



# Ecuadorian peasantries amidst the agri-food globalization: Social differentiation and diverse livelihoods strategies in a cut flower exporting territory

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## ABSTRACT

This article analyzes peasant livelihood strategies and the associated processes of social differentiation among peasants in Pedro Moncayo (Ecuador), a territory starkly influenced by the presence of the cut flower agribusiness. We argue that the cut flower agribusiness has shaped peasant internal social differentiation from which two types of semi-peasants' livelihoods have emerged on the one side, and a numerous semi-proletariat livelihood strategy dependent on flower-based wage income have appeared on the other. The two semi-peasant livelihoods reveal that contemporary peasantries in this territory have found ways to partially reproduce themselves from within agri-food globalization and use the expanding agrarian capitalist circuits in combination with maintaining a peasant-like farming style. These hybrid forms of production and social reproduction reflect different strategies to negotiate the tensions between dependence and autonomy from capitalist circuits of agrarian accumulation as peasantries are confronted with the agri-food globalization.

## 1. Introduction

This article discusses contemporary peasantries in an era of agri-food globalization. De-peasantization, commodification of rural labor force and the wider rural economy are long-standing phenomena, but have quickened their growth in recent decades by the penetration of corporate capital in the agrarian sector at a global level (Araghi, 2009). In Latin America, the agrarian-capital-driven rural transformation has manifested itself since the 1950s, and has been strongly developed during the neoliberal period from the 1980s onward (Bryceson, 2000a; Kay, 2008; Martínez Valle, 2016). The concept of a “corporate food regime” (McMichael, 2009) describes this most recent iteration of agribusiness expansion, which disembeds agri-food systems socially and territorially on a global scale, weakens the regulatory power of nation states, while corporate control of agribusiness transnational companies is strengthened.

Neoliberal agrarian restructuring has created a two-velocity agriculture (Akram-Lodhi and Kay, 2010b). On the one hand, the promotion

of an export-led agricultural strategy as the main means of enhancing rural accumulation and “development” has sustained high rates of growth in the capitalist agrarian subsector. On the other hand, neoliberal agrarian restructuring has been accompanied by equally wide-spread and profound transformations of peasant livelihood strategies in countries of the global South such as Ecuador. In our case study, the cut flower commodity chain is a showcase of the rapid expansion of non-traditional agro-exports (Korovkin, 2005; Mena-Vásconez et al., 2016, 2017; Raynolds, 2021; Soper, 2013). It is argued that this recent agri-food regime places peasants in a disadvantaged position in relation to foreign agricultural production as they cannot compete with the prices of subsidized staple food imports, nor they can take advantage of the new opportunities opened in relation to export-led and high value products due to their lack of capital, technology, marketing knowledge, economies of scale, and so forth (Bernstein, 2001; Kay, 2008; Reardon et al., 2009).

Regardless of how profoundly the corporate food regime has affected peasantry on a global scale, it has been pointed out that it has not

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suffered a linear, immutable decline. On the contrary, it is still a significant sector of the rural economy and society of the global South (Akram-Lodhi and Kay, 2010b; Bernstein, 2001; Bryceson, 2000a; Kay, 2015; Martínez, 2004; Martínez Valle, 2016), even as its role, position and the conditions of existence have drastically changed. Rather, de-peasantization and re-peasantization processes are the result of contingent and uneven processes across time and space, in which not only path-dependency and structural forces are determinant.

The contingency and heterogeneity or unevenness of rural transformation have been interpreted in different ways. For some, contingency is the consequence of context-specific struggles between rural classes (Akram-Lodhi and Kay, 2009; 2010b). For others, contingency originates in the peasants' agency, i.e., the role of individual and collective strategies developed by peasant households and communities. According to Schneider and Niederle (2010) and Van der Ploeg (2010), for example, peasants have the capacity to influence and rework the outcomes of agri-food globalization by adapting, resisting and subverting global networks and processes, by initiating their own translocal networks with the aim of creatively creating new reproduction strategies.

Peasantries constantly transform, but also adapt themselves to conditions marked by the corporate food regime. In the specific case of Ecuador and the wider Latin American context, four main transformations in the peasants' livelihood strategies can be observed: i) the pluriactivity of peasant household members in form of increasing labor mobility that allows to combine on-farm and off-farm activities (Kay, 2008; Korovkin, 1997; Martínez, 2004; Martínez Valle and Martínez Godoy, 2019),<sup>1</sup> ii) an accelerated process of casualization and feminization of rural labor (Korovkin, 2003; Martínez, 2004), iii) an increase of urban-rural interactions (Kay, 2015; Martínez Valle, 2016), and iv) an increasing role of international and national remittances as income resources (Bates, 2016; Bryceson, 2000a; Deere and Alvarado, 2016).

The nature and dynamics of these changes in the agrarian structure and peasants' livelihood strategies are part of a long-standing debate that has gained renewed academic interest in the last decades of neoliberal agrarian restructuring and the deepening of capitalist relations in the countryside (Akram-Lodhi and Kay, 2009). However, beyond the identification of these general tendencies, few empirical studies exist that describe and analyze the peasant livelihood strategies devised by peasants on the individual, household, or even community level, to resist the *neoliberal squeeze*. This article aims at narrowing this gap by analyzing divergent livelihood strategies and the associated processes of social differentiation among peasants in Pedro Moncayo Canton, Ecuador, which is a historically peasant territory where the cut flower agribusiness has been a major force reshaping the agrarian structure for the last forty years. Specifically, we inquire what consequences the penetration of capital into agriculture through the highly industrialized production of flowers has had for the peasantry of Pedro Moncayo. Thus, the aim of the article is to advance in the understanding of emerging ways of peasant existence as the consequence of local resistance and responses to the corporate-led process of agrarian change.

The following section of this article discusses some aspects of the literature focused on the peasant question and how to best understand the peasantry in an era of the corporate food regime. Then we present a brief description of the development of the cut flower agribusiness and the associated rural transformation in the northern Andean territory of Pedro Moncayo, followed by an overview of the research methodology, the case study and the data collection methods. The fourth section presents the peasant livelihood strategies we identified and their associated commercial relations. Finally, it concludes with a discussion

regarding the extent to which the identified peasants' livelihood typology relates to the concept of peasant-like farming style.

## 2. Analytical framework: From “Classic” to contemporary peasant Question(s)

Questions of who “peasants” are, where they live and what role the peasantries have played in the history of capitalist transformation have been central from the start of peasant studies. During the 19th century, the main issue at stake was the question whether peasants were, as proposed by Chayanov, a coherent category that can be defined by an internal economic logic or whether they represented, in a Leninist interpretation, a stage within historically diverse processes of economic and political differentiation during transitions to capitalism (Narotzky, 2016). While according to Chayanov the peasantry was not necessarily being eliminated as a result of capitalist development and may, on the contrary, be strengthened, according to Lenin the inevitable capitalist expansion would lead to the extermination of the peasantry (Akram-Lodhi and Kay, 2010a; Bernstein, 2009). Chayanov defined the peasant family farm as an economic organization which was essentially different from capitalist farming even in an environment clearly dominated by capitalism. Furthermore, he conceived peasant differentiation as neither linear nor irreversible, but rather as a process driven by demographic cycles on the household level (Akram-Lodhi and Kay, 2010a). According to this view, during the recurrent process of generational reproduction, peasant differentiation reflected a “labor-consumer balance” within peasant households at different moments. By contrast, for Lenin, a somewhat undifferentiated class of pre-capitalist peasants would be transformed into new distinct social classes: agrarian capitalist owners and wage laborers. This process was historically unavoidable, although the rhythm, length and uneven direction of these concrete historic process could vary considerably (Bernstein, 2009). In this sense, peasant persistence was seen as pre-capitalist remnants of a mode of production that in the end would perish before the all-encompassing march of capitalism. These two opposing viewpoints on the fate of the peasantry have been criticized by having ahistorical, theological and functionalist presumptions (Bernstein, 2006; Vanhaute, 2012). As Bernstein (2006) contends, in both the Chayanovian and Leninist interpretation, a “peasant essentialism” underlies the definition of the “peasantry” as a general social “type” or group determined by a set of distinct qualities –such as a subsistence rationality, relations of solidarity, reciprocity and egalitarianism among themselves as a social group, commitment to values of a way of life based on the community that renders them distinctive and different from other social groups such as rural proletarians and market-oriented, entrepreneurial farmers.

In contrast to the categorical way of seeing the peasantry, studies of concrete historical cases showed that this social group is formed and transformed by intricate and uneven processes that depend on specific local class constellations and other conditions in time and space (Hebinck, 2018). In this respect, scholars have suggested abandoning static and reified concepts in order to better understand the fate of rural and agrarian populations<sup>2</sup> (Bryceson, 2000b; Shanin, 1973; Van der Ploeg, 2010), and highlighted the importance of thinking in terms of uneven relations of capitalist development resulting from the interplay between the agency of the actors and structural factors (Bernstein, 2006; Shanin, 1973; Van der Ploeg, 2010; Wolf, 1966).

We agree that essentialist assumptions about the peasantry created boundaries and categorical differences that have not adequately captured the reality of the ongoing economic, political, social, and cultural changes that peasant societies have been exposed to, especially the

<sup>1</sup> The diversification of peasants' livelihoods has been accompanied with institutional innovations associated with their social capital (Bebbington, 1996; Martínez, 2004; Soper, 2013).

<sup>2</sup> It is important to acknowledge that while some were calling for broadening the definition of “peasants”, others argue for abandoning the term altogether for being anachronistic and misleading in the context of today's capitalism (Bernstein, 2006).

consequences caused by the need of deepening their commodity relations to reproduce themselves. Thus, it is useful to study forms of survival and persistence of peasantries in a globalized and commodified world, as family farming continues to be an important option of securing rural livelihood in the contemporary peasant question (Akram-Lodhi and Kay, 2010b; Kay, 2015; Van der Ploeg, 2010). Furthermore, a large part of the world food production remains in the hands of peasants, beyond the control of large agribusiness companies (Hebinck, 2018; Van der Ploeg, 2008). This does not mean that a massive decline of the reliance on agriculture (deagrarianization), the erosion of the household basis of peasant livelihood (depeasantization) and an exodus from the countryside are constantly redefining the importance the place and the nature of peasantries.

While it is impossible to generalize about the impact of uneven and diverse globalization processes on already differentiated peasantries, it is important to acknowledge a global tendency of a simple reproduction squeeze that affect most poor peasants (Kay, 2015). Nevertheless, this global trend does not imply an uniform or an inevitable demise of the peasantry per se (Van der Ploeg, 2010). On the contrary, the globalization of agri-food systems via the liberalization of domestic trade in agricultural commodities, the emergence of new patterns of corporate agribusiness investments, and technical changes in farming and food processing, manufacturing, and distribution are mediated by diverse class structures and particular dynamics on the fringes of capitalist agrarian change. This, in turn, can consolidate certain spaces for peasant incorporation as agricultural petty commodities producing peasants of food staples for domestic markets, as producers of export crops, and of labor power. In a nutshell, the effects of capitalist globalization on already differentiated peasantries are most likely also uneven and –viewed from a global perspective– even contradictory. Consequently, the peasantry is better understood as an ongoing social process based both on adaptation and resistance to a general tendency of agrarian modernization (Bryceson, 2000b; Schneider and Niederle, 2010; Shanin, 1973; Van der Ploeg, 2010; Vanhaute, 2012).

As a logical consequence of the epistemological reorientation of understanding the peasantry, it can only be properly understood as a “historically and socially specific concept” (Van der Ploeg, 2010, p.21). The possibilities and effectiveness of the peasantries’ agency must be recast as the peasants are neither totally submissive nor passive in the face of capitalist transformation. They react to external pressures, and in specific contexts, have agency to reshape rural livelihoods that contests forms of domination. In this sense, they resist a fully-fledged simple commodity production where all resources, aside from labor, are mobilized through and governed by the markets. Thus, processes of commodification among the peasantries are a partial and multi-faceted phenomenon. And by so doing, they try to create autonomy to defend themselves as peasants in a corporate food regime that marginalizes and subordinates them. This is a third kind of resistance (Van der Ploeg, 2010): actively constructed interventions in, and alteration of labor and production processes—that is located within spaces of production.<sup>3</sup> In this way, diversity is acknowledged in the different family forms of production coexisting in rural areas, and mostly, in multiple resistance strategies developed by peasants to ensure their reproduction. This specific type of resistance could be complemented by overt struggles enacted by peasant-based grassroots, as it is illustrated in the present case study. Therefore, peasant agency can play out in multiple ways: in shaping production processes at individual and farm level, or also in the enactment of contentious collective actions through a diverse range of grassroots organizations.

<sup>3</sup> Van der Ploeg (2010) contrasts this third form of resistance with covert resistance and overt struggles. These last two forms of resistance occur at the margins of labor and production processes, and their objective are mostly an improvement of the exchange relations within which the labor and production process are embedded.

According to Van der Ploeg (2008), this third kind of resistance also reflects the emergence of “styles of farming”, which result from the multiple strategies peasants adopt. Styles of farming are created, not only through socio-cultural dynamics, but also as a response to structural forces. Some styles represent a distancing from the commodity markets of the modernization project (peasant way of farming), but other styles reflect its reproduction (entrepreneur and capitalist style of farming). These opposite and contrasting styles of farming must be seen as “ideal types” of a continuum of dynamic farming trajectories in which real agrarian producers rely.

Van der Ploeg (2008) defines the “peasant way of farming” as built upon the sustained use of ecological capital and oriented towards defending and improving peasant livelihoods. Pluriactivity is often a major feature. Labor is basically provided by the family (or mobilized within the rural community through relations of reciprocity), and land and other major means of production are family owned. Production is orientated towards the market as well as towards the reproduction of the farm unit and the family. In turn, the “entrepreneurial type of agriculture” is mainly (though not exclusively) built upon financial and industrial capital. Production is highly specialized and completely oriented towards markets, and ongoing expansion through scale enlargement is a crucial and necessary feature. The farm is managed following the maximization of profits and it is characterized by a partial industrialization of the labor process. Finally, the “capitalist mode of farming” is geared and organized as a function of profit maximization, in which the labor force is mainly or even exclusively based on salaried workers. It tends to appear in the agro-export sector and increasingly conditions major segments of food and agricultural markets. In this work, degrees of “peasantness” between peasant-entrepreneur-like trajectories will be discussed among the main peasant livelihood types identified.

### 3. Agrarian change, cut flower production, and collective action in the Ecuadorian Highlands

The peasant livelihood strategies that have been identified in our case study (see section 5) are not only the product of decisions made on the level of peasant households. Over time, feasible and territorially “available” livelihood strategies are also the result of opportunities opened up by social organization and overt social struggles. Decisions on the rural household and collective action are intertwined: livelihood strategies are embedded in past and present social struggles over, e.g., economic, environmental, political and ethnic relations in rural territories. Thus, the presence and adoption of peasant livelihood strategies can be interpreted, at least partially, as the result of social struggles, in which peasant organizations participate actively. In that sense, and in order to adequately understand the livelihood strategies described below, the wider context of the Ecuadorian Highlands is described along the narrower context of the territory under study.

Despite two agrarian reforms and stark regional differences, general land tenure structure and access to irrigation in Ecuador is marked by high inequality. In the case of the Highlands, where our case study is located, the numerous, small, and highly fragmented family-run, peasant and indigenous farms, which combine subsistence agriculture, simple food commodity production, as well as off-farm activities in nearby urban centers in various degrees are important actors in rural territorial dynamics.

Many of these small units of peasant production and their rural communities were attached and subordinated until the 1960s to *haciendas*, i.e., large estates owned by a powerful white or *mestizo* elite and based on a semi-feudal production system that controlled the indigenous labor force (Guerrero, 2003). Indigenous peasants contributed quotas of labor in exchange for small subsistence plots (called *huasipungos*) and low wage supplements.

Although the hacienda regime and its distinct social relation of agrarian production ended officially with the first agrarian reform in

1964 and land was redistributed in the second land reform in 1973, neither the overall agrarian class structure, nor the general agrarian development path were not altered in significant ways in the last decades. On the one hand, indigenous peasant communities generally obtained little and marginal land with an equally precarious access to irrigation (Mena-Vásquez et al., 2020; Martínez, 2004). Access to urban markets was generally difficult, since peasant marketing was rather seen as an obstacle in the modernization policies of the 1970s and early 1980s than an important linkage in the development of rural territories (Hollenstein, 2020). As a consequence, land fragmentation, declining yields and incomes, and growing dependence on off-farm jobs were the typical outcome of stagnant rural territorial dynamics in the Highlands dominated by peasantry (Martínez, 2004). On the other hand, modernized, capitalist farms emerged on fertile, accessible land which replaced labor-intensive production of staple food crops (wheat, barley, potato) with more profitable, mechanized cattle and dairy operations (Korovkin, 2005). After pro-market reforms, as well as state incentives towards the end of the 20th century that promoted and facilitated the access to global markets, some of these modernized units of production explored new export opportunities, such as broccoli and cut flowers in the Highlands, as well as shrimp and palm oil in the Coastal area (Latorre et al., 2015). Therefore, it is understandable that what has been described as conservative modernization in agriculture is characterized by: the increasing dependence of highly capitalized farms and plantations on the global market, the overall agrarian structure continues to be characterized by unequal access to land and water, as well as precarious labor conditions (Santillana et al., 2016).

Pedro Moncayo Canton is a showcase of the general history and recent transformations as outlined above, although land was redistributed earlier to peasant and indigenous communities and haciendas were more frequently state-owned than elsewhere (Becker and Tuttillo, 2009). On the one hand, despite the lack of important economic impulses and opportunities, traditional agriculture has not disappeared. The cultivation of maize, potato, barley and citric fruits with very little or no technological change is still widespread in the Western part of the territory. In the Eastern part, in contrast, peasants with a traditional production system depend rather on milk and cattle as important sources of income. Peasants and their leaders, who were interviewed, described changing and increasingly difficult conditions for this type of livelihood, such as the aging of the economically active population, lack of access to water, climate change, as well as the marketing of the produce. Despite its geographically favorable location to Quito, the capital city, the commercialization of agricultural products continues to represent an important bottleneck. In absence of peasant organizations, which not only serve as political representation, but also engage in the planification of agricultural production and marketing, the sporadic, irregular and heterogeneous produce of peasant households cannot be easily marketed. As a result, local sales between neighbors, family members, etc. were often identified as the main outlet of agricultural production.

On the other hand, the economic stagnation of traditional agriculture has induced the search for other viable livelihoods. During our fieldwork we identified several alternative ways of earning a rural living in Pedro Moncayo. First, several programs and initiatives supported by non-governmental organizations as well as peasant and indigenous organizations have promoted agroecological production as an alternative to input-intensive, monocultural production systems based on the green revolution. However, their development is incipient in terms of the number of peasants. Second, a rather small, but rapidly increasing number of rural households explore non-traditional high-value foods, such as blackberries, strawberries, and golden berries, as will be discussed in more detail in section 5.

Finally, the territorial rural dynamic of Pedro Moncayo has been shaped since the 1980s by the emergence and rapid expansion of the cut flower industry. Flower plantations initiated in old *haciendas* with an average size of 10–20 ha and were owned by urban entrepreneurs,

sometimes in partnership with foreign investors (Mena-Vásquez et al., 2020). While highly intensive in technology (greenhouses, irrigation, genetic material and agrochemical inputs), flower plantations also created substantially more employment per hectare than other production systems (Soper, 2013). As a consequence, flower production in Pedro Moncayo and the surrounding area slowed outmigration, a widespread phenomenon in other rural areas of the Ecuadorian Highlands. The employment opportunities explain why the cut flower industry was welcomed by many impoverished peasant families in the early years of its emergence (Korovkin, 2003). However, acceptance of flower agribusiness by the local rural population has diminished over time due to harsh labor conditions, little or no impact on rural poverty, occupational health issues (Korovkin, 2003), as well as the multiple negative environmental effects (Breilh, 2007; Mena-Vásquez et al., 2018).

The diversification of rural livelihoods in Pedro Moncayo outlined above has gone hand in hand with contentious conflicts between a numerous group of peasants and their organizations on one side, and a reduced, yet powerful agribusiness that sells inputs and produces, prepares as well as exports cut flowers, especially roses, on the other. This cleavage has centered on issues such as access and distribution of the limited availability and supply of water for irrigation as well as the health and environmental management practices of flower plantations (Mena-Vásquez et al., 2018; Mena-Vásquez et al., 2020). As a result of these contentious collective actions, there has been a better distribution of the access of the irrigation water, and an improvement of the social and environmental standards and of the compliance rates with Ecuadorian socio-environmental legislation on the part of the flower plantations (Mena-Vásquez et al., 2016; Latorre et al., 2015). These results show the relative success of peasant organizations in the territory in resisting the most important processes linked to the cut flower industry, which has been marginalizing them and deteriorating their conditions and livelihoods in recent years.

While the production link of the cut flower commodity chain was dominated since the beginning by capitalist companies, the dichotomic antagonism between flowers (capitalists) and food (peasants) has become more complex with the emergence of peasant flower growers who produce both for domestic and export sector since 2005 (Mena-Vásquez et al., 2016). This new social group is growing rapidly, as will be shown below, but it is also consolidating its political power through its representative organizations. As a representative of the Kayambi nation explained in an interview (February 13th, 2020), that the peasant and indigenous organization strongly opposed cut flower production, based on the high-input model, as well as its origin in terms of social class: cut flowers are seen as a business of the economic elite, which originated in the same *haciendas* that upheld a systematic exploitation of peasant communities for centuries. However, while numbers of smallholders producing flowers for exportation have soared, so has changed the political stance of the organization from opposition to a strategy of defending the economic interests of its members.<sup>4</sup>

In sum, the dualistic description of the cut flower industry that emphasize the disconnection of this industry from domestic demand, as well as the existence of two types of producers (flower capitalists vs. petty-commodity peasants of staple and traditional food) (Akram-Lodhi and Kay, 2010b; Korovkin, 2003, 2005), does not reflect all livelihood strategies that are developed in peasant territories, either by individual decisions or as a consequence of social struggles.

<sup>4</sup> It is very common that peasant flower growers do not pay royalties to breeders related to the rose varieties they use. Although this situation has existed since the emergence of this actor, in recent years, breeders have been pursuing and demanding the payment of royalties from these peasant growers, who complain about the high cost or the expiration of patents. As a result, this organization is acting as an interlocutor with these companies.



#### 4. Methodological framework, case study, materials and methods

##### 4.1. Methodological framework

In order to analyze peasant livelihood strategies in northern Andean Ecuador, an analytical approach called Multi-scale and Integrated Analysis of the Social and Ecosystem Metabolism (MuSIASEM) for rural systems was adopted (Arizpe et al., 2014; Kovacic and Viteri Salazar, 2017; Mingorría et al., 2014; Ravera et al., 2014; Viteri Salazar, Ramos-Martín and Lomas, 2018). This methodological framework focuses on studying several dimensions simultaneously (economic, ecological, technological, social, and cultural) and scales (from plot to household level, from community to country level, etc.) of “social metabolism”. In this sense, this multi-dimensional analytical framework is well suited to characterize peasants’ livelihoods beyond the mere agrarian focus. This is of special relevance as peasants make their living based on an increasing diversification of on and off-farm activities as mentioned above.

We understand “social metabolism” as the set of conversions of energy, water and materials taking place in a given society (and the ecosystems where it lives) and that are necessary for its continued existence (Giampietro et al., 2009). Our social and ecological systems for this analysis are the peasant communities and households in Pedro Moncayo. As a means to operationalize the concept of “social metabolism” in terms of what a social system “is” and “does”, MuSIASEM adopts the analytical distinction of “flow-fund” as developed by Georgescu-Roegen (1971). Thus, as explained by Giampietro et al. (2009):

“(A) “fund” coordinates represent the set of attributes used by the analyst for defining what the system is in the chosen representation and (B) “flow” coordinates represent the set of attributes used by the analyst for defining what the system does when interacting with its context”. In fact, the flows disappear in the duration covered by the representation. They have to be either (i) “consumed” or “generated” by the investigated system or (ii) “made” available by” or “absorbed by” the context of the system (Pp.314).

Given the nature of this analysis, MuSIASEM applied to a rural system such as our case study considers “available land” and “available human activity” as the funds and as the most important resources upon which peasant livelihood strategies are based, as well as the main constraints peasants face. Thus, we propose to characterize livelihood strategies according to these two main fund variables and analyze the flows produced and consumed in biophysical and monetary terms (i.e., flows of cash, biomass, energy, agrochemicals, and water). By characterizing the structure of time and land use funds and the densities and rates of flows consumed or produced, we obtain different typologies of peasant households, resulting of different combinations of land, time, and resource use.

Livelihood strategies are the result of several decisions taken by a peasant household regarding to how to use or invest their available land and time to different activities dedicated to the production or consumption of different flows. It is of utmost importance to highlight the fact that funds are interrelated between them and with different possible uses or production of flows, which means that using time and land to obtain cash under certain modes of agrarian production implies not using them in other farm or off-farm activities. Thus, there are certain constraints associated to a given livelihood strategy and certain “trade-offs” between different livelihood options. Tables 1 and 2 synthesize the extensive indicators that describe what the peasant household is and what it does-, and intensive indicators that identify how the household does it-employed in this case study. It is important to mention that the variables and final indicators derived from the MuSIASEM analytical framework depend on the objectives and context under study. In other words, the greater or lesser disaggregation of the variables should respond to the most important characteristics of the phenomenon under

**Table 1**

Extensive indicators for analysing peasant’s livelihood strategies.

Extensive indicators		Units	Description
Demographics			
1	Household members	Nº	Total number of household members (living in the same house)
2	Household age	Nº	Average age of household heads
3	Total dependent members	Nº	Total number of dependent members in both childhood and old age
4	Old dependent members	Nº	Total number of household members aged 65 and older
5	Children dependent members	Nº	Total number of household members between 0 and 17 years of age
6	Working members	Nº	Total number of household members between 18 and 65 years of age
7	Education male head	Ordinal (1 = non-formal education; 2 = elementary; 3 = secondary; 4 = technical education; 5 = university 6 = postgraduate; 7 = others)	Education level of male head of household
8	Education female head		Educational level of the female head of household
Time uses			
9	Household total hours to agriculture	Hours/year	Total labour time of household and indirect family members dedicated to agricultural productive activities (travel to the field, preparation, planting, maintenance, harvesting).
10	Household total hours to postharvest	Hours/year	Total household time spent on postharvest activities
11	Household total hours to traveling to market place	Hours/year	Total household time spent traveling to the place of sale of agricultural and livestock products
12	Household total hours to sell	Hours/year	Total household time dedicated to the sale of agricultural and livestock products
13	Household total hours to agricultural production	Hours/year	Total household and indirect family labor time devoted to agricultural production activities (cultivation, post-harvest, travel, sale, sale).
14	Household total working hours to off-farm activities	Hours/year	Total household time spent on economic activities not related to their farm
Land uses			
15	Total land	Ha	Total land area of the household
16	Cultivated area	Ha	Area of household land used for agricultural production.
17	Area with agrochemicals	Ha	Area of cultivated land with use of agrochemicals
18	High-value crop area	Ha	Area of household land cultivated with high value products (strawberries, flowers, blackberries).

(continued on next page)

**Table 1** (continued)

Extensive indicators	Units	Description
19 Traditional crop area	Ha	Area of household land cultivated with traditional products such as corn, barley, potatoes, beans, peas, wheat, quinoa, vegetables, and fruit trees.
20 Grassed area	Ha	Area of land of the home destined to pasture
21 Irrigated land	Qualitative (1 = yes; 2 = no)	Land area with or without irrigation

study. In our case, the variables were carefully selected after the first qualitative field phase (see next section) and seek to capture the productive diversity of households (not only agricultural activities and on their own farms), the degree of market dependence-autonomy (both upstream-agricultural technologies and downstream-type of conventional sales markets), as well as the creation of alternative markets.

This allows for the characterization of the diverse ways of organizing the livelihoods of these populations, but above all, to discuss the results in the light of van der Ploeg's farming styles (2008). According to this author, farming consists of three interrelated and mutually adapted processes: i) the mobilization of resources (animals, agro-chemicals, seeds, labor, knowledge, capital, etc.); ii) the conversion of resources into end-products; and iii) the marketing and reuse of the end-products. The first and third processes, and increasingly the second, may imply relations with markets. However, depending on the styles of farming, they might be patterned in completely different ways. In this sense, a peasant style of farming might mobilize and convert the resources within the farm and to lesser extent through different markets. By contrast, entrepreneur and capitalist farming mobilized these resources predominantly through the markets.

Considering the importance of markets for peasant livelihoods and style of farming, the MuSIASEM analytical framework was complemented with a study of the market relations peasants engaged with. To this end, the market transactions were described according to the i) type of products dedicated to the market, ii) the number of commercial relationships they have, iii) the geographical scope of these relationships- local, which encompasses the sale at the foot of the plot, house or community; territorial, which includes the geographical territory of Pedro Moncayo (not necessarily the administrative territory), and extraterritorial, which is outside the territory of Pedro Moncayo, iii) the type of buyer: traditional trade-traders who collect the product directly from the producers' holdings or from warehouses, sheds or fixed stalls in municipal markets. They tend to have a certain degree of informality; Agroindustry-companies that process food of plant or animal origin; conventional chains-similar to traditional traders but usually formally constituted companies that do not process food; end consumers; and alternative short circuits-places of direct and generally agroecological sale.

#### 4.2. The case study

Pedro Moncayo is a canton located in the inter-Andean region of Ecuador's north-eastern Pichincha province. It occupies an area of 339 square kilometers and has a population of 33,172 inhabitants, of which 23,113 are rural inhabitants ([Gobierno Autónomo Descentralizado de Pedro Moncayo, 2018a](#)). It comprises five parishes named Malchingui, Tupicachi, Tocachi, Tabacundo and La Esperanza. Here, 68% of the population self-identify themselves as *mestizo*, while the indigenous population accounts for a 26% ([Gobierno Autónomo Descentralizado de Pedro Moncayo, 2018a](#)). Poverty levels are higher than the national average. Agricultural activities are developed in 57% of the territory, among which the cut flower export is the most profitable. Pedro

**Table 2**

Intensive indicators for analyzing peasant's livelihood strategies.

Intensive indicators	Units	Description
22 High value harvested production	kg/year	Agricultural production of high value products
23 Traditional crop harvested production	kg/year	Agricultural production of traditional products
24 Total harvest production	kg/year	Total harvested agricultural production
25 Milk production	kg/year	Milk production
26 Honey production	kg/year	Honey production
27 Animals	N°	Number of animals
28 Cash crop production	kg/year	Production of agricultural products for sale
29 High value production for sale	kg/year	Production of high value products for sale
30 Traditional crop production for sale	kg/year	Production of traditional products for sale
31 Sold milk production	kg/year	Sold milk production
32 Sold honey production	kg/year	Sold honey production
33 Animals sold	N°	Animals sold
34 Total agricultural income	US \$/year	Household income from the sale of agricultural production
35 High-value based income	US \$/year	Household income from the sale of high-value products
36 Traditional crop-based income	US \$/year	Household income from the sale of traditional products
37 Livestock based income	US \$/year	Household income from the sale of livestock products
38 Off-farm income	US \$/year	Household income from salaried work
39 Wage income	US \$/year	Household income from off-farm activities
40 Social benefits	Binary (1 = yes; 2 = no)	Receives or does not receive social benefits such as development bonus, disability pensions, etc.
41 Remittances	Binary (1 = yes; 2 = no)	Whether or not you receive remittances from a family member
42 Total agricultural marketing relations	N°	Number of commercial relationships that the household has with respect to agricultural products
43 Total livestock marketing relations	N°	Number of commercial relationships that the household has with respect to livestock products
44 Total marketing relations	N°	Number of total commercial relations (agricultural and livestock) the household has
45 Level of confidence with agriculture-related marketing channels	Ordinal (1 = None; 2 = Very little; 3 = Regular; 4 = A lot)	Confidence level of the household with the type of buyer. The average level of trust with different buyers is averaged.
46 Satisfaction level of sold products	Ordinal (1 = Very dissatisfied; 2 = Dissatisfied; 3 = Satisfied; 4 = Very satisfied)	Satisfaction level of the household after the sale of agricultural products. The average satisfaction level of the products sold is averaged.

Moncayo contributes 25% of Ecuador's flower production (Gobierno Autónomo Descentralizado de Pedro Moncayo, 2018a). According to the rural cadaster of the county, flower plantations spanned 1700 ha (5% of the land area) with an average size of 26.7 ha. No reliable data exists about the total extension of flower production undertaken by peasants. However, Mena-Vásquez et al. (2016) estimate it at 300 ha in 2005. In general terms, flower production is concentrated mainly in the parishes of La Esperanza and Tupigachi, where irrigation systems are more widespread (IEE, y GADP Pichincha, 2013). Pedro Moncayo has a very unequal land structure in which land states exists alongside a large number of very small plots (*minifundización*). For instance, whereas the 75.7% of the APUs have less than 0.9 ha and account for 11.9% of the total land, the 0.5% of the APUs of 100–499 ha account for 15.5% of the total land (Gobierno Autónomo Descentralizado de Pedro Moncayo, 2018b). At the same time, it is a canton where the process of proletarianization of the peasantry has deepened because of the expansion of floriculture. For example, in the 1990s, wage labor and independent agriculture had a similar weight of approximately 40% of the economically active population. However, in 2010, wage work increased to 80%, while independent agriculture accounted only for 20%. These numbers are more accentuated for the parishes where flower production is more present. However, in the parish of Malchinguí, where flower plantations are incipient, during the period from 1990 to 2010, independent agriculture increased from 31% to 39% (Instituto Ecuatoriano de Estadísticas y Censos, 2010), which shows a process of re-peasantization that strongly contrasts with the rest of the territory (see Map 1).

Finally, the Union of Indigenous Peasant Organizations of Cochasqui-Pedro Moncayo (UCCOPEM) is one of several, but also the biggest peasant and indigenous organization in Pedro Moncayo, with a presence throughout the canton. It was created in 1984 and currently has 34 affiliated base organizations representing 2537 households. The UCCOPEM promotes organizational, education, production, marketing initiatives, as well as a community mediation system.

#### 4.3. Material and methods

The field work was carried out in two phases. The first round took place between August 2018 and January 2020 and consisted in a qualitative exploration of the territory of Pedro Moncayo to both identify its socio-biophysical dynamics and to plan the next quantitative round of field work. For this purpose, 58 interviews were conducted with different groups of key informants: UCCOPEM branch community leaders (37 interviews), the Consortium for the Development of Integrated Water and Environmental Management for Cayambe and Pedro Moncayo (CODEMIA CPM) (1), the Water Resources Forum (1), officials from the central State and its ministries, as well as the decentralized autonomous county government of Pedro Moncayo (5), non-governmental organizations (NGOs) (4), representatives of alternative and conventional marketing proposals (3), the president of the National Association of Flower Producers and Exporters of Ecuador (Expoflores), as well as small-scale members of the flower chain (18). Secondary information was also collected, mainly grey literature produced by NGOs and the Ecuadorian government, such as demographic and socioeconomic statistics for the canton. The qualitative information and scientific literature were systematized and coded in QSR NVivo (2020). The spatial information was processed in ArcGis (2020) and QGIS (2020).

The second phase was performed between February and December 2019 and consisted of i) the development of the MuSIASEM-type household survey to identify the livelihood strategies of UCCOPEM member households ii) the debugging and preparation of the database for further analysis. Of the 34 communities belonging to UCCOPEM, 31 accepted to participate in the study, which gave a universe of 2435 household members of the organization. A simple random sampling (95% confidence, 5% error) was used to determine the number of households to be surveyed ( $n = 332$  households). In our study two

approaches to defining the household were used to define the basic social unit that was surveyed. First, we applied the definition used by other research based on the MuSIASEM approach (Mingorría et al., 2014; Arizpe et al., 2014): A “household” is integrated by individuals with family ties, who, as a group, are independent from other household.<sup>5</sup> Second, we used the list of member list of UCCOPEM and its local filial organizations in order to identify the households.

Subsequently, a typological analysis of the peasant livelihood strategies of the rural households' members of UCCOPEM was carried out. For this purpose, a hierarchical cluster analysis (using Euclidian distance and Ward linkage (Ward, 1963)) was carried out based on the 46 variables indicated in Tables 1 and 2 to identify the different typologies of livelihoods. Once the different topologies were defined, the degree of homogeneity/heterogeneity of rural households was studied in detail. As described later, three types of rural household strategies could be identified. Finding the optimal number of clusters is not trivial, the average silhouette width method (Mirkin, 2011), together with a visual inspection of the dendrogram, confirmed the number of clusters that made sense from a theoretical point of view (see annex II). Subsequently, a principal component analysis (PCA) was performed to identify those variables that have the greatest influence in the conformation of the three types (see annex I). Only with the most relevant variables resulting from the PCA, we applied the Kurskall-Wallis and Dunn statistical tests to identify which of them behaved differently in each of the three typologies. It is important to note that parts of the survey were not included in the statistical analysis, due to problems with the reliance of the collected data.<sup>6</sup>

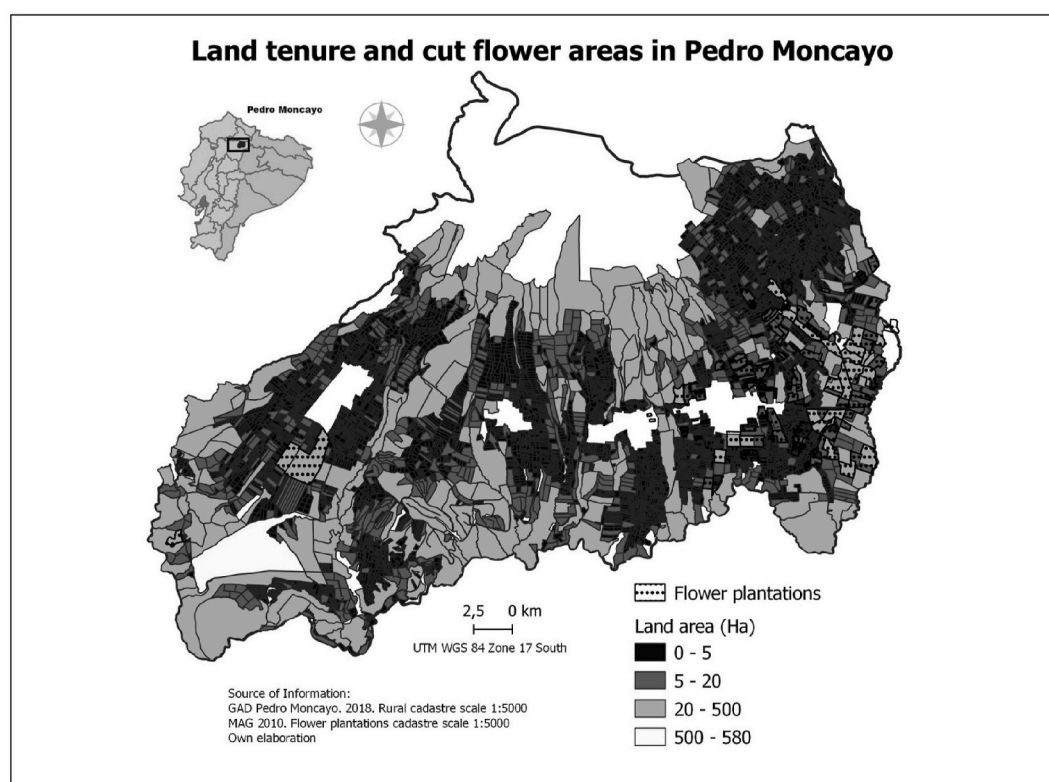
#### 5. Results

Three types of peasant livelihood strategies were identified and named after their main economic strategy. Type 1 describes rural households with livestock activities and traditional subsistence agriculture (52 households/15.5%). Type 2 encompasses proletarianized rural households with little subsistence agriculture (258 households/76.8%). Finally, type 3 is integrated by rural households with high value agriculture activities, such as roses, strawberries, blackberries, and tree tomatoes (26 households/7.7%). Variables related to high-value production are some of the variables that contribute most to explaining the three typologies. Likewise, both the volume of sales of agricultural products and the number of household hours spent on agriculture have an important relevance. The commercial relationships established by rural households also play a role (see annex I).

In the first part of this section, the characteristics that are common to all three types of rural strategies are described. In the second part we describe how peasant households in Pedro Moncayo differ from each other, as well as which main types of peasant strategies emerge from

<sup>5</sup> According to this definition, one or more households can live under the same roof, e.g., when parents live together with their children who otherwise are economically independent. In this case, we consider them as two different households, even though they live in the same house.

<sup>6</sup> Initially, we wanted to determine the amount of agrochemicals and household production costs. However, the recollected data showed to be too unreliable, since peasant households do not register systematically the purchase of agrochemicals or hired labor. Therefore, these variables were discarded. Likewise, we wanted to inquire about the amount of water used for household irrigation. However, it was not possible to identify the volume of irrigation water that corresponds to each rural household, since they only know how much time they spend on irrigation. For these reasons, it was decided to use a categorical variable on whether or not they have irrigation and a variable that acts as a proxy to identify households that opt for alternative production methods such as agroecology or conventional production systems with the use of agrochemicals. Finally, in a third phase (February to March 2020) the results were presented and discussed with partners as well as UCCOPEM representatives during a workshop.



**Map 1.** Land tenure and cut flower areas in pedro moncayo.

statistical analysis.

### 5.1. Common characteristics

There are certain characteristics common to all peasant households that show no statistical differences between the three identified types (see Table 3). First and regarding to demographic variables (fund elements), there is uniformity in the number of household members. The average number of households is 3.7, with a maximum of 4 members and a minimum of 1.6 members. At the level of members of working age, the average is 2.4 members, the maximum 7 members and the minimum 0 members. If households with 2 and 3 members of working age are considered, this represents 53.8% of all households, and if we include

**Table 3**  
Common demographic properties of peasant households in Pedro Moncayo.

Household members	Mean (Sd): 3,7 (1,6)
Total dependent members	Mean (Sd): 1,3 (1,1)
Old dependent members	Mean (Sd): 0,3 (0,7)
Children dependent members	Mean (Sd): 1 (1)
Working members	Mean (Sd): 2,5(1,4)
Education male head	No formal: 18,6%; Primary: 59,9%; Secondary: 17,6%; Technical education: 1,1%; University: 2,5%; Postgraduate: 0,4%
Education female head	No formal: 27,4%; Primary: 54,9%; Secondary: 13,6%; Technical education: 0,9%; University: 3,1%; Postgraduate: 0%
Irrigated land	Yes: 37,9%; No: 62,1%
Social benefits	Yes:14,6%; No: 85,4%
Remittances	Yes: 0,9%; No: 99,1%
Off-farm income	Mean (Sd): 5873,8 (4665,9)
Wage income	Mean (Sd): 5227 (4430,7)
Area with agrochemicals	Mean (Sd): 0,2 (0,8)

those with 4 members, the percentage reaches 70.8%. Regarding dependent members, both young children and elderly members, the average number of children is 1, and 43.1% of the households do not have any dependent children. Regarding elderly dependents, the average is 0.3, while the maximum is 3 members. This is explained by the fact that 77.4% of households have no elderly dependent members.

Second, the educational level of the heads of households is also very homogeneous and generally low. 59.9% of male household members has attended primary education, another 17.6% has completed secondary school, and another 18.6% has no formal education. In the case of female household members, 54.9% has attended primary school, 13.6% has secondary education, and 27.4% has no formal education.

Third, it is interesting to note that social benefits and remittances (a specific type of monetary flows) play an insignificant role in the livelihood strategies of rural households in Pedro Moncayo. A total of 85.4% of households do not receive any social benefits, a figure that rises to 99.1% for those who do not receive remittances. These results show the opposite trend of much of the literature on the new rural peasant ruralities that point to the important role of remittances and social benefits in their livelihood strategies (Bates, 2016; Deere and Alvarado, 2016; Martínez, 2004).

Fourth, there are several common characteristics in terms of productive resources (and indirectly, in terms of agrochemicals and water flows), neither irrigation nor the production area with use of agrochemicals are relevant variables to explain household heterogeneity (see annex 1). In fact, 62.1% of households do not have irrigation. Of those with irrigation (14.6%), all but three households belong to the type of household dedicated to high-value products. Thus, there is a close relationship between economic strategies based on access to irrigation and production of non-traditional crops, i.e., roses. The dispute over water between households producing flowers and those with traditional crops is an issue that has been going on for years. In addition, 59.5% of households do not use agrochemicals on their crops, with the average area under agrochemicals being 0.2 ha, with a maximum of 10 ha. This



result shows, as will be seen in section 5.3, that households dedicate part of their production to self-consumption, where they choose not to use agrochemicals.

Finally, the fact that the analyzed households do not present significant differences about income linked to off-farm work (a monetary flow), such as income from salaried work is surprising. One possible explanation is that the peasantry is increasingly adopting diversified livelihood strategies, where off-farm activities are becoming more and more strategic in economy but also in terms of use of time. Therefore, in terms of the “available human activity” fund, nowadays, peasants devote a significant amount of time to off-farm productive activities (in hours/year) in detriment to on-farm activities. In our case, peasants who have opted for high-value products also resort to off-farm work, especially as hired labor. The average salaried income obtained is \$5.227 per year, although the variability is very high. Given their low level of education and the predominance of agro-industry in the territory, the main activities rural household members carry out are mainly those offered by the flower industry. However, there are also household members with higher education that work in the public administration.

The degree and the characteristics of market insertion for agricultural and livestock products is another aspect of peasant households in Pedro Moncayo that does not substantially differ among the three types of livelihood strategies (see annex I). As Table 4 shows, peasant households are characterized by a very low number of transactions of

agricultural products (biomass marketed flows). From the marketing perspective, Pedro Moncayo is therefore best described as a territory of traditional peasants with a strong subsistence orientation, on the one hand, and semi-proletarianized households that continue to engage in agricultural production for self-consumption on the other hand. This situation is reflected in the following testimony “In Pedro Moncayo there is more self-consumption and exchange between families than sales because there is no water, the middleman lowers the price at any pre-text, the low prices make it not represent the investment. It costs more to produce than to receive monthly salary” (interview with president of the Angumba commune, September 12th, 2018). The other half of households which do sell agricultural or livestock products, relate to the market in differentiated ways: 13% of households sell all the product they produce, another 15% sell agricultural and livestock products and 25% sell only animal products.

In total, 184 sales of agricultural products and 229 sales of animal products (live animals, dairy, and honey) were recorded. As for agricultural products, the most frequently sold products are corn (17%), flowers (9.5%), potatoes (7%), peas (7%), beans (5%) and wheat (5%). Of the 229 relationships of market transactions for animal products, pigs (24%) and milk (24%) are the most traded products, followed by chicken and guinea pigs (17% in both cases). On average, there are 1.2 regular commercial transactions per household during a year. Almost half of the households usually establish only one product to be sold during the year, 25% of the households sell two products, 10% of the households sell three or four products, and another 10% establishes sales of five or more products per year. The maximum recorded number of regular market transactions is 15.

Almost all agricultural and animal produce is sold at the local and territorial level (96%) when analyzed according to their geographic scope. Extraterritorial relations are very scarce (4%). The presence of local commercial relations is considerable (32%), which implies an important participation of communities and neighborhoods in the purchase and sale of local peasant produce.

Two types of markets stand out as the preferred way of marketing household production. The first one corresponds to sales in traditional commercial establishments, which continues to be central to market access for peasant producers. Its relative weight is roughly equal for agricultural products (53%) and animal products (43%). The second type of market corresponds to direct sales to final consumers. These transactions represent 21% in the case of agricultural products and almost half (42%) in the case of animal products. As such, most of the transactions are local and direct. Therefore, other types of markets and buyers play a marginal role. This has important implications for initiatives of alternative food networks promoted by NGO and peasant organizations, since only 12% of the analyzed households participate in these circuits. However, it also means that marketed biomass flows remain at a local and territorial level, which indicates that a localized food system is present in this area.

A vibrant local trading network seem to be functioning in the territory, reflected in the fact that it is the local exchange relations (between household of the same neighborhood or community) that predominate in the territory. Buying and selling food is built through and into social relationships. Furthermore, along this local commercialization, barter food relationships exist among communities (non-marketed biomass flow). As the following peasant says, “here in the community sales are made among neighbors, it is better for us because we do not spend on transportation, and we do not have to sell in the *covachas* [traditional market stalls often run by female traders] near the public market in Cayambe. It is also common among relatives to share a product” (interview with a peasant of Chaupiloma, September 17, 2018). Another way in which local social relations are strengthened are the local marketing initiatives promoted by NGOs and indigenous peasant organizations, such as agroecological fairs or milk collection centers. These experiences seemed to have spilled over to small-scale flower production, where rural households have created their marketing facilities in

**Table 4**  
Main characteristics of peasant household marketing.

Market transactions	Cases	Percentage (%)	Average number of transactions
No relation to the market	159	47	–
Agricultural products (only)	45	13	0,5
Livestock products (only)	83	25	0,7
Agricultural and livestock products (combination)	49	15	1,2
<b>Number of commercial relationships on regular basis.</b>	<b>Percentage (%)</b>		
1	47		
2	25		
3	9		
4	9		
5 or more	11		
Total	100		
<b>Percentage of commercial relationships by geographic scope</b>	<b>Agricultural products (%)</b>	<b>Livestock products (%)</b>	<b>Total products (%)</b>
Local	34	31	32
Territorial	56	69	64
Extraterritorial	10	1	4
Total	100	100	100
<b>Percentage of commercial relationships by type of buyers</b>	<b>Agricultural products (%)</b>	<b>Products of animal origin (%)</b>	<b>Total products (%)</b>
Traditional trade	53	43	47
Agribusiness	2	5	4
Large conventional chain	4	1	2
Conventional small chain	8	1	3
Conventional final consumption	21	42	35
Alternative short-circuits	12	8	9
Total	100	100	100

order to export or sell in the domestic market. According to several interviewed smallholders who produce roses for export, some households have set up new infrastructure, such as refrigerated storage rooms, to engage in post-harvest and export activities. These “*poscosechas*”<sup>7</sup> are part of relatively recent export channels which are independent from big flower plantations.

A 39% of all households were not satisfied after selling their produce, while 61% are satisfied on a regular or high level. If we disaggregate the level of satisfaction by geographic scope, the highest level of satisfaction is found in local and direct transactions (17%), while the highest levels of dissatisfaction are concentrated in the extra-territorial level (8%), and the greatest number of trade relations with moderate satisfaction (52%) correspond to the territorial transactions.

If we do the same for the marketing channels, there are also two major trends. On the one hand, traditional traders and collectors undoubtedly generate the least satisfactory results of all the marketing channels (54% in total), although a significant 41% of sales generate moderate satisfaction and 5% high satisfaction. On the other hand, conventional chains generate the highest levels of satisfaction if moderate and high satisfaction are added together (89%). Conventional final consumption (72%) and alternative food networks (70%) behave similarly. However, these last two channels comprise many relationships that generate only moderate dissatisfaction (26% and 30%, respectively). Possibly, these results reflect the unequal power relations between buyers and rural households. As the president of one of the agroecological fairs in the territory mentioned, “consumers need to value agroecological production, sometimes we keep the products even though the prices are low. Many consumers bargain with producers at levels that do not cover the cost” (interview with president of UCCOPEM, 10th October 2018). To a certain degree they also contradict the preference and satisfaction of agricultural producers who participate in alternative short circuits (Van der Ploeg, 2010).

## 5.2. A typology of peasant livelihoods

As mentioned above, three main typologies of peasant livelihoods can be distinguished in the territory. In what follows, we offer a general description of each of the strategies (see Table 5).

### 5.2.1. Type 1: Households with livestock activities and traditional subsistence agriculture

In terms of demographic and land use funds, with an average of 53 years, this type distinguished itself by the highest average age of the household heads. It is also characterized by its strong orientation towards the production of traditional agricultural products, such as potatoes, corn, wheat, quinoa, vegetables, milk, and small domesticated animals. With 52 households, this type represents 15.5% of the studied rural households. Most variables show a high intra-type variation, so that the following description depicts a stylized scenario.

Land possessions are also the biggest (2.4 ha on average). Consequently, the area used for agricultural production, as well as the area destined for pasture is the highest registered among all household types. The livelihood strategy of this first type is often based on a combination of on-farm and off-farm activities (available human activity fund). The main sources of income correspond to sales of livestock products (mainly milk) with an average of \$3109/year and off-farm economic activities, mainly salaried work with an average income of \$4832/year (monetary flows).

The low income from the selling of agricultural products stands out, with an average income of \$717/year. In fact, of the 2.4 ha of average farm size, half of the land is dedicated to traditional agriculture, which is mainly used for subsistence food production. In coherence with the

general economic orientation of this type of livelihood strategy, the hours dedicated to agriculture are low with an average of 496 h/year. This corresponds to roughly 1–2 h a day per household. However, type 1 stands out when it comes to the amount of hours dedicated to the selling of agricultural products. It appears that the alternative marketing spaces such as agroecological fairs demand much more time preparing and selling the produce. In some cases, the daily delivery of milk production to collectively run collection centers equipped with cooling tanks requires more time (interview with a community leader of UCCOPEM, September 10th, 2018). According to the market integration, type 1 has the highest number of sales of animal produce, with an average of 1.38 relations. Moreover, 53% of households are satisfied after the sale of their products.

It seems that type 1 households are not constrained by access to land, i.e. the “available land” fund is not a limiting factor, but rather the opposite. The average farm size allows them to opt for more profitable livestock activities than traditional agricultural produce that achieve low and highly variable prices on the domestic market. One hypothesis for not specializing in higher value agricultural products, as is typical for type 3 households (see below), is that rather than constrained by their access to land, type 1 households find themselves at the end of a Chayanovian intergenerational reproduction cycle, with fewer and older members able to work in agriculture. Another explanation is that the frequent off-farm activities consume most of the available labor time. Therefore, for this typology the “available on-farm productive use of time” fund seems to be the main constraint peasants face rather than the “available land” fund.

### 5.2.2. Type 2: Proletarianized households with little subsistence farming activity

The second type of rural household represent 76.8% of the sample, which corresponds well with the idea of the intensification of capitalist restructuring of rural territories and, thus, the proletarianization of peasant communities (Akram-Lodhi and Kay, 2010b; Bernstein, 2006; Martínez Valle, 2016). Type 2 households distinguish themselves above all by livelihood strategy based on wage-earning, off-farm jobs, especially in flower plantations. For this reason, livestock and agricultural activities in these households play a minor role, especially in terms of income, use of time and the generation of food for subsistence (biomass flow). The amount of land and time dedicated to on-farm agricultural activity is substantially lower. In contrast, labor time dedicated to off-farm work is higher on average (2833 h/year). This is also the type of rural households with the lowest agro-livestock trade relations (marketed biomass flows) and levels of satisfaction after marketing its produce. However, it is crucial to point out that even these households, which depend mostly on rural employment, cultivate land with traditional products for subsistence consumption. In other words, these households have not completely abandoned the subsistence strategy typical of type 1 households.

In summary, it can be said that Pedro Moncayo’s territory is increasingly characterized by an accentuated proletarianization of the peasantry, but despite this, they do not abandon the land, although they do experience a strong minifundization of their plots.

### 5.2.3. Type 3: Households specialized in high-value production

The last type represents 7.8% of all households and differentiates itself based on the strategy of agricultural modernization and intensification of production in rather small, but irrigated plots of land. The preferred commodities comprise roses (16 cases), strawberry (5 cases) and tree tomato (4 cases). Although the differences are not statistically significant, it is the type of households in which the heads of the family have the lowest average age. At the educational level, it is interesting to note that type 3 consists of households with an education mainly at the primary and secondary level (21 cases of female and 16 cases of male household heads). No household counts with technical or higher education. Consequently, among the 16 cases of peasant flower growers,

<sup>7</sup> Rose-producing smallholders refer to these equally small family-run businesses as “*poscosechas*”, which literally means post-harvest.

**Table 5**

Main variables that characterize Pedro Moncayo's peasant livelihood typologies. Indicators with significant differences ( $p < 0.05$ ) have grey cells and bold numbers indicate which are the different social groups.

				Households with livestock activities and traditional subsistence agriculture		Proletarianized households with little subsistence farming activity		Households specialized in high-value production	
				52		258		26	
Extensive indicators (What is the household and what does it do?)				Units	R	Mean	SD	Mean	SD
Demographic									
1	Household age	N°	20	52,83	13,29	47,75	14,59	42,65	10,95
Time uses									
2	Household total hours to agricultural production	Hours/year	6	553	589	169	238	4.292	2.242
3	Household total hours to agriculture	Hours/year	7	496	568	150	219	4.048	2.420
4	Household total hours to sell	Hours/year	21	6	18	0	1	3	8
5	Household total working hours to off-farm activities	Hours/year	18	1.937	1.698	2.833	2.118	1.632	1.607
Land uses									
6	Total Land	Ha	12	2,43	2,76	0,55	0,9	0,53	0,72
7	Cultivated area	Ha	13	1,7	1,88	0,31	0,46	0,39	0,5
8	High-value crop area	Ha	1	0	0,02	0	0	0,19	0,14
9	Traditional crop area	Ha	14	1,22	1,79	0,27	0,45	0,16	0,42
10	Grassed area	Ha	41	0,48	0,85	0,04	0,13	0,04	0,13
Intensive indicators (how the household does what it does)									
11	High value harvested production	kg/year	2	48	347	-	-	14.541	12.347
12	Traditional crop harvested production	kg/year	17	3.500	6.930	310	489	180	379
13	Total harvest production	kg/year	4	3.548	6.966	310	489	14.722	12.478
14	Milk production	kg/year	34	2.851	3.598	299	917	991	2.714
15	Number of animals	kg/year	28	62	96	23	30	26	45
16	Cash crop production	kg/year	5	2.691	6.474	48	208	14.265	12.068
17	High value production for sale	kg/year	3	48	347	-	-	14.210	11.958
18	Traditional crop production for sale	kg/year	22	2.639	6.434	48	208	55	224
19	Sold milk production	kg/year	35	2.511	3.250	220	748	803	2.679
20	Number of animals sold	kg/year	29	24	64	5	13	3	6
21	Total agricultural income	kg/year	8	717	1.215	30	114	29.919	35.030
22	High-value based income	kg/year	9	18	128	-	-	29.875	35.056
23	Traditional crop-based income	kg/year	15	699	1.185	30	114	44	159
24	Livestock based income	kg/year	42	3.109	12.029	232	530	729	2.639
25	Total agricultural marketing relations	N°	11	2,17	2,50	0,16	0,47	1,15	0,78
26	Total livestock marketing relations	N°	27	1,38	1,37	0,54	0,92	0,65	1,09
27	Total marketing relations	N°	10	3,56	3,18	0,70	1,09	1,81	1,65

none has a specialized or even higher education in agricultural engineering. This coincides with the information gathered in interviews with peasant flower growers, who commented that most of them acquire the necessary knowledge for flower (pre)production, as well as post-harvest treatment as hired workers in flower plantations.

In this sense, it can be stated that the territory shows signs of a process of re-peasantization through a modernizing trajectory by former wage workers or (semi)-proletarian peasants (type 2-like). In general, type 3 households have members who, based on their (former) experience as workers in flower plantations, have acquired the necessary knowledge and capital to start their own production. Since many of them started working in the flower farms at a very young age (Korovkin, 2005; Soper, 2013), as well as often rotate between farms and different activities within flower plantations, they acquire a wide range of skills. As a former flower worker and current small flower producer says “I worked for many years in a flower farm, where I learned how to propagate the flower, how to take care of it. When the Russian crisis came, the flower farm went bankrupt and we were all unemployed, so I started my own flower farm on a small family plot of land with my knowledge and a little money” (interview with a small flower producer, 19th of October 2018). It is also important to mention that many of the small flower producers obtain the seedlings to start their plantations illegally since they do not pay the corresponding royalties to the breeders for the varieties of flowers used (interview with a local breeder, December 2019). The easy propagation of roses and the lack of strict control mechanisms available to breeder companies make illegal seedlings gathering a widespread practice.

Similar to proletarianized households, type 3 households do not specialize entirely in high-value products, but uphold the cultivation of traditional products for subsistence, especially maize, complemented by raising small, domesticated animals (non-marketed biomass flows). Yet, no household produces vegetables, and very few produce fruits.

The use of agrochemicals is quite widespread in type 3 households. Only five cases out of 26 do not use agrochemicals (fertilizers and pesticide flows). Agrochemicals are mainly applied to high-value crops, while the area with traditional crops are not treated. This reinforces the assertion that peasant households that move towards high-value crops do so by adopting a strategy of modernization and agricultural intensification but continue to differentiate and combine a farming style depending on the product and its final destination.

Type 3 households have the highest income from agriculture (\$29,919/year on average), which allows them to live or base their livelihood strategy on agricultural production. This explains why it is also this type that invests the highest amount of hours to agricultural production: the 4292 h/year on average correspond to a couple working approximately 8 h a day during six days a week. However, they also supplement their income with off-farm work (\$3846/year on average). These activities are not only carried out by the heads of household, but also by family members who live in the household and contribute with their salaries. The main off-farm jobs they perform include construction work and working in the flower plantations.

Finally, at the marketing level, the number of commercial relationships in which it participates is low (1.15). In comparison with type 1, 64% of the households are satisfied with the sale of these products. In this sense, producing high-value products such as flowers represent a higher degree of satisfaction than producing milk.

## 6. Discussion and conclusions

The present work has showed that forty years of flower agribusiness has further deepened a process of peasant internal social differentiation in Pedro Moncayo from which two types of semi-peasants' livelihoods have emerged on the one side, and a numerous semi-proletariat livelihood strategy dependent on flower-based wage income have appeared on the other. Although in Pedro Moncayo, the process of peasant proletarianization has been accentuated with the expansion of the flower

industry, two of the three identified peasants' strategies reveal that contemporary peasantries in this territory have found new ways to partially reproduce themselves from within and utilize the expanding systems of capital (either domestic or export-led markets) in combination with maintaining a peasant-like farming style.

As Martínez Valle (2016) points out in another case of flower-producing territory, this behavior may respond to the need to subsidize the low wages earned in flower plantations. However, it can also be argued that small plots of land help rural households that are immersed in either wage labor or rural industries (Martínez Valle and North, 2009) to insulate themselves from the unpredictability of commodity markets. Therefore, rather than the pressure to complement the low wages earned in flower plantations, continuing to farm small plots of land represents a fallback mechanism which, in turn, allows to sustain as much autonomy as possible in a commodified rural world.

These traditional peasant practices that seek to maintain a certain degree of autonomy from the market are illustrated in: i) the importance of keeping possession and cultivating small plots of land (despite sharp increases in land prices due to the flower production, these farmers choose not to sell their land), ii) neighborhood trading relations and communal ties that still play an important role. This is reflected for instance in the fact that it is the local commercialization (between communities and neighborhoods) that predominates in the territory. It should not be forgotten that commercial food exchanges are built through social relationships, which in this case, in addition to providing food to their buyers, help to strengthen social relationships -in this case- those of the communities. Furthermore, along this local commercialization, barter food relationships exist among communities, and there are internal arrangements within the peasant communities regarding the production of flowers by their community members. For example, some limit production to a certain height, or number of hectares, where others stipulate that these peasants must make larger contributions to the communities for festivities or works that are required (interviews with community leaders of UCCOPEM, September 2018). Another way in which these communitarian social relations are shown is through the existing peasant-indigenous organizations, which among other things have generated common commercialization processes such as agroecological fairs or milk collection centers. In the case of the flower peasants producers, over time they have created their own marketing channels for export or national sales, thus avoiding dependence on the large capitalist flower traders and exporters. Peasant-indigenous organizations have also played a relevant role in democratizing the access to irrigation water, in raising cut flower industry compliance rates with environmental legislation, and in the defense of the economic interests of peasant flower producers, iii) the widespread presence of diversified food production for subsistence consumption and without the use of agrochemicals, and iv) the continuing practice of using family labor in agricultural production, even when labor is not exchanged anymore through traditional mechanisms such as the *presta-brazo*, but rather paid work.

At the same time, their integration and dependence on the market, moving towards an entrepreneur style of farming, is mainly reflected both in their dependence on upstream markets (mainly agrochemicals inputs), and downstream markets, even if only for retail products. In both types of semi-peasant livelihoods, they are inserted into commercial relationships where traders impose their conditions and where the markets for these goods are very volatile, whether it be for the sale of milk or for high-value products such as roses.

These hybrid forms of production and social reproduction illustrate the complexities and nuances of contemporary peasantries regarding their styles of farming and livelihoods in the context of agri-food globalization. This study sheds light on a new generation of peasants who know how to shape their production and marketing. These forms reflect different ways to negotiate the tensions between dependence and autonomy as they are integrated in capitalist accumulation circuits. Finally, it is important to note that despite existing efforts to build post-



productive peasant livelihood strategies, these have not yet been consolidated. What predominates is peasant persistence and resistance within the framework of a modernizing strategy, even if only partially.

#### CRedit author statement

Sara Latorre: Conceptualization, Methodology, Investigation, Writing-Original Draft. **Patric Hollenstein**: Conceptualization, Methodology, Investigation, Writing- Reviewing and Editing. **Mario González-Rodríguez**: Formal analysis. **Serge Schmitz**: Writing- Reviewing and Editing.

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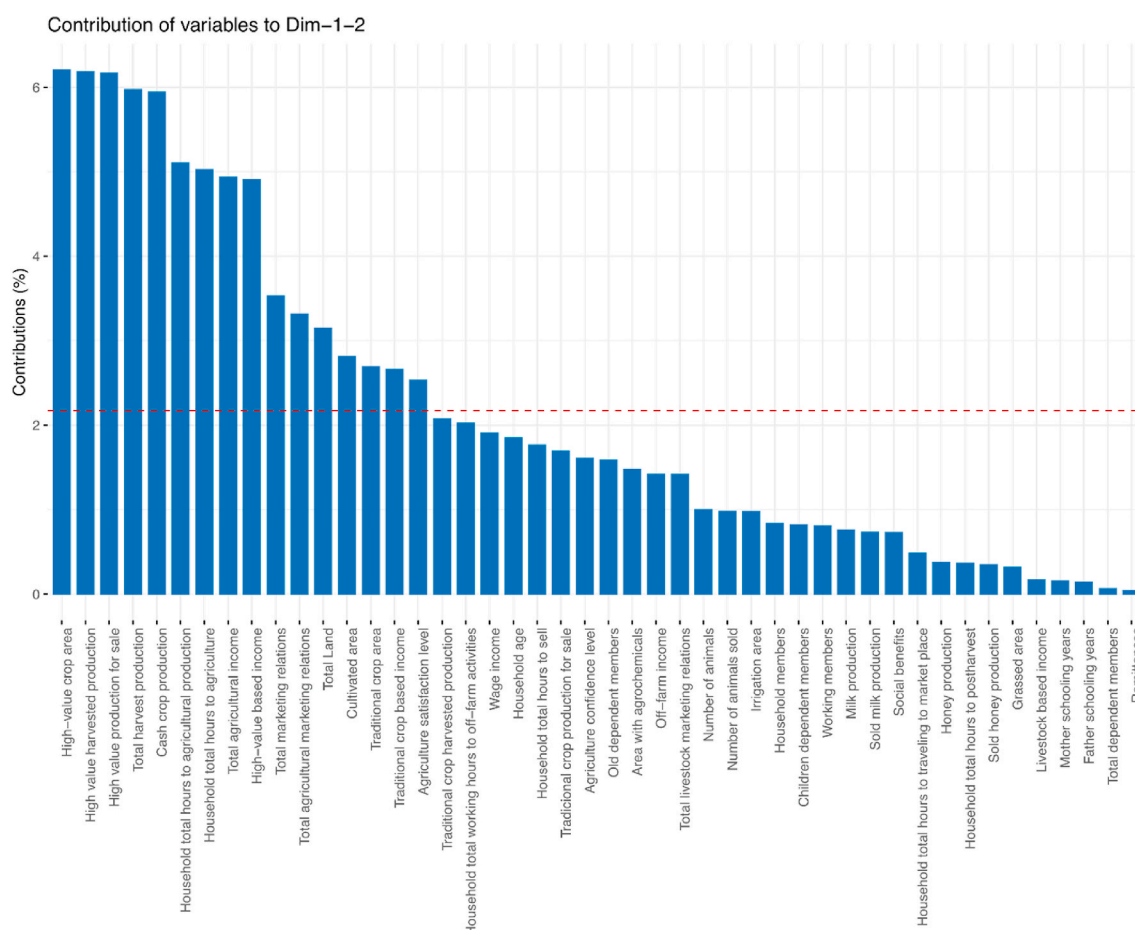
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### Annex I. Principal Component Analysis

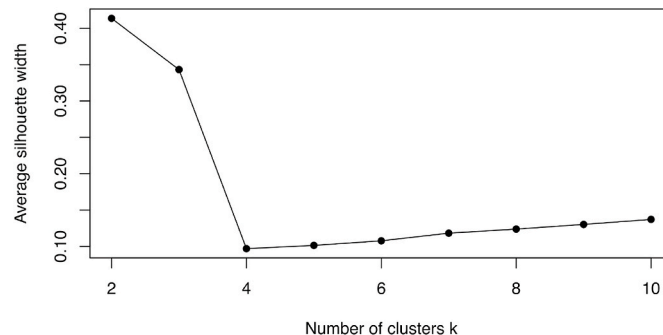
Principal Component Analysis (PCA) was performed on the collected data to evaluate the variable importance and contribution to the different identified typologies (Jolliffe and Cadima, 2016). The variable contribution to the first two principal components of each observed variable is listed below.



### Annex II. Determination of number of clusters using average silhouette width method

One technique to decide the optimal number of clusters is the average silhouette method. The silhouette measures the similarity of an object (observation) with those who belong to its cluster (cohesion) compared to other clusters (separation). The silhouette of the object ranges from  $-1$  to  $+1$ , with a high value indicating a good object match to its cluster and poor match to other clusters. A good number of clusters (indicating good intracluster cohesion and intercluster separation) occurs when the average silhouette width is maximum (Mirkin, 2011). For the present typology

characterization, the largest values of average silhouette width occur for two and three clusters as depicted below. Together with an inspection of the dendrogram and what makes sense from a theoretical point of view, three was the decided number of clusters. Although cluster 1 (Households with livestock activities and traditional subsistence agriculture) and cluster 2 (Proletarianized households with little subsistence farming activity) could be joined, we decided to treat them as two different clusters to better visualize the different roles that agricultural activities play in the livelihood strategies of farmers in Pedro Moncayo.



The quantitative average silhouette width was used together with the qualitative visual inspection of the dendrogram below, for the studied peasants. The three identified typologies are also represented in different colors.

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