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Is De-agrarianization Inevitable? Subsistence, Food Security and Market Production in the Uplands of Negros Occidental, the Philippines

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Abstract. Market liberalization and agrarian reform have done little to reverse poverty in the uplands of Negros Occidental. The mean income of households participating in this research (n=347) was only marginally above the rural poverty line and virtually all relied on seasonal work and remittances from family members living elsewhere for household (and in many cases farm) reproduction. Combined with demographic pressure and competition for land, rural households face considerable pressure to reduce their livelihood dependence on agriculture. At the same time, this research shows that reconfigurations of the agro-ecological relations, exchange relations and social relations on which agriculture is based (reconfigurations that speak to politics and processes of re-peasantization) have significant potential to improve the livelihoods and food security of small farmers. Self-provisioning of farm inputs, access to markets organized according to alternative conventions, and formal education were all shown to be associated in different ways with improvements both to household income and to household food self-provisioning.

Introduction

Market-led development strategies have overwhelmingly failed to address rural poverty and stagnating agricultural productivity in the Philippines (Borras, 2007a). These failures are not simply a matter of misguided or poorly implemented economic policy. Philippine governments have pursued vigorous programmes of trade liberalization and structural adjustment in sectors dominated by small farmers and other small to medium-sized enterprises while simultaneously maintaining subsi-

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dies and protections to sectors dominated by landed elites and multinational corporations (Borras, 2007a). At the same time, programmes designed ostensibly to redress historic injustices and to promote small-holder agriculture (such as the Comprehensive Agrarian Reform Program) have been systematically manipulated by large land 'owners' to maintain or increase their control over land (Borras, 2007b; Bello et al., 2009). Uneven implementation and the tolerance of corruption have combined to amplify the negative social consequences of neo-liberal economic policy. In turn, deepening inequality in access to and control over land has contributed to the underdevelopment of those land resources and to the underdevelopment of agricultural labour as factors of production (Borras, 2007a).

It may not seem surprising, in light of the above, that many rural Filipinos have diversified their livelihood activities in order to reduce dependence on agriculture (Rigg, 2005, 2006). As in much of South-east Asia, the pressures of rising input costs, declining farm profitability and environmental degradation have combined with social, economic and cultural change more broadly to encourage de-agrarianization. Improved education and employment opportunities have promoted labour mobility just as have land shortages associated with the closing of land frontiers, population growth and the expropriation of land from small-holders (Rigg, 2006). In practice, economic diversification for many rural Filipinos has meant a growing dependence on remittances from family members working elsewhere to reproduce the household and, in many cases, the household's engagement in agriculture for either subsistence or market production (Borras, 2007a; Lukasiewicz, 2011).

According to McMichael (2006, 2009), dispossession of peasant[1] and family farmers is one of the principal mechanisms of capital accumulation in the neo-liberal age. Dispossession may occur in a variety of ways, from direct expropriation of resources to more general processes of structural adjustment and agro-industrialization. Drawing on Polanyi's concept of the 'double movement' (the idea that, throughout capitalist history, the commodification of land, labour and other resources by self-regulating markets has been checked by protectionist counter-movements), McMichael (2006) argues that the pre-eminent institutions for market regulation are no longer vested in the state but in a multilateral system that privileges the mobility and reproduction of money over the sustainability of social and environmental factors of production. Food, he argues, has become subject to a world price that bears little relationship to labour costs (nor, we would add, to localized interdependencies between subsistence production, non-commoditized exchange, and market production). As many have observed, dispossession of small-holders does not necessarily result in increased food production. There is considerable evidence globally that biodiverse, intensively managed small-holdings can outperform agro-industrial monocultures (Altieri and Toledo, 2011) and considerable evidence within the Philippines that expropriation of land often is associated with its 'conversion' to non-productive uses (Franco and Borras, 2007).

Van der Ploeg (2010) argues that, in response to these accumulation strategies, small farmers in both developing and developed countries are evolving new modes of peasant agriculture. He goes on to identify a number of ways in which – while reversing trends towards specialization and agro-industrialization – the new peasantries may be differentiated from traditional peasant agricultures. It is possible to assimilate these avenues of re-peasantization, we suggest, into three broad categories. First, the new peasantries reconfigure the *agro-ecological relations* on which the reproduction of rural households is based. Land acquires a significance that goes

beyond its ability to confer economic and political independence in a hostile world. As a source of natural capital and ecosystem services, land embodies for the new peasantries a notion of agriculture and agricultural sustainability as the dynamic co-productions of humans and nature. Second, the new peasantries reconfigure *exchange relations* in ways that readjust the balance of commodity and non-commodity production. This does not necessarily signal a retreat from market exchange but the de-commoditization, rather, of specific phases of the production process. Emphasis may thus shift from subsistence food production, as an end in its own right, to the self-provisioning of production inputs in order to decrease production costs while maintaining or increasing marketable surplus. Similarly, the new peasantries may consciously distance themselves from exploitative exchange relations within both local and global commodity chains by establishing or participating in alternative value chains. In doing so, the new peasantries extend their resistance to exploitation beyond traditional political spaces and into the spheres of production and exchange. Third, the new peasantries reconfigure the *social relations* of peasant agriculture beyond the spatial and political boundaries of 'the village'. The alternative to global commodity chains controlled by food empires is not a retreat to the local but to similarly extended networks of fellow farmers, activists, sympathetic scientists, consumer groups, etc.

Explicit in these processes of re-peasantization is the construction of new market relations and conventions (i.e. co-ordinating principles).[2] As Isakson (2009, p. 728) argues, it is reasonable to surmise that as peasant farmers engage in market production they would simultaneously take steps, where possible, to protect valued (agri) cultural practices; that is, to perform their own double movement. The possibility of new market relations and conventions redressing rural poverty has most visibly been taken up by alternative trade organizations such as Fair Trade (Lockie, 2008). However, taking up arguments from New Institutional Economics that the poor depend on market systems for their livelihoods but do not necessarily benefit from economic growth, a number of multilateral organizations and development agencies have also began to experiment with interventions designed to make market systems work better for the poor (Johnson, 2005; Tschumi and Hagan, 2008). The alternative to extreme neo-liberalism according to proponents of 'markets for the poor' (or M4P) is not welfare or the re-regulation of economic activity but the fostering of appropriate institutional arrangements (e.g. property rights) and the empowerment of the poor to develop their capacities as entrepreneurs, employees and consumers. While this appears to ignore the exploitative production relations evident in farmer dispossession, it does bear noting that the impacts of integration in global value chains chains are not evenly distributed either within or between production regions (Neilson and Pritchard, 2009).

In this article, we examine the interplay of small-holder production activities and market relations in six agricultural communities in the uplands of Negros Occidental, the Philippines. Farms in these localities are overwhelmingly small in scale, physically isolated, and lacking in capital and other assets. The article will discuss how movements in commodity and input prices have affected livelihood strategies and how engagement with a variety of local and global networks has affected livelihood outcomes. Drawing on the re-peasantization and M4P perspectives, this will be used to reflect on the types of market engagement that may assist the goal of poverty reduction within the study area.

Background and Methodology

The province of Negros Occidental covers an area of 792 607 hectares in the Western Visayas region of the Philippines. Of 2.6 million total residents in 2000, nearly one million were engaged primarily in agriculture (PPDO, 2004). At the same time, some 42% of families lived below the official poverty line (defined as the level of income necessary to meet basic needs including nutritional requirements) with this increasing to 50% in rural areas. On average, over half of family income was spent on food (PPDO, 2004). This is likely to have increased markedly during the world food crisis of 2008 when rice prices in local markets doubled. In 2003, about 35% of all children under seven were underweight while less than 3% were overweight (PPDO, 2004).

In terms of area, the two major forms of land use in Negros Occidental are sugarcane and rice production (160 725 and 113 350 hectares respectively in 2003). Other major crops include corn (44 502 ha), coconut (38 830 ha) and other fruits such as banana and mango. The livestock sector is dominated by small-scale chicken and egg production. Reflecting the national situation, Negros Occidental is a net rice importer although rice self-sufficiency increased from 65% to 84% between 2001 and 2003 as a consequence of Provincial investment in irrigation infrastructure. Accordingly, Negros Occidental's major imports are fertilizer and cement while its major exports are sugar and molasses. Small volumes of rice, muscovado sugar and bananas are also exported as organic and/or fair-trade products to larger domestic and international markets. Forest cover has increased from a low of less than 5% to about 10% (PPDO, 2004). Much of this is included in reserves such as the Northern Negros Forest Reserve, which was declared a protected area in 1996 and which all the communities involved in this research were based either within or in close proximity to.

Households were surveyed during the 2007 and 2008 dry seasons from the Barangays (the smallest administrative division in the Philippines) of Ilijan/Mailum, Canlusong, Patag, Sag-ang, Colonia Divinia and Yubo. Each barangay comprises a variable number of sitios, or smaller settlements, some of which are quite isolated from the rest of the barangay. Only one of the sites, Patag, was accessible by all-weather road. The logistics of collecting data in this context mitigated against a strict random sample. Following discussion with residents and barangay officials, households were selected on a purposeful basis to represent what was believed a typical mix both of livelihood strategies and of better and more marginal farmers. Following the sustainable livelihoods framework (DFID, 2001), data were collected on household structure and demographics, livelihood assets, livelihood activities, involvement in development and conservation activities, and livelihood outcomes from 347 households. Table 1 summarizes some of the basic characteristics of each site according to survey data.

Unlike some parts of the Philippines with histories of continual cultivation stretching back thousands of years, cultivation in the uplands of Negros Occidental reflects relatively recent waves of inter-provincial migration and social upheaval. These were driven largely by the expansion of the plantation sugar industry in the lowlands during the first half of the twentieth century, resistance to the exploitative and violent practices used by plantation owners to control workers, poverty and famine following the collapse in global sugar prices in the 1980s, legal and illegal logging, and movement into the uplands by landless people in search of cultivable land (Nagano, 2004; Goldoftas, 2006). Negros Occidental became a major theatre of operation for the Maoist New People's Army (NPA), and residents of the barangays surveyed included repatriated NPA fighters, anti-NPA cadres, non-participants who

Table 1. Site descriptions.

Description	Ilijan/ Mailum	Canlu-song	Patag	Sag-ang	Colonia Divinia	Yubo	Total
Households surveyed	61	35	61	63	64	63	347
Mean age of respondent	43	44	48	50	48	44	46
Female respondents (%)	67	49	43	35	50	37	46
Household size (mean)	5.6	5.2	4.8	4.7	5.4	5.7	5.2
Net household income (PHP, mean)	32206	39678	46058	38386	81672	43887	47945
Net income per capita (PHP, mean)	6,212	8,059	12685	9,932	16176	9,728	10719
Net agricultural income (PHP, mean)	19362	29114	32319	32969	58432	24191	33106
Contribution to net household income (%, mean)*:							
Fruit	18	33	20	21	12	23	21
Vegetables	16	7	36	11	4	13	17
Rice	19	17	2	1	15	0	13
Maize	9	3	10	15	0	6	8
Sugar-cane	32	31	46	39	29	13	35
Coffee	11	12	19	28	4	12	19
Income from preservation or restoration of native ecosystems (% of households)	39	37	44	46	8	43	36
Households reporting seasonal food insecurity (%)	97	97	85	96	97	100	95
Households with existing savings (%)	10	0	10	3	5	6	6
Households with existing debt (%)	53	67	54	35	70	48	54
Access to electricity (% of households)	75	31	70	54	50	0	48

Note: * Data on individual crop costs and income suggest that respondents tended to systematically overestimate net crop income and/or underestimate net household income.

had, at various times, migrated temporarily out of the area to avoid the conflict, and so on. Consequently, no survey participants identified themselves as *tumandok* (indigenous) while some 30% described themselves as migrants. Others were likely to have been only the second or third generation of their family born in the uplands. Colonia Divinia, for example, was established in 1937 by a religious sect. Landless workers and peasants were attracted to the colony by its peace and order as much as by the opportunity to clear and till land.

The majority of households in Ilijan/Mailum, Canlusong, Patag, Sag-ang and Yubo were beneficiaries of the Comprehensive Agrarian Reform Program (CARP), allocated approximately one hectare under a voluntary 'offer-to-sell' by the previous owner amortized over 30 years. This would suggest – in apparent contradiction to the observations above that upland forests had been settled and tilled by relatively recent migrants – that CARP had broken up and redistributed large landholdings to former workers or tenants. At face value, a more appropriate model of land distribution would have been simply to allocate formal title to those farming it. Throughout the Philippines, however, it has been common for private elites to assert rights over ostensibly public land regardless of whether they are actually occupying and/or using that land (Borras, 2006). Rather than confronting these elites, CARP generally has formalized their claims prior to purchasing and 'redistributing' land to benefi-

ciaries at full market value (Borras and Franco, 2005; Borras, 2006). In Canlusong, for example, a large tract of land had been titled in favour of the relatives of a past government official despite the land being declared forest land and part, therefore, of the public domain. In Colonia Divinia, meanwhile, much of the land had not been formally distributed at the time of this research as rights to title had been disputed and/or claimed by non-residents. Residents viewed these as 'land grabbers' who were using political and judicial networks, education and money to push small farmers off their 'traditional' land in order to establish sugar plantations.

Elsewhere, a major concern among residents and NGOs working in the area was the difficulty some CARP beneficiaries experienced in maintaining viable farms, particularly when confronted by events such as the death of a household head or unexpected medical expenses. Although no data were available on the extent of this phenomenon, it was believed that under such circumstances CARP beneficiaries were often forced to lease or sell land to wealthy non-residents who generally utilized the land for unproductive purposes such as the building of resorts or weekend retreats, breeding of fighting cocks, establishment of memorial parks, subdivision, etc. (the conversion of land to unproductive use being one of the strategies used by landed elites to avoid CARP). A small number of households included in the survey either leased part of their land out or, conversely, leased the land on which they farmed.

Households surveyed across the six barangays reported a mean of 5.2 resident household members and mean annual net incomes of PHP 10719 (approx USD 191) *per annum* for each resident household member; marginally above the rural poverty line calculated for interpretation of the 2000 census. Most households had at least one absent household member (a son or daughter), the majority of whom worked as agricultural labourers or domestic helpers within Negros Occidental. Major crops were rice, maize, fruit, vegetables and, to a lesser extent, coffee. Approximately 89% of coffee, 84% of fruit, 69% of vegetables, 43% of maize and 29% of rice was grown organically, primarily to reduce costs but also to improve soil health and access higher value markets for local, organic and/or fair trade produce. Only 5% of households reported having access to sufficient food year-round with most nominating a two to four month window of food insecurity in the wet season (the 'lean months') when little was available for harvest and off-farm employment opportunities in the sugar plantations were limited. Six percent of households had some cash savings but 54% were in debt. While 60% of respondents had not progressed past elementary school, interestingly, 46% of households nominated a female head to participate in the survey.

Commoditization and Exclusion

It is not hard to mount a case that global commodity trade has been hard on these households. As the summary above shows, households involved in this research were overwhelmingly poor; their subsistence and market production activities, even when combined with off-farm work, failing to provide year-round food security. Collapses in global commodity prices and/or access to markets have historically caused more acute food insecurity. This was particularly evident in the 1970s and 1980s when sugar prices crashed, generating widespread unemployment and famine. A study in 1982 reported malnutrition rates among children of 70% (Goldoftas, 2006). This encouraged more people to migrate into the mountains to establish small

farms where, as people say, 'you can always dig up root crops and have *something* to eat', no matter how unpalatable. Until the late 1990s, coffee was a major cash crop for many upland households. On sites too steep for other crops it could be interspersed with endemic timber and legume trees and on moderate slopes it could be intercropped with maize or vegetables. But when world coffee prices went into free fall as a result of massive expansion of production in Vietnam and Brazil, multinational buyers and processors did not simply lower the prices they offered upland Negrenese coffee growers, they by-passed them altogether, leaving only a small local market for low value 'native coffee'. The vast majority of coffee-trees throughout the study areas were abandoned, cut for charcoal or uprooted.

The experience of upland farmers with banana as a cash crop adds an interesting twist to these stories of boom and bust commodity cycles. Locally endemic banana varieties experience consistent demand in local markets, but more profitable export markets demand larger, more uniform and unblemished fruit. The introduction of more productive and marketable banana varieties from Mindanao in the 1990s resulted in the importation of diseases including bunchy top, moko (or bacterial wilt) and black sigatoka which farmers sought to control by burning all affected plants and fallowing the land for one year. At the peak of the disease outbreak in Sag-ang in 1997, most banana and all abaca (a relative of banana grown for fibre) production was wiped out. Previously, abaca had been the main source of livelihood after coffee, which, as noted above, was rapidly losing any meaningful market access at the same time. Based on data collected in 2008, it seems likely that the loss of each crop would have cost the average household in Sag-ang about a quarter of their annual net income. Banana production in Sag-ang recovered following the dispersal of some 10 000 banana plants by USAID, but abaca remains uncultivated.

It is perhaps not surprising, given these experiences with cash crops, that when asked which of their livelihood activities were most important to their food security, households nominated the cultivation of crops that could be used for household consumption irrespective of whether or not these were their major sources of income. This was especially pronounced in the case of rice, which many farmers grew at a net financial loss due to high levels of household consumption. Sugar-cane, by contrast, an entirely cash-crop, generated relatively high incomes for those households that grew it, presumably increasing their ability to purchase adequate quantities of other food. However, sugar-cane also required substantial investment in inputs, labour and transport, and had a history of catastrophic price volatility. Growing it entailed significant financial risk. Yet despite this tendency to regard subsistence activities as more reliable, it would be a mistake to discount the importance of non-subsistence activities to food security as not only did they add an element of diversification to households' livelihood strategies, as the next section will show there was also some evidence of positive relationships at the household level between subsistence and market production.

Livelihood Strategies in and outside the Market

Table 2 provides an overview of the major agricultural livelihood activities undertaken across the study area along with their relative contributions to household income and food supply. While there was considerable variation among individual households within each barangay, the general picture that emerges is one of grain crops (i.e. rice and maize) being grown both for subsistence and for market; fruit

and vegetable crops being grown predominantly as cash-crops but with some kept for self-consumption; and sugar-cane being grown entirely as a cash-crop on those lands both suitable for its production and close enough to transport infrastructure to get it to the central sugar mills. At first glance, coffee seems to fall somewhere between cereals and fruit and vegetables with nearly a quarter, on average, kept for self-consumption. In this case, a relatively small number of households grew coffee on a commercial basis (mostly in Patag, Sag-ang and Yubo where coffee accounted for 19%, 28% and 12% of net household income, respectively, for those households which sold it) while the majority of households maintained a low level of production primarily for their own use or for sale/exchange with neighbours.

In Patag, Sag-ang and Yubo, coffee growers were organized and were initiating strategies to improve bean quality and secure better market access. The strategies they developed, however, were very different. In Patag, coffee growers had organized themselves and thence petitioned the city government for assistance in accessing improved growing materials and arranging a supplier relationship with Nestlé (which processes instant coffee in Negros for the Philippine market). To date, they have had limited success with the establishment of improved coffee-trees and none in selling outside the low value local 'native coffee' market. In Sag-ang and Yubo, by contrast, coffee growers associations were established with the support of an NGO (the Negros Island Sustainable Agriculture and Rural Development Foundation, NISARD), which subsequently assisted them to improve bean quality through better management, harvesting and processing practices and to certify their beans as organic and fair trade. This, it was hoped, would open higher value export markets. Again, this has not yet eventuated. However, the improvement in quality, higher level of organization of growers, and collaboration with NGOs has enabled the growers to develop a premium local market for 'Negros Rainforest Coffee' that competes against the generally higher-status imported coffees. While more intensive management has increased the cost of production and basic processing (mostly due to increased labour) this has been offset by a doubling in the average price received. In turn, this has resulted in a similar net income per kilogram of coffee sold but higher returns overall due to increased productivity.

Increased income from the sale of coffee, or through the provision of labour to coffee growers, will have increased household capacity to purchase food. At the same time, households' ability to grow other cash and/or subsistence crops will not necessarily have been diminished (labour availability notwithstanding) due both to the growing characteristics of coffee-trees (either on land unsuitable for most other crops or on land suitable for intercropping) and to the use of improved management

Table 2. Contribution of major crops to household food supply and income.

	Rice	Maize	Fruit	Vegetables	Sugar-cane	Coffee
Number of producers	92	77	262	133	70	144
Mean percentage kept for self-consumption (%)	61	39	12	12	0	23
Costs as percentage of gross sales (%)*	61	43	12	22	52	9
Mean net income (PHP)	2,921	1,945	7,701	9,233	25 671	6,434
Mean contribution to net household income (%)	13	8	21	17	35	19

Note: * Excludes those producers who kept 100% for self-consumption.

practices as the basis for productivity improvements. The potential for cash and subsistence activities not only to coexist but to reinforce each other is also evident in the case of rice.

Table 3 shows correlations between the amount of rice (by weight) that those households growing it kept for their own consumption and a range of other household characteristics and production variables. These correlations are provided for the two barangays where rice cultivation was undertaken most intensely (Ilijan/Mailum and Colonia Divinia) in addition to all rice growing households surveyed, as the costs of growing rice for market varied considerably across the six barangays due to relative degrees of isolation and therefore costs of transport.

Table 3 suggests that the dominant livelihood strategies in which rice cultivation was embedded differed somewhat across the two main sites. However, it is important to start with what the two sites had in common; namely, very strong correlations between the amount of rice households kept for self-consumption, the total amount grown, and the investment they made in inputs and labour. At the same time, there were no significant correlations between the absolute amount of rice kept, by weight, and the relative amount of rice kept, by percentage of the harvested crop. Neither were there any significant correlations between the amount of rice households kept and either the number of people they needed to feed or their susceptibility to seasonal food insecurity. Even though many farmers regarded rice as so important to their food security that they were willing to grow it at a net financial loss (believing this to be cheaper than buying rice), it was actually the case that those households making most use of rice as a subsistence crop were not those disengaged from the commodity market but those that grew it most successfully. In other words, the more integrated households were in both up- and downstream commodity chains (that is, purchasing more inputs and selling more outputs), the more rice they grew and the greater their capacity to keep rice for their own use. Notably, the same trends were evident among maize-growing households.

In Colonia Divinia, households kept, on average, 87% of their rice harvest for self-consumption compared with only 55% in Ilijan/Mailum. Those Colonia Divin-

Table 3. Correlates of quantity of rice kept for household self-consumption (Pearson's r).

	Ilijan/Mailum n=35	Colonia Divinia n=32	Total Sample n=92
Number of resident household members	.051	.068	.112
Months experiencing food insecurity	–.003	–.101	–.110
Total household income	.200	**.713****	**.597****
Total non-agricultural income	.109	.316	**.209***
Total agricultural income	.160	**.709****	**.610****
Net rice income as a proportion of household income	.177	–.095	.093
Rice production land	.326	**.841****	**.719****
Total rice harvest	**.608****	**.917****	**.759****
Rice harvested per hectare	**.521****	.103	**.309****
Rice kept as percentage of crop	.177	.257	.188
Rice sold	**.444****	.280	**.385****
Rice production income	**.385***	**.405***	**.426****
Input expenses (including labour and transport)	**.439****	**.911****	**.808****

Notes: * $p < .05$; ** $p < .01$.

ia households that produced and kept a greater volume of rice tended to be those that devoted more land to its production but which also derived more income than their neighbours from other agricultural activities. By contrast, those Ilijan/Mailum households that produced and kept a greater volume of rice were those that were more productive – growing more rice per hectare rather than more hectares of rice – and which were subsequently also able to sell more rice in absolute terms, than their less productive neighbours. When the relative productivity per hectare among households is compared – either for individual barangays or for the six as a whole – a highly skewed distribution is evident. Fifteen households reported yields in excess of the provincial average of 3.9 tonnes per hectare (PPDO, 2004), but 57 reported yields lower than the survey mean of 2.6 tonnes per hectare and 17 reported yields lower than one tonne per hectare.

The major determinant of rice productivity appears to have been management skill rather than levels of input use. This is reflected in similar levels of productivity between organic and conventional rice-growers. As Table 4 shows, organic growers had very similar levels of productivity to conventional growers but substantially lower costs as synthetic inputs were substituted with management practices rather than with purchased biological inputs and/or labour. At a market price for unmilled palay (rice) of ten pesos per kilogram, organic growers, on average, achieved a net return approximately 30% higher than conventional growers. Allowing for a market premium of one peso per kilogram (offered to growers selling through various NGOs) this increased to over 50%.

The major rationale provided by farmers for organic production was cost reduction, followed by reduced exposure to agrichemicals and improved soil health. While access to higher value markets was not a particularly strong motivating factor, the incentive to sell generated by higher net returns was reflected in a propensity among organic growers to sell a greater proportion of their crop and for this subsequently to comprise a more substantial share of their household income. Households producing organic rice were thus less integrated in up-stream commodity chains (for fertilizers and other inputs) but more integrated in downstream commodity chains (for farm outputs).

Organic rice production was strongly associated with the availability of sustained technical and market assistance. Almost all the certified organic rice-growers involved in the study (23 certified out of 27 total organic rice producers) were situated

Table 4. Organic and conventional rice production and financial data.

	Organic (n=27)	Conventional (n=66)
Total rice harvest (tonnes)	1.6	1.6
Mean yield per hectare (tonnes)	2.5	2.6
Total income	8321	7130
Chemicals, fertilizers, seeds, etc.	641	2705
Labour	1715	1725
Milling, transport etc	652	1200
Total expenses	3103	5627
Costs as percentage of income (%)	37	79
Production cost per kg (Pesos)	2.0	3.8
Net income	5830	1674
Proportion net household income (%)	23	9
Percentage kept for self consumption (%)	47	66

in Ilijan/Mailum where they had been supported over a number of years by the NGO Broad Initiative for Negros Development (BIND) in varietal selection, organic production methods and marketing. Sixty percent of households in Ilijan/Mailum had participated in varietal selection training. They reported use of 19 distinct rice varieties in the year preceding interview, of which four were modern varieties bred by the International Rice Research Institite and similar institutions, three were traditional varieties (one Filipino and two Indian) and 12 were creolized farmer-bred varieties sourced and distributed by NGOs. The most popular variety across the entire survey area was a traditional Indian red rice, Badaji/Badahi. In light of the short cultivation history of the Negros uplands, the popularity of rice genetic material sourced from outside the study area may not seem surprising. However, it is worth noting that research conduced in areas with much longer cultivation histories has generated similar results. Carpenter's (2005, 2010) study on the Philippine island of Bohol, for example, found that farmers engaged in *in situ* conservation and breeding utilized 'fresh' genetic material whenever possible through exchange of traditional, modern and farmer-bred varieties. These farmers did not reject modern seed stock or breeding and conservation techniques but sought ongoing rights of access in order to maintain the spatial and temporal flows of genetic diversity and to recognize their own intellectual property (Zimmerer, 2003; Lockie and Carpenter, 2010).

In addition to organic production methods and the development of imported plant genetic resources, households were involved in several activities directly oriented to the use and conservation of biodiversity. The most widespread planned biodiversity management activities were those that focused on protection and rehabilitation of forested slopes, utilization of locally endemic plant varieties (mostly banana) and biosecurity. Approximately 49% of households were directly involved in the protection or restoration of natural ecosystems, with 36% receiving income for participation in tree planting and similar projects and 17% volunteering or working as forest guards; an activity that due to rugged topography, the presence of NPA and bandit groups within the mountains, and the potential for victimization by illegal loggers was generally considered to be important but dangerous.

A final survey result bears noting. Despite the variations described above in relation to agricultural productivity and associated livelihood and subsistence strategies, the strongest predictor of household income was the education level of the survey respondent. Households nominating a college graduate to participate in the interview averaged roughly double the total household income of households nominating a high school or elementary school graduate, and four times the income of households nominating someone with no formal education. This pattern was repeated for both agricultural and non-agricultural income. Barangay leaders and farmers interviewed following the survey generally believed that education was likely to improve farmers' ability to read the market and to deal with 'middlemen' while doubting that it made farms more productive by an order of magnitude. This interpretation is supported by evidence in the data that respondents with higher levels of education utilized inputs more efficiently and achieved higher returns on commodities sold despite what appear to be similar levels of productivity.

Discussion

Households in the uplands of Negros Occidental faced significant pressures to deagrarianize their livelihoods. Almost all of those surveyed reported seasonal food

insecurity and incomes at or below the level needed to meet basic needs. Despite relatively recent allocation of formal land titles, farm sizes were small and limited opportunities were available for agricultural labouring work in the wet season. Increasing agricultural productivity or pursuing higher value markets for organic produce are unlikely, by themselves, to resolve these issues. As one NGO representative working on organic agriculture and other livelihood projects in the study area argued in relation to organic rice production:

> 'The return on investment is higher than conventional. So if you are going to translate this, how are farmers able to spend their income? Is their income enough to feed their family? Let's say the average household is six persons, planting rice is not enough to feed the family… it cannot provide clothing… Diversification is the only answer to meet the basic needs of the family… So if your yield production increases that is good, but if it is only rice, I would object to the idea that it is enough to meet the needs of the family, because farm size doesn't increase. It decreases. The solution to the problem of perennial poverty is not organic agriculture.'

Nevertheless, considerable evidence was generated that reconfiguration of the agro-ecological, exchange and social relations of small-holder production can provide for demonstrable improvements in household livelihoods. Certification to organic standards was accompanied by improved product quality and crop profitability. A small number of organic farmers each bred, maintained and evaluated 10 or more distinct rice varieties that were disseminated among their peers and supported local agro-biodiversity. In doing so, these farmers entered and extended non-commoditized international networks dedicated to facilitating the preservation, evolution and flow of plant genetic material, plant breeding and production knowledge, and the development of organic and fair trade production standards.

With the exception of imports into the study area of farm inputs and the export of small volumes of fairly traded bananas and organic rice there was no engagement among upland farmers in global commodity chains. In the case of coffee, farmers had not chosen to distance themselves from an exploitative international market. They were excluded, rather, when buyers simply withdrew and the majority of coffee plantings were abandoned. By contrast, rice and maize producers integrated into local and regional markets tended to be more productive and to have more food for self-consumption than their peers who did not sell into these markets. Further, those rice and maize producers who replaced synthetic inputs with more management and labour intensive organic techniques reduced costs and associated risks while engaging more in downstream produce markets. An important feature of these markets was their institutionalization and regulation through NGOs that variously acted as market intermediaries buying and selling small-holder produce, organized opportunities for small-holders and others to trade, and developed and/or monitored compliance with organic and fair trade production standards. Each of these activities were aimed at embedding conventions for market exchange that were more beneficial to small farmers. What may have appeared to be relatively small financial incentives for farm households to participate in these particular markets made comparatively substantial differences to net crop returns.

Not every attempt to embed new conventions for the formal and informal governance of supply chains was immediately successful. Negros Rainforest Coffee producers, for example, did not achieve international supply chain access despite their

efforts, with assistance, to meet organic production and quality criteria. Nevertheless, techniques and conventions for the governance of supply chains developed at the international level were used effectively in this case to reconfigure and to establish new local value networks. The establishment of a new consumer market for local produce helped to create esteem within the local coffee industry and provided a basis on which to compete with imported coffee.

The 'markets for the poor' (M4P) project drawn from New Institutional Economics is open to criticism for largely ignoring the need for market and other reforms suggested both by these experiences and by local and global processes of dispossession. Working on the poor, or on local institutions, to develop their entrepreneurial capacities may fail to address more fundamental sources of poverty and inequality. Nevertheless, this case does suggest that capacity building, equally, should not be ignored. As noted above, households headed by college graduates generated incomes that were orders of magnitude greater than the incomes of households headed by those with no formal education. Further, productivity levels across farms were highly skewed despite remarkably uniform natural resource endowments between farms. Recognizing this variance in education and skills, both of the NGOs discussed above, NISARD and BIND, worked on household capacity building as a key plank of their projects to institutionalize alternative market conventions. Based on evidence of profitability and productivity gains arising from improved management skills, this market development and capacity building appears to have benefited producers. Additionally, this experience suggests that debates about the relative merits of supporting institutional and capacity development for either cash or subsistence crops potentially fail to recognize the close and at times positive relationships between cash and subsistence production within household livelihood strategies.

Conclusion

The trajectories of rural change identified by the re-peasantization and de-agrarianization literatures ought not to be seen as binary oppositions. Demographic pressure, finite land resources, competition for those resources from urban elites, and endemic poverty in the uplands of Negros Occidental certainly create a compelling case for the diversification of rural livelihoods. Such pressures have led some to conclude that small-holder agriculture across South-east Asia will eventually become a residual category of part-time farmers and neo-peasants within mixed landscapes dominated by agrarian entrepreneurs and non-agricultural businesses (Rigg, 2005). This begs a number of questions. Must diversification necessarily lead to the marginalization and/or continued impoverishment of small-holders? Is diversification the only solution to the problem of endemic rural poverty? Is entrepreneurialism incompatible with peasant-like modes of agriculture? We would suggest that the answer to all these questions is 'no'.

Other analysts have drawn attention to the struggles of new global peasant movements to contest their dispossession (McMichael, 2006) and to the reconfiguration of the agro-ecological, exchange and social relations through which alternatives to dispossession are operationalized (Van der Ploeg, 2010). Data reported here from the uplands of Negros Occidental show that agro-ecological production methods and alternative market conventions certainly can make a substantial difference to household livelihoods and to thus help break the cycle of low productivity and food

insecurity in which many small-holders find themselves; reducing, in the process, households' risk of indebtedness and forced landlessness.

At the same time, data reported here demonstrate that participation in formal education can greatly increase small-holders' ability to read markets, avoid exploitation in their dealings with others and, ultimately, generate income from their livelihood activities. While education is usually seen as a driver of labour mobility and rising life-style aspirations (Rigg, 2006), seasonal and permanent outmigration in search of work was the norm among upland households regardless of their participation in formal education. For the vast majority, labour migration helped to reproduce the household via remittances but did little to lift either resident or non-resident household members from poverty. Formal education provided opportunities for a small number of out-migrants to work in secure professional occupations. However, formal education also provided opportunities for a small number of residents to pursue small-holder farming as a chosen and comparatively profitable vocation.

Among upland farm households surveyed for this research, those households that most actively pursued income generation through participation in downstream markets (that is, those households with the most entrepreneurial orientations to their growth of staple crops) were also those who kept, by volume, the greatest quantity of food for self-consumption. Whether through increased dedication of available land to crops, increased investment in inputs (including self-provisioned biological inputs such as composts) or simply better management, these farmers were able to grow more food in total and to rely less on income from off-farm work while still providing for a greater share of their own household requirements. This was despite almost all households having access, as agrarian reform beneficiaries, to similar total landholdings. The interplay of subsistence and market production for small farmers was not a zero-sum game (see Isakson, 2009). However, all markets are not the same and the availability of markets organized according to alternative conventions such as organic certification was a strong incentive for many relatively more entrepreneurial households.

Notes

1. Drawing on Van der Ploeg's (2010) contention that the peasantry and peasant modes of agriculture should be seen as historically and spatially dynamic, the term peasant is used in this article to refer to farmers and farming operations that are relatively small in scale and that rely for their reproduction on a significant involvement in non-commoditized relations of production. The boundary, if there is one, between peasant and family farming is not debated or defined. While research in peasant studies is clearly relevant to Philippine small-holder farmers – and despite the presence in the Philippines of several NGOs and people's organizations that characterize themselves as representatives of the peasantry – small-holders rarely refer to themselves in these terms.
2. Conventions theory suggests that negotiations around particular notions of quality are central to the co-ordination of production–consumption networks or chains (Murdoch et al., 2000). The term 'convention' is used to encapsulate the formal and informal rules, norms, expectations, routines, etc. that make interaction within such networks comprehensible and predictable (Ponte and Gibbon, 2005). While agri-food scholars drawing on conventions theory often do so through application of a series of ideal types ('worlds of production') developed by conventions theorists, we are not concerned with doing so here and use the term in reference to values and principles used informally and formally (e.g. through standards and certification) to regulate and order commodity exchange.

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