

Women's and Men's Work: The Production and Marketing of Fresh Food and Export Crops in Papua New Guinea

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ABSTRACT

Fresh food markets have been a fixture of the social and economic landscape of urban and rural PNG since colonial times. They were often the first points of engagement with the market economy, especially for women, who as small-scale producers, sold surplus produce from their food gardens located on communally-owned land. Although local food markets have remained an important livelihood for women, the later adoption and expansion of perennial export cash crops like coffee and cocoa overshadowed food production for local markets as men dominated export crop production on land alienated from communal ownership for decades or permanently. New forms of social relations of production and more exclusive forms of land tenure emerged to accommodate export crop production that were very different from those governing the production and marketing of fresh food. Market values and a trend towards individualisation of production with less capacity to mobilise labour through reciprocal labour exchange networks have characterised export crop production. With the income benefits captured largely by men, women began redirecting their labour to fresh food production where they were able to exercise more control of production and income while still mobilising labour through indigenous labour exchange arrangements. Attempts by men to appropriate the income of women and sons' labour in export cropping were greater during flush periods when income levels were high, and they were less likely to attempt to appropriate this income in low crop periods when incomes were lower. However, with the recent emergence of female entrepreneurs earning relatively large sums of money in large-scale, profit-driven vegetable production, the moral frameworks governing food production are coming to resemble those governing export crops, and making labour more difficult to mobilise. Despite women being key players in these changes, we argue there is an emerging risk that men will attempt to assert control over this income or move into vegetable production themselves and possibly marginalise women in the process.

Keywords: food markets, export cash crops, agricultural labour mobilisation, individualisation, land tenure, rural development, gender and incomes, moralities of labour.

INTRODUCTION

Women have dominated the production and marketing of fresh produce in Papua New Guinea (PNG) since the first formal urban marketplace was established in the 1920s in Rabaul, East New Britain Province (ENBP) (Epstein 1982). Marketing was often women's first experience of engaging with the introduced market economy where they sold surplus produce from their food gardens located on customary land. As men came to dominate

production of export cash crops on land alienated from communal ownership for extended periods and controlled the income generated, women increasingly identified more closely with subsistence food production and local marketing than export cash cropping (Hide 1993; Benediktsson 2002). Today in PNG market vendors are overwhelmingly women, and marketing of fresh produce has become the principal component of women's income in many rural communities. It is typically the only household income over which they can claim full ownership and control.

Whilst attention has been paid to the importance of fresh food markets in local rural development (*e.g.* Underhill-Sem et al. 2014; Wang 2014; Busse and Sharp 2019), few studies have compared the moral frameworks and labour values underpinning the production and marketing of fresh food produce and export cash cropping. In this paper we trace villagers' initial engagements with the modern cash economy through their production of garden foods for market trading and perennial export cash crops to the present where fresh food markets have expanded in scale, complexity and intensity. The stories of export cash crop production and food production for local markets are intertwined. In telling these stories our intention is to trace the impact of the growing monetisation of the village economy on gendered and generational relations of production, access to land and labour, and labour values in relation to subsistence and commodity crops across three provinces in PNG: ENBP, West New Britain Province (WNBP) and Eastern Highlands Province (EHP). We first set the context by outlining how the gendered segregation of food production for local markets and export cash cropping emerged as men assumed control over the production and income from the latter and women became dominant in the production and local marketing of fresh food produce. For many women, the introduction of export crops meant experiencing new forms of inequality as the new sources of wealth and men's claims of ownership and authority over the new cash crops altered power relations in the domestic and social spheres. We examine why market trading of fresh food crops has evolved to become the principal income source for women in households where export cash crop production is a major livelihood activity.

Second, we show that when the sale of local fresh food produce and export cash crops began, labour was mobilised largely through extended kinship networks based on reciprocal exchange in the same way that labour had been mobilised in the past for subsistence food production. However, through time villagers began to associate export cash cropping with profits and individual return – mainly for men – and labour began to be excised from indigenous networks of labour exchange so that production became more dependent on the individual labour of the producer and *his* immediate family. Later, at the household level, the labour of wives and sons for export cash cropping was not always assured, as they began to contest these new relations of production. In contrast, women's garden production for household consumption, with surplus production for local marketing could still draw on indigenous exchange networks for labour because production was for the household and the generation of social returns for the extended family and/or community. The moral frameworks underpinning the production of perennial export cash crops came to be structured differently from those governing subsistence food production for household consumption and marketing.

In the final section of the paper we turn attention to the more recent emergence of large-scale, profit-driven fresh food production in the highlands which is providing opportunities for both women and men to earn potentially very high incomes. We argue that large-scale profit-driven fresh food production and marketing is becoming infused with moralities of labour similar to those that came to underpin export cash crop production. That is, labour for large-scale commercialised food gardening is becoming excised from networks of reciprocal exchange and is now increasingly dependent on household labour and hired labour.

While this appears to be a transformation of labour relations, indigenous ways of mobilising labour are not completely lost. When production for fresh food markets (and export cash crops) is aimed primarily at raising funds for social investments, then labour can be mobilised readily through indigenous exchange networks. We conclude with a discussion of the implications of increased individualisation of production and commodification of men and women's labour for labour supply in agricultural production and rural development more generally.

Study sites

The paper draws on fieldwork data collected over several years among coffee smallholder farmers in EHP, cocoa smallholders in ENBP and oil palm smallholders in WNBP.¹ In each field site, cash has penetrated indigenous social and political systems, and processes of commodification have profoundly altered land access, gendered relations of production and moralities of labour. For example, the adoption of perennial cash crops has led to the long-term removal of land from the pool of customary land resulting in significant modification of customary land tenure principles in which land was vested in kinship-based land-holding groups (Salisbury 1964, 1970; Epstein 1968; Grossman 1984; MacWilliam 1988; Lowe 2006; Curry et al. 2007; Koczberski et al. 2009).

In all of our field sites, and like other parts of PNG, cash crops have largely given men *de facto* exclusive control over that land which reduced the pool of communal land available for food gardening. Over time, and especially in the highlands, land planted to export tree crops has become effectively individualised with land rights vested in the man or family who initially established the plot (Strathern 1982; Grossman 1984; Overfield 1998; Benediktsson, 2002; Inu 2015). In the highlands study sites, women have very restricted access to land to plant perennial export cash crops that lock up land for many years (Sexton 1986; Collett 1992). Even in ENBP, matrilineal principles of land tenure are being circumvented to allow sons to inherit the cocoa holdings of their fathers. Many men are utilising intergenerational mechanisms of compensation to facilitate the transfer of resource access rights to their sons (Curry et al. 2007; see also Salisbury 1970; Lowe 2006; Martin 2013). Sometimes this involves compensation paid to a man's maternal lineage to facilitate the transfer of access rights to his son. Through time these modifications of land tenure principles have been accompanied by a change in people's views and attitudes to land and labour, especially as individuals and households claimed exclusive rights of access to, and inheritance of, stands of export cash crops.

However, while women generally find it difficult to claim 'ownership' rights to perennial export crops, they can usually access land for temporary food crops for commercial marketing. In ENBP, while control over land for cocoa production has been modified to favour men, land for fresh food production and marketing remains embedded within matrilineal tenure principles of inheritance and access rights. In all field sites, usufruct rights to land for gardening remain flexible, even when women are using the land for intensive commercial vegetable production, such as in our EHP study sites near Goroka. For example, in Sogomi and Safanga villages in Bena District, food production for marketing is undergoing rapid transformation. In these villages women are increasingly shifting their labour away from coffee production to large-scale cultivation of cabbages, peanuts, pineapples and broccoli for the lucrative and growing trade in fresh food for the expanding urban populations of Goroka, Lae, Madang, Mt Hagen and Port Moresby. Whilst these women are generally unable to access land for coffee, they are able to access land to cultivate fruits and vegetables as cash crops, independently of their husbands. This ease of access is because like

subsistence gardening, land use is short-term and part of the same framework of access rights governing access to land for subsistence food crops.

THE GENDERED PRODUCTION OF EXPORT CASH CROPS AND FOOD CROPS FOR LOCAL MARKETS

Over 87% of all cash income earned by rural Papua New Guineans is from commodity export tree crops, betel nut and the sale of food crops at informal fresh food markets (Allen et al. 2001), with cocoa, coffee, copra and oil palm making up over two-thirds of this income. The importance of income derived from export crops reflects in part the successful promotion and expansion of village smallholder production from the 1950s to the 1980s. Men's role in export cash crops was reinforced by the colonial administration's agricultural extension services that were staffed by men with services directed largely to village men (McKillop 1976). Also, the plantation labouring opportunities available to village men both in the highlands and coastal areas, who were contracted under labour migration agreements, gave them their first taste of export cash crop production and facilitated the adoption of export cash crops in rural villagers (Turner 1986; Ward 1990; MacWilliam 1996). Men came to dominate and control export cash cropping at the household level with the near total exclusion of women from this sphere of economic activity, except as a source of underpaid or unpaid labour (Clark 1990; Bannister 1982; Overfield 1998; Benediktsson 2002; Koczberski 2007). Export cash cropping soon became an arena in which men competed with each other for status and renown, especially in the highlands where 'bigmanship' was highly competitive (Finney 1973; Strathern 1979; Nihill 1991). A short annual flush period when prices were good meant that men could accumulate large sums of money relatively quickly to deploy in large, high status prestige events (see Strathern 1984; Forster 1995; Brison 1999).

Initially in the highlands, men also were actively involved in local marketing of food crops. Jackson (1976) noted in 1967 that 47% of sellers at Mt Hagen and 31% at Goroka were men: by 1973 these proportions had dropped to 22% and 8% respectively. Since then, men's presence has declined further. As men engaged more intensely in export cash cropping they lost interest in local marketing, and increasingly women came to dominate fresh food marketing (see also Sexton 1986). Whilst women assisted in export cash crop production, especially harvesting, their priority was more closely aligned with producing and marketing food crops where they had greater control of production and the income generated.

Women's emerging dominant role in food production for local markets was an extension of their role in subsistence food production and distribution where they were largely responsible for the maintenance of food gardens (Sexton 1986; Maclean 1989). While men took primary responsibility for the heavier tasks of clearing and firing new gardens ready for planting, in most areas of the country, women were responsible for the planting and harvesting of food crops and general maintenance tasks such as weeding. Food crops sold at local markets were planted in the same gardens as crops for home consumption, and often represented the family's surplus production. In most areas of the country, no substantial increases in garden production or labour specifically targeted for market trading were observed during the 1970s and 1980s (for an exception, see Benediktsson 2002 who noted a few entrepreneurial village households engaged in large-scale production of sweet potato in the mid 1980s and 1990s in the Asaro Valley, EHP). Even as late as the 2000s, Fujinuma et al. (2018: 14) reported in a small 'purpose of production' survey of highland sweet potato growers, that 66% of them focused on producing sweet potato for family consumption with

surplus production marketed opportunistically; by 2014 this proportion had declined to 36% while those selling ‘regularly’ increased from 9% in 2005 to 19% by 2014. In general, for a long time, local marketing of fresh foods was a continuation of the pre-existing production system with surplus food crops sold at local markets.

Food production for local markets became viewed as women’s work and closely associated with femaleness, domesticity and indigenous economic relations and production systems (see Strathern 1972).² Women’s work became perhaps less valued, at least certainly by men, than the new prestigious male domain of export cash cropping, which became identified with maleness, status, and modernity (Strathern 1972). As Barnett-Naghshineh’s (2019) recent study on marketing in Goroka shows, the continued predominance of female sellers reflects not only what are considered acceptable gendered economic activities and work roles, but also the construction of local gendered ideologies and identities in Goroka.

Over time, the female domain of garden food production for local markets became entrenched as a major livelihood activity for most rural women in PNG (Benediktsson 2002; Koczberski and Curry 2005; Curry et al. 2007; Imbun 2014; Wang 2014; Inu 2015; Schram 2016; Barnett-Naghshineh 2019). Today, women’s market income provides them with a vital income source to meet household needs especially between the seasonal flush periods of cocoa and coffee, during times of low export crop prices and when income from cash cropping temporarily collapses due to pest and disease outbreaks, land disputes or loss of market access (Curry et al. 2015). For most rural women marketing is their primary source of income, even in regions where a significant proportion of households engage in export crop production. Studies among cocoa, coffee, and oil palm producing households in the provinces of ENBP, EHP, and WNBP, respectively, reveal that a substantial proportion of female heads of households regularly sell fresh food produce at local markets. Among those same households, with the exception of oil palm, a higher proportion of women reported local marketing of fresh produce as their primary source of cash income ahead of export cash crops (Table 1). In cocoa and coffee producing households, only around one-third of women ranked export cash crop income as their primary source of income, compared with over 80% of men.

For women there are many advantages of prioritising marketing over export cash crop production. First, in cocoa and oil palm producing households, many women whose main income source is marketing, operate largely independently of their husbands when making farm decisions regarding the timing and types of food crops to cultivate. Second, women have primary rights to, and disposal of, the income earned from the crops they plant and sell (see Sexton 1986; Strathern 1984; Bossen 1989; Connell 1997). Unlike export cash cropping, women can claim almost exclusive control of the income they earn at local

Table 1 Most important income source for cocoa, coffee and oil palm smallholders by gender (per cent of households)*

Income	Cocoa households ENBP (%)		Coffee households EHP (%)		Oil Palm households WNBP (%)	
	Male	Female	Male	Female	Male	Female
Export cash crop	85.5	35.5	81	32.6	83.5	73
Fresh food marketing	1.1	50.5	8	58.5	3.5	21.5

*Cocoa data collected in 2004 from 93 households in four villages in the Local Level Governments of Kokopo Vunamami and Livuan-Reimbar, Gazelle Peninsula, ENBP. The data were collected prior to the Cocoa Pod Borer incursion in 2006 and which has since decimated cocoa production in ENBP. Coffee data collected in 2010 from 194 households in Asaro and Bena villages in EHP. Oil palm data collected in 2014 from 181 smallholder households residing on the Hoskins and Bialla land settlement schemes, WNBP.

markets and rarely do men challenge their rights to disburse this income (discussed further below). Third, and most importantly, short-term access to land for food gardening does not challenge or threaten underlying customary land tenure rights in patrilineal societies in the same way that perennial export cropping does with the *de facto* long-term alienation of the land from customary ownership. As a result, the extension of women's economic activity into local marketing of surplus food crops was integrated smoothly into household livelihoods. For women, it has not generated, to the same extent as export crops, struggles and tensions over intra-household power relations regarding labour, land and income.³

CONTESTED CONTROL OF INCOME AND WILLINGNESS TO PROVIDE LABOUR

We now turn to consider why market trading of fresh food crops has evolved to become the principal income source for women in households where export cash crop production is a major livelihood activity. We discuss why women prioritise labour investments in local marketing of fresh food produce over export cash cropping in terms of: 1) payment uncertainty and women's contested access to export cash crop earnings; and 2) the conditions under which appropriation of women's income is more likely to occur. By emphasising these two areas, we are not down-playing other critical factors that have influenced the gendering of household income activities in PNG, namely women's restricted claims on land and export tree crops, gender hierarchies and ideologies, and men's 'ownership' of the more prestigious economic sphere of export cash cropping.

Contested income and payment uncertainty

Women's contestation of men's claims of ownership and control of the income earned from women's labour in export cash crops is well documented (Strathern 1982; Grossman 1984; Sexton 1986; Johnson 1988; Overfield 1998, Curry et al. 2007; Koczberski 2007). Most of these studies describe how men transferred or re-interpreted indigenous concepts about work, wealth, land and traditional crop rights to export cash crops which placed women in a disadvantaged position with limited rights to the income earned.⁴ Despite the labour contributions of women to export crop production in PNG, men largely control the disbursement of cash crop earnings (Strathern 1982; Sexton 1986; Johnson 1988; Overfield 1998; Curry et al. 2007; Koczberski 2007), a situation little different from other parts of the developing world (Raynolds 2002; Ambler et al. 2018). For example, several studies in the decades immediately following the introduction of coffee, revealed emerging intra-household gender conflicts over women's labour because of perceived under-payment of their labour by their husbands (Strathern 1982; Grossman 1984; Johnson 1988; Sexton 1986; Collett 1992; Overfield 1998).

These conflicts stem in part from the moral ambiguities and questions around men's rights to appropriate women's labour in export cash cropping. As wives, women can expect that in recognition of their labour contribution to export crop production, especially in harvesting, they have some claim on the income, despite the crop being on their husband's land or planted by him. However, these claims were not always straightforward in the new cash economy where social relations of production were undergoing change and reinterpretation. As Strathern (1982: 312) noted for the Hagen area, following the introduction of coffee a new situation emerged whereby "women neither have planted the crop nor are exempt from the labor that is required to harvest the beans. Consequently, their claims to its produce are ambiguous". This moral ambiguity over women's claim to the income often formed the basis of women's complaints over their share of the coffee income (Nihill 1989). In oil

palm, women often spoke about this conflict in moral terms. They explained that the share of the oil palm income they expected from their husbands did not necessarily need to be commensurate with the 'market' value of their labour contribution, but rather could be less as long as it was sufficient for them to meet household needs and reflect a husband's commitment to meet his financial obligations to the household. When it was believed that a husband had failed to adequately remunerate his wife for her labour, or that he spent the income on wasteful consumption (e.g. beer drinking), tensions often erupted between them.

The response by women to their low and uncertain economic returns from export crop production has been variable (see Sexton 1986). A common strategy has been for them to withhold all or part of their labour from export crop production (Strathern 1982; Sexton 1986; Johnson 1988; Nihill 1991; Collett 1992; Overfield 1998) and redirect that labour to food production and marketing where returns are more predictable or favourable. Across the cocoa, coffee and oil palm study sites, women's labour contributions to export crop production are significantly less than that of men. This is partly attributable to payment uncertainty (Collett 1992; Koczberski 2007; Curry et al. 2007; Inu 2015).

Today, women's labour is one of the key constraints in the production of cocoa (Curry et al. 2007), and coffee (Collett 1992; Curry et al. 2017). It is not yet a significant constraint on fresh food production and marketing. In cocoa producing households where dry bean processing is common, women contribute less than a third of the labour to cocoa production (Curry et al. 2007). Overfield (1998), in a detailed study of coffee production in the Benabena District, EHP, reported that women's low returns on their labour from household coffee production discouraged them from expanding their labour contribution to coffee production during periods of high prices. When farmgate coffee prices rose by 40% there was virtually no change in the labour inputs of women because most of the benefits of the price increase accrued to men (Overfield 1998). During the period of high coffee prices men experienced a 57% rise in returns to their labour, while women's return on their labour remained static. For these women, garden production remained their primary source of cash income, despite coffee returns to labour on average being much higher than food production. A similar situation was reported in oil palm where women either resented but continued giving their labour to oil palm production, or, more commonly, partially withdrew their labour to concentrate on vegetable production where they had more control of the income earned from local vegetable sales (Koczberski 2007).

However, when women are confident of a reasonable return on their labour in export cropping, they are more likely to increase their labour contributions (Curry et al. 2007; Koczberski 2007). In WNB, women had largely withdrawn their labour from oil palm production to focus on fresh food production and marketing for the same reasons that women in the highlands withheld labour from coffee production. In 1997 New Britain Palm Oil Ltd, the oil palm milling company in Hoskins, began paying women separately from their husbands for the collection of the ripe fruitlets (loose fruit) dislodged from the main fruit bunch during harvesting⁵ (Koczberski 2007). Prior to this '*mama lus frut*' initiative, oil palm income was paid solely to the male household head, and women had largely withdrawn from oil palm production because of what they saw as the unfair distribution of the oil palm income by their husbands. The direct payment into women's bank accounts for loose fruit collection, effectively guaranteed payment of their labour, and consequently most women switched from vegetable production for local markets back into oil palm, which now constitutes their primary source of income (Table 1). Direct payments to women have circumvented men's capacity to appropriate their labour.

Conditions under which appropriation of women's income is more likely to occur

Much has been written on the unequal gender and power relations that underpin men's appropriation of women's labour. Less attention has been paid to men's attempts to appropriate income earned from family labour in export cropping in relation to seasonal variations in the amounts and timing of income generated. To explore the context of appropriation of labour, we must recognise the inherent tension between the rights to income from the labour of others conferred by crop ownership, and the rights to income arising from one's own labour investments in production. Sometimes the labour invested in production by an individual is sufficient to justify income claims and the export crop owner will not contest that income. At other times, as explained above, the crop owner will seek to appropriate a disproportionately large share of the income generated by family labour.

Typically, during seasonal flush periods of cocoa and coffee, men are more likely to attempt to appropriate income derived from women's (and sons') labour. Most of the annual production of cocoa and coffee is harvested during the short flush periods which are the times when export crop income is highest.⁶ Smallholder processing of cocoa wet bean into dry bean and coffee cherry into parchment is typically carried out in the high crop flush periods for scale efficiencies. When export crop income is high and concentrated in time, such as during the seasonal flush periods for cocoa and coffee, opportunities arise for men to utilise that income for activities that will enhance their status, either in the prestige economy or on personal activities such as beer drinking parties. The channelling of export cash crop income into ceremonial events and the conflation of money with exchange items has been reported widely in PNG. Indeed, in some parts of PNG, soon after coffee was introduced, and perhaps to a lesser extent now, ceremonial events and the purchase of traditional exchange items were scheduled for the coffee season when men had access to relatively large sums of money (Sexton 1986; Brison 1999; Benediktsson 2002; Curry 2003). Thus, the higher and more concentrated the income is in time, the more likely that men will seek to appropriate a disproportionate share of the income generated by family labour. Conversely, attempts by men to appropriate women's income are less likely to occur in non-flush periods when incomes from export cash crops are low, and, in the case of cocoa and coffee, when most of the crop is sold unprocessed (Table 2) (see below).

Income from local food marketing does not present the same opportunities for men to appropriate women's labour. This is for two main reasons. First, the food produced has been planted, weeded, harvested and sold by women, which morally justifies their rights to claim and control the income (Strathern 1984). Second, the total income generated per market visit is relatively small, rendering it less attractive for attempts at appropriation by men.⁷ Because the amounts of money are insufficient at any point in time to utilise for their own personal benefit, men often dismiss market income as insignificant and therefore rarely contest women's earnings (Strathern 1984; Sexton 1986; Maclean 1989; Connell 1997; Benediktsson 2002). By generating modest regular earnings and directing much of that income to purchasing items for household consumption and not accumulating it for personal gain, women's market income does not unsettle given gender roles and hierarchies. Nor, importantly, does it present opportunities to men to attempt to appropriate this income for deployment in the male prestige economy or to spend it on themselves for personal benefit.

It follows then, that if the male prestige economy or personal consumption desires require relatively large sums of money, there will be times when men are less likely to attempt appropriation of export crop income generated by the labour of their wives and sons (Table 2). Similar to the earnings from marketing food crops, men are less likely to attempt to appropriate the small income women earn when they harvest and sell small amounts of unprocessed cocoa and coffee. In cocoa and coffee smallholder households, it is not unusual for women to harvest small quantities of cocoa and coffee and sell the harvest independently

Table 2 Key characteristics of cocoa, coffee, oil palm and food crops that make them more or less prone to income appropriation by men

Crop	Crop component	Temporal distribution of income	Income characteristics	Dominant gender in production	Dominant gender controlling income	Risk of income appropriation by men
Cocoa	Wet bean	All year	Low and regular	Women	Women	Low
	Dry bean	Short flush periods	High in short flush periods	Women & men	Men	High
Coffee	Cherry	All year	Low and regular	Women	Women	Low
	Parchment	Short flush periods	High in short flush periods	Women & men	Men	High
Oil palm	Loose fruit	All year (fortnightly)	Low and regular	Women	Women	Low
Fresh food produce	Fresh fruit bunches	All year (fortnightly)	High and regular	Men	Men	High
	Small-scale, surplus to subsistence	All year, but can be seasonal in some regions	Low and regular	Women	Women	Low
	Large-scale, commercial	All year, but can be seasonal in some regions & for some crops	High in short harvesting period [#]	Women & men*	Men & women	High?

[#]A large-scale commercial crop tends to be planted over a short period so that harvesting and marketing are completed quickly to achieve economies of scale, particularly in transport. Planting of subsistence food gardens for household consumption tends to be staggered to extend the period that these foods are available for household consumption.

*If hired labour employed for planting, crop ownership remains with the *papa* or *mama* of the garden.

of their husbands (Sexton 1986; Strathern 1982; Curry et al. 2007; Curry et al. 2017). This most commonly occurs in the non-flush period when yield potential, and hence production and income, is much lower and when the harvested cocoa or coffee crop is typically sold unprocessed as wet bean and cherry, respectively. During non-flush periods, women harvest these crops and control the income, and are less likely to have their income claims from their labour challenged by their husbands. In cocoa producing households in ENBP, men are less involved than women in low crop off-season cocoa harvesting and wet bean sales despite the income being cumulatively significant over an extended period. This cash income is earned within hours of harvesting (*kwik moni*), like local market income, and is spent on small items like store foods and other items for immediate consumption. Women often claimed that these short harvesting visits were driven by the need to purchase an item for use that day or for church donations.

The situation in oil palm is different because the income is spread more evenly throughout the year. However, the two crop components – fresh fruit bunches (FFB) harvested by men and loose fruit harvested by women – provide two separate income sources. As pointed out above, it was only when the company began paying women separately for the loose fruit, rather than making a single payment to their husbands for both loose fruit and FFB, that women re-engaged with oil palm production. Prior to this company initiative, women were not harvesting loose fruit. Men did not gather loose fruit because they considered it to be the residual part of the crop and to lack the status value of FFB, in much the same way that men considered cocoa and coffee in the non-flush period to be residual crop not worthy of their attention. Moreover, because loose fruit collection was perceived as '*wok bilong ol meri*' (women's work), loose fruit was ignored by men (Koczberski 2007). Women now earn between 24 and 32% of total oil palm income, a much higher income than they could earn for the same amount of work from producing and selling garden foods.

Keeping in mind that men's attempts to appropriate the income from family labour is more likely to occur when high incomes are generated in relatively short periods, the recent expansion in the highlands of large-scale commercial food production for distant markets may be subject to the same pressures for appropriation as export crops. This is because women are now earning relatively large incomes from this trade. Research from the highlands suggests that women and men living in villages near town have been scaling-up production for the expanding fresh food markets where high incomes can be earned (Benediktsson 2002; Inu 2015; Curry et al. 2017; Fujinuma et al. 2018; Sharp and Busse 2019). In part, this is linked to new tastes and desires requiring cash. Rural electrification near towns and the now ubiquitous ownership of mobile phones have increased the desire for *regular* access to cash. The need for cash for these purposes has continued to grow. On the demand side, urbanisation and a growing urban middle class, an inflow of expatriates associated with the extractive industries, and the depreciation of the Kina have further stimulated demand for fresh foods. Imported foods have become more expensive relative to domestically produced food with the depreciation of the Kina (NZIER 2006; Sengere et al. 2019).

Also, it appears that the broader social and marketing environment is becoming more conducive to entrepreneurship, including some churches endorsing participation in business (Inu 2015). Both women and men in the study sites near Goroka and in the lower Asaro valley⁸ are adopting much more entrepreneurial approaches to fresh food production by scaling-up production and engaging in increasingly complex supply chains to distant urban markets. In these areas, both women and men have also become more involved in commercial land transactions with a growing trend towards 'borrowing' and 'renting' land from related and non-related lineages for intensive vegetable and pineapple production⁹ (Inu

2015; Curry et al. 2017). In some villages close to the large markets of Goroka and Mt Hagen, some households have removed coffee trees, and women are managing large monocrops of pineapples, broccoli, carrots and cabbages (Fig. 1). It is possible that as commercialisation of production and marketing of fresh foods in the Goroka and Mt Hagen areas become more established and women earn large sums of money over relatively short time frames, men may attempt to appropriate this income or take over women's roles in production. Moreover, a further risk is that as food production and land access for market purposes become more commodified, women may also find that their ability to mobilise labour from the extended family to maintain high volume production, becomes increasingly difficult. It is to this subject we now turn.



Figure 1: Large scale pineapple cultivation at Sogomi, Benabena area, Eastern Highlands Province. Photograph by Tim Sharp 2019. [Color figure can be viewed at wileyonlinelibrary.com]

LABOURING FOR THE MARKET

In this section we argue that the recent emergence of large-scale profit-driven fresh food production in the highlands, which is providing new opportunities for women (and men) to earn potentially high incomes, is beginning to experience the same pressures of labour shortages and labour commodification that has characterised export crops. We argue that the moral frameworks governing food production are coming to resemble those governing export crops and hence are becoming more market-based with a consequent contraction in the extent of the social and kinship networks from which labour can be drawn. Thus, labour for large-scale commercially focused food gardening is becoming excised from networks of reciprocal exchange and is now increasingly dependent on household and hired labour.

To understand this process, it is first necessary to consider the different moral frameworks and values attached to labour for production for different purposes: the production of food for local markets and for household consumption, and production of perennial export

cash crops. We argue that when villagers initially adopted export cash crops, the mobilisation of relatives' labour beyond the household was possible through indigenous networks of reciprocal labour exchange in the same way that labour was mobilised for subsistence food production. Given the large amount of work associated with the planting, cultivation, harvesting and processing of export cash crops, access to extra-familial labour was often critical for maintaining production. Initially, co-operative inter-household labour groups underpinned much household production of cocoa, coffee and oil palm (Hide 1981; Collett 1992; Curry et al. 2007; Koczberski and Curry 2016). These co-operative work groups, which were often referred to as *wok bung wantaim* (working together), involved mobilising the labour of the extended family and kinship group when there was a need to perform intensive agricultural or community work (Waddell and Krinks 1968; Hide 1981; Modjeska 1982; Foster 1995; Curry and Koczberski 2012). Generally, for heavy, labour-intensive subsistence tasks such as the cutting, clearing and fencing of new food gardens (and in other arenas like house building or the preparation of large communal feasts), the lineage and often other members of the broader kinship group contributed labour. These labour contributions were usually on a balanced reciprocal exchange arrangement where a labour contribution was later reciprocated with a similar gift of labour. These same indigenous strategies for mobilising labour for subsistence production and other social/community tasks were carried over into export crop production to ensure an adequate labour supply for harvesting, which was particularly important during seasonal high crop periods (flush periods).

While reciprocal labour exchange arrangements remain common in the study sites, two major trends are emerging with regard to labour. First, households are beginning to operate more independently of each other, both socially and economically. In part this is because households find it increasingly difficult to recruit labour from the extended family as most village households now produce for the market. In Sogomi and Safanga villages, labour mobilisation for market production – local fresh food markets or export cash crops – is not always governed by the traditional exchange labour amongst family members that characterise subsistence production (Inu 2015; Curry et al. 2017). Coffee production, has altered how labour is valued, how villagers mobilise and access labour and how exchange relations are enacted in the village. Villagers reported a gradual contraction of the network of relatives that could be called upon for labour-intensive tasks like coffee harvesting as the social value of labour in coffee production declined. In effect, labour for coffee production has become quarantined from traditional reciprocal labour arrangements that are imbued with a high social value for the group. Growers are now much more dependent on their own labour and that of their immediate families for coffee production. We documented a similar situation in oil palm (Curry and Koczberski 2012; Koczberski and Curry 2016).

With the commodification of labour in export crop production, many villagers are becoming reluctant to provide 'free' labour to relatives when the purpose of that labour is to deliver economic benefit solely to the individual or that individual's immediate family receiving the labour. Now, when relatives contribute labour to export crop production (or for other cash income activities), many expect to be paid cash for their labour or receive some other material reward (Koczberski and Curry 2016). Interview data from Sogomi and Safanga villages indicated that extended family members who previously provided labour for coffee production under reciprocal labour arrangements became hired labourers (Inu 2015). This transition is not smooth and trouble-free. A frequent topic of conversation with smallholders at all our field sites was the demise of reciprocal labour arrangements and what this meant for community and social relations. Respondents lamented that relatives, especially young men, who were once satisfied with a cooked meal for labouring in a relative's cash crop holding, now expect cash payments.

To understand the values underpinning and sustaining these work groups it is important to consider the role of labour in PNG sociality. Traditionally, in the non-market economy, flows of labour were embedded within networks of kinship, obligations and reciprocity. It was within these relational structures of sociality and economy where the culturally specific meanings and values attached to labour were determined (Modjeska 1982; Strathern 1988; Kuehling 2005; Sillitoe 2006; Minnegal and Dwyer 2007; Curry and Koczberski 2012; West 2012). Contributing labour not only is linked to constructing social beings and society, but the value attached to labour is specific to the persons giving or receiving the labour and the social context in which it is performed: beyond the relationship and the specific context, the labour might have little meaning or value. As Strathern (1988: 160) explained ‘there is no objectification of work apart from its performance... work cannot be measured separately of relationships’ (see also Busse 2019). Thus, a significant component of labour’s value was traditionally derived from its role in creating and affirming social relationships and being a public expression of solidarity and cohesiveness of the kinship group (Curry and Koczberski 2012). For this reason many smallholders view the payment of labour as a form of commodification of social relationships which has the effect of eroding labour’s social value and disrupting social relations. When relatives are given cash after they provide labour, the giver is often careful to stress that the cash is a gift of appreciation with the amount often unrelated to the market value of that labour. Across our field sites, smallholders insisted they were not paying for labour and instead emphasised the social dimension of the cash given.

It appears that the capacity of an individual or a family to mobilise labour weakens when the social value of labour declines. Interview data from all our study sites suggest that as labour deployed for export crop production became excised from reciprocal labour arrangements, labour shortages gradually emerged. As MacIntyre (2003: 127) notes ‘Once people in a community begin to adopt the idea that labour is a commodity, they often refuse to participate in “communal work” because they do not see the point of “working for nothing”’. With less inter-household cooperation, harvesting work groups are usually smaller and, in the case of coffee and oil palm, may be reduced to the labour of the immediate family or sometimes the household head working alone if other household members feel they are not receiving a fair share of the income, as outlined above. Only a small minority of cocoa, coffee and oil palm smallholder households regularly employ hired labour to overcome labour shortages (Curry et al. 2007; Koczberski and Curry 2008; Inu 2015). Thus, ironically, the adoption of more market-based values of labour with a corresponding erosion of labour’s social value can lead to lower productivity with higher levels of under-harvesting, especially in villages where there is a limited market in hired labour.

In the highland villages where large-scale commercial production of sweet potato, pineapples, carrots, cabbages and broccoli is emerging there is increasing commodification of land, including the renting of land. This appears to be opening the way for the same market principles and values that now govern and regulate export crop production to be extended to large-scale, commercialised fresh food production. The network of relatives that can be called upon for labour during peak periods of labour demand is contracting in the same way that the labour pool contracted for export cash crop production. In Sogomi and Safanga villages both men and women reported that it is becoming increasingly difficult to recruit labour from reciprocal networks of labour exchange for large-scale commercial food production as the social value of labour in these contexts has declined. Many families engaged in large-scale fresh food production now rely on hired labour, particularly when new gardens are being prepared. In focus groups and interviews, participants in EHP reported that the engagement of reciprocal labour for the production of food crops destined for local or distant markets is now much rarer compared with fifteen to twenty years ago. At an earlier

time, Strathern (1999: 99) detected a similar shift away from reciprocal labour to paid labour in garden production in the Mt Hagen area.

It is possible that as the commercialisation of production of food crops continues to expand and intensify, labour may become more difficult to recruit from the extended family, particularly as social or kinship distance widens. What is significant is that the market principles and values that emerged to govern and regulate export crop production and which have made it more difficult to mobilise labour, now appear to be gradually extending to fresh food production as this becomes more profit orientated and much larger in scale. It is also likely that the adoption of market values is accelerating under the influence of broader social and economic change promulgated to an extent by church, state, education, the rise of social media and telecommunications more generally, and new economic opportunities associated with modernity, urbanisation and development (see LiPuma 1999; Robbins 2001; Smith 2002; Martin 2013; Koczberski and Curry 2016).

TOWARDS A SYNTHESIS AND CONCLUDING REMARKS

Women have long dominated the production and local marketing of fresh food produce in PNG while men have tended to manage production of perennial export cash crops and control the distribution of the income, especially during seasonal crop flushes when incomes are relatively high over short timeframes. The gendered segregation of production and management of each crop type meant each had its own distinct set of social and economic relationships, moral values and practices governing land tenure, labour, gender roles and the remuneration of labour. In general, women's involvement in the production and marketing of fresh food was an extension of subsistence food production with surplus garden production sold at local markets. Moreover, marketing of fresh food did not challenge pre-existing gender relations and roles; nor did it require significant modification of customary land tenure. Although cumulatively important, the amount of income generated at any one time was low and therefore less attractive for men to attempt to appropriate this income.

In contrast to women's role in food production and marketing, men's control of perennial export crop production initiated major changes including the individualisation of land tenure as land for perennial export crops was removed from the pool of common land available for food production. Furthermore, perennial export crops, like food crops, initially were dependent largely on labour arrangements grounded in the same reciprocal labour exchange practices and values governing subsistence food production in which labour had a high social value. However, the adoption of perennial export crops began a process of the commodification of land and labour as men came to manage production and control the disbursement of income, often to satisfy their own personal needs and desires which meant women's (and sons') returns to labour became uncertain. When income was not for the benefit of the immediate family, extended family or community, the social value of the labour in production declined thereby challenging the pre-existing moral frameworks governing social and labour relations. Thus market relations began to penetrate and displace reciprocal labour arrangements as workers expected to be paid market rates for their labour and family members desired a 'fair' return on their labour.

Until recently, the commodification of labour did not affect food production for local markets to the same extent as export cash crop production. However, the increasing commodification of land near large highlands towns, including the renting of land for large-scale intensive production of vegetables and pineapples, is driving changes in labour value. Consequently, the same market principles and values associated with export crop production, and which have made it more difficult to mobilise labour, are now beginning to be applied

to large-scale commercialised fresh food production. As food production becomes exclusively profit-orientated, traditional strategies of labour mobilisation are becoming harder to sustain as labour's social value declines. The network of relatives who can be called upon for labour during peak periods of labour demand is contracting in the same way that the labour pool for export cash crop production also contracted. Women may therefore become increasingly dependent on hired labour for production. This raises the concern that whilst new income opportunities are opening up entrepreneurial opportunities for women in large-scale commercial food production, and contributing to their economic empowerment, their growing financial autonomy may become limited by emerging constraints on the supply of labour.

The large-scale commercialisation of fresh food production in parts of the highlands raises two questions. First, is this modernisation of agricultural production and markets likely to be a harbinger of similar changes elsewhere in the country, particularly in more developed regions of the lowlands? Some signs are already emerging such as the large-scale commercial peanut industry in the Markham Valley (Omot et al. 2005; Bourke and Allen 2009: 205–206).

Second, the large-scale commercialisation of fresh food production means that the income generated over short periods is much larger compared with small-scale local marketing of fresh foods. Will this lead to men attempting to appropriate this income in the same way they now control export crop income, especially during seasonal flush periods when incomes were high? Or, alternatively, will men attempt to appropriate the roles that women currently have in large-scale commercial food crop production and marketing and in the process relegate them to secondary and support roles in this strongly entrepreneurial culture. It remains to be seen whether women's moral claim to this income through crop ownership and their labour invested in production will be sufficient to withstand men's counter claims on this income based on land ownership, labour expended in land clearance, and reinforced by a deeply entrenched gendered hierarchy.

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NOTES

1. This paper draws on fieldwork data collected over several periods among smallholder households: 2000–2016 in the Hoskins and Bialla oil palm growing areas of WNB; 2003–2016 in several cocoa growing villages on the Gazelle Peninsula, ENBP; and, 2010–2018 in Asaro and Bena villages, EHP. At all fieldsites the data collected were associated with several collaborative research projects with the Cocoa and Coconut Institute (CCI), the Coffee Industry Corporation (CIC) and the Oil Palm Research Association (OPRA).

2. Although as Schram (2016) notes among the Auhelawa of Milne Bay, marketing is derided and viewed as a wasteful and individualistic activity that violates the more noble cooperativeness and reciprocal obligations of subsistence production. Similar sentiments were expressed by women in oil palm producing households in Gaungo village, WNPB, in 2002, when many were not engaging in market trading.
3. This does not dismiss the behaviour of some husbands who pressure their wives for a share of the market income.
4. There is an important anthropological debate on this topic related to whether exogenous social concepts or models of society and sociality are useful for understanding women's disadvantage in Melanesian societies. This debate is beyond the scope of this paper (for further discussion see Strathern 1988; Ingold et al. 1996).
5. The milling company collects oil palm fruit from smallholders' plots and transports it to their mills for processing. Prior to 1997, payment for the oil palm bunches (FFB) and the fruitlets (*lus fruit*) dislodged from the main bunch were paid directly to the male head of the household. In 1997 the milling company introduced a new payment system – known locally as the *Mama Lus Fruit* scheme. It pays women directly for the fruitlets (and bunches). The scheme has proved successful in increasing women's access to household oil palm income (Koczberski 2007).
6. Hide (1981: 391) estimated that in Sinasina, 68% of total coffee harvested was during the flush season. Similarly, Collett (1992: 129) estimated that over 75% of annual coffee production in the Benabena district, EHP was harvested in the flush period.
7. However, when considered on an annual basis, total income from fresh food marketing may be relatively high compared with income from export crops.
8. Fieldwork was conducted in the lower Asaro Valley in 2017 and 2018 by Reuben Sengere, Curry and Koczberski on land renting for large-scale commercial production of vegetables.
9. We heard of farmers in the Asaro Valley, who, for over five years, have been renting land to other villagers to cultivate vegetables for urban markets. At Sogomi Village one farmer removed his coffee trees to allow him to rent his land for vegetable production. He received an annual rental of K1500 which he claimed was what he would earn if the land were kept under coffee.

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