

Why Do Small-Scale Producers Choose to Produce under Contract? Lessons from Nontraditional Vegetable Exports from Zimbabwe

OLIVER MASAKURE
University of Reading, UK

and

SPENCER HENSON^{*}
University of Guelph, Canada

Summary. — This article explores the motivations behind the decision of small-scale producers to grow nontraditional vegetables under contract for export. Based on a survey of small-scale producers in Zimbabwe, four factors are identified as motivating contracting, namely, market uncertainty, indirect benefits (e.g., knowledge acquisition), income benefits, and intangible benefits. Respondents are clustered according to the relative importance of these factors in their contracting decision. Four clusters are identified and related to the characteristics of these farmers including size of the farm, amount of land devoted to export crops, access to alternative markets, and the proportion of family income derived from export crops. The results suggest that there are systematic differences between farmers in their decisions to contract which needs to be recognized in contract design and management.

© 2005 Elsevier Ltd. All rights reserved.

Key words — contract farming, Zimbabwe, export agriculture, Sub-Saharan Africa, small-scale producers

1. INTRODUCTION

There has been a long debate regarding the impacts of contract production that inserts small-scale producers into domestic or export supply chains and the potential role in rural development and poverty alleviation strategies in developing countries (Glover, 1990). Views range from the positive impacts of an “agri-business for development” model that builds on the competences of large-scale agribusinesses (see e.g., Williams & Karen, 1985) to the potentially exploitative nature of contract relations as part of capitalist accumulation (see e.g., Watts, 1994). This has motivated research into the impact of contract farming on cash income and/or rates of poverty (see e.g., McCulloch & Ota, 2002) and potential wider effects, which illustrates how the performance of con-

tracts in the contexts of small-scale producers is highly variable (see e.g., Govereh & Jayne, 2003; Warning & Key, 2002), making it difficult to draw broad policy conclusions.

This paper does not address the impacts of contract farming directly, rather it focuses on the *ex ante* motivations for small-scale producers to engage in contracting. Currently, there is a paucity of studies that provide a clear understanding of these motivations (notable exceptions include Dorward, Kydd, & Poulton, 1998; Govereh & Jayne, 2003). Further, there is a need to explore on an on-going basis the nature of these motives in the context of the restructuring of supply chains and policy reforms. This is particularly the case with global supply chains

^{*} Final revision accepted: April 15, 2005.

for agricultural commodities linked to high-value markets in the industrialized countries, frequently driven by highly concentrated retail sectors (Dolan & Humphrey, 2000; Dolan, Humphrey, & Harris-Pascal, 1999).

The motivations to participate in contract farming and the impacts on small-scale producers need to be contextualized within prevailing agrarian structures and the scope for enhancement of agricultural production and incomes. In turn, these relate to (among other things) the efficacy of input and output markets and related transaction costs, access to land and water, provision of agricultural services, etc. In the case of Zimbabwe, until recently characterized by a highly polarized bimodal agrarian structure, there have been relatively limited opportunities for small-scale producers to enhance their livelihood. Thus, contract production linked to export supply chains has been promoted as a "golden opportunity" for those producers that have the resources required to enable them to produce high-value export crops (see e.g., Coulter, Goodland, Tallontire, & Springfellow, 1999; Heri, 2000). In this context, it is important to understand the motivations for small-scale producers to participate, reflecting their perceptions of the likely impacts on their agricultural operation with a view to the development of modes of contracting that address these motivations in a manner that brings about the long-term sustainability of contract arrangements.

This paper considers the incentives for small-scale producers to grow high-value export vegetables under contract in the Zimbabwean context, how these motivations vary across individual producers and the resulting policy implications for the role of globalized agribusiness in rural development and poverty alleviation. This forms part of a broader study undertaken to investigate the impacts of contract production of high-value export crops in Zimbabwe (Masakure, 2004). The paper is organized into four sections: First, the existing literature on the motivations for small-scale producers to contract is reviewed. This is followed by a brief overview of economic trends in Zimbabwe and the position of small-scale producers as a background to the role of contract production of high-value export crops. The third section outlines the analytical approach and provides an overview of the data before presenting the empirical results. Finally, the main findings and their policy implications are discussed.

2. MOTIVATIONS TO PARTICIPATE IN CONTRACT FARMING

The use of contracts is increasingly common across a range of agricultural commodities in both industrialized and developing countries as part of on-going processes of "agro-industrialization." In addition to individual case studies, there have been crosscountry reviews (see e.g., Dorward *et al.*, 1998; Little & Watts, 1994) and formal analyses (e.g., Goodhue, 1999). This literature highlights how the rationale for agribusiness to contract with producers varies greatly across firms and sectors. However, it is possible to discern two broad categories of motivation, namely, performance assurance and risk management. Indeed, most contracts are designed to provide incentives for performance and/or to facilitate risk sharing for price, quantity, and/or quality (see e.g., Goodhue, 1999; Key & McBride, 2003).

From the perspective of the producer, the motivation to participate in contract production varies, for example, according to prevailing agrarian and market structures or policy frameworks. It may emanate as a response to missing markets in an environment of pervasive risks, incomplete information, and information asymmetry, the need to access credit to overcome input supply problems, potential enhancements in access to extension advice, and increased market integration (see e.g., De Janvry, Fafchamps, & Sadoulet, 1991; Delgado, 1999; Dorward *et al.*, 1998; Govereh & Jayne, 2003; Grouh, 1994; Key & Runsten, 1999; Key, Sadoulet, & De Janvry, 2000). Much of the literature takes it as given that producers predominantly contract to earn additional income (e.g., Little & Watts, 1994), although a subset of studies do acknowledge, or at least imply, that individual farmers may contract for differing reasons (see e.g., Delgado, 1999). A unifying theme across the literature, however, is that informal and formal institutional development remains important in creating efficient market systems for the development of small-scale agriculture, in which contracting can play a part. Further, the potential role of both the public and private sectors in enhancing the efficacy of output and input markets in liberalized rural markets is recognized.

The relationship between the principal (contracting firms) and the agent (producers) within contract production are rarely governed by explicit performance and risk-sharing incentives.

Rather, there is frequently a combination of formal and informal incentives that complement each other to achieve the desired results (Gow & Swinnen, 2001). Prior research shows that, for some firms and contracts, informal incentives may be the most cost-effective means of managing performance. For others, performance premia combined with input control is more efficient (Goodhue, 1999; Hueth & Ligon, 1999; Hueth, Ligon, Wolf, & Wu, 1999). These varying forms of relationship and governance mechanism also lead to varying outcomes for the contracted producer; this is at the heart of debates over the conditions under which contracts are likely to benefit small-scale producers, for example, in terms of cash income, risk, etc. One strand of literature highlights the dangers of contract farming for small-scale producers (see e.g., Singh, 2002; Watts, 1994), arguing that contracts are replete with manipulation of producers by contractors. In addition, this literature highlights how the unequal nature of such relationships can lead to skewed income distribution, pervasive indebtedness, familial tensions, food insecurity, and enclave development, among other ills. The second strand of literature emphasizes the positive outcomes of contract farming (see e.g., Govereh & Jayne, 2003; Key & McBride, 2003; Key & Runsten, 1999). Emphasis is placed on the ways in which contracting enables risk sharing in production and/or marketing of crops and enhances the access of poor farmers to technology and other inputs and services at lower cost. In addition, it illustrates how contract production can improve the income of small holders, with significant spill-over effects in the form of farm productivity and the ability to engage in non-farm activities.

The existing literature provides a rich and varied analysis of many salient issues relating to the motivations for small-scale producers to participate in contract production and a firm foundation for the research reported below. Nevertheless, it tends to adopt a rather static and *ex post* perspective on the interaction of motivations to contract and the implications for contract design and management. Indeed, rarely are small-scale producers asked directly about their motivations; instead, this is implied from the observed impacts and/or forms taken by the contract in comparison with prevailing market and/or production conditions. The analysis presented below takes a rather different approach, attempting to first identify and then quantify the relative importance of motivations to engage in contract production directly, specifically in the context of Zimbabwe and the export supply chain for nontraditional high-value crops.

3. ZIMBABWEAN CONTEXT

Zimbabwe is recognized to be one of a relatively small number of countries that have successfully exploited markets for high-value nontraditional agricultural products, most notably horticultural crops, in industrialized countries (Heri, 2000).¹ Exports have traditionally been dominated by flowers and high-value “out-of-season” fresh produce including asparagus, various baby vegetables, mangetout, sweetcorn, and chillies, the later of which are the focus of this paper. The value of flower and fresh produce exports expanded rapidly through the 1990s (Figure 1), reaching a peak of US\$61.4 million in 1999–2000, of which

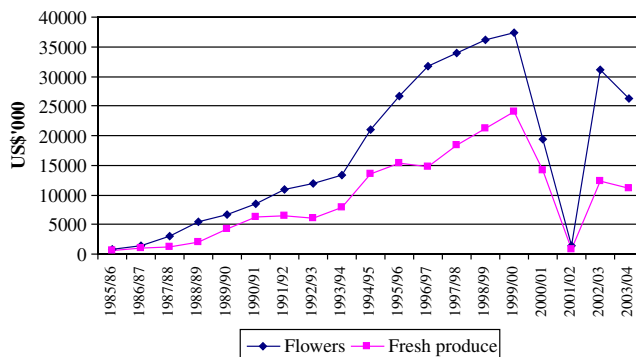


Figure 1. Value of flower and fresh produce exports, 1985–86 to 2003–04 (US\$'000 FOB). Source: Zimtrade.

fresh produce accounted for around 39%. Historically, around 65% of fresh produce exports have been destined for the United Kingdom, predominantly to major supermarket chains.

Until the early 1990s, small-scale producers played a negligible role in the export supply chain for fresh produce. Through the 1990s, efforts were made to promote the production of such crops by small- and medium-scale farmers in the context of government policy on land reform. Policy initiatives included greater emphasis on provision of extension services and input supply and enhancement of market opportunities (Reserve Bank of Zimbabwe, 2003), although in many cases their effectiveness was compromised by scarcity of resources. Further, in reality, there was very little progress in the reform of land ownership. The commercial farming and export sectors were also involved in these efforts through the Horticultural Promotion Council (HPC), with donor support from USAID. By 1995, there were 141 small-holder schemes totalling 8,460 hectares, of which 90% was under fresh produce production (Troparg, 1999). In turn, a number of major exporters began to integrate small-scale producers that were engaged in these schemes into their supply chains. By the end of the 1990s, however, small-scale producers still only accounted for 10% of the production of fresh produce for export.

Since 2000, the Zimbabwean economy has been in almost continuous decline as a result of "inappropriate" macroeconomic policies, conditions of acute uncertainty associated with the government's program of rapid agricultural land reform, and intermittent severe droughts (Poulton, Davies, Matshe, & Urey, 2002). Rates of real economic growth diminished from 0.7% in 1999 to -13.2% in 2003 (Reserve Bank of Zimbabwe, 2003) and levels of poverty that had already increased through the 1990s, soared (Alwang, Mills, & Taruvinga, 2002; IMF, 2004; Reserve Bank of Zimbabwe, 2003). This has been reflected across all sectors of the economy, but in particular agriculture, where the real rate of growth dropped from 4.3% in 1999 to -21.0% in 2002 (Reserve Bank of Zimbabwe, 2003). Over this same period, the value of agricultural exports declined by around 39% (IMF, 2004). In the case of flowers and fresh produce, exports collapsed to reach a low of US\$2.2 million in 2001-02 (Figure 1), although subsequently recovered to US\$37.3 million in 2003-04. Ironically, through this period small-scale farmers came to account for a

much greater proportion of fresh produce production for export. Largely, this reflected the restructuring of many commercial farms through the program of land reform that necessitated the greater reliance of major exporters on small-scale producers as a source of supply. At the same time, with scarce supplies and high prices of inputs, many small-scale producers were driven to seek opportunities for production of export crops under contract (Masakure, 2004).

4. CASE OF HORTICO AGRISYSTEMS

The case considered here is the outgrower scheme operated by Hortico Agrisystems, a subsidiary of Hortico, one of Zimbabwe's major exporters of high-value fresh produce, predominantly to UK supermarkets. Hortico Agrisystems currently sources from over 4,000 small-scale producers, which predominantly farm on communal land and range in size from 0.5 to 10 ha, with an average land holding of around 2.3 ha. These producers are distributed across three districts in the Mashonaland East Province, namely, Murewa, Mutoko, and Mudzi. Individual producers are grouped into collection centers that are administered by Hortico Agrisystems' staff, where they receive inputs and deliver contracted crops. At the time of the survey, there were 17 collection centers, distributed more or less equally across these three districts. From this point on, Hortico Agrisystems takes ownership of the supplied produce and undertakes preliminary processing, before selling it on to Hortico that undertakes final processing and export.

The contract between Hortico Agrisystems and its small-scale outgrowers is unwritten, reflecting recognition on the part of the exporter that a formal written contract would be unenforceable and, at the same time, limits flexibility. Hortico Agrisystems provides inputs in measured quantities for a particular crop on credit, the cost of which is subtracted from the value of the delivered produce. Each crop is grown on a standard-size area specified by Hortico Agrisystems that is common to all producers. A minimum price is stipulated for the crop prior to planting and farmers are provided with a crop budget showing input costs and breakeven yields. At times, the price paid to contracted producers exceeds this minimum, especially when export prices increase, and there is a heightened risk of producers "side-

selling” to other exporters. Hortico Agrisystems stipulates strict quality criteria that are enforced at collection systems when producers deliver their crop. All rejected produce is returned to the farmer.

5. DATA COLLECTION AND ANALYSIS

Data were collected and analyzed in three phases over the period July 2001–June 2002. Firstly, exploratory interviews were undertaken with Hortico Agrisystems personnel, government officials, and other key informants in order to understand fully the context in which this particular contract farming scheme operated. Secondly, 40 in-depth interviews were held with a purposively sampled group of contracted small-scale producers that aimed to include the widest range of contracted producers in terms of gender, age, size of holding, length of time they had been supplying Hortico Agrisystems, etc. In this way, the intention of the in-depth interviews was to identify the widest range of experiences of contracted producers and their initial motivations for starting to supply Hortico Agrisystems. The interviews were audio recorded and later transcribed to facilitate computer-based analysis using N-VIVO.

In the third stage, a questionnaire was designed on the basis of analysis of the in-depth interview data and elicited through personal interview with a sample of 300 contracting producers. These producers were sampled using a multistage process. Ten collection centers were selected at random, from each of which 30 producers were randomly selected to participate in the survey. The interviewers presented themselves as academic researchers with no connections to Hortico Agrisystems. Hortico Agrisystems was not involved in any way in the selection of respondents and all responses were kept confidential. The final sample included 114 (38%) men and 186 (62%) women, which broadly reflected the gender profile of producers contracting to Hortico Agrisystems at the time of the study. Mean household size was 4.4 persons; household members were the main source of labor used by respondents, although 60% did hire additional labor during the rainy season.

The questionnaire collected a wide range of information on the characteristics of the surveyed producers, impacts of contract production, problems encountered, etc., which are

described elsewhere (Masakure, 2004). The relative importance of the factors motivating the initial decision to contract with Hortico Agrisystems, identified through the in-depth interviews, was assessed using a series of five-point Likert scales from “very important” (5) to “very unimportant” (1). The scale values were analyzed using factor analysis to identify any underlying constructs and to characterize these latent constructs into a coherent series of subsets. The derived factor weightings for each of the respondents were then subjected to cluster analysis to identify systematic differences in the relative importance of the identified motivation subsets. The derived clusters were compared according to the sociodemographic characteristics of the cluster members.

6. FACTORS MOTIVATING CONTRACT PRODUCTION

Analysis of the in-depth interviews identified a total of 11 factors as motivating small-scale producers to contract with Hortico Agrisystems for the production of fresh produce for export (Table 1), that themselves grouped into a series of broader categories. A major issue for many producers was the prevailing nature of the local markets they supplied, including gaining a reliable supply of inputs, accessing transport, and the uncertainty associated with market demand and prices. This reflected the weakness of local input and output markets that were associated with considerable uncertainty regarding demand and prices. As a result, transaction costs tended to be high. These issues are illustrated by the following quotations from the in-depth interviews:

“We were motivated when Hortico authorities told us that we would get free seed, fertilizer and chemical inputs for the project. We were told that the cost of these inputs would then be deducted when we got paid for the produce we would have made, of which any remaining profits would be ours. This was far better for us, we have problems getting seed from the market.”

Female producer, aged 34, contracted for one year.

“There is a lot of difference in marketing between Hortico produce and for others like Mbare market. For Hortico, if you produce very good quality, they will take all of it, no matter what date you go there and you know what you are going to get. But at Mbare the problems with transport can lead to deterioration of your produce, this leads to reduced demand and sales. So we were starting to go down on

Table 1. *Mean importance scores in descending order for factors motivating contracting to Hortico Agrisystems*

Factors in deciding to grow export crops	Mean score
To earn extra income	4.7
No need to transport crops to market	4.5 ^a
Guaranteed market for crops	4.5 ^a
Reliable supply of inputs	4.4
To acquire knowledge for use on new crops	4.1 ^b
To acquire knowledge for use on traditional crops	4.0 ^b
Guaranteed minimum prices	3.8 ^c
Stepping stone to other projects	3.8 ^c
Saw benefits to other farmers	3.7 ^c
Lack of alternative sources of income	3.4
Get satisfaction from growing export crops	1.6

Note: Mean scores indicated with the same letter are not significantly different from each other at the 5% level on the basis of a Wilcoxon sign-rank test.

our production for Mbare anyway because of marketing problems which was a problem for us.”²

Male producer, aged 45, contracted for three years.

“Selling to Mbare is a problem. When prices are not good, some will be forced to borrow money for a return fare, that is when you can get someone to take you. The other thing is that you can lose your crop to thieves that are there at Mbare. At Mbare you also have to pay for your stall and at times if there is just too much crops, your crop can rot. This is different from here where I just take my crops to the depot. There are no thieves at the center.”

Female producer, aged 40, contracted for two years.

Growing under contract was also seen as a potentially good way in which to obtain advice on growing both existing and new crops, reflecting the weakness of prevailing extension systems (Agritex) in the area, and a means to develop new ideas. For example,

“We never got any advice from the government people. They never came around. We wanted to learn how to do things better, to know how to better our quality. We are now realizing that even with Agritex we were doing wrong because we would apply fertilizer once to a field that was that. Now we have come to know you can apply fertilizer five times and it would actually be good. Those from Agritex just come to tell us to farm and weed and apply fertilizer and they only come again as I would be going to market.”

Male producer, aged 47, contracted for three years.

“Ahh starting to growing for Hortico was important to me, because I knew I could do a lot of things that I could not do. This goat that you see, I bought it through growing mangetout peas. I knew what I would do when the Hortico person came to me. I bought it for \$250, but now that goat has already given birth to three goats, now they are two because the other one died. So I know that from these goats, I can do a project on rearing goats, if I decide to. I

know I can do a bigger project, by just rearing goats.”

Female producer, aged 36, contracted for two years.

Many of the interviewed producers also recognized a wider set of “benefits” that they found difficult to articulate in concrete terms and/or simply looked to the experiences of their neighbors who were already contracting with Hortico Agrisystems and expected that the same would happen to them. Indeed, growing for Hortico Agrisystems was frequently cited as a source of self-satisfaction and even pride:

“I started after realizing that some people were doing very well and then I enquired whether it was not difficult growing for Hortico. They told me that it was easy as long as one followed their procedures. They said that it is very helpful and meant to promote your livelihood. So I was referred to another farmer, where I was impressed with what he was doing. He then registered my name in his register of farmers and said that I had to work hard because we have a new center. So I joined.”

Male producer, 39 years, contracted for one year.

“Hortico once held a ceremony where they awarded farmers with prizes. Good farmers won implements like hose pipes, wheel barrows etc. I wanted to be up there and show I was a good farmer, could grow something that was exported. I wanted to be one of them. I wanted to do what the men were doing.”

Female producer, aged 30, contacted for two years.

At the same time as these direct and/or intangible impacts of growing for Hortico Agrisystems took place, producers also highlighted the importance of gaining extra income, especially where they had few alternative sources of livelihood. For example,

“What motivated us to join Hortico is to raise income so that we can send our children to school,

buy food, and also raise our living standards generally. Because here in the rural areas, we do not have formal jobs, we just work as communal farmers. When we finish farming in the rainy season, we find ourselves with very little to do, except growing one or two vegetables for sale or that we eat. But now because we have joined Hortico we now have some thing to do during the dry season, we are now like the people in Harare who go to work everyday. If they work they go to work everyday, and we realized that if we join Hortico. It help us because it means that we can get money every season. I was not in the first group that joined. There is a first group that joined and when we realized that this project was good, I then joined as well."

Male producer, aged 41, contracted for one year.

As described above, the survey instrument was employed to derive quantitative estimates of the relative importance of the identified 11 motivating factors. The single most important motivation was earning additional income (Table 1). However, a range of other factors were also important motivations, in particular the fact that there was no need to transport products to the market, the market for contracted crops was guaranteed, and a reliable supply of inputs was provided by the contractor. Acquisition of knowledge to apply to new and/or traditional crops was also an important motivating factor. This reflected the prevailing market conditions and institutional structures faced by many of these producers, with weak input and/or output markets and limited access to extension services. Overall, these results suggest that the decision to contract to Hortico Agrisystems was motivated by a number of factors simultaneously. Further, it is clear that

producers had contracted both to take advantage of positive opportunities ("pull" factors) as well as to mitigate against the adverse circumstances they faced, especially with local markets ("push" factors).

In order to categorize these motivations in terms of a smaller set of crosscutting themes, that is any underlying latent constructs, the data were subject to Principle Components Analysis (PCA). A total of four of the identified factors had eigenvalues exceeding one, collectively accounting for 84.5% of the variation across the sample. The factor loadings were subsequently subject to a varimax rotation.³ The resultant factor loadings are reported in Table 2. Sampling adequacy as measured using the Kaiser–Meyer–Olkin (KMO) statistic was 0.754.⁴

The factor analysis uncovered four broad motivations for contracting to produce export crops. These are described and interpreted in turn below.

Factor 1: The issues that loaded most heavily on this factor, which explained 30.2% of the variation, were "guaranteed minimum prices," "guaranteed market for crops," "reliable supply of inputs," and "no need to transport crop to market." Overall, this factor was associated with *market uncertainty*. Contracting for export crop production provided a less uncertain option to the production and marketing problems associated with staple crops and local cash crops in the areas where these producers operated (see e.g., Poulton *et al.*, 1998). Local crop production was typically severely constrained by poor seed and fertilizer markets in rural

Table 2. *Varimax-rotated factor matrix of motivations for contracting to Hortico Agrisystems*

Reason for contracting	Market uncertainty	Indirect benefits	Income	Intangible/latent benefits
Guaranteed minimum prices	0.921	0.157	0.143	0.087
Guaranteed market for crops	0.803	0.264	0.235	0.204
Reliable supply of inputs	0.796	0.262	0.132	0.178
No need to transport crop to market	0.763	0.276	0.145	0.224
Acquire knowledge for use on traditional crops	0.204	0.893	0.12	0.184
Stepping stone to other projects	0.286	0.791	0.204	0.129
Acquire knowledge for use on new crops	0.283	0.735	0.211	0.286
To earn extra income	0.296	0.135	0.864	0.156
Lack of alternative sources of income	0.032	0.258	0.772	0.289
Saw benefits to other farmers	0.284	0.256	0.162	0.835
Get satisfaction from growing export crops	0.286	0.286	0.211	0.695
<i>Eigenvalue</i>	3.322	2.816	2.123	1.034

Note: All factor loadings in bold are statistically significant for that particular factor at the 5% level, based on the specified α value.

areas due to limited effective demand, in as a reflection of limited access to credit. For example, farmers in Kudzwe and Mavhurazi traveled 30 km to access inputs, whereas producers more generally routinely traveled to Harare, Murewa, and Mutoko to procure inputs. Even when available, inputs were often unaffordable and/or the supply was unreliable; for example, there were frequent reports of seed arriving after the optimal planting time.

Where local farming groups had been established to procure inputs and/or market output, these had invariably either disintegrated or become dormant in the face of prevailing economic conditions, further limiting the opportunities available to farmers. Further, there was considerable mistrust between farmers in relaying useful market information. Even when information was available, respondents said it was specific to crops and/or traders and limited their access to alternative markets. Although virtually all of the respondents had relatively easy access to main roads and local markets, they felt that they were excluded from more lucrative main markets in Harare due to distance and/or transport costs. Although transportation services had improved in the region during the 1990s, more recent increases in fuel and other costs had driven up fares, reduced the number of services, and/or made those services that did continue unreliable. Indeed, transport problems were a day-to-day occurrence including the limited carrying capacity of public transport vehicles, drivers refusing to take produce, general unreliability of transport services, etc.

Factor 2: The issues that loaded most heavily on this factor were “acquire knowledge for use on traditional crops,” “stepping-stone to other projects,” and “acquire knowledge for use on new crops.” This factor, accounting for 25.6% of the variation, was associated with the *indirect benefits* of contract production that could be applied to the enhancement of other sources of livelihood. Contracting was seen to provide a reliable and up-to-date source of agronomic advice, affording an alternative to the agricultural services provided through government agencies, which had become short in supply and less effective due to reduced government expenditure on extension support and other services. In addition, community-based farming groups were found to be either defunct or inactive, while only one NGO was currently operating in the area. Within this context, farmers were being forced to rely on private traders, family,

and friends to get timely advice on enhancing their traditional crops and identifying new opportunities.

Factor 3: The issues that loaded heavily on this factor which accounted for 19.3% of the variation were “earn extra income” and “lack of alternative sources of income.” This suggests that this factor was associated with direct *income* benefits as a reason to contract for export horticultural crop production. While the respondents derived a relatively small proportion of their cash income from their contract production, averaging around 15%, the poor performance of traditional farming activities due to recurrent droughts and input constraints and the risk associated with local markets made the secure income from contract production extremely valuable. Indeed, this was indicative of the decline in returns to ownership of physical and human capital in rural areas across Zimbabwe more generally through the 1990s and, more dramatically, since 2000 (Alwang *et al.*, 2002; Bautista, Thomas, Muir-Leresche, & Lofgren, 2002).

Factor 4: The final factor accounted for 9.4% of the variation. Variables loading most heavily onto this were “saw benefits to other farmers” and “get satisfaction from growing export crops,” broadly associated with the *intangible and/or latent benefits* of contracting to grow horticultural export crops. Indeed, as described above, this was supported by the analysis of the in-depth interviews, which indicated how many small-scale producers got self-satisfaction and were “proud” that they grew crops for export and achieved a higher status in their community from doing so.

These results clearly indicated that the decision by small-scale producers to contract for the production of high-value horticultural products linked to export supply chains was motivated simultaneously by a range of factors. Further, these factors very much reflected the prevailing opportunities and constraints faced by these producers that defined the viability and sustainability of alternative crops and markets as sources of livelihood. Indeed, the predominant factor related to the “push” for farmers to overcome weaknesses in local input and output markets through contract production. Likewise, reflecting the paucity of extension services, producers perceived contract production to be a mechanism through which they could acquire skills to enhance the productivity of crops grown for local markets. It would seem that producers were willing, or per-

haps were required, to accept the loss of autonomy and potential risks associated with contract production to secure access to enhanced market and production resources. Producers also gained satisfaction from growing export crops and, indeed, gained prestige from doing so. While clearly of lesser importance, such intangible and/or latent factors emerged as integral to the motivation to contract.

Although not a primary driver for many producers, contract production was seen as a means through which cash income could be enhanced, and in this sense was also seen as a positive opportunity. The secondary role of income in the motivation to contract reflected the relatively small sizes of plot that each farmer was permitted to grow for Hortico Agrisystems; indeed, a frequent complaint among contracted producers was that they were not permitted to grow more! In such contexts, we might expect income not to be the predominant driver for producers to contract; rather, it is the other benefits derived from contracting that make it potentially worthwhile (see e.g., Poulton, 1998).

7. VARIATIONS IN MOTIVATIONS TO CONTRACT

Interpretation of the results of the PCA alongside analysis of the in-depth interviews highlights the linkage between the motivations to contract for production of high-value horticultural crops and prevailing conditions in local markets, extension, and other infrastructure, etc. Thus, we might expect the relative importance of the identified motivating factors to vary according to the particular circumstances of each producer, for example, their distance from local markets and/or access to transportation. Further, the existing literature highlights how the response of small-scale producers to market opportunities reflects household characteristics and their economic and social circumstances (see e.g., De Janvry *et al.*, 1991;

Delgado, 1999; Holloway, Nicholson, Delgado, Staal, & Ehui, 2000; Key *et al.*, 2000).

In order to explore the ways in which the motivations to contract for Hortico Agrisystems differed between subsets of producers, K-means cluster analysis was employed. Iterative cluster analysis of the factor loadings for each respondent produced a four cluster solution with the greatest level of internal consistency (Table 3). The cluster descriptors are based on factor scores that have a mean of zero and a standard deviation of one (Hair *et al.*, 1998). A negative value indicates below-average activity on a particular factor and a positive value above average activity on a factor. Based on the cluster means for the derived factor scores and cluster sizes, the following descriptors were identified.

Having derived four distinct clusters of respondents according to the motivation to contract for the production of high-value horticultural products, the sociodemographic characteristics of the members of each cluster were explored. The main characteristics found to vary significantly across the clusters were size of the farm, amount of land devoted to export crop production, level of market access, proportion of income derived from export crops, and the gender of the respondent (Table 4). Other characteristics were examined, for example, access to family labor and irrigation, but found not to vary systematically across the clusters. In turn, the characteristics of the cluster members provided some measure of the external validity of the defined clusters and supported the *ex post* interpretations discussed above.

Based on the cluster descriptors in the light of the analysis of the in-depth interviews, the clusters were interpreted as follows:

Cluster One: About 27% of respondents can be described as predominantly “market-drive.” For these producers, market uncertainty (Factor 1) was the main motivator with income (Factor 3) having a secondary impact. The indirect benefits (Factor 2) and intangible impacts

Table 3. Cluster means for factors scores derived from K-means clustering

Factor	Market impact	Direct impact	Farm-level impact	Overall impact
1. Market uncertainty	2.852	1.642	−1.764	0.565
2. Indirect benefits	−1.453	−1.324	2.542	0.502
3. Income	0.223	2.061	−0.656	1.023
4. Intangible/latent benefits	−0.348	−0.564	1.347	0.965
% of respondents	26.8%	32.2%	16.4%	12.9%

Table 4. *Cluster membership by characteristics of respondents*

Characteristic	Market impact (%)	Direct impact (%)	Farm-level impact (%)	Overall impact (%)
<i>Size of farm</i>				
<2 ha	69.8	29.4	16.1	24.5
3–4 ha	26.7	67.6	32.2	71.4
>4 ha	3.5	2.9	51.6	4.1
<i>Proportion of land used for export crops</i>				
<10%	77.9	60.8	91.9	59.2
>10%	22.1	39.2	8.1	40.8
<i>Market access</i>				
Easy	38.4	39.2	80.6	61.2
Not easy	61.6	60.8	19.4	38.8
<i>Proportion of income from export crops</i>				
<10%	59.3	26.6	83.9	49.0
>10%	40.7	78.4	16.1	51.0
<i>Gender</i>				
Female	76.7	68.6	35.5	57.1
Male	23.3	31.4	64.5	42.9

(Factor 4) were of less importance to this group of producers than the sample as a whole. This consisted predominantly of producers with smaller plots and had problems accessing markets.⁵ Around 77% were female. Most of these producers were situated at a considerable distance from a local “growth point” and/or had problems accessing transport, either because there was no established road and/or a transport services nearby. These producers devoted only a relatively small portion of their land to export crop production and derived a marginal share of their income from such crops. However, they benefited from the security of input supply and output markets and were able to use at least part of the fertilizer supplied for the export crop on their local crops. Indeed, the in-depth interviews provided numerous examples of producers using 10–15% of the inputs supplied by Hortico Agrisystems on their own crops.

Cluster Two: Around 32% of respondents can be classified as being driven predominantly by the “direct impact” in terms of income (Factor 3) and reduced market uncertainty (Factor 1). Any indirect impacts (Factor 2) and wider intangible benefits (Factor 4) were of less importance than the sample as a whole. The members of Cluster Two were predominantly motivated to grow export crops because of the “direct impact” in terms of cash income and reduced market uncertainty. These producers typically had larger plots of land, although in certain cases, significant amounts were left

idle. The predominant reason for nonuse of land was lack of finance to buy inputs, scarcity of inputs, and/or weak output markets, although in some cases a male adult was away working and land could not be cultivated due to a shortage of other family labor. The majority of these producers was female and had difficulty accessing markets and/or credit. The majority devoted less than 10% of their land to export crop production, although over 78% derived more than 10% of their cash income from such crops.

Cluster Three: About 16% of respondents can be categorized as being motivated by the “farm-level impact” of contract production. This included the indirect benefits of contracting (Factor 2), for example, through skill acquisition, and the intangible benefits (Factor 4) in terms of self-satisfaction and esteem associated with contract and/or export crop production. Reduced market uncertainty (Factor 1) and, to a lesser extent, income (Factor 3) was of less importance than the sample as a whole. This cluster consisted predominantly of producers with the largest plot sizes, who were able to utilize any knowledge they gained to enhance productivity in supplying crops to local markets. These producers typically devoted a small proportion of their land to export crop production and obtained a small percentage of their income from these crops. Most were male farmers with a relatively easier access to markets than Clusters One and Two.

Cluster Four: Around 13% of respondents were predominantly motivated by the “overall impact” of contract production; they were simultaneously motivated by all four of the factors, a *general approach*. These respondents viewed the benefits of contract production in their entirety rather than emphasizing particular impacts. This suggests, and indeed this was supported by the analysis of the in-depth interviews, that these producers had not experienced a significant and easily identifiable impact in terms of any one of the four motivating factors; rather they considered that they were “better off” as a whole now that they contracted. The majority of the producers in this cluster devoted a small proportion of their land to contract production, although around half did derive more than 10% of their cash income from these crops. The majority had easy market access and had relatively large plot sizes. There were both male and female producers in this group, although the latter were more dominant.

Overall, these results confirm the multiple and diverse nature of the motivations to participate in contract production of high-value horticultural crops, specifically in the context of the export supply chain from Zimbabwe. Further, the relative importance of these motivations reflected the particular circumstances and characteristics of producers. The prevailing market and institutional environment in which producers operated are paramount in explaining such variations. For example, the “market impact” was a predominant motivator among farmers who had difficulty in accessing local markets and women with limited alternative income-generating activities. Conversely, producers for which “farm-level impacts” predominated, typically had good market access, larger plot sizes, and were men. This latter group have greater opportunities to exploit the knowledge they gain in the wider framing enterprise.

8. CONCLUSIONS

This paper has explored the factors motivating small-scale producers in Zimbabwe to contract for the production of high-value horticultural products in the context of the export supply chain. It has been shown that these motivations vary according to the prevailing situation of producers and that these relate to the existence, or not, of alternative economic

opportunities and/or imperfections in local input and output markets. At the same time, contract production can be a valuable source of additional cash income and/or knowledge than can be employed to enhance the productivity of the entire farming enterprise. While at least some of the existing literature recognizes the multifactorial nature of the motivation to participate in contract production, great emphasis is put on the scope for direct income generation, which the current analysis suggests is but one of a range of direct and indirect benefits that are discerned by small-scale producers. While income may be the “bottom-line,” the motivation to contract *per se* is clearly more complex.

In displaying the complexity of the motivations to participate in contract production, the analysis presented above acts to enhance our understanding of the manner in which contracting is positioned within the wider livelihoods strategy of small-scale producers and, in turn, how this relates to prevailing economic and market conditions. In particular, four distinct motivations are identified that relate to the perceived benefits of contract production. Firstly, the degree to which production contracts act to alleviate the uncertainties associated with local markets, for example, in terms of input supply, market demand, and market prices. Secondly, the indirect benefits in terms of skills acquisition for application in the production of both existing and new crops, in the context of scarce extension and other agricultural support services. Thirdly, contract production is seen as a potential direct source of cash income, albeit relatively small within the context of the specific context of the supply chain operated by Hortico Agrisystems. Finally, contract production is perceived by small-scale producers to be prestigious as a source of self-satisfaction and social esteem.

In turn, subgroups of producers differ markedly in the relative importance of these motivating factors which relates, in turn, to their particular circumstance. As a consequence, it is possible to discern four motivational groupings that also have distinct sociodemographic characteristics, for example, in terms of farm size, amount of land devoted to export crops, proportion of income derived from export crops, level of market access, and gender. Thus, these subgroups vary not only in the constraints they face due to economic conditions, but also in their ability to exploit the wider benefits from contract production. At the same

time, however, the incentives for small-scale producers to contract, taken as a whole, reflect the weakness of rural input and output markets in the Zimbabwean context. Many of the predominant incentives among the surveyed small-scale producers result from the fact that Hortico Agrisystems is seen as the “solution” to high input prices, lack of access to credit, output market uncertainties, and poor extension services. This supports a growing literature that suggests private investment in contract production may, provided it supplies high-quality services and offers prices that enable a certain minimum level of economic returns, be one solution to weaknesses in public policies and prevailing market institutions (see e.g., Boselie, Henson, & Weatherspoon, 2003; Poulton *et al.*, 2004).

These findings have important implications for the design and operation of contract production schemes that engage small-scale pro-

ducers in the context of developing countries. The primary message is that motivations to participate in contract production vary even among producers in a relatively small geographical area. Further, these motivations reflect local economic, social, and institutional conditions and, as a result, will vary from one context to another and over time in the light of changing circumstances. At the same time, however, it is evident that a single contract design can accommodate a range of incentive structures, facilitating the participation of farmers with diverse reasons for turning to contract production without having to adjust to the motives of individual producers. The implication is that heterogeneity in the incentives of small-scale producers is not necessarily a constraint to the sustainability of contract farming schemes, a major factor determining the commercial sustainability of such supply arrangements.

NOTES

1. Others include Kenya, South Africa, Zambia, Cote D'Ivoire, Gambia, Morocco, and Egypt.
2. Mbare is a major wholesale/retail market in Harare.
3. This aids in the interpretation of the defined factors by “rotating” the axes of the original solution in order to produce linear combinations of the derived factors such that the loadings of the individual variables are nearer to zero or one.
4. Lower KMO values indicate that correlations between pairs of variables are not explained by the underlying variables, thus questioning the appropriateness of PCA (Hair, Anderson, Tatham, & Black, 1998).
5. Market access was measured on a five-point Likert scale from “very easy” (5) to “very difficult” (1).

REFERENCES

- Alwang, J., Mills, B. F., & Taruvinga, N. (2002). *Why has poverty increased in Zimbabwe?* Washington, DC: The World Bank.
- Bautista, R. M., Thomas, M., Muir-Leresche, K., & Lofgren, H. (2002). *Macroeconomic policy reforms and agriculture: Towards equitable growth in Zimbabwe*. Washington, DC: International Food Policy Research Institute.
- Boselie, D., Henson, S., & Weatherspoon, D. (2003). Supermarket procurement practices in developing countries: the role of the public and private sectors. *American Journal of Agricultural Economics*, 85(5), 1155–1161.
- Coulter, J., Goodland, A., Tallontire, A., & Springfellow, R. (1999). Marrying farmer cooperation and contract farming for agricultural service provision in Sub Saharan Africa. *ODI Natural Resource Perspectives*, 48(November).
- De Janvry, A., Fafchamps, F., & Sadoulet, E. (1991). Peasant household behaviour with missing markets: some paradoxes explained. *Economic Journal*, 101, 1400–1417.
- Delgado, C. L. (1999). Sources of growth in smallholder agriculture in Sub-Saharan Africa: the role of vertical integration of smallholder farmers with processors and marketers of high-value added items. *Agrekon*, 38, 165–189.
- Dolan, C., & Humphrey, J. (2000). Governance and trade in fresh vegetables: the impact of UK supermarkets on the African Horticulture Industry. *Journal of Development Studies*, 37(2), 147–176.
- Dolan, C., Humphrey, J., & Harris-Pascal, C. (1999). *Horticulture commodity chains: The impact of the UK market on the African Fresh Vegetable Industry*. Brighton: Institute for Development Studies.

- Dorward, A., Kydd, J., & Poulton, C. (Eds.). (1998). *Smallholder cash crop production under market liberalisation: A new institutional economics perspective*. Wallingford: CABI International.
- Glover, D. (1990). Contract farming and outgrower schemes in East and Southern Africa. *Journal of Agricultural Economics*, 41(2), 303–315.
- Goodhue, R. E. (1999). Input control in agricultural production contracts. *American Journal of Agricultural Economics*, 81, 616–620.
- Govere, J., & Jayne, T. S. (2003). Cash cropping and food crop productivity: synergies or trade-offs? *Agricultural Economics*, 28, 39–50.
- Gow, H. R., & Swinnen, J. F. M. (2001). Private enforcement capital and contract enforcement in transitional economies. *American Journal of Agricultural Economics*, 83(3), 686–690.
- Grosh, B. (1994). Contract farming in Africa: an application of new institutional economics. *Journal of African Economies*, 3(2), 231–261.
- Hair, J. F., Anderson, R. E., Tatham, R., & Black, W. C. (1998). *Multivariate data analysis*. Upper Saddle River, NJ: Prentice-Hall.
- Heri, S. (2000). The growth and development of the Horticultural Sector in Zimbabwe. Paper prepared for the UNCTAD Conference, UNCTAD, Geneva.
- Holloway, G., Nicholson, C., Delgado, C., Staal, S., & Ehui, S. (2000). Agroindustrialisation through institutional innovation, transaction costs, cooperatives and milk market development in the East-African Highlands. *Agricultural Economics*, 23, 279–288.
- Hueth, B. E., & Ligon, E. (1999). Producer price risk and quality measurement. *American Journal of Agricultural Economics*, 81, 512–524.
- Hueth, B. E., Ligon, S., Wolf, S., & Wu, S. (1999). Incentive instruments in fruit and vegetable contracts: input control, monitoring, measuring, and price risk. *Review of Agricultural Economics*, 21(2), 374–389.
- IMF (2004). Zimbabwe Country Report. Statistical Index No. 04/296. International Monetary Fund, Washington, DC.
- Key, N., & McBride, W. (2003). Production contracts and productivity in the US Hog Sector. *American Journal of Agricultural Economics*, 85(1), 121–133.
- Key, N., & Runsten, D. (1999). Farming, smallholders and rural development in Latin America: contract the organisation of agro-processing firms and the scale of outgrower production. *World Development*, 27(2), 381–401.
- Key, N., Sadoulet, E., & De Janvry, A. (2000). Transaction costs and agricultural household response. *American Journal of Agricultural Economics*, 82, 245–259.
- Little, P. D., & Watts, M. J. (1994). Introduction. In P. D. Little, & M. J. Watts (Eds.), *Living under contract: Contract farming and agrarian transformation in Sub Saharan Africa*. Madison: University of Wisconsin Press.
- Masakure, O. (2004). *Export supply chains and small-scale producers in Africa. Horticultural exports from Zimbabwe*. PhD Thesis, Department of Agricultural and Food Economics, University of Reading.
- McCulloch, N., & Ota, M. (2002). *Export Horticulture and Poverty in Kenya*. Brighton UK. Institute of Development Studies.
- Poulton, C. (1998). Cotton production and marketing in Northern Ghana: the dynamics of competition in a system of interlocking transactions. In A. Dorward, J. Kydd, & C. Poulton (Eds.), *Smallholder cash crop production under market liberalisation: A new institutional economics perspective*. Wallingford: CAB International.
- Poulton, C., Davies, R., Matshe, I., & Urey, I. (2002). A review of Zimbabwe's agricultural economic policies 1980–2000. Imperial College at Wye, Ashford.
- Poulton, C., Gibbon, P., Hanyani-Mlambo, B., Kydd, J., Maro, W., Larsen, M. N., et al. (2004). Competition and coordination in liberalised African cotton market systems. *World Development*, 32(3), 519–536.
- Poulton, C., Mukwereza, I., Masanganise, P., Sanyatwe, D., Mariga, K., & Loader, R. (1998). Overcoming informational constraints: improving horticultural marketing and technical information flows to smallholders: Zimbabwe case study report. Wye College, Ashford.
- Reserve Bank of Zimbabwe (2003). Monetary Policy 2004. Government of Zimbabwe, Harare.
- Singh, S. (2002). Contracting out solutions: political economy of contract farming in the Indian Punjab. *World Development*, 30(9), 1621–1638.
- Troparg (1999). Programme for the promotion of rural integrated export oriented projects: horticultural products. Export Processing Zones Authority of Zimbabwe, Harare.
- Warning, M., & Key, N. (2002). The social performance and distributional consequences of contract farming: an equilibrium analysis of the *Arachide de Bouche* Program in Senegal. *World Development*, 30(2), 255–263.
- Watts, M. J. (1994). Life under contract: contract farming, agrarian restructuring and flexible accumulation. In P. D. Little, & M. J. Watts (Eds.), *Living under contract: Contract farming and agrarian transformation in Sub Saharan Africa*. Madison: University of Wisconsin Press Madison.
- Williams, S., & Karen, R. (1985). *Agribusiness and the small-scale farmer: A dynamic partnership for development*. Boulder: Westview Press.