



# National specialization policy versus farmers' priorities: Balancing subsistence farming and cash cropping in Nepal

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## ABSTRACT

The Nepali Government is currently implementing policies for a radical agricultural transformation into large-scale, mechanized, specialized and commercial farming. However, the peasants prioritize diversified subsistence production of resilient and versatile food crops and regard cash crops only as a supplement. Cash cropping represents a potentially profitable income source but involves risk. Complete agricultural commercialization would jeopardize household and community food security, weaken trust- and reciprocity-based social mechanisms for exchanging food and labour, and break with traditions. Peasants' motivations for balancing subsistence and market production are multiple and interrelated because their economic pursuits are deeply embedded in social and cultural structures.

## 1. Introduction

Cultivation of high-value cash crops is becoming a widespread strategy for rural income generation in Nepal. Hill and mountain cultivators are increasingly exploring new market opportunities by growing various spices, non-timber forest products (NTFP), medicinal and aromatic plants, fruits and vegetables (Holmelin and Aase, 2013; Gurung et al., 2016; KC et al., 2016). Diversification of subsistence agriculture to include some marketable crops has increased farm incomes, improved food security, and enabled investments in infrastructure in many Himalayan communities (Partap, 1999; Holmelin, 2017; KC & Upreti, 2017). Although ancient trade routes have ensured transfers of food and other goods between lowlands and mountainous areas for centuries (Vinding, 1998), many rural communities are still on the receiving end of market relations as they predominantly purchase more food from national markets than they sell of local produce. Remittances from labour migrants compensate for much of the cash flow out of rural communities, as remittances amounted to 32% of GDP in 2016 (Fox, 2018).

The promising impacts of high-value crops has led some to argue that Nepali agriculture should make a full transition to commercialized farming, and that such a structural change would reduce rural disguised unemployment (Deshar, 2013), poverty (Dahal, 2015) and the national trade deficit (Paudel, 2016). The Government of Nepal's Agriculture Development Strategy 2015 to 2035 (ADS) states that: 'Profitable commercialization in the ADS is part of the overall process of

transforming the agricultural sector from a substantial proportion of farming carried out solely for subsistence, (...) into a sector in which the vast majority of farming is carried out for commercial purposes and is connected to the local, national, and international markets.' (GoN, 2015, p. 7).

The ADS reflects a top-down policy and has been criticized for only benefitting large landowners and not the 53% of the households who have less than 0.5 ha of agricultural land (Roka, 2017). A complete shift from subsistence-based to commercial agriculture would represent a pervasive transformation of the agricultural structure of Nepal, which is currently far from the political vision stated in the ADS. Nepali agriculture is predominantly subsistence based (CBS, 2013a; Roka, 2017), characterized by smallholding families who mainly produce a diversity of crops for own consumption and occasionally for sale, often in combination with off-farm livelihoods and labour migration. A large share of the yield is consumed directly and never enters the market (CBS, 2004). Cash crops and spices cover only 2.8% of the land under temporary crops in Nepal (CBS, 2013a) and financially important cash crops such as cardamom and fruits have had problems with pests and disease, which degrade quality and reduce revenue (Sharma et al., 2016; Fox, 2018). The main purpose of agricultural production is not sale, but household consumption for 96% of the households (CBS, 2013a). Still, a majority of all households (60%) are integrated into markets in the sense that they are not self-sufficient from own production (CBS, 2013a), but purchase additional food and goods, engage in off-farm livelihoods, and

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occasionally sell some livestock or surplus production. Why, then, do the farming households continue to grow food primarily for subsistence, instead of specializing in high-value cash crops as promoted by the ADS?

## 2. Theories of peasant behaviour and motivation

Farming families who mainly rely on their own labour to produce food partly for subsistence and partly for the market are often characterized as peasants (Chayanov, 1966; Shanin, 1987). A well-established position in peasant studies is that peasants avoid taking risks that jeopardize their security for survival, and that this is a rational response to an uncertain economic situation (Wharton, 1971; Scott, 1976; Netting, 1993). Peasants cultivate a diversity of crops in order to reduce the risk of total crop failure and to even out seasonal labour peaks, using practices such as dispersed fields, delayed planting, and intercropping (MacDonald, 1998; Mishra et al., 2003). Wharton (1971) and Scott (1976) both argue that peasants follow a safety-first principle: Their main concern is to ensure a minimum income every year and to avoid falling below a minimum threshold for fulfilling household food requirements. Peasants are willing to give up higher average returns from more profitable crops if that involves greater yield variance, thus a higher risk of occasionally falling below the subsistence threshold. Instead, they will plant more reliable though lower-yielding crops to ensure a more stable food supply from year to year (Wharton, 1971; Scott, 1976). Others argue that peasants are not necessarily risk-averse, they are rational actors who make investments that occasionally involve substantial risk (Popkin, 1979; Henrich and McElreath, 2002). However, Wharton (1971) argues that peasants are often ‘dual farmers’: they are sometimes willing to innovate and take risk by cultivating a new commercial crop, while they persist in utilizing traditional practices on their staple crops. They are more likely to apply new technology on a new crop than to change the technology of a traditional, well-established crop (Wharton, 1971).

Scott (1976) further holds that the peasant economy involves a moral rationality based on principles of justice and exploitation in relation to the state or large landowners: Subsistence peasants are willing to give up substantial shares of their produce through taxation, as long as there is sufficient food left to them to ensure survival. What matters is not how much is given up in good years, but how much is left to them every year. Their moral right to subsistence involves protection from starvation in crop-failing years, and if this right is not fulfilled by the state or landowner, Scott argues that peasants might rebel and demand justice. The acceptance for taxation in normal years is conditioned on an insurance against starvation in bad years, which implies that the economic risk of crop failure is transferred from the individual peasant family to the landowner or the state.

Risk commonly refers to a situation where the probability of an incident is known, while uncertainty means that the probability is unknown (Leach et al., 2010). In practice, risk and uncertainty are two poles of a continuum and rarely occur in their pure form (Henrich and McElreath, 2002). Under normal circumstances, peasants are exposed to a certain risk of crop losses from hailstorms or insect attacks of which the probability is reasonably well known from experience, but there is also an uncertainty involved in the potential damages from new, so far unknown pests. An experienced cash-cropper will be able to estimate the risk of financial loss from market-price fluctuations, while for a subsistence-based peasant who has limited experience with market production, the probability of financial loss will appear uncertain.

Aase and Vetaas (2007) show that risk can be managed through communal arrangements and is not only a question of risk aversion or risk taking by individual households. Reciprocity, or social systems for sharing and receiving goods and services, can also function as an insurance by spreading risk among a group of households (Cashdan, 1985). When the risk of crop failure is randomly distributed and does not hit everyone simultaneously, reciprocal sharing of food with those suffering losses works as an insurance against household food scarcity.

The term reciprocity originates from Polanyi (1944) who argues that the dominance of the market economy is historically quite recent. Polanyi describes four principles of economic behaviour: *Market exchange* (or ‘money-making’), a self-regulating system motivated by gain; *redistribution*, where resources are collected and redistributed by a territorial central power such as a state or large landowner; *reciprocity*, where resources are shared and exchanged based on symmetrical social obligations within kinship groups or other social groups; and *householding*, an economic system based on self-sufficiency where the household produces and stores food and other goods for its own use (Polanyi, 1944). Polanyi occasionally omitted householding when discussing forms of exchange, while he again included householding in his elaboration of four principles of economic behaviour (Gregory, 2009). The essence of householding is production primarily for use, not for gain: the household may occasionally sell some of its produce, but only in the case of a surplus (Polanyi, 1944).

Householding as an economic system resembles Chayanov’s (1966) concept of a peasant economy where the household is the unit for both production and consumption and family labour is unpaid. According to Chayanov, peasants have other motivations and follow a different logic from capitalist firms, as peasants aim at securing the needs of the household rather than making a profit (Ali, 1998). Since family labour is unpaid, peasants may self-exploit the family’s labour in times of need to ensure survival, while a capitalist firm would run at a deficit. ‘The degree of self exploitation is determined by a peculiar equilibrium between family demand satisfaction and the drudgery of labour itself. (...) As soon as the equilibrium point is reached continuing to work becomes pointless’ (Chayanov 1925, in Kerblay, 1987, p. 178). Similar to Chayanov, Boserup has described how peasants cultivate primarily to fulfill their consumption demands and once these are met, they prioritize leisure and weigh the expected output of a new technology or crop against the additional labour burden (Boserup, 1965).

In various ways, Chayanov, Boserup, Polanyi, Wharton and Scott all describe various aspects of a distinct subsistence logic where the purpose of production is to ensure a stable fulfilment of the household’s needs and where the *use value* of the crops matter, in contrast to a market logic motivated by material gain and where the *exchange value* guide the choice of crops. When market participation is limited, peasants make decisions predominantly to ensure family survival and well-being, which makes production for home consumption their primary goal (Wharton, 1971). The market logic is rational in the context of a capitalist market economy which is impersonal, self-regulating and dis-embedded from social relations (Polanyi, 1944). The economic principles of redistribution, reciprocity and householding, however, which dominate in the subsistence logic, have in common that they emerge from and are embedded in social relations (Polanyi, 1944) and cultural structures (Scott, 1976; Dahal, 1981). Subsistence production is thus motivated by not only satisfying biological needs, but also by fulfilling social, ceremonial and moral obligations in the community. A classic debate in the 1950s and 60s arose from a disagreement between formalists who argued that the principles and assumptions of neo-classical economics are universally valid, and substantivists who joined Polanyi in arguing that pre-capitalist peasant economies are historically and spatially too diverse to be adequately grasped through just one set of concepts (Hann and Hart, 2011).

Subsistence production is occasionally portrayed as a poverty trap that impedes economic growth while a conversion to market production would benefit both the peasant households and the national economy (Barrett, 2008; Paudel, 2016). In contrast, Waters (2007) views subsistence production as the most beneficial economic form for smallholding cultivators and argues that they will not enter the market unless they are coerced to do so either by heavy taxation by a central power, or if population growth and land scarcity diminish self-sufficiency and force them into the market. However, Netting (1993) argues that smallholding peasants are fully capable of combining the benefits of subsistence and market production, that is, production intended for use and

production intended for profit. Furthermore, Netting shows that smallholders are rarely fully self-sufficient and isolated but engage in networks of economic exchange.<sup>1</sup> Their intensive cultivation systems achieve high total production, and 'reports of the death of the smallholder in a modern high-tech, large-scale world have proved to be vastly exaggerated' (Netting, 1993). Also recently, a number of scholars have criticised the view that depeasantisation – a process where smallholder and peasant farming is increasingly being replaced by commercial and large-scale corporate entities – is the inevitable structural outcome of development (Hebnick, 2018).

In Dolakha, a mountain district of Nepal which is well connected to Kathmandu markets, it is becoming increasingly popular to grow some crops for sale. Still, even the households that have invested in cash crops dedicate only one fifth of their land to commercial production. The remaining 80% they reserve for subsistence production of grains, legumes, and vegetables (Holmelin 2017). Most households are not self-sufficient throughout the year with food from own production, but raise additional income through local casual labour, remittances from migration, small businesses, and other non-farming livelihoods. As they invest their family labour in producing partly for own consumption and partly for the market, they fit the characterization as peasants.

Neither the arguments of Barrett (2008), Paudel (2016) nor Waters (2007) can explain such a partial market integration, to voluntarily combine subsistence and market production. Why do these peasants continue to prioritize subsistence production, even after having obtained cash-cropping experience? This article explores various aspects of subsistence production related to food security and risk, social networks, and cultural meaning, before ultimately discussing these themes in relation to current governmental strategies for agricultural development in Nepal.

### 3. Study area and methods

The study takes place in Kavre and Chhetrapa rural municipalities (*gaupalika*) in Dolakha, a mountain district in Province 3 of Nepal. Terraced family farms lie scattered across the hillsides from 1500 m up to the ridge of 2100 m above sea level (masl). The study area is defined as a functional region that comprises all households using the village Maina Pokhari (1970 masl) as their primary market and transport nexus (for details, see Holmelin, 2020). Households located more than approximately a 2.5 h walk from Maina Pokhari prefer to visit other local markets and are not included in this study. Since 1978 Maina Pokhari has been connected by road to Kathmandu (7 h by car) and to the town Charikot (2 h). Despite a high prevalence of labour migration by young men,<sup>2</sup> the population is not declining as many migrants return after a period abroad (Holmelin, 2017). Population dynamics here thus differ from many high-mountain areas of Nepal which see declining populations (CBS, 2014a) and extensive abandonment of agricultural land, which in districts like Manang reach 60% of the land cultivated 40 years ago (Aase et al., 2010). Land abandonment rates are more modest in the middle hills, including in Maina Pokhari where 18% of the land cultivated 40 years ago is abandoned now, though mostly small, rainfed plots of low productivity due to altitude or steepness (for a discussion, see Holmelin, 2017). The caste and ethnicity distribution shows a majority of upper caste Chhetri/Bahun households (68%), followed by the ethnic groups (*janajati*) Sherpa, Jirel, Newar, and Tamang (21%), and low caste Dalits (11%) according to local population censuses (Kavre VDC, 2008; Chhetrapa VDC, 2010). Processes of social differentiation occur in this area as elsewhere. How variations in caste and ethnicity,

<sup>1</sup> That something is produced for subsistence does thus not imply that the producer is completely self-sufficient.

<sup>2</sup> In Maina Pokhari, 24% of the surveyed households have one or more migrants abroad, which is close to the national average figure of 25% (CBS, 2014b).

wealth, age, and marital status interact with changing gender relations and household decision-making in the context of male out-migration is thoroughly discussed in Holmelin (2019) and will not be addressed here.

Qualitative and quantitative methods were applied during four periods of ethnographic fieldwork by the author in 2012–2015. Participant observation enabled daily interaction with people, numerous field conversations and semi-structured interviews. Observations of objects, activities and landscapes were discussed with and interpreted by informants. A household is here defined as an economic unit owning land or other assets together. Individuals who are directly affected by decisions regarding the common property are members of the household (Aase et al., 2019). A daughter leaves her parents' household at marriage, while a son is part of his parents' household until they split the land or otherwise settle the inheritance, which makes him economically independent. Migrants are part of the household unless they marry and settle permanently in a new location, upon which a transfer of land, assets or money will take place and a new household is established.<sup>3</sup> A structured household survey was conducted of a purposive sample of 114 households, covering the local variance of the variables of interest to this study (Gobo, 2004) such as caste and ethnicity, household size and composition, farm size, crop diversity, distance to market, wealth level, education, and migration of household members. A selection of the surveyed households was studied as intensive household cases. Group interviews with 3–10 persons were also conducted. For this study, the main purpose was to obtain insight into people's own views, opinions, priorities, and ways of thinking about subsistence and market production. Direct quotes are therefore analysed as primary data since they represent the informants' own description of their decision-making process (Yin, 2011). Analytically, emphasis was put more on the qualitative content of the answers than the frequency of various answers. Quotes are supplemented and contextualized with specific household cases of practice and observations of behaviour (Yin, 2011).

### 4. The farming system

Farming is the main livelihood of 86% of the households (Chhetrapa VDC, 2010). Cultivation is organized as an agro-forestry farming system, where forests are sources of fodder and fuelwood. The main cropping pattern is rice/wheat in irrigated plots (*khet*), and maize/millet in rain-fed plots (*bari*). All land-holding households grow these crops. The average land holding is 0.5 ha (median 0.4 ha). Potatoes, vegetables, legumes, oilseeds, buckwheat, barley, fruits, nuts, and spices are also cultivated. The soil is fertilized with animal manure and small amounts of chemical fertilizers. Goats, cattle and chickens are kept for meat, milk, eggs and for manure and draught power. NTFPs are derived from privately own forest plots. Commercial extraction of NTFPs from community forests is not permitted but harvesting for household use of fodder, fuelwood, herbs, medicinal plants, mushrooms, and fruits is allowed.

Few households produced anything deliberately for sale until peace was restored in 2006 after ten years of Maoist insurgencies. The diversity of crops gradually increased in the periods before and especially after the conflict, although the new vegetables were often kept only for subsistence. The number of households selling some farm produce is currently rising, but people still buy substantially more food from the market than they sell. Three in every four households are not self-sufficient from own production (Chhetrapa VDC, 2010). Even those who are self-sufficient with staples and vegetables commonly buy foods such as oil, sugar, salt, spices, tea and occasionally meat. Among the surveyed households, 37% do not sell any of their own produce (Fig. 1). Livestock are mainly raised for manure and meat, but a common strategy for obtaining fast cash is to sell a goat (14%). Small amounts of maize

<sup>3</sup> For an in-depth discussion on the household as an analytical concept, and operationalized demarcations of the household concept in this study, see Holmelin (2020).

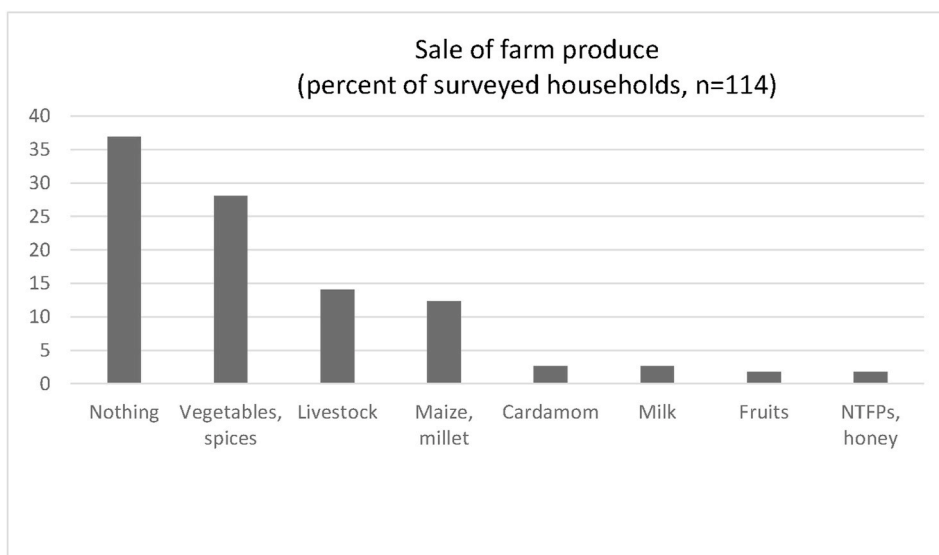


Fig. 1. Sale of farm produce.

and millet are sold locally by 12% of the households, but only in case of a surplus. The 37% of households selling either vegetables, spices, cardamom, milk, fruits, NTFPs or honey can be assumed to produce deliberately for sale. The households producing vegetables, spices or fruits dedicate on average 20% of their cultivated land to market production, while keeping 80% for subsistence production of food and livestock feed. The revenues earned from cash crops are modest for most people, and no one has so far chosen to specialize in commercial production. Less than a third of all households earn 10 000 NPR (88 USD<sup>4</sup>) or more and only 11% earn 50 000 NPR (438 USD) or more per year (Fig. 2). The few households who have invested a more substantial amount of land and capital in commercial production cultivate cardamom, tomatoes, spices, NTFPs or medicinal plants.

The majority of households reserve most of their land for subsistence despite knowing that the local sales price of tomatoes is twice the price of millet, that one kg of dried cardamom could buy 25 kg of imported rice, or that one *ropani* (approximately 0.05 ha) of chili would bring 12 500 NPR even at low prices, enough to buy 600 kg of millet. One plot of chili equals six plots of millet in monetary value, and one plot of cardamom equals four plots of rice. According to the market logic, increasing cash-crop cultivation at the expense of subsistence crops would be a rational choice as it would raise the households' income. However, the peasants prioritize differently and the reasons why are explored in the following sections.

## 5. Risk management and safety first

### 5.1. Household food security

The peasants of Maina Pokhari put great emphasis on the need to produce enough staples for food and livestock feed. Local varieties of rice, wheat, maize and millet are the preferred crops which over time have proved to be resilient and reliable. *'To be safe, we plant the same crops as always. At least we have something to eat. We cannot risk not having food to eat'* (woman, 31). Damaging weather events like hailstorms, strong wind, drought, heavy rain, and early night frost frequently destroy some crops. Wild animals, ants, pest and plant diseases occasionally attack and degrade crops. A common response to crop failure is to plant a new crop later in the season, such as buckwheat, mustard, soybean or potato. Each household has several smaller plots in different

locations and at different altitudes which spatially spread out the main cereal crops. All cultivating households grow some staples for own consumption and high priority is given to maize and millet.

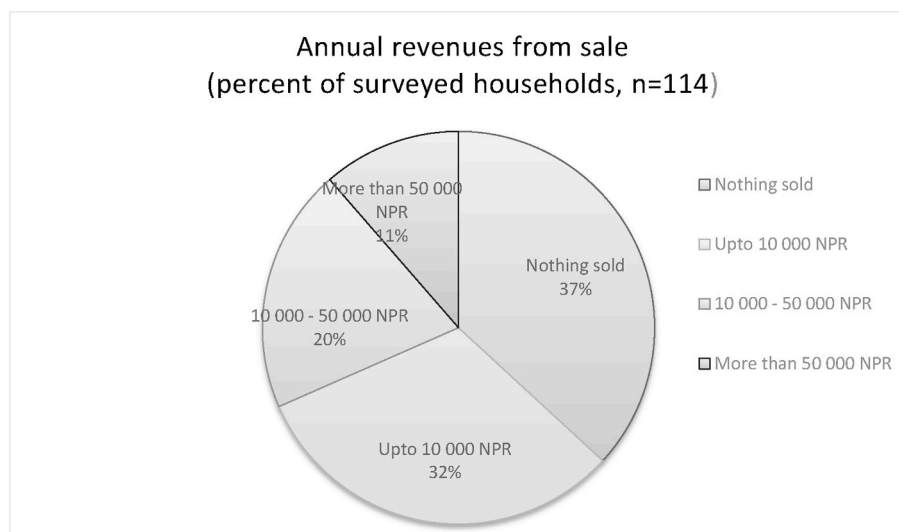
*You always get some yields of maize and millet; you will not lose it all. While if you take a loan and invest in something, like vegetables, then you really need to obtain good yields to repay the loan. You might earn a lot if the yields are good, but if they fail then you are in debt. While from your own subsistence production, you just get as much as you get.* (Woman, 56).

The quoted woman and her husband once tried commercial tomato production in a small plot, but it failed. Now they avoid the economic risk of indebtedness and keep only to subsistence production. *'They said I was mad not to plant maize'*, said a man (77) who had recently dedicated some land to chili for sale. Still, he reserves most of his plots for food staples. The robustness of the traditional staple varieties under varying weather conditions is much appreciated. *'The millet has never failed us. Sometimes when there is not enough rain, we get less maize, but we have not lost millet crops at a major scale. We tried ginger, but it just stopped growing'* (woman, 63). Although food from Kathmandu is usually available in the local market, there is a general attitude of scepticism towards the national food market. Frequent roadblocks and occasional political protests make the transport unreliable. *'We have to eat too. If something happens and you cannot buy rice, then you must have something for yourself to eat'* (man, 41). Vegetable prices fluctuate greatly, and people do not rely on obtaining a good price for their produce. The argument that peasants prioritize safe and stable food crops over profitable but less reliable crops (Wharton, 1971; Scott, 1976) is valid for this study. Commercial production involves monetary expenses for seeds or saplings, plastic tunnels and irrigation pipes in addition to investments of land, labour, manure and water. The peasants are thereby exposed to risk of crop failure and to the economic risk of becoming indebted both from the failed investment and from having to buy additional food.

Bad weather and plant diseases can harm any crop, and as the various plants need labour and water at different times of the year, crop diversity evens out labour peaks and exploits the growing seasons. *'If one crop fails, then we have the others to eat. I don't want to specialize'* (woman 45). People use diversification as a strategy for reducing the risk of total crop failure and starvation, just like peasants in mountain regions elsewhere (MacDonald, 1998; Mishra et al., 2003). However, the newly introduced vegetables and spices are not necessarily sold, but simply incorporated into the subsistence system. *'Before, people did not see vegetables as essential; rice, maize, millet and wheat were the essential foods. We had some vegetables too, but fewer than now. Now there is more awareness that vegetables are important too'* (man, 50). Introduction of new crops has

<sup>4</sup> Exchange rate of September 13, 2019.





**Fig. 2.** Revenues from sale of farm produce.

contributed more to crop diversification than to greater market integration.

Growing a diversity of crops and crop varieties, and choosing some modest-yielding but robust varieties, spreads the risk of weather- or pest-related damages, and reduces a household's overall risk of falling below the subsistence minimum. Spreading risk among various cultivars reduces the risk of severe food insecurity for the household.

## 5.2. Community food security

Food security and risk management is not only a preoccupation for individual households, but also a concern for the community (Aase and Vetaas, 2007). Three arrangements exist locally which have relevance for food security by enhancing stability, access and availability of food in the community.

Firstly, there is a social expectation to share some food with households hit by severe crop failure. *'In the market you may starve, but in the village, you will never starve'* (group interview). The practice of sharing food with affected households spreads the risk of loss among households and over time, thus working as an informal insurance (Cashdan, 1985). Although a social obligation to help others does not prevent the damaging events from happening or reduce the total crop loss, it still reduces the risk of anyone in the community falling into starvation. Each contribution is relatively small, but the help makes a great difference in a critical period for those affected. The arrangement works for normal and frequently occurring damages such as strong winds, hailstorms or insect attacks but will not be suitable for compensating losses following a drought that hits everyone simultaneously. Sharing food with unfortunate households improves the stability of food supplies for all community members and is an expression of general reciprocity (Sahlins, 1972).

Secondly, inequality in land ownership implies that levels of self-sufficiency vary greatly among the households. Several arrangements exist for evening out imbalances between available land and labour, and between access to and demand for food. The most formally regulated form of labour exchange is sharecropping.

*'Leasing the land for sharecropping is easier than to rent labour. The sharecroppers do all the work, and you get half of the yields. While when you rent labour, you must pay the workers, and for the ox and everything'* (man, 63).

As the yields are split equally between the owner and the sharecropper, the risk of loss from crop failure is also shared equally. The alternative of paying a fixed annual rent would expose the sharecropper

to great risk of becoming indebted should the harvest fail. The landowners benefit from having a reliable workforce, while the sharecroppers get direct access to food through their own labour, without entering the market.

Thirdly, casual labour is a short-term labour exchange arrangement, frequently used to balance workload and work capacity among households. A person offers one day's work on another farm for immediate payment either in kind, in money, or a combination. The local wage rate is one *pathi* (approximately 4 kg) of unthreshed grains per day, which equals 1.5 kg threshed rice. Alternatively, the worker can choose meals on the working day plus some money, or only a fixed, paid salary. Women get half the payment of men, despite women's reputation for working faster and more thoroughly when harvesting (Holmelin, 2017). The casual labour system reduces household food insecurity by enabling an immediate access to food or income. In return the larger farmers have a flexible workforce they can summon. Poor people state that without the opportunity to do casual labour for food, they would fear for their survival.

The casual labour system is one of the reasons why land-prosperous households choose to grow much more staples than they need for household consumption. *'Our family can always manage with what we grow. But we need to feed the workers too. We need to have food first, we don't have a surplus to sell'*, said a man (63) who has chosen to cultivate only for subsistence, nothing for sale, despite having a large property. Several other wealthy households have chosen the same strategy. The social expectation that they should employ and feed loyal casual workers helps ensure local availability of food, thereby improving food security at the community level. As long as the total food production in the community is reasonably stable, the common strategy of doing casual labour for food functions to even out fluctuations in yields between the households and ensures the poorest an immediate access to food, without having to enter the market. Their food storages thus give the largeholders an important role in ensuring a collective buffer against local food insecurity.

## 6. Use value and exchange value

*'First, we must look at how much we need to eat. Then we can consider selling something, if we have enough. We don't have paid salaries, so we must survive first with what we can grow'* (woman, 71).

*'The stomach is like an unwanted pocket. You must fill it to live. It always gets empty and you must fill it again. So I have to eat the food I grow, it is not enough to sell it too'* (woman, 70).

As these quotes show, people aim to fulfil the household's food needs before they consider selling any produce, quite consistent with householding principles (Polanyi, 1944). 'I don't even have enough to eat, so I don't have anything to sell' (woman, 56), is a common argument for not selling crops unless there is a surplus. The high preference for cereal crops for subsistence indicates that in many situations, the peasants follow the subsistence logic of producing for use before gain. Although the market prices are modest compared to other crops, the multiple uses and beneficial properties of maize and millet give them a high use value: as a main staple, snacks, beer and liquor, and as livestock feed. Furthermore, the crop residues are used for winter fodder and stable bedding; the plants are resilient to drought and heavy rain; millet seeds tolerate storage well; and meals of maize or millet are suitable for strenuous working days as they ensure more stable energy levels than rice.

The local preference for cereal production is reflected in the district statistics: Cereal crops cover 82% of all cultivated land in Dolakha, potatoes cover an additional 10%, vegetables 5%, and pure cash crops cover only 1% of the cultivated land (CBS, 2013b). The greatest change in crop composition has been in potato production which has increased by 79% between 2004/05 and 2014/15 in Dolakha, thus mirroring the general trend of increasing potato cultivation in Nepal (CBS, 2016). The peasants' own explanation for choosing potatoes and vegetables over higher-value spices is that potatoes and vegetables serve as food in addition to obtaining fair sales prices. The combination of high use value and exchange value makes these crops attractive.

However, although the subsistence logic has a strong standing, people are not unfamiliar with the idea of making profit through commercial farming on parts of their land. They evaluate their options for how to make money:

*'I think it is not good to go abroad, you can rather earn money here. For going abroad, you need perhaps 2 lakh rupees [200 000 NPR]. To pay off the 2 lakh, you need to work for two years abroad. I invested 13 000 rupees to build this tomato greenhouse, and I earned 35 000 in three months. If I invest 2 lakh here, I could earn almost 6 lakh in three months. So what is the use of going abroad?'* (man, 50).

The person quoted is a lead farmer in an NGO innovation network and organizes a group of 45 persons who invest in tomato cultivation. They use new techniques, simple greenhouses and improved seeds and the produce is sold to Kathmandu during the off-season when the prices are higher. When justifying the choice of commercial tomato cultivation, the lead farmer compares the expected return from tomatoes with the alternative of labour migration. Furthermore, he has chosen tomatoes because he finds that they are more profitable than cauliflower or squash. He does not, however, compare tomatoes and food-grain cultivation. Even though he is experimenting with improved maize and rice seeds on behalf of the innovation network, he keeps traditional varieties in separate plots:

*'We keep the old seeds in a different plot when we try out new seeds. The old seeds are natural. The modified seeds could fail any moment, they are manmade. The natural seeds have been here for a long time, they have been cultivated for ages. So we keep them, to be able to go back, return to the old seeds if the new ones fail'* (man, 50).

He grows maize and rice crops for subsistence, and he does not calculate the costs of inputs and labour, nor the profit, on these crops. For cereals, he appreciates the use value in terms of food and food security, while tomatoes are chosen for their exchange value. Tomato cultivation is evaluated against alternative means for making profit, not against subsistence food production.

A man (50) was asked to name his most important crops: *'For eating, millet and maize are the most important crops. But for business, tomato is more important'*. In his view, the use value of millet and maize cannot be substituted by the exchange value of tomatoes; they have different purposes. A cardamom cultivator bought cardamom saplings for one rupee per piece, paid for by a loan with an 18% interest rate. He and his wife have planted six *ropani* of cardamom, yields are normally 40 kg,

which takes 20 labour days to harvest. The dried cardamom is sold to a middle-man trader for 900–1200 rupees per kilo. The same couple cannot give an equal account of their subsistence grain production, for which they have reserved two-thirds of their land. They do not calculate the labour cost of subsistence production and do not pay money for the inputs: Seeds are recycled from the previous year's harvest, manure is from their own livestock, and labour from their family. In yet another household, the husband has returned from migration and invested in production of stevia (*Stevia rebaudiana*) for a contractor in Kathmandu. He has rented additional land, calculated the input costs, workload and expected profit, and evaluated it against alternative income from migration. On their private land, however, his wife cultivates maize and millet for subsistence, and they do no similar calculations for those plots. They state that their own plots are reserved for food only, not for making money.

The four cases above show that peasants are fully capable of combining a subsistence logic on parts of their land with a market logic on another part, thus exemplifying what Wharton (1971) calls the 'dual farmer': Robust staple crops with low yield variance are kept for direct consumption, while greater risk and investments are accepted for crops intended for sale.

However, in addition to food security, risk, and subsistence security considerations, there are aspects of subsistence production which have no apparent economic function. Why do people occasionally work or give away food without claiming anything in return? In order to fully understand the strong persistence of subsistence production, one must consider how the local economic system is embedded in social and cultural structures (Polanyi, 1944; Scott, 1976; Dahal, 1981). Subsistence agriculture is not only a means to fulfil biological needs, but also important for reproducing social relations and invoking cultural meaning.

## 7. Social embeddedness: networks of loyalty and reciprocity

Several forms for exchanging labour and surplus produce are not based on market principles, but rather follow social principles of loyalty and reciprocity. While the sharecropping and casual labour systems have their practical side of balancing local supply and demand for labour and food, other aspects of local exchange systems are related to reinforcement of social ties.

### 7.1. Reciprocity in labour exchange

Labour is sometimes provided without payment, such as when summoning relatives from other households. Helping relatives is seen as a social and moral obligation based on the principle of generalized reciprocity (Sahlins, 1972): No immediate repayment is expected but similar or other kinds of help are expected if the need arises another time.

Furthermore, *parma* is a network for reciprocal exchange of labour. A group of households joins forces in conducting similar work such as sowing or harvesting, taking turns of 1 day at each farm. There is no payment involved, but every contributing household can eventually expect the same service in return. *'If we have friends and family over to work for us, we don't pay. We come to your farm today and my farm tomorrow'* (men, group discussion). The host is expected to serve the workers food and homebrewed beer. The total workload is not reduced, but cooperation makes it a much-appreciated social event. The *parma* system is based on balanced reciprocity (Sahlins, 1972), an exchange of work based on trust within a closed group where the commitments and expectations are clearly agreed upon and evenly distributed among the members. The *parma* system is only applicable to subsistence crops such as rice, wheat, maize and millet. Plots of vegetables or spices intended for sale are not harvested using *parma* labour. The system thus belongs to the subsistence logic, implying that the social arena of a *parma* network would be lost to anyone specializing in market production.

Even the casual labour system is embedded in social relations as it is not an impersonal market where everyone can offer their labour and expect to be hired. Instead, employment is dependent on personal relations, loyalty, and reciprocity over time: *'People here have stable relations with larger farms, they go there again and again to get work for the day. It is a two-way relation. The larger farms need labour and the smaller need work'* (man, 49). Land-prosperous households establish a loyalty-based network of trusted workers who they summon repeatedly. Loyal workers can likewise go to the larger farm and expect to be hired despite modest needs for extra labour that day. A negative reputation or simply lack of a loyal relation to a landowner severely reduces a person's chances of employment.

### 7.2. Reciprocal sharing of surplus production

Income from peasant agriculture is exempted from taxation in Nepal (Dahal, 2015). Smaller businesses and trade are also exempted from tax which means that most households do not pay any tax to the state. Neither do people rely on receiving aid from the central government in the case of crop failure. Some emergency relief was provided to combat famine after a severe drought in 1971, but people had to walk for four days to claim a modest ration of rice. Scott's (1976) argument that peasants are willing to pay a substantial share of their yields through taxation to the state or large landowners in good years, as long as they are entitled to redistribution of food to ensure their survival in bad years, is not relevant in this case. Pooling and redistribution of resources occurs only within the household, while the local community relies on reciprocity rather than redistribution to even out fluctuations in yields. Reciprocity is expressed through sharing of food and surplus production:

*'This is a village community; it is not based on the concept of buying and selling. We have the habit of asking, giving and receiving. Not to sell and buy. When someone has a surplus of something, they give it away. It is not an exchange with money.'*

*People give away not only to family members, whoever asks will get. This is a very friendly community, when people see that someone has a surplus of something, they ask to have some and then people give them'* (group discussion).

Sharing of surplus produce within the community is an appreciated trait as an expression of trust and generalized reciprocity. *'My mother doesn't sell anything; she only gives away'* said a man (21). The use value of the shared goods matters more than the exchange value in this context: when someone has too many oranges the use value of the surplus is low, while it is high for the person having none. The large amount of rice husk left in the mill after threshing is of little use to anyone but the local pig farmers, who use it to supplement the pig feed. The generalized reciprocity of sharing instead of selling certain surplus resources strengthens the social ties of the community. However, people do not give away food staples or meat other than to guests during festivals or if someone is at risk of starvation, and crucial resources such as manure are normally not shared. Monetary exchange of imported goods also occurs: *'In the tea shop, they sell the things from outside, things we cannot produce here. There is no vegetable shop here, people give away their vegetables if they have too much'* (men, group interview in Chhetrapa). Some trade of the main food grains also occurs through bartering millet for rice or selling for a set monetary price. *'We sell and buy here in the village too, but the same money circulates. It is very little money'* (woman, 51). The first person to start selling vegetables locally met resistance and accusations of being greedy for not sharing, but since she also was a respected person and major casual labour employer who showed great loyalty and reciprocity in hiring people, her sales were eventually accepted. Whether a certain resource is expected to be shared or sold is contextual and depends on how close the relation between the parties is. The subsistence logic and the market logic exist side by side, and even the market for food and labour is enmeshed in and dependent on personal relations.

### 7.3. Social relations in the market

The local food market is far from an impersonal and self-regulated market but is rather deeply embedded in social relations. A special form of kinship obligation arises when *miteri*<sup>5</sup> relations are established, where two close friends agree on entering ritual kinship. A *miteri* relation can cross boundaries of caste and ethnicity, establishing voluntary kin-like commitments between persons of different endogamous groups (Messerschmidt, 1982). The *mitinis* treat each other like sisters and adopt each other's families with all the obligations this entails. Their children occasionally stay with the other family, they even have heritage and dowry rights in the *mitini*'s family. A vegetable trader who has a *mit* relation with a larger vegetable producer, stated that he is obliged to buy whatever his *mit* brother can deliver, and they frequently borrow tools and help each other in various ways. Apart from his *mit* brother, the trader has his trusted circle of vegetable suppliers and does not consider buying from other producers. Similarly, the largest guesthouse owners in the village have their established network of trading partners and rarely buy food supplies from anyone else. The strong influence of personal relations and loyalty in the local market builds trust and gives predictability for those who have well-established social networks. In a tightly knit community with many overlapping personal relations, trade relations are part of the social web and default or dishonesty in trade can easily be sanctioned in another social sphere. Those who are initiating market production have difficulties getting their produce sold to traders and local shops unless they already have social relations in other spheres. Market production is thus perceived as uncertain for a new producer, while an experienced and established producer can better estimate the risk of financial loss.

## 8. Cultural embeddedness

When asked why they prefer to retain subsistence production, people highlight four main cultural factors: The importance of tradition, the role of homemaking in festivals, self-sufficiency as independence, and subsistence as a way of life.

*'It is parampara, tradition, to cultivate maize, millet, rice. Self-sufficiency is tradition, it has not changed'*, said a man (50) who has invested in commercial tomato production, but still reserves much of his land for subsistence. *'I have not left my traditions. I am doing the same as always'*, said a woman (62). Keeping traditional farming practices alive is emphasized as meaningful by the peasants themselves. Just as they worship their ancestors through religious ceremonies, they find it important to maintain their inherited land and farming traditions. The year is structured with peak and lean seasons according to planting and harvesting of the main food crops and migrating family members return to the village in time for the main harvest and festival season. Specializing in cash crops would significantly change the agricultural calendar and disrupt the common rhythm of the year. Knowledge accumulated over generations on how to obtain reliable yields from local seeds are embedded in physical adaptations of the land, with terraced fields and irrigation systems, detailed experience-based knowledge about soil conditions, sun and wind exposure, and temperature variations for each plot, and tacit embodied knowledge of planting and harvesting practices. Converting all land from subsistence crops to new cash crops would make much of this knowledge redundant.

Homegrown food plays an important role during festivals, especially in the autumn during Dasain and Tihar. Special homemade foods are served to family and friends, such as *selroti*, a fried donut made of rice-flour and sugar, and millet beer (*chang*). Serving guests and sharing homemade food is a way of reinforcing friendship ties and an opportunity for women to demonstrate their skills as farmers and cooks. Several rituals during Dasain and Tihar involve giving gifts and 'delicious food'.

<sup>5</sup> Covering the terms *mit* for brotherhood and *mitini* for sisterhood.

Homemade and homegrown food is much more appreciated and is said to taste better than food from the market. *'I like my own rice better than the bought rice, my own rice is tasty and nice, from local seeds'* (woman, 52). Orange Marigold flowers are grown for festival decorations. *'I do not sell the flowers. They are for my brother, for Tihar. We grow them for joy'* (woman, 62). Millet beer plays an important role in the ethnic groups' cultures. It is served to casual labourers, to guests during weddings, funerals and when celebrating a newborn baby, and during ancestor worship ceremonies (*pitri puja*).

*Those who have a lot of land, they can grow and eat. Those with only little land must buy food. It is important to grow your own food. You don't have to go to the market, you always have something to eat.* (Elderly couple).

Cultivation for subsistence is a means to ensure independence from the market (Waters, 2007). *'Work on your own, don't depend on others, grow your own food. That would be good, that would be "bikas" [progress]'* (man, 55). The ideal of food self-sufficiency does not involve an ideal to be socially independent from others. On the contrary, having a broad social network and being a well-connected 'big person' (*thulo manche*) that people trust and rely on is highly appreciated. Fulfilling social obligations to employ people, share food and help others is a way of building a good reputation, which to many is just as attractive as monetary wealth.

Growing food for the family is part of the identity as a farmer. Although the work is hard, it is also described as meaningful and rewarding. Worries are great when crops fail or the yields are low, but the satisfaction of harvesting a bumper crop is equally great. To eat from own farm, get married and have children is seen as the basic circle of life. To stop cultivating the land altogether is for many almost unthinkable. Older people express a wish to step down and work less, but not stop cultivating altogether. To plant, weed, harvest, share and prepare food is a way of taking part in the community's daily life. Migrants, students and traders find subsistence agriculture as the safe base to which they can always return. For the peasants, the main purpose of agriculture is to grow food for the family, while other economic activities are regarded additional and optional: *'Grow and eat first, then if you get a surplus, perhaps you sell some'* (man, 53). The principle of householding is deeply anchored in local traditions and culture, it is not easily abandoned.

## 9. The end of subsistence farming?

The Agricultural Development Strategy (GoN, 2015) portrays subsistence farming as representing a low stage of development and that its persistence is a barrier to economic growth and poverty reduction, due to a lack of specialization in commercial production, too small and fragmented landholdings, and low levels of mechanization. Its proposed development model is to increase economic growth in agriculture through improved governance, increased land and labour productivity, and profitable commercialization. The vision is to transform Nepal's subsistence-based agriculture into a commercial sector in the formal economy, stating that more than 80% of agricultural production should be marketed in 2035 (GoN, 2015). To help implement the strategy, the Prime Minister Agriculture Modernization Project (PMAMP) was launched in 2016. The PMAMP shares the ADS's goal of commercializing the agricultural sector, replacing subsistence farms with specialized, large-scale, mechanized, and modernized agricultural units (Sharma, 2019). The ten-year project will divide the country into specialized production zones, each investing in a designated crop, envisioning that fragmented private land holdings will be voluntarily consolidated into commercial production pockets, blocks, zones and super zones, ranging from 10 to 1000 ha (Pokharel, 2019). Support for this development model is found in studies arguing that subsistence production is a poverty trap (Barrett, 2008); that lack of knowledge, skill, technology and entrepreneurship hinders the structural transformation of traditional farming into commercial farming and contains people in the suffering of under-employment (Deshar, 2013); and that food self-sufficiency and poverty reduction are only attainable through

agricultural commercialization (Dahal, 2015; Paudel, 2016). Such views on agricultural development builds on Rostow's classical modernization theory, according to which subsistence farmers must be freed from assumed underemployment and low labour productivity by being integrated into a commercial industrial sector (Netting, 1993; van der Ploeg, 2018).

In this line of thought, including in the ADS and PMAMP, the agricultural sector's performance is evaluated based on its exchange value, which determines the sector's contribution to GDP and its growth rate. From the Government's perspective, a transformation into large-scale, mechanized, commercial production units and regional specialization are rational strategies for achieving national self-sufficiency and economic growth. Typical subsistence crops such as maize and millet are priced low and are therefore regarded as crops of low productivity. The peasants, however, consider both the use value and the exchange value of the crops when making farm-management decisions. From their perspective, maize and millet are safe, robust and versatile crops that yield well in terms of food per unit area and invested labour. Keeping a diversified crop composition ensures that if one crop fails, there are others to eat. To have food available independently from the market gives security for subsistence regardless of price variations, while high-value cash crops are considered potentially profitable, but at high risk of financial loss, indebtedness, transport impediments and price fluctuations. There is thus a contradiction between the means for achieving food security for the households and the local communities on the one hand, and national food security on the other. Specialization, commercialization and land consolidation are in the interest of the government, while diversification of crops and livelihoods and a combined subsistence and market production are in the interest of the peasants. The government's policies for national self-sufficiency may improve food availability, but not ensure a stable access to food for millions of rural households who have few reliable alternatives to subsistence farming for employment and income.

The ADS builds on the idea of economic modernization, a theory for agrarian change and rural development which is, among others, promoted by the World Bank in Nepal (Sharma, 2019). It describes a structural transformation where strong economic growth in non-agricultural sectors will lead people to move out of rural areas and seek higher-paying work in urban industries and services (Li, 2009). It is assumed that higher incomes and fewer people employed in agriculture will lead to mechanization and a natural transition towards larger farms (Hazell and Rahman, 2014; Rigg et al., 2016; van der Ploeg, 2018), and that the experiences of Western Europe and more recently, China, are replicable in developing countries today (Li, 2009; Rigg et al., 2016; Paudel and Waglé, 2019). This process is sometimes referred to as de-peasantization since it entails a drastic reduction of the number of peasants, partly through them leaving agriculture for employment elsewhere and partly through mechanization, commercialization and specialization of the remaining farms (Hebnick, 2018; van der Ploeg, 2018).

However, such a structural transformation is neither automatic nor guaranteed, and has in fact not occurred in Nepal, despite an exponential increase in youth out-migration from rural areas (Paudel and Waglé, 2019). Out-migration and remittances have not contributed to build a strong industrial sector with high economic growth. Instead, there is a transient, back-and-forth shift between agriculture, overseas employment, and tourism and informal services. People are not moving permanently out of agriculture; the number of farms in Nepal is increasing and the average land holdings is decreasing (Paudel and Waglé, 2019). A natural, structural transition towards mechanized, larger farms has thus not occurred in Nepal, at least not yet. Previous decades' population growth and equal inheritance rights to land for all sons have instead contributed to land fragmentation (Holmelin, 2017). Neither is there an abundance of reliable, higher-paying jobs in Nepal's industry and service sectors, as assumed by the structural transition theory. This is not just a consequence of modest rates of economic



growth. In many of the rising economies of South and Southeast Asia, mechanization and land consolidation into larger farms have not occurred either; to the contrary, smallholding farmers have continued to persist also here (Rigg et al., 2016, 2018). Between 1960 and 2000, average farm sizes have decreased in India, Sri Lanka, Pakistan, Indonesia, Thailand, Philippines, as well as in Nepal (Lowder et al., 2016).

An evolutionary view of agricultural development, predicting that the efficiency of specialized market production will eventually lead to eradication of diversified subsistence farming, has existed since Wolf's writings on peasants in the 1960s (Bernstein et al., 2018). Still, smallholding peasants combining subsistence and market production have endured in many parts of the world (Netting, 1993; Rigg et al., 2018), despite governmental pressures for agricultural specialization and commercialization. Non-market forms of integration between economy and society such as householding, reciprocity and redistribution do not necessarily disappear when the market grows stronger (Hann and Hart, 2011), as this study also confirms. The opportunities for employment and the direct access to food offered by diversified peasant farming may become of even greater importance in the future (Bernstein et al., 2018), especially in the context of the increasing uncertainty and volatility of international food and labour markets (Holmelin, 2017).

## 10. Conclusions

Diversification of subsistence agriculture to include some marketable crops has contributed to increased rural incomes and improved food security in Nepal (Partap, 1999; Holmelin, 2017; KC & Upreti, 2017), although most peasants still see household consumption as the main purpose of agricultural production (CBS, 2013a). From the Government of Nepal's perspective, commercialization, specialization and mechanization are the right paths to agricultural development and economic growth. For the peasants, however, retaining subsistence farming alongside modest investments in market production does not represent a lack of development. In their view, cultivating a diversity of reliable food crops is a rational and conscious strategy for ensuring household and community food security, and a meaningful livelihood ingrained in local traditions and community life. Commercial production is only rational according to the market logic. Although it generates income, it involves elevated risk of financial loss, indebtedness, food scarcity and loss of access to certain social arenas. Peasants compare cash cropping to other monetary income sources such as labour migration or small businesses, but not to subsistence production. Cash crops are considered a supplement to food cultivation, but not a substitute for it.

The argument that peasants do not enter the market unless they are coerced to do so by political enforcement or through population growth and increasing land scarcity (Waters, 2007), is not valid for Nepal. After having doubled its population between 1971 and 2001 and experiencing significant land fragmentation, Nepal met Waters' criteria decades ago, but subsistence farming nonetheless prevails. Waters (2007) further argues that there are fundamental differences between subsistence-based and market-based societies, and that once a society is integrated into the market economy there is no turning back. However, this study shows that although the logics of subsistence and market production are distinct, one person and one household can and do apply both simultaneously to different parts of their land. People are sometimes guided by one set of motivations and at other times by another, and they are fully capable of balancing these motivations (Wilk and Cligget, 2007).

To the peasants, subsistence farming is a way of life, deeply embedded in local traditions and social networks, as noted by Polanyi (1944). Their priority to retain subsistence production combined with limited cash cropping, and not follow governmental policy of full commercialization, cannot be explained by one single factor. Instead, a combination of explanations related to food security and risk management, to social networks based on reciprocity, and cultural meaning and

traditions must be considered together in order to understand why peasants choose to combine subsistence and market production through a diversified production strategy.

## Declaration of competing interest

None.

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