more concentrated in these jobs. In Kenya, for example, 63 per cent of women in the export vegetable labour force are on flexible contracts, compared to 38.5 per cent of men (Dolan and Sutherland, 2002; Table 4.1). In the South African and Chilean fruit sectors, too, women made up the majority of temporary workers (see Table 9).

Table 9: Horticulture employment in Chile and South Africa: Share of temporary and female employment

	Total number employed	Per cent temporary	Per cent female
South African deciduous fruit	283,000	65-75	26% of permanent 69% of temporary
Chilean fruit	336,000	85	5% of permanent 53% of temporary

Source: Lund and Nicholson, 2003; table 3, p. 30.

The crowding of women into informal work is a concern since these jobs are often the least secure or well-remunerated. It is sometimes argued that women prefer flexible work which enables them to manage family responsibilities. However, it is hard to find evidence of this in the horticulture sector. 'Part-time' work, in the form of a reduced but regular level of weekly hours, is non-existent. Rather, flexibility entails very long hours, albeit over a short period, and childcare provision is usually minimal. In these contexts parents often struggle to cope: sometimes bringing their children to the fields (Mexico, South Africa) or else relying on support from family members and neighbours (Chile, Kenya) (Barndt, 1999; Barrientos et al., 1999a; Dolan and Sutherland, 2002; Napier, 2004a).

This link between female employment and informal work parallels trends noted for a broad range of both export and domestic-orientated economic sectors (Chen et al., 2004;

³⁷ This draws on a survey by Du Toit, A and Ally, F., 2001 The Externalization and Casualisation of Farm Labour in Western Cape Horticulture: A survey of patterns in the agriculture labour market in key Western Cape districts, and their implications for employment justice Stellenbosch: Unpublished Research Report for CRLS.

Standing, 1999). However, it is important to recognize the variation which exists between different countries, locations and markets and not to assume that gender and informality automatically go together. For instance, although there are high rates of female workers in Brazil's grape industry (65 per cent of the workforce), the presence of biennial harvest means most women are on permanent contracts (Collins and Krippner, 1999, cited in Dolan and Sorby, 2003).³⁸ Another example is Laura Raynold's (2002) study of export pineapple production in the Dominican Republic. This links the growing flexibilization of work (from permanent to contract labour) to a decline in the share of female participation, which fell from 55 per cent of the workforce in 1990 to just 12 per cent in 1995. Finally, flexible labour relations in agriculture is often as much associated with migrant workers (both male and female) as it is with female workers. For example, in the United States, 83 per cent of workers on agricultural crops (mainly fruits, nuts and vegetables) are hired on a seasonal basis and the largest worker 'category' is of male foreign migrants, typically from Central America and the Caribbean.³⁹

3.4.5 *Characteristics of flexible work*

The nature of flexible work is not uniform. From the employers' perspective, flexible work creates jobs and makes certain production possible. Due to the existence of these jobs, some workers receive a good salary, enjoy the flexibility and work for much of the year. Typically, however, flexible work is characterized by job insecurity, low and uncertain incomes and an absence of employment rights or benefits. The vulnerability of workers is often compounded in contexts of declining State welfare provision, high unemployment and increased responsibility of women for sustaining households (Dolan and Sorby, 2003).

In terms of income levels, some flexible workers can make good earnings by working very intensively. For instance, research in Chile revealed that payment by piece-rates in the grape packing houses meant that the most productive female temporary workers had a higher earning capacity than men in the fields, who received a daily wage (Barrientos et al., 1999a). The difficulty however is that these earnings are usually concentrated in a short period of time. For some families, these are the main or only source of household income for the entire year.

Moreover, the relatively higher earnings of women temporary workers in Chile are not replicated elsewhere. To the contrary, a survey of fruit farms in South Africa (see Table 10) found that female seasonal and contract workers had lower weekly earnings than their permanent counterparts. (This survey also revealed a strong male-bias in wage levels. Not only did male contract workers earn more than female contract workers, their wages also exceeded that of seasonal and permanent, on-farm female employees) (Barrientos and Kritzing, 2004).

³⁸ Collins, J.L. and Krippner, G.R., 1999. Permanent Labor Contracts in Agriculture: Flexibility and Subordination in a New Export Crop in *Comparative Studies in Society and History* 41 (3): 510-534

³⁹ Oxfam (2005b) report that, in 1998-99, 80 per cent of US crop workers were male, 56 per cent were foreign migrants and 80 per cent were foreign born.

Table 10: Average pay levels by job status in South Africa fruit farms

		Average months worked	Average weekly earnings (Rand)	Highest individual wage (Rand)	Lowest individual wage (Rand)
On-farm permanent	Male	12	298.70	812.50	180.00
On-farm permanent	Female	12	210.60	320.00	130.00
On-farm seasonal	Female	7	204.10	320.00	112.50
Contract	Male	10.5	261.25	400.00	150.00
Contract	Female	9.3	152.75	180.00	125.00

Source: Barrientos and Kritzing, 2004; p. 89.

Flexibility also creates significant unpredictability and insecurity in incomes and employment. For instance, Barndt's study of indigenous female migrant workers in Mexico's tomato industry revealed that many workers did not even know if they were working the next day, let alone the following season (Barndt, 1999). Unpredictability is compounded by a frequent absence of contracts or dismissal rights, allowing employers to terminate jobs at short notice and often without any compensation. Such uncertainty leads to considerable stress, livelihood insecurity and an inability to plan day-to-day lives.

In general, flexible workers have much more limited access to employment rights, benefits and social protection compared with permanent workers. This includes things like health insurance, unemployment benefit, pension schemes and rights to maternity, sick and annual leave. Such omissions can leave workers and their families very vulnerable in the event of pregnancy, unemployment, ill-health or retirement. (Thrupp, 1995; Dolan and Sutherland, 2002; Smith et al., 2004; Oxfam, 2004b).

Again, there is a strong gender dimension to all this. Not only are women more concentrated in flexible work, but their greater need to take time out for childcare responsibilities means they are disproportionately affected by rules making maternity leave or social security contingent on a permanent work status. For instance, in Chile the social security system has typically required 20 years of full-time contributions to qualify for a pension. For many female temporary workers it is impossible to keep up regular contributions when they are only in employment for four months a year and also must take time out for childcare (Oxfam, 2004b). It is worth noting that some governments – like in Chile and South Africa – have acknowledged these types of problems and there are signs that new reforms will extend social protection to temporary workers (see Box 9).

Lack of benefits for informal workers is also linked to their migrant status. For example, in the United States, where the vast majority of horticulture farm workers are both seasonal workers (83 per cent) and foreign migrants (56 per cent), just one per cent were found to have access to Social Security pensions and disability insurance (in 1997-98). According to Oxfam, this low percentage is partly a result of undocumented workers' own fear of deportation (i.e. should any application for benefits lead to their illegal status being detected) (Oxfam, 2004a).

Box 9:
**Signs of Change? Extending rights and benefits to
temporary workers in South Africa and Chile**

The export fruit sectors of South Africa and Chile employ large numbers of flexible workers. There are some encouraging signs that the governments of these countries are trying to improve protection for this traditionally precarious and vulnerable workforce.

In **South Africa**, labour law reforms providing basic conditions of employment explicitly include temporary and seasonal workers. These cover working hours, sickness benefits, annual leave and requirements for a written contract with information on workers rights. The impact of these reforms is yet to be seen and some anomalies still remain, such as the restriction of unemployment insurance to permanent workers.

In **Chile**, efforts have been made to improve healthcare provision. In 2002, a new card was introduced in 2002 which gives temporary workers all-round health insurance cover, provided they meet a minimum payroll requirement of 60 days.

More generally, labour law reforms initiated since the 1990s now require producers to issue written contracts for all workers, to improve standards on housing, transport and food and to manage social insurance programmes for contract workers. Laws also make provision for schools to be used as crèches (for agriculture workers' children) during school holidays.

Source:Lund and Nicholson, 2003.

Flexibility can also be linked to poor working conditions more generally. Research shows that temporary workers are more likely to tolerate exploitative conditions, such as long working hours or health and safety risks, either because their job is short term or because they fear complaint will lead to job loss. This is compounded by flexible workers' lack of dismissal rights, their limited employment alternatives and low rates of unionization. Some of the most extreme incidents of exploitation relate to contract and migrant labour, including workers in developed countries. An example of the latter is the UK horticulture sector, where up 95 per cent of workers are thought to be foreign migrants. A report by the UK parliament highlighted problems of exploitation and illegality by some contractors providing migrant workers, such as human trafficking, use of illegal migrants, use of under age activities, tax evasion, below minimum wage payments and unlawful wage deductions to pay for accommodation and travel (*UK House of Commons Select Committee on Environment, Food and Rural Affairs, 2003*).

3.5 Wages, incomes and poverty

The forms and levels of wage payment in export horticulture vary considerably. There is evidence that wage levels can be higher than local alternatives and provide workers the means not only to survive, but also to make savings and investments. At the same time, research shows there are often serious disparities between workers, with some groups – like women, migrants, informal and seasonal workers, or those in low-skilled jobs – liable to earn very low incomes, which put their households below the poverty line. Income poverty has multiple marginalizing effects for workers and their dependents, including hunger, poor-health, a lack of assets and insufficient resources and capabilities to engage politically or claim rights and resources (Du Toit, 2003).

Payment methods vary significantly. This occurs not only between countries and firms, but within firms depending on the job type, productivity levels, employment status or stage in the season (Lund and Nicholson, 2003). This variability is shown in research by Lund and Nicholson (2003) on the fruit sectors of Chile and South Africa, which finds that workers may be paid by a mixture of:

- fixed weekly wage rates;
- fixed daily wage rates;
- a minimum fixed wage, plus a productivity-linked bonus for a work team or the enterprise;

- a minimum fixed wage, plus a piece-rate based on individual productivity; or
- piece-rates, based on the productivity of the work team or individual worker.

Whilst horticulture wages are in general low, they can be higher than alternative income sources and above government set minimum wages. For instance, in Guatemala, women working as day labourers on vegetable farms earn more than they would in artisanal work; and in the Mexican avocado industry, wages for packers well exceed the minimum wage and are consequently highly sought after (Dolan and Sorby, 2003). Research on Kenya draws similar conclusions. There, aggregate wages for horticulture workers (in farms and packhouses) are above the minimum wage and 30–50 per cent higher than in comparable industries (Dolan and Sutherland, 2002).

In many cases, horticulture wages are crucial to households' survival. A survey by Barron and Rello (2000) finds that the earnings of migrant workers in Mexico's tomato sector are sufficient for their families to live off at a basic subsistence level for 6 months back in their home communities, without the need for another income source. In Kenya, too, workers' incomes are mainly spent on daily subsistence for themselves and their family members back home (rent, food, school fees). In addition, workers report using wages/remittances for purchasing household goods (kerosene lamp, gas stove, furniture, radio) and investing in assets such as sewing machines, agricultural tools, land and livestock (Dolan and Sorby, 2003).

Notwithstanding these positive impacts, income poverty amongst horticulture workers is widespread. Even where wage levels exceed minimum wages or local alternatives, these may still fall below a level necessary to meet basic needs. For instance, in the study of migrant workers in Mexico's tomato industry mentioned above, the authors found that few families were able to invest in substantial assets such as land and argued that the positive impact of wages had to be seen as relative to the extreme poverty in the rural areas where migrants originated from (Barron and Rello, 2000).

In addition, workers wages vary significantly according to where they are located in the production process, their employment status, skill levels and gender (Dolan and Sorby, 2003). Research on the fruit growing region of South Africa's Western Cape gives an insight into this variability. On average, farm workers earned US \$63 per month, which was above average for whole country (US\$48) and above the household poverty line (\$57).⁴⁰ However, amongst contract workers there was considerable variability according to the task and stage of the season; wages ranged from a high of \$115.79 per month to as little as \$38.60, putting some households below the poverty line (Lund and Nicholson, 2003).

There is a strong gender dimension to wage issues. On one hand, there is evidence that – where women control their wages – horticulture incomes may lead to improved social status and empowerment. For instance, studies on Chile's fruit industry in Chile, and vegetable industries in Guatemala and the Dominican Republic, link the participation of some women in horticulture employment to greater independence in household decision-making and enhanced bargaining power with male family members (cited in Dolan and Sorby, 2003).⁴¹

⁴⁰ US \$1.00 = R11.40, March 2002 (Lund and Nicholson, 2003).

⁴¹ Reynolds, L., 1998. *Harnessing Women's Work: Restructuring Agricultural Land and Industrial Labor forces in the Dominican Republic* in *Economic Geography* 74 (2) pp. 149-167. USAID (United States Agency for International Development), 1999. *Sowing the Seeds of Opportunity* Information Bulletin No. 9. Office of Women in Development, Washington DC.

On the other hand women often earn less than men. This is partly because women are concentrated in informal jobs, with lower or more insecure wages, and partly because the jobs women are employed in are deemed unskilled (harvesting, packing, grading and sorting). For instance, in Brazil, men operating tilling machinery receive one-and-a-half times the minimum wage, while women grafting vines receive only the minimum wage (Collins, 2000 cited in Dolan and Sorby, 2003).⁴² Table 11 compares the hourly earnings of horticulture workers in Kenya, differentiating by gender, skill level and segment of the production process. With the exception of semi-skilled packing work, women's earnings were lower than their male counterparts, and no women were represented in skilled jobs.

Table 11: Wages by skill level and gender (KS/hr)⁴³

Type of Labour	Packinghouse		Farm	
	Male	Female	Male	Female
Unskilled	21.0	17.8	12.8	12.6
Semi-skilled	22.0	23.3	17.0	14.1
Skilled	49.0	-	15.3	-

Source: Dolan and Sorby (2003) Table 4.6, p. 38.

The consequence of gender-based pay disparities is that female workers are more at risk of income poverty. Given the increasing numbers of women headed-households in countries like Chile, Kenya and the Dominican Republic, these disparities have serious ramifications for the welfare of children and other dependents.⁴⁴

3.6 Employment benefits

Employment benefits represent an important safety net for workers and can compensate for low wages. These encompass direct wage benefits, such as pensions, social security, health insurance and paid leave, and fringe benefits, including transport, food, daycare facilities, medical care, housing and educational programmes (Dolan and Sorby, 2003; Hurst et al., 2005).

In horticulture, there can be quite good provision of benefits. Most common are food, transport, basic medical care and sometimes on-site housing; indeed packhouse workers in Kenya cite these (four) benefits as a key, positive aspect of their employment. However, as discussed earlier, the problem is that many benefits are contingent on having a permanent contract. In the Kenya case, where most of the workers are not permanent, this has meant that the majority of the packhouse workforce have no access to a pension, maternity and annual leave, sickness benefit and so on (Dolan and Sutherland, 2002). *Women* tend to be

⁴² Lara Flores, S.M., 1998. Nuevas experiencias productivas y nuevas formas de organizacion flexible del trabajo en la agricultura. Mexico city: Juan Pablos. Collins, J.L., 2000. *Tracing Social Relations in Commodity Chains* in Haugerud, A., M.P. Stone and P.D. Little (eds.) Commodities and Globalization. Lanham, Md: Rowman and Littlefield.

⁴³ On April 16, 2001, 10 Kenya Shilling = US\$ 0.12912 (Dolan and Sorby, 2003).

⁴⁴ In Chile, a fifth of female temporary workers in the horticulture sector are heads of household; a survey of households involved in vegetable production/processing in Kenya, found half of all households were headed by women; in the Dominican Republic, more than one-third of women workers are single heads of household, three-quarters of whom have children (Barrientos et al., 1999a; Dolan and Sorby, 2003).

particularly affected by these types of restriction: not only are they more concentrated in flexible work, their particular vulnerabilities mean they are more in need of the protections such benefits can offer (e.g. maternity rights, childcare).

The restriction of benefits to permanent or formal workers can also compound the vulnerability of migrant workers, who often lack the assets and social networks necessary to house, feed and support themselves and family members. For instance, Dolan and Sutherland (2002) found that lack of childcare meant migrant workers in Nairobi's vegetable packhouses had left their children at home, in rural areas. Such separation may have damaging effects on children's long-term well-being.

Where benefits are provided for migrant workers, these can be sub-standard. In the United States just over a quarter of crop workers live in employer-provided housing, many of whom are foreign migrants. Surveys of farmworker housing have identified major problems of over-crowding, lack of hygiene, poor facilities and exposure to toxic substances (through the location of housing units adjacent to farm fields), all of which pose real health hazards to farmworkers and their children (Oxfam, 2004a).

3.7 Working hours and overtime

The working day in FFV production usually exceeds legislative regulations and is often pressured. For instance, in South Africa, Zambia and Kenya, national law stipulates the standard working week should be 48 hours; however, often workers do obligatory overtime, which can be excessive (e.g. up to eight hours a day of overtime) (Smith et al., 2004). In Chile, working hours can reach up to 16 hours per day in the peak of the fruit harvesting season (Barrientos et al., 1999a). Table 12 provides an overview of the recorded working hours (as well as pay levels and employment benefits) for horticulture workers across several countries.

Table 12: Employment conditions in the FFV sector

Product/country	Wages	Hours	Benefits
Fruit			
Chile	US\$4-10/day US\$135/month	8-10 h/day 12-16 h/day in peak season	No benefits for temporary workers
Brazil	Minimum wage	Up to 20h/day in peak season	Social benefits provided
South Africa	US\$2.60-7/day contract worker	7.5-9 h/day, migrant workers up to 11h/day	Social benefits provided, but not for contract workers
Vegetables			
Mexico	US\$4.3/day, piece-rates can increase earnings	49-56 h/week	-
Kenya	US\$ 9/week farm US\$ 14/week packhouse	9.6 h/day for 5.4 days/week in peak season	Transport, food, medical care, housing

Sources: Dolan and Sorby, 2003; Table 4.3, p. 35.⁴⁵

Long working hours and excessive overtime is linked to a number of factors, including product seasonality and perishability, wage systems and buyers' just-in-time delivery requirements. Low incomes, combined with payment by piece-rate, create

⁴⁵ This table is based on multiple literature sources.

pressures and incentives for workers to work long and intensively. Last minute ordering by buyers means that workers often have little warning that they are required to do overtime (Dolan and Sorby, 2003; Oxfam, 2004b). Even for items like bananas, which are produced year round, are less perishable than some other fruits and for which there is relatively stable levels of consumer demand, working hours are long. For example, on plantations in Costa Rica a regular working day lasts from 6 a.m. to 5 p.m., during which there are few breaks (Bendell, 2001).

Workers have different perceptions of overtime. Some value the higher incomes this can garner; others find the hours stressful and exhausting. Often problems are compounded by irregular or unreliable transport, which make the working day longer. Excessive hours can affect all workers, in terms of their health, family life, social relationships and the time available for leisure pursuits or other activities. This affects both men and women: for instance, both male and female workers involved in vegetable production in Kenya believed working hours should be reduced (Dolan and Sutherland, 2002).

However, frequently long and unpredictable working hours often create particular problems for women. Working hours are extended further as women return from their paid work to perform unpaid domestic duties. While unexpected overtime creates the stress of having to organize childcare at short notice, or even leave their children unsupervised. There can also be safety risks where women travel late at night once the overtime shift ends (Bendell, 2001; Dolan and Sutherland, 2002; Dolan and Sorby, 2003).

3.8 Health and safety

As with many agricultural activities, workers in horticulture farms and packhouses face significant health and safety risks. Public awareness of these risks has increased considerably in recent years, leading to improved regulatory standards in exporting and importing countries, bans on some hazardous substances and higher levels of employer compliance.⁴⁶ For example, requirements by UK supermarkets that suppliers meet voluntary Codes of Conduct has led to improvements in health and safety amongst large exporters in South Africa (fruit) and Zambia (vegetables). These include safer usage of chemicals, wearing of protective clothing and provision of toilets, washing facilities and drinking water (Smith et al., 2004). However, problems still exist. The major issues relate to workers' exposure to chemicals and pesticides, physical strain and poor ergonomics, working in adverse temperatures and weather conditions and inadequate hygiene and sanitation (Dolan and Sorby, 2003; Lund and Nicholson, 2003).

3.8.1 Agrichemicals

The production and processing of FFV involves various types of toxic products, particularly pesticides and fertilizers in the fields and fumigants in packing houses. Whilst chemicals can improve crop yields and quality, heavy or unsafe application can damage the environment and be costly for producers. They also pose serious health hazards to the workers, who are often exposed to chemicals over extended periods of time.

⁴⁶ Greater public awareness has also sparked litigation. A high profile example is the law suits taken by banana workers in Latin America against global banana and chemical companies (Dole, Del Monte, Chiquita and Dow Chemicals, Shell and Occidental). Exposure to the highly toxic chemical insecticide Nemagon – which, despite being banned since 1977 was still used up until the 1990's – is blamed for a series of health problems, including serious birth defects, liver and kidney damage and male sterility (Arias et al., 2003).

Workers come into contact with toxic substances in various ways: by applying them; by handling product, trees, bushes, or plastics treated with chemicals; by inhaling gases used to keep items fresh; by entering fields too quickly after spraying, or even remaining there whilst spraying takes place (Thrupp, 1995; Human Rights Watch, 2002; Lund and Nicholson, 2003). Often exposure results from no or inadequate training on safe chemical usage or a lack of protective clothing (masks, boots, gloves, overalls). This is particularly the case for informal workers hired on a daily or short-term basis. In some instances, equipment is poorly suited to the local conditions; for example, some types of protective clothing can be extremely uncomfortable in the hot and humid conditions of banana cultivation (Arias et al., 2003).

Exposure to chemicals has a range of effects. Horticulture workers in Africa and Latin America complain of allergies, eye-soreness, skin irritations, headaches, nausea, dizziness and blurred vision (Thrupp, 1995; Lund and Nicholson, 2003; Dolan and Sorby, 2003). A study of agro-chemical related health problems amongst temporary fruit workers in Chile found that half suffered from general ill-health and a fifth reported skin and vision problems (cited in Barrientos et al., 1999a).⁴⁷

Thrupp's research on Latin America's horticulture sector reports on very acute instances of chemical poisoning, leading to vomiting, fever, vertigo, diarrhoea, delirium, muscular convulsions, neural damage or even death (Thrupp, 1995).

3.8.2 *Ergonomics, temperature and hygiene*

Horticulture work can be very arduous, requiring high levels of concentration and dexterity. For example, women working in the fruit fields in Chile spend hours moving wooden stools along lines of fruit trees and vines, training or pruning the trees. The physical demands involved can lead to muscular pain and discomfort, lumbago and rheumatism (Lund and Nicholson, 2003). In the packing plants, workers have to operate at great speed in cleaning, sorting, grading, preparing and packing the fruits and vegetables. Often they do this standing up, repeating the same function over and over again. This can cause postural problems, back and abdominal ailments and repetitive strain injuries (Thrupp, 1995; Barrientos et al., 1999a).

Workers also face discomfort and difficulty in performing their work through exposure to adverse temperatures and weather conditions. For instance, in Chile's fruit sector labourers in the field have to work through extremes of hot, cold and wet weather. In the cold storage and packing areas, temperatures are usually cold or humid. This, combined with lack of proper sanitation, contribute to frequent cases of cystitis among women workers (Lund and Nicholson, 2003).

3.9 Child labour

The incidence of child labour varies between products, firms and countries. Dolan and Sorby (2003) find no documentation of children working in non-traditional fresh fruit industries. However, an investigation by the NGO Human Rights Watch did find evidence of child labour in Ecuador's banana sector, which it believed to be widespread. Recruited on average at the age of 10 or 11, the 45 child workers interviewed described working 11 hour days, low wages⁴⁸ and a series of health problems and accidents caused by exposure to

⁴⁷ Medel, J. and Ricquelme, V., 1994. *La Salud Ignora: Temporeras de la Fruticultura*. Santiago: Centro de Estudios de la Mujer (p. 77).

⁴⁸ The average daily wage for children interviewed was \$3.50, compared to \$5.44 for adults.

toxic chemicals, hauling heavy loads and using sharp tools. Some young girls also experienced sexual harassment. Most children worked to provide money for their families to purchase food and clothing, while a few did so in order to afford schooling costs (books, registration fees and uniforms) (HRW, 2002).

The existence of child labour has also been documented in the export vegetable sector. In Mexico children of migrant families sometimes work alongside their parents in harvesting tomatoes on large commercial farms (Barron and Rello, 2000). Barron and Rello highlight the complexity of the issue. On one hand children – who are paid at the same rate as adults – contribute a substantial share to the household income; around 30–35 per cent. On the other, their labour incurs substantial personal and family costs, as children miss out school and face tough working conditions.

3.10 Sexual harassment

There is evidence of sexual harassment in FFV export industries (see: HRW, 2002). However, in general, the limited number of investigations, the difficulty for people in talking about it, and local cultural attitudes which construct male sexual prerogative as acceptable, means the extent of harassment in workplaces is often unknown.

The occurrence and perceptions of sexual harassment is closely linked to local gender norms. In their study of fruit workers in Chile, Barrientos et al. (1999a) point out that a traditionally patriarchal culture, combined with men's dominance of management jobs, creates an environment and set of power relations which make it easy for male bosses take advantage of women workers. This is compounded by the insecure and informal nature of most women's jobs. For instance, managers may ask for 'dates' in return for jobs. Many women report they ignore these types of advances, seeing them as a nuisance but not a threat. But the most vulnerable women (single parents, those without work experience) are more likely to accept.

Case studies of farms in South Africa (fruit) and Zambia (vegetables, flowers) also recount stories of sexual favours being given or demanded in return for women's promotion, pay or even just the continuation of their employment (Smith et al., 2004). Some female workers interviewed viewed this as consensual; others indicated that the women had little choice. In most cases, the employers interviewed did not think such problems existed in their firm or country.

Dolan and Sorby (2003) point out that confronting sexual harassment on farms and packhouses is extremely hard. National legal provisions are often inadequate. Women may be unaware of their rights or regard male advances as acceptable. Moreover, the risk of victimization or job loss inhibits women from speaking out, whilst their flexible work status makes it difficult to organize against abuse.

3.11 Occupational segregation

The distribution of jobs in horticulture is often highly gendered, with men and women segregated in terms of their sites of work, the functional activities they perform and the ascribed skill level of that work (Raynolds, 1998; Barndt, 1999; Barrientos et al., 1999a; Dolan and Sutherland, 2002 and Lund and Nicholson, 2003).

In terms of work sites, women are more concentrated in packhouse work and men in field work. For instance, data from the early 1990's on the fruit industry in Chile's Limari Valley recorded that 76 per cent of packhouse workers were female and 24 per cent male.

In the field, these ratios were reversed, with 28 per cent of field workers being female and 72 per cent male (cited in Barrientos et al., 1999a).⁴⁹

In terms of functional activities, women are typically allocated work in preparing the fruits and vegetables, such as cleaning, cutting and packing. Where women do work within the fields, they tend to be more concentrated in harvest or post-harvest activities, such as picking or grading and sorting. Male farm workers tend to dominate pre-harvest activities, such as spraying and irrigating or constructing frames to support the crops. Within the packhouses, male workers are concentrated in activities like the loading and unloading of crates or mechanical and electrical work. Table 13 illustrates this gendered division of labour with the example of Chile's grape industry.

Table 13: Job segregation in Chilean grape industry, Norte Chico region

Job	Women %	Men %
Grape cleaning	38.6	0
Grape wrapping	11.4	0
Selection of grapes	10.0	0
Various tasks in fields and packing plants (pruning, cleaning and selecting fruit)	40.0	75.0
Technical work (e.g. irrigation, tractor driving)	0	8.4
Grape cutter	0	16.6

Source: Bee, 1996⁵⁰ cited in Barrientos et al., 1999a; p. 98, Table 5.4.

Most jobs in horticulture production and processing are low skilled. Vegetable exporters in Kenya, for example, rate between 75 and 90 per cent of tasks as 'unskilled' (Dolan and Sutherland, 2002). Although women often make up the majority of workers, particularly in packing plants, they are typically under-represented in those few skilled positions that are available. For instance, the survey work on Kenyan vegetable exporters used by Dolan and Sutherland found that, amongst all the women working in farms and packhouses, 84 per cent were in unskilled or manual positions compared to 42 per cent of men (Dolan and Sutherland, 2002).

The division of men and women into distinct tasks is often explained – both by employers and employees – as a natural outcome of biological difference. Masculinity and femininity are associated with different physical capacities, skills, attitudes and behaviours, which makes men and women 'innately' suited to different tasks. Men are usually considered to have superior physical strength and endurance, which makes them better suited to heavy lifting work. Other qualities associated with masculinity are technical skills (mechanic, electrician) and supervisory abilities (Dolan and Sorby, 2003). Femininity, meanwhile, is associated with care, dexterity, passivity, respect for authority and a natural ability in preparing food.

⁴⁹ Diaz 1991; Investigacion Participativa Acerca de las Trabajadoras Temporeras de la Fruta, San Bernardo Santiago: Centro El Canelo de Nos (p. 50).

⁵⁰ Bee, A., 1996. Regional Change and Non-Traditional Exports: Land, Labour and Gender in the Norte Chico, Chile, unpublished PhD Thesis, University of Birmingham.

The perceptions and effects of gender-based job segregation are varied. There is evidence that employees concur with a gender-based division of tasks between the packhouse and field; and, depending local norms on what is socially acceptable and on previous life experiences, may see this as positive. As such, segregation is not just the result of employers' action. For example, Barrientos et al. (1999a) note that some female fruit workers in Chile, who were used to backbreaking work in traditional agriculture, stated they preferred the packing plants, which seemed less arduous and uncomfortable by comparison.

However, segregation also brings costs to women. In the Chilean case, because women were concentrated in jobs linked to the final preparation of fruit for export, their work periods were shorter than men's, leading to high levels of income and employment insecurity. Other effects mentioned earlier include lower wages and more limited opportunities for training and promotion.

While gender-stereotyping does appear widespread, the literature shows how these are rooted in complex local social and economic relations, leading to differences between locations and countries, and over time. For instance, Laura Raynold's (2002) study of pineapple plantations in the Dominican Republic shows how changing gender compositions were intricately bound up with a changing economic climate. When the plantations were first established, large numbers of women were hired to work in the fields. However later, when plantation managers sought to cut costs by replacing permanent staff with informal work crews paid by piece-rate, many experienced women were pushed out of the fields. This restructuring had coincided with a declining local economic situation which meant that men – formerly uninterested in low paid plantation work – used their patronage networks to get into the work crews, consequently re-claiming field work as 'male'. In turn, women's employment on the plantations declined from 55 per cent in 1990 to 12 per cent in 1995.

3.12 Trade union rights and worker representation

Levels of unionization and collective bargaining in FFV production are typically low. For workers, this creates a significant representational gap, where they lack the space, resources and influence to protect and advance their needs and rights at work. At the same time, there is evidence that workers and civil society organizations have developed alternative forms of negotiation and support, which operate outside traditional union structures.

Data on union density in the FFV sector is very sparse. No global figures are available and national level data is often patchy or out of date. However, in general, unionization rates amongst horticulture workers are held to be low. For instance, citing 1988 data, Barrientos et al. (1999) state that just one per cent of Chile's temporary fruit workforce was unionized. Although this figure dates from the period of military government, which was harshly anti-union, it still appears disproportionately low given *national* level unionization rates at that time of 10 per cent.

Some *firm-level* studies indicate higher levels of unionization, with rates varying between the site of work and type of worker. For instance, a survey of workers in *Kenya's* vegetable sector shows that, amongst packhouse workers, none were union members. However, on the farms, 38 per cent of women and 33 per cent of men were union members (Dolan and Sutherland, 2002). The authors link this variation to rules which made union membership contingent on permanent status, thereby excluding casual workers who predominate packhouse work. Research by Smith et al. (2004) on farms in Kenya (flowers), Zambia (flowers and vegetables) and South Africa (fruit) found that half of the companies studied were unionized, with membership rates among permanent workers usually higher than those on flexible work arrangements.

The African research studies also reveal differences in workers' knowledge of their right to organize. For instance, the multi-country research by Smith et al. (2004) found that, although, overall, non-unionized workers expressed an interest in joining a trade union, casual, seasonal and migrant workers had little knowledge of what unions were and were unsure about the potential benefits of membership. Workers also had different opinions about the effectiveness of unions. In the Kenya case, workers in the (non-unionized) vegetable packhouse described the union as costly and a 'waste of time', while farm workers were more positive, crediting the unions with improving accommodation provision and leave entitlement (Dolan and Sutherland, 2002; p. 30).

3.12.1 *Factors influencing low rates of unionization among horticulture workers*

A variety of factors have been credited for the low rates of unionization, many of which are familiar to those cited for other labour-intensive export sectors with limited union presence, like apparel manufacturing. These include:

- Regulatory restrictions and/or government repression, often linked to neo-liberal economic reform policies designed to encourage foreign investment and sourcing by restricting 'costly' labour and union rights;
- Employer opposition to unions, in part stemming from fierce global competition which puts constant pressure on exporters to lower labour costs;
- Lack of worker organizing resources and weak trade union strategies, particularly in relation to the representation of female and non-permanent workers.

A common charge in the academic and campaigning literature is that employers and governments in some countries and FFV sectors actively repress or discourage union activities. This encompasses a spectrum of activities, like the dismissal or harassment of union members (actual or threatened), administrative and legal hurdles to unionization and bargaining, and even violent repression of union members or strikers.

An example is Ecuador's banana industry, where just one per cent of the country's 120-140,000 banana workers are unionized. A report by Human Rights Watch (2002) cites opposition by employers, the insecure nature of work and weak legal protection (where workers are fired for engaging in union activities) as key barriers to unionization.

Lack of resources on the part of workers, and limitations in union organizing strategies, is a further cause of low unionization rates in horticulture. The low wages in agriculture can make union organizing and recruitment difficult. Union officials in Kenya and Zambia report that organizing efforts in horticulture are stymied by workers' reluctance to pay membership fees. Moreover, because the fees had to be kept so low, resources for membership recruitment and other activities were limited, thereby undermining the unions' capacity to effect change. As Smith et al. conclude: 'this creates something of a vicious circle, with workers perhaps most in need of union representation (i.e. low waged and non-permanent workers) least likely to be recruited.' (Smith et al., 2004; p. 17)

Another problem for unions is the highly mobile, seasonal nature of many horticulture workforces, as well as their physical dispersal across more isolated rural locations. An example of this is Chile's temporary fruit workforce. During the high season, the *temporeras* (female temporary workers) work intensively and have little time to engage in organizing activities, particularly where they combine work with caring responsibilities. And at the end of the season, the workforce breaks up as people return to their homes in the city or villages. This example highlights constraints more specific to the agricultural sector compared with export manufacturing (where workforces are often more stable, urban-based and – except for home-workers – less physically dispersed).

However, union weaknesses are not simply logistical. Several commentators – within and outside the union movement – have argued that, through their traditional focus on male, permanent workers, trade unions have failed to address issues of concern to women and informal workers, who are subsequently put off from joining. For instance, research on Chile’s fruit sector points out that the domination by male workers of union leadership structures has meant little attention has been given to the priorities of female workers, such as childcare or sexual harassment. In addition, the focus on issues within the workplace overlooks those that exist for temporary workers without – in particular, problems of unemployment and poverty during the off-season (Barrientos et al., 1999a).

Finally, despite these various barriers, there are initiatives to promote worker organization in the FFV sector. A notable example is the 2001 Framework Agreement between banana giant Chiquita, the international agricultural and food workers union, the IUF, and COLSIBA, an alliance of Latin American banana workers unions. Moreover, even where unionization rates remain very low, there is evidence that workers use alternative methods to negotiate with employers and support their needs. For instance, Barrientos et al. (1999) found that Chile’s fruit workers engage in sporadic, unannounced work stoppages, coordinated through community and friendship networks. This type of tactic can be extremely effective in pressuring management when there is an urgent shipment at the height of the season. In addition, in both Chile and South Africa, some local NGOs and community organizations (like church groups) have developed new support services for female workers, such as advocacy, crèches, rights information and education facilities (Barrientos et al., 1999a; Barrientos et al., 1999b).

3.13 Social issues in smallholder production

The social issues involved in small-scale farming of export horticulture crops do correlate with ‘traditional’ labour concerns, in terms of who works on family plots, how tasks are distributed, the conditions people labour in and the financial rewards they receive. However, they also raise different questions around the broader economic and social effects of farming activities. For example, as smallholders switch their land and labour from subsistence farming or domestic markets to export markets, what effects does this have on family food security, nutrition and health? How do the environmental impacts of horticulture production influence livelihood prospects in the longer term? How does contract farming affect gender relations in the household and children’s welfare?

Most contemporary labour research is focused on wage workers in large farms and packhouses, with less attention given to small-scale FFV production and the broad range of social issues this gives rise to. Given these limitations, the analysis below highlights a few references on the livelihood, labour and gender impacts of smallholder production. It is not a comprehensive account of the research and comes with a strong call for further examination of the issues.

3.13.1 *Impact of export horticulture on incomes and livelihoods*

Smallholders producing horticulture crops for export are typically not wealthy and in some cases they fall below key economic well-being indicators. For instance, Raynolds (2002) describes small-scale tomato growers in the Dominican Republic (producing for mainly domestic but also export markets) as ‘generally poor’: less than half of households surveyed ate three meals a day, few were able to buy meat regularly or purchase basic consumer durables, like a radio.

At the same time, a number of studies have shown that – relative to other rural livelihood options – smallholders producing FFV for export are better off. For instance,

research on Kenya and Guatemala has found that export horticulture is viewed favourably as a source of livelihood by smallholders, enabling families to purchase basic goods (food, shelter, children's education) which they would not otherwise be able to afford (Omosa, 2002; Hamilton et al., 2001). In Guatemala, two-thirds of smallholders in the San Mateo community felt they were better off than before they produced the crops; even amongst former producers, most felt they were better off or the same as before. The benefits cited by families included increased spending on housing improvements, children's education, a better diet and improved access to healthcare.⁵¹ (Hamilton et al., 2001).

In Kenya, farmers reported that horticulture incomes enabled them to meet basic needs, make remittances to family members and invest in enhanced horticulture production and other rural enterprises (purchasing land, motor vehicles, livestock, irrigation systems). Quantitative research by McCulloch and Ota (2002) supports these positive views, finding that Kenyan smallholder households engaged in export horticulture had lower rates of food poverty, higher incomes and owned more consumer durables than those smallholders which were not. For instance, in smallholder households cultivating horticulture crops for export, only a third of individuals fell below the food poverty line, compared to three-quarters of individuals in smallholder households which were not. The former also had better access to credit and extension services, provided by the exporters they contracted with.

3.13.2 Employment relations in smallholder export horticulture production

Employment arrangements in smallholder production are rather different to those of larger commercial farms. For a start, family members, such as wives and children, play a major part in producing and harvesting the crop. Indeed, a key appeal for the export firms which contract with smallholders is the access this gives committed family labour needing low levels of supervision (Dolan and Sorby, 2003). Family and labour is often supplemented by – or supplemental to – hired labour, particularly on the larger, better resourced smallholdings. In countries like Ghana and Zimbabwe smallholder families may also be part of a local labour exchange group, where members of the group help each other to harvest crops (NRI, 2002).

Usually export firms issue contracts and payments to a male household head. For instance, research on export horticulture in Kenya's Meru district found that men held 90 per cent of smallholder contracts. This bias reflected concerns of the export firms for contract security: since men have stronger legal entitlements to land than women, firms perceive a reduced risk of product being appropriated in any family struggle over land (Dolan, 2001).

The one-to-one contractual relation between export firms and (male) household heads obscures the more complex labour and family dynamics involved in production. A first issue highlighted here is the impact on children, who may be called upon to help out on family plots. For instance, about half of Dominican contract grower households surveyed by Reynolds (2002) reported that children contributed slightly more time to harvest tasks even than their parents. This has implications not only for children's health, but also their educational prospects. For instance, Thrupp (1995) argues that, amongst export vegetable producers in Guatemala, it is 'common' for children to be taken out of school to labour on the crops. Yet the effects on children are far from straightforward. In their survey of Guatemalan producers, Hamilton et al. (2001) found that the incomes from export

⁵¹ Amongst female respondents from NTAE producer families, 75 per cent said families were better able to access health care (physician, nurse, dispensary) than before NTAE production (Hamilton et al., 2001).

vegetable production was helping families keep children in school longer than would otherwise be the case. And, as already noted, such incomes were also helping improve family nutrition and health.⁵²

A second issue relates to the role of hired labour. In some cases, the share of hired labour in smallholder production can be quite high. For instance, amongst small-scale tomato growers in the Dominican Republic (producing for domestic and export markets), most of the labour (58 per cent) is performed by non-family members who are hired in, particularly during harvest time. There is little available research examining the experience and conditions of hired workers on smallholder plots producing FFVs for export (Raynolds, 2002).

Research by the Natural Resources Institute (NRI) on the application of labour Codes of Conduct amongst smallholders in Ghana (pineapples) and Zimbabwe (vegetables) highlights the informal nature of work arrangements. There, hired labourers usually worked on a casual basis for, piece-rate wages, usually for just 2-3 days at a time. Sometimes payments were received in a mixture of cash and in-kind payment. Contracts were extremely rare and in any event often rendered redundant by illiteracy problems. Trade union organization was virtually unheard of, with disputes usually resolved through family or traditional community institutions. In general, smallholders had very limited knowledge of labour legislation. Medical provision, sanitation, accommodation and potable water provision on smallholder sites was often poor, largely due to the poverty and isolation of rural communities (NRI, 2002). The NRI research emphasizes that, given the particular context of smallholder production and its unique labour arrangements, initiatives aiming to address social issues requires a different approach from that on large farms and packhouses. Further research is needed to understand better the experience of hired labour across different contexts.

A third issue highlighted here relates to the gender dynamics implicated in smallholder production. The research shows that on the one hand there is evidence that horticulture production in smallholder households can lead to significant disparities between men and women, in term of the inputs they provide (e.g. land, labour) and the benefits they receive (e.g. income). On the other hand, some female family members report increased independence and status in family decision-making, as a result of their work on export crops (Dolan and Sorby, 2003).

Dolan's study of French bean farming in the Meru district of Kenya is one example of how export horticulture can drive gender inequalities (Dolan, 2001). In Kenya, horticulture cultivation is typically a female domain, with produce sold in local markets. However, Dolan found that as French bean exports became more lucrative, men started to take over land traditionally controlled by women – which was held under precarious usufruct rights⁵³ – and turn it over to export horticulture production. This increased demands on women's labour, but without the commensurate increase in financial rewards, since earnings were controlled by their husbands. Dolan estimates that women performed 72 per cent of crop labour yet received just 32 per cent of the income. On top of this, women were also

⁵² This impact perception survey of the San Mateo community found that 75 per cent of producers had used their incomes from vegetable exports (zucchini, snow peas, French beans) to pay for their children's education and 84 per cent of all respondents (including former producers) felt that children stayed longer in school than before these crops came to the community in the 1980's (Hamilton et al., 2002)

⁵³ A usufruct right is a legal right to use and derive profit from property belonging to someone else provided that the property (in this case, land) itself is not altered in substance or damaged in any way.

spending up to eight hours a day on daily household tasks, compared to two hours for men. Attempts by women to get greater control over incomes led to marital conflict and even violence. In their review of this case, Dolan and Sorby (2003) make the important point that, where women's property rights are fragile, their ability to benefit from the export trade may be limited (Dolan and Sorby, 2003).

Other studies have come to slightly different conclusions, suggesting that women's status is not necessarily worsened and in some aspects may even improve. An example of this is Laura Raynold's study of contract tomato growers in the Dominican Republic (See Box 10).

Box 10:

Family dynamics among tomato growers in the Dominican Republic

In the Dominican Republic about 7,000 peasant growers produce tomatoes under contract to local processing firms, mainly destined for domestic markets. Women play a key part in production, especially during the harvest time where they help pick the crop and cook for teams of hired labours. Research by Raynolds (2002) found that in households where both husbands and wives worked on the tomato crop, the wives contributed about double the hours of men did.

Yet only half all women surveyed received payment for their work. Often, where they do receive payment, women are more constrained in their spending, directing it to family welfare (food, housewares, medicines, children's clothing). In the words of one women: *'A woman cannot do what she wishes with the money she earns. She cannot take it and spent it in the street like men. She spends it on the family or puts it in a little business.'*

Notwithstanding these gender disparities, Raynolds finds positive evidence that women are actively challenging male authority by demanding payment. And, although these payments were small, they were important for women's negotiating power, self-esteem and status in the household. This is indicated in the statements made by women interviewed:

'I feel happy because I myself earned the money...what is important is being able to say this is mine ... even if it goes for food. Without money you are nobody.'

'if the woman earns, she has greater rights to participate in household dialogues and decisions.'

Source: Raynolds, 2002.

Smallholder production involves very different contexts and labour arrangements compared with large scale commercial farming. The labour research on export horticulture has so far given only limited attention to smallholder production and more research in this area is needed. What this analysis has sought to show is the diversity and complexity of the issues involved. A key question is, what are the income, labour and land control impacts of contract growing, and how are the burdens and benefits distributed between family members and hired labour. The answers to such questions are rarely straightforward. As the research on female and child labour clearly indicates, impacts are often paradoxical and are mediated through local social institutions (on land titling, gender relations and so on).

Summary and conclusion

This paper has provided a review of the literature on the employment and social dimensions of agriculture production and trade, focusing on the FFV export sectors. At the outset, it set two broad objectives, which were to:

1. Identify key trends and characteristics of contemporary agri-food system, focusing on the global FFV value chains.
2. Build a typology of the main employment and social issues involved in the production and processing of FFV, and show how these are linked to the overall structure and operation of FFV value chains

The analysis has been in-depth and wide-ranging, reflecting the real complexity of the issues involved and the richness of the theoretical and empirical literature emerging in this field. As has been repeatedly emphasized, the experience of different agents who participate in global food chains can vary significantly depending on the product, market and local context, the circumstances of the individual firm, farm or worker, and the position they occupy in the chain. Acknowledging and understanding this variability is critical in order to ensure any future research studies, project or policy interventions are properly targeted and tailored.

Notwithstanding these variations, the analysis has identified a number of common trends – which have been observed across multiple product chains and national contexts. These trends are described in some detail in the Executive Summary and in the chapter summaries. This paper concludes by re-iterating some of the key themes highlighted in the paper and by identifying gaps in the existing body of research which could be usefully addressed in the future.

A central point, made throughout the paper, is that the employment and social conditions faced by workers and smallholders are critically shaped by the overall *structure and operation of agri-food value chains*.

This has been explored and demonstrated in the review of the FFV sector in Chapter 2. FFV chains supplying the UK and US markets are increasingly characterized by high levels of retailer ('buyer') power, tight vertical co-ordination, and growing levels of integration, internationalization and market concentration at multiple levels of the chain. On one hand, there is evidence that accessing these powerful global buyers can bring FFV producers better and more stable returns than they would receive through domestic or wholesale market transactions. For workers, this can translate into new jobs, as well as better conditions and higher incomes than locally available alternatives. On the other hand, many FFV producers and exporters – particularly small or medium sized suppliers – are inserted in increasingly marginal positions within global chains. Asymmetries of market power between concentrated buyers and more fragmented producers, together with the high degree of vertical co-ordination, confers on buyers the means and mechanisms to impose new functions and performance standards, which raise market entry barriers and expose producers to high costs and risks while squeezing incomes. These pressures are compounded by factors external to the chain, including falling prices resulting from global over-supply for many FFV items and increased public regulation on food safety standards. As the analysis showed, producers and exporters often pass on these various risks and pressures to workers – for example, through precarious, informal work arrangements or long working hours.

The analysis has highlighted the many similarities between agriculture and export manufacturing sectors, in terms of the types of employment and social issues which arise and their root causes. For example, the links between strong buyer governance – with the commensurate pressures for just-in-time delivery, low prices and high quality – has also

been cited as a driver of intense work pressures faced by employees in garment and footwear manufacturing sectors. At the same time, the paper has highlighted areas where the characteristics of agricultural production and agri-food chains foster distinct social dynamics. For instance, producers' use of informal, short-term and migrant labour, and sudden peaks in labour demand, are shaped by features such as seasonal production requirements, the risk of natural hazards and the perishability of some food items. The rural context of many agricultural activities is also important, with problems of rural poverty, a weak local infrastructure and the physically dispersal and isolation of workers meaning producers often lack access to supportive resources (e.g. technical advice, medical facilities) and workers find it difficult to organize.

Another issue raised in the paper is the significant heterogeneity between different agri-food products and chains, and how this variability affects the leverage that buyers have to address social issues in production. For instance, in the case of African-UK fresh fruit and vegetable chains, the introduction of labour codes by UK retailers for their own-brand FFV ranges can be linked to physical and brand visibility of the product (which created consumer pressure for retailer accountability) and to strong retailer governance of short, highly co-ordinated supply chains. Where agri-food chains are more complex and fragmented, or a commodity is not easily identifiable in the end product, buyers may have less incentive or leverage to address employment issues in production.

This paper concludes by outlining some potential areas which would merit further study.

1. Structure and operation of different agri-food value chains.

Some types of product chain, such as African-UK horticulture chains and the global coffee sector, have been widely mapped and scrutinized for their employment or social dimensions. However, other products have received less attention. For example, there is limited research examining the structure and operation of global chains (from a social perspective) for food products such as cereals, dairy, fish, poultry, pork and beef, as well as non-food commodities, like tobacco or textile fibres. Also, because of the complexity of the task, there are only a handful of studies which compare more than one product or market.⁵⁴

Within a single product grouping, some import or export markets have been less widely researched than others. For instance, in the case of FFV, limited attention has been given to import markets in Continental Europe, Japan and middle income countries. It is conceivable that these involve different sorts of labour and social dynamics than the strongly retailer-governed chains destined for UK and US markets, reviewed here. In addition, a number of leading FFV export markets merit further case study research (from a value chain/social perspective). Among developing countries, this includes, for example, China (grapes), Syria (tomatoes), the Philippines (mangoes), Thailand and Peru (asparagus), Chile (avocados), Mexico (green beans) and Cote d'Ivoire and Costa Rica (pineapples).

Also, certain segments of agri-food chains are less thoroughly reviewed than others. The tendency is to focus on food retailers, especially supermarkets, and on producers. As such, little research has been conducted on the food service sector (restaurants, caterers, fast-food), which is a major buyer and seller of food products. Processing and distribution activities are also often under-scrutinized, except in the case of a few multi-national brands.

⁵⁴ Examples are Vorley (2003) and Gibbon and Ponte (2005).

For instance, the literature review on the FFV sector pointed out that little is known about the activities of leading first tier suppliers – often ‘category managers’ – and their role managing social issues in the supply chain. Finally, a challenge for all studies is the need to compile robust data showing the distribution of income between all actors in the chain, including workers and smallholders, who are often overlooked.

2. Employment and social issues involved in agricultural production and processing

As the typology presented in Chapter 3 indicates, there has been quite extensive research on the employment and social issues involved in agricultural production, particularly for some products chains (e.g. fruits, vegetables, flowers, coffee). However, some issues are less well understood than others. The social dynamics of smallholders producing for export is one such issue, highlighted in the analysis. This encompasses both labour issues (family labour, hired labour), and wider social effects such as food security, environmental sustainability and household gender relations. Another important subject area is that of migration and its complex social impacts (vulnerability, remittances, clandestinity, family separation, child labour etc.). Although there have been several useful studies of migrant workers, at present the issue is not ‘mainstreamed’ to the same degree that gender analysis is.

More case-work and comparative studies across different national settings, particularly those which are currently under-researched, will always be important. Such work could usefully explore the multiple factors which cause or mediate the employment and social impacts of production. For instance, this paper has particularly focused on factors internal to the chain. However, this needs to be combined with the many *external* factors, from property rights to cultural values, which vary significantly between local contexts and will lead to different social outcomes.

Finally, a research agenda does not stop at identifying the way trade is organized and the social issues which arise from this. A critical next step is to examine the different policy options and interventions which might address problems faced by workers and producers lower down in the value chain. This issue is taken up in the paper, “Voluntary Social Initiatives in Fresh Fruit and Vegetable Value Chains”. Building on the analysis here, that paper maps out key voluntary initiatives in the fresh fruits and vegetables sector – such as fair trade, ethical trade and worker-firm collective agreements – and reviews the literature on their effectiveness in addressing problems faced by the workers and small-holders which supply global FFV markets.

Appendices

Appendix A: Global value chain analysis: An overview

Global Value Chain Analysis is an evolving methodology. To date, theoretical and empirical casework has focused on three connected elements:

- Understanding how and why production and trade is co-ordinated, the linkages between firms and the effects of co-ordination on producers in developing countries. This draws attention to the role of lead firms – often global buyers – in defining chain organization and output, and the inclusionary and exclusionary effects of this for producers upstream.
- Identifying where and why economic rents are distributed between different firms in the chain.
- Examining what possibilities exist for upgrading, particularly for developing country producers concentrated in highly competitive, low rent activities.

The methodology overlaps with other concepts, such as ‘commodity chains’, ‘supply chains’, ‘international production networks’, ‘global production systems’ and the French ‘*filière*’ approach. The advantage of the value chain terminology is first, that it focuses on value capture across the widest sphere of activities (not just commodities, not just production); second, the value chain school has the most clearly developed *analytical* framework.

There are limitations to the value chain terminology, which this paper recognizes. The ‘chain’ metaphor is rather linear, and tends to understate the multiple networks firms are involved, and the variety of horizontal and vertical linkages between them. Another critique of value chain *analysis* is the insufficient attention given to the multiple external factors (institutional, social, cultural), which shape the organization of production and exchange, and its focus on economic over social or labour issues.

These types of concerns are beginning to be addressed. For example, Ponte and Gibbon’s study of agri-food chains in Africa focus on the multiple policy factors shaping firms participation in global markets, such as trade regimes and domestic policy. Whilst studies by Bair and Gereffi, 2001 (blue jeans); Barrientos, 2001 (horticulture); Dolan and Sorby, 2003 (horticulture); and Hughes, 2000 (cut flowers in Kenya) incorporate gender, labour and sociological-oriented lenses into the value chain framework.

Sources: Bair, forthcoming; Gereffi 1994; Gereffi et al., 2001; Gereffi et al., 2005; Kaplinsky and Morris, 2003; Ponte and Gibbon, 2005; Sturgeon, 2001.

Appendix B: Top 25 worldwide food retailers

The chart below reproduces a list provided by industry forum, M&M Planet Retail, on the largest global food retailers in 2005 (www.planetretail.net). The companies included must have a third of their sales from food. Information is taken from company documents unless otherwise indicated.

See also www.supermarketnews.com/sntop25.htm

Rank	Company	Top Executive	Sales in Billions	No. of Stores	Countries of Operation
1	Wal-Mart U.S.	H. Lee Scott Jr.	\$285.2	5,760 (1)	Argentina, Brazil, Canada, China, Germany, Hong Kong, Japan, Mexico, Puerto Rico, Singapore, South Korea, U.K., U.S.
2	Carrefour France	José Luis Duran	\$90.3	11,080	Argentina, Bahrain, Belgium, Brazil, China, Colombia, Czech Republic, Dominican Republic, Egypt, France, French Polynesia, Greece, Guadeloupe, Indonesia, Italy, Japan, Malaysia, Martinique, Mexico, New Caledonia, Oman, Poland, Portugal, Qatar, Reunion, Romania, Saudi Arabia, Singapore, Slovakia, Spain, South Korea, Switzerland, Taiwan, Thailand, Tunisia, Turkey, United Arab Emirates (2)
3	Metro Group Germany	Hans- Joachim Körber	\$70.1	2,562	Austria, Belgium, Bulgaria, China, Croatia, Czech Republic, Denmark, France, Germany, Greece, Hungary, India, Italy, Japan, Luxembourg, Moldova, Morocco, Netherlands, Poland, Portugal, Romania, Russia, Serbia and Montenegro, Slovakia, Spain, Switzerland, Turkey, Ukraine, U.K., Viet Nam
4	Ahold Netherlands	Anders C. Moberg	\$64.6	7,078	Costa Rica, Czech Republic, El Salvador, Estonia, Guatemala, Honduras, Latvia, Lithuania, Netherlands, Nicaragua, Norway, Poland, Slovakia, Sweden, U.S.
5	Tesco U.K.	Terry Leahy	\$62.2	2,391	China, Czech Republic, France, Hungary, Ireland, Japan, South Korea, Malaysia, Poland, Slovakia, Taiwan, Thailand, Turkey, U.K.
6	Kroger U.S.	David B. Dillon	\$56.4	3,790	U.S.
7	Rewe Germany	Achim Egner	\$50.7	13,433	Austria, Bulgaria, Croatia, Czech Republic, France, Germany, Hungary, Italy, Poland, Romania, Russia, Slovakia, Switzerland, Ukraine
8	Costco U.S.	James Sinegal	\$47.1	441	Canada, Japan, Mexico, Puerto Rico, South Korea, Taiwan, U.K., U.S.
9	ITM (Intermarché) France	Michel Pattou	\$40.0e	10,753	Belgium, Bosnia and Herzegovina, France, Germany, Poland, Portugal, Romania, Serbia and Montenegro, Spain (3)
10	Schwarz Group Germany	Günter Fergen	\$42.6e	6,627	Austria, Belgium, Croatia, Czech Republic, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, U.K.
11	Aldi Germany	Theo Albrecht	\$41.9e	7,435	Australia, Austria, Belgium, Denmark, France, Germany, Ireland, Luxembourg, Netherlands, Spain, U.K., U.S.

12	Albertsons U.S.	Larry Johnston	\$39.9	2,525	U.S.
13	AEON Japan	Motoya Okada	\$38.8	9,956	Canada, China, Hong Kong, Japan, South Korea, Malaysia, Taiwan, Thailand, U.K., U.S.
14	Walgreens U.S.	David W. Bernauer	\$37.5	4,585	Puerto Rico, U.S.
15	Auchan France	Gérard Mulliez	\$37.2	2,835	Angola, Argentina, China, France, Hungary, Italy, Luxembourg, Morocco, Poland, Portugal, Russia, Spain, Taiwan
16	Safeway U.S.	Steven A. Burd	\$35.8	1,908	Canada, Mexico, U.S.
17	Ito-Yokado Japan	Sakae Isaka	\$33.5	19,752	Australia, Canada, China, Guam, Japan, Malaysia, Mexico, Puerto Rico, Turkey, U.S. (4)
18	Leclerc France	Edouard Leclerc	\$32.8e	552	France, Italy, Poland, Portugal, Slovenia, Spain
19	Edeka Germany	Alfons Frenk	\$31.8e	1,305	Austria, Czech Republic, Denmark, Germany, Russia
20	Sainsbury U.K.	Justin King	\$29.9	743	U.K.
21	Tengelmann Germany	Karl-Erivan W. Haub	\$29.8e	7,617	Austria, Bosnia and Herzegovina, Canada, China, Czech Republic, Germany, Hungary, Poland, Portugal, Russia, Slovakia, Slovenia, Spain, Switzerland, U.S. (5)
22	Casino France	Jean-Charles Naouri	\$28.8	9,019	Argentina, Bahrain, Brazil, Colombia, Comoros, France, Lebanon, Madagascar, Martinique, Mauritius, Mexico, Morocco, Netherlands, New Caledonia, Poland, Reunion, Saudi Arabia, Taiwan, Thailand, Uruguay, U.S., Venezuela, Viet Nam (6)
23	Coles Myer Australia	John Fletcher	\$23.7	2,683	Australia, New Zealand
24	Morrisons U.K.	Ken Morrison	\$22.5	559	U.K.
25	Delhaize Group Belgium	Pierre- Olivier Beckers	\$22.3	2,579	Belgium, Czech Republic, Germany, Greece, Indonesia, Luxembourg, Romania, Slovakia, U.S. (7)

e=estimate. Footnotes: (1) Wal-Mart Stores' figures include Seiyu and Seiyu joint ventures; (2) Carrefour sold its Japan and Mexico operations in 2005; has a franchise agreement in Norway; (3) ITM sold its German operations to Edeka in 2005; (4) Ito-Yokado has 7-Eleven stores in Denmark, Norway, Singapore, South Korea and Sweden; (5) Tengelmann sold its China operations in 2005; (6) Casino announced franchise deals in Switzerland; (7) Delhaize Group plans to sell its Slovakia operations to Rewe in 2005.

Appendix C: Top ten global food and drink processors

The chart below reproduces a list of the top 10 food and drink processors in 2004, compiled in a briefing on corporate concentration in agri-food chains by the ETC group (ETC, 2005).

Company	2004 Food & Beverage Revenues (US\$ millions)
Nestle	63,535
Archer Daniels Midland	35,944
Altria Group	32,168
PepsiCo	29,261
Unilever	29,205
Tyson Foods	26,441
Cargill	24,000
Coca-Cola	21,962
Mars, Inc	18,000
Group Danone	17,040

Appendix D: Top ten pesticide and seed companies

The charts below reproduce lists of the top 10 pesticide and seed companies, based on 2004 sales, compiled in a briefing on corporate concentration in agri-food chains by the ETC group (ETC, 2005).

Top 10 pesticide firms

Company	Agrochemical Sales 2004 (US\$ millions)	% Pesticide market share
1. Bayer (Germany)	6,120	17
2. Syngenta (Switzerland)	6,030	17
3. BASF (Germany)	4,141	12
4. Dow (USA)	3,368	10
5. Monsanto (USA)	3,180	9
6. Dupont (USA)	2,211	6
7. Koor (Israel)	1,358	4
8. Sumitomo (Japan)	1,308	4
9. Nufarm (Australia)	1,060	3
10. Arysta (Japan)	790	1

Top 10 seed companies

Company	Seed sales 2004 (US\$ millions)
1. Monsanto (US) + Seminis (acquired by Monsanto 3/05)	2,277 + 526 = 2,803
2. DuPont / Pioneer (US)	2,600
3. Syngenta (Switzerland)	1,239
4. Groupe Limagrain (France)	1,044
5. KWS AG (Germany)	622
6. Land O' Lakes (US)	538
7. Sakata (Japan)	416
8. Bayer Crop Science (Germany)	387
9. Taikii (Japan)	366
10. Delta & Pine Land (US)	320

Source: ETC group, Communiqué 91, Nov/Dec 2005, Oligopoly, Inc. 2005. Available at www.etcgroup.org

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