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► To cite this version:

Hubert Cochet, Diane Sanchez, Clio Randimbivololona, Lenaïc Pardon, Julien Varlin, et al.. The Household Plot: Moribund Remnant of the Past or Way of the Future? Village Farming in Ukraine. European Journal of Development Research, 2021, 33 (6), pp.1536-1554. 10.1057/s41287-020-00304-w . hal-02912700

HAL Id: hal-02912700

<https://hal.science/hal-02912700v1>

Submitted on 7 Sep 2022

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The Household Plot: Moribund Remnant of the Past or Way of the Future? Village Farming in Ukraine

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Eur J Dev Res (2020). <https://doi.org/10.1057/s41287-020-00304-w>

Abstract

Although omnipresent in Russian, then Soviet, and finally post-Soviet agrarian history, the village plot has often been described as a residue of the past, destined for impending disappearance. However, it is still alive, especially in the Ukrainian countryside where it sustains five million rural households while ensuring a significant share of national agricultural production. After recalling the place of the plot in Soviet agriculture, within the kolkhoz structure, and its evolution in the aftermath of decollectivisation, this article analyses its contemporary modes of operation, as well as the diversity within household plots. The authors demonstrate, based on extensive fieldwork conducted in five raions (districts), that the economic performance of these micro-farms is far from negligible and that they play a decisive role in regional production.

Introduction

After almost 30 years of post-Soviet transformations, the agricultural sector is deeply marked by the structures and social relations of the former regime, and today, its dual nature remains intact. Large and private farms have replaced the former kolkhozes. However, villages remain the seat of the intense activity of market gardening and animal production that continue to play a fundamental role in the income of rural households and their participation in national agricultural production.

However, many authors have predicted the imminent disappearance of these micro-farms. The Soviet government was hoping to observe the productive role of the household plot being reduced progressively as the income of collective farm members increased, imagining it in the end reduced to an ornamental garden, as mentioned in the *Pravda*ⁱⁱ in 1956: ‘The land left for the personal use of collective farm members must be

turned into gardens, to embellish the lives of the peasants' (1956). Jean Chombart de Lauwe (1961, p. 144), in 1961, also predicted their unavoidable decline: 'Should their disappearance be predicted in the short term? Probably not but, in the long term, most likely'. More recently, Yevimof, in the case of contemporary Russia, did not believe in the development potential of household plots and declared: 'it is nonetheless easy to show that private farming has no "real production efficiency"' (2005, p. 253). Considered sub-optimal actors within the framework of neo-liberal theory (Collier, 2008), these household plot producers are set to disappear in favour of those who can implement the 'optimal allocation of production factors'... Concerning Romania, for example, Gavrilesco and Gavrilesco (2007) spoke in favour of a massive restructuring of the agricultural sector to constitute 'viable' and 'competitive' production units able to fit into the unique European marketⁱⁱⁱ.

Although it is often contended that there is no production efficiency in household plots, nothing is less certain. In neighbouring Russia, Pallot and Nefedova's work demonstrated that in 2004, 51% of the value of the agricultural produce was from household plots, on an accumulated area of 6.6% of the country's agricultural land (according to official land use, Pallot and Nefedova 2007, p. 17). In volume, household plots supplied more than 90% of the potatoes, 80% of the vegetables, and more than 50% of the milk and meat produced in Russia (idem, p. 18). In the case of Romania, Monica M. Tudor (2015) conducted a study, by using the database of the National Institute of Statistics (NIS-TEMPO on-line database), of the role played by household plots in the economy and rural life. It strongly highlighted the resilience of the household plot and its determinant role (1) in the attempts to alleviate poverty, (2) the creation of jobs in rural areas, and (3) its intrinsic economic efficiency, particularly in production per unit area.

In Ukraine, although the production of large collective farms from the previous era collapsed, due to the severe crises affecting the former Soviet Union in general and in Ukraine in particular during the 1990s, that of household plots fared much better. The production of potatoes and vegetables mainly from household plots decreased (in volume) by 22% and 16%, respectively (Lissitsa and Odening, 2005), and that of cereal and sugar beet, the preferred crop of large farms, collapsed by 50% and 68%, respectively (idem). In 2017, according to the State Statistics Service of Ukraine, people's farms produced 98% of the potato crop and 85% of the vegetable crop of Ukraine. They produced, for example, 36% of the country's meat production

(slaughter weight), 73% of the dairy production, and 46% of the egg production (State Statistics Service of Ukraine, 2018, p 313, p. 331)^{iv}. In 2017, the agricultural holdings of households produced 43.6% of the total output of agricultural production (idem, p. 298).

Because of national statistics, the important role played by household plot agriculture in the total agricultural production of the country can be observed. However, they offer little information on implemented production processes and their intrinsic economic efficiency, particularly with regard to the results displayed by the corporate farming industry, which are usually assessed to have much higher labour productivity than smaller farms, resulting from the simplification of production systems and their specialisation, namely, resorting to powerful machines and scale economics. Its results are also assessed through this industry's ability to conquer international market shares (cereals in particular) and attract investors because of its commercial profitability (i.e. its ability to yield a return on invested capital). When using these indicators, the 'people's farm' sector does not appear to be competitive. What does its relative efficiency rely on? And with what indicators should an individual assess it and compare its results with large neighbouring farms?

In this study, we show the results of a research project that aimed to offer an insider's view of these household plots to gain a deeper understanding of their operation and economic results. Two economic indicators drew our attention: value added and the efficiency of production factors, namely, land productivity.

After introducing the methodological aspects of the research in the first section of this article, we recall in the second section the place of the household plot within the kolkhoz and assess its contemporary evolution in the days following the fall of the USSR. A typology of household plots is then proposed in the third section, and an examination of the economic results linked to this form of agriculture is presented in the fourth section, particularly regarding large neighbouring farms.

1. Materials and Methods

We propose the adoption of a local approach, based on an in-depth analysis of ‘household plot’ farming and the large structures surrounding these plots in five small farming regions approximately the size of a *raion* (district) and located in the *oblasts* (regions) of Zhytomyr, Odessa, Kirovograd, and Sumy (Figure 1). Great attention was given to the historical processes resulting from the decollectivisation and to the identification of social relations, particularly between the largest structures and the socioeconomic fabric of the village. This approach, in terms of the agrarian system, was developed in Cochet (2015b). The idea consists of identifying production systems before initiating a detailed study of how they work. Resorting to an analysis of the historical transformations of agriculture in the region leads to formulating a preliminary hypothesis on the elements that contribute to locating and explaining farm diversity. Current production systems, their differentiation, and their diversity are the product of historical dynamics—or a trajectory—which must be reconstructed with care (Cochet and Devienne, 2006). This approach made it possible, in each region studied, to build a pre-typology, which we used to determine the samples of farms to be studied in detail. In each of the five *raions* (districts) examined, between 45 and 55 production units have been studied in detail. The sample includes the main types of farms aforementioned: types of small-scale people's farms (0.1 to 2 ha), types of large-scale farms (several thousands of ha), and family farms of intermediate sizes (a few tens to a few hundreds of hectares; Table 1).

Table 1: Number of production units studied in detail by type and district (raion).

Raion [Oblast]	Large farms (1000-5000 ha)	People's farms (household plots)	Other farms (20-200 ha)	Total case studies
Makariv [Zhytomir South]	1	42	4	47
Sarata [Odessa]	1	51	2	54
Znamienka [Kirovograd]	2	42	4	48
Volodarsk-	3	44	3	50

Volinsky [Zhytomir-North]				
Glukhov [Sumy]	2	42	2	46
TOTAL	9	221	15	245

Family histories were reconstructed, as was each family member's position in the former Soviet structure. We examined in detail the evolution of the production unit during the 1990s and the 2000s, as well as its actual operation from a technical and economic point of view. The farms studied in detail were chosen to constitute a reasoned sample so that we could apprehend the diversity of situations and to favour the comparison of processes and technico-economic results. The analysis, in terms of the agrarian system, calls for an assessment of the types of production units as a whole that are present in each of the regions under study, and not in one of these forms only. Data collection was conducted through interviews with producers (e.g. household plot holders, managers, and workers in farming businesses). These interviews and farm visits were sufficiently detailed and repeated to collect reliable first-hand information to fully understand practices and their evolution and to calculate the economic results of the types of production units. All information leading to the assessment of economic performance was collected between March and August 2009, 2010, and 2013, within the framework of a master's thesis with AgroParisTech-Université Paris-Saclay and under the supervision of the first author of this article.

Finally, to measure the economic performance of household plot farming and compare it to that of large neighbouring farms, we focused on the net value added (NVA) criteria that measure the *wealth creation* of the production system. It is equal to the difference between the gross product (the value of final productions including home consumption, measured at market prices) and the value of the goods and services consumed in whole (intermediate consumption) or in part (fixed asset) during the production process. Intermediate consumption includes, for example, seeds, fertilisers and pesticides, purchase of animal feed, fuel, electricity and water expenditures, and paying for veterinarian services⁹. To make a calculation that accounts faithfully for the concrete operation of the production system, gross product and intermediate consumption must be

assessed directly per crop or unit, from the outputs and average prices of the products and crop management sequences or herd management patterns, and therefore from the technical operation of the production system. All the underlying data used to calculate value added were gathered from the surveys conducted by the authors. Regarding fixed asset depreciation (or amortisation on replacement value), it is evaluated, from the surveys, based on its real utilisation period, a period which is in this study considered a characteristic of the production system (Cochet and Devienne, 2006). This concerns the entire fixed capital held by the farmer, for example, tools, machines, and buildings.

We then assessed land productivity (NVA/Ha) to compare the results recorded for household plots, with regard to the other forms of production coexisting in the same *raion* (district).

We then assessed the efficiency of the production factors, namely, land productivity (VA/Ha). On the basis of this indicator, we proposed a comparison of the results recorded by household plots, with regard to other forms of production coexisting in the same *oblast* (region)^{vi}.

Figure 1: Map of the location of the regions under study



1. *Oblast* of Zhytomir (South)

2 *Oblast* of Odessa

3 *Oblast* of Kirovograd

4 *Oblast* of Sumy

5 *Oblast* of Zhytomir (North)

Topographic base: Topographic base: Highly detailed Ukraine physical map:

<https://images.app.goo.gl/7gYd4Qv7qV38PHri6>

2. Permanence and Resilience of the Household Plot from the Collectivisation Era to Today

The Subsidiary Farm: A Party to the Kolkhoz

For a long time, the village household plot been an essential element of rural life in Russia and Ukraine. Following the abolition of serfdom in 1861, the house and its surrounding garden were strictly for personal usage and the property of the farmer (Yefimov, *op. cit.*). Collective rules (cropping patterns, rotation, and common grazing on lands) applied only to open fields outside the village, within the framework of the *mir*, not to household plots. Notably, these external fields that were collectivised in 1929–30 and later massively consolidated within the framework of collective farming, especially to facilitate its subsequent motorisation.

Soon after forced collectivisation, and because of the human, economic, and political damages resulting from it, the 1935 draft of the law defining the kolkhoz was the expression of a form of compromise between the large collective farm promoted by the regime and the preservation of a form of peasant economy, namely, the household plot (Pallot and Nefedova, 2007). For Yefimov, Stalin arranged, from the very beginning, that the individual plot would ensure the reproduction of the labour force among collective farm members, somehow reproducing the social relations of the former regime, between the large estate and the peasantry within the *mir* (Yefimov, *op. cit.*, p. 67).

In the standard statutes of the kolkhoz, presented officially in 1935, the forms and outlines of 'the subsidiary farm' were established: except for special cases, the subsidiary farm was to have a maximum surface area of 0,5 hectare, and its livestock was not to exceed one cow (and one or two calves), one or two sows and their litters, 10 sheep, and 20 beehives, but could have an unlimited stock of poultry. As pointed out by French economist Chombart de Lauwe in 1961, this small farm was, in the end, fairly similar to the small farms of casual labourers living in the French countryside during the 1950s. Collective farm members also had the right to sell—at least in part—what they produced on their plots outside official distribution channels, and for more attractive prices.

From the very beginning, the kolkhoz appeared as a hybrid and complex object, associating a 'collective' farm with plots held individually by collective farm members. These two seemingly antagonistic components were organically linked within the same kolkhoz. In exchange for their active participation in the collective farm (and remunerated by a highly complex system of labour accounting), collective farm members could devote their remaining time to their 'personal subsidiary farm'. Moreover, members were supplied with firewood; they could take their small herds to graze on collective pastures; they could buy the supplements (grains and fodder) necessary to feed their animals for a low price from the kolkhoz management and benefit from ploughing and animal-drawn transport services. By considering fodder areas accessible outside the household plot, personal subsidiary farming could rely on a land capacity that was slightly more extensive than that referred to in the statutes of 1935.

The new statutes defining the kolkhoz in 1969, aiming to adapt the latter to recent evolutions (e.g. concentration of kolkhozes, moto-mechanisation, integration of heavy-duty equipment within the kolkhozes, and transformation of the Machine and Tractor Station into repair workshops), used the same terms as those of 1935 in renewing the conditions for farming a household plot. The obligations of the kolkhoz vis-à-vis the subsidiary farm were reasserted and specified: the right to use the collective pastures and means of transport of the kolkhoz for the personal needs of collective farm members (i.e. for their household plots) and an obligation of the kolkhoz to constitute a stock in kind, allowing members to buy or receive cereals and fodder from the kolkhoz (to feed the livestock) proportionally to the labour supplied, and for prices determined by the General Assembly (Kerblay, 1985). In 1977, kolkhozes and sovkhoses were to include, in their plan, the production and supply of feed for the

private animals of rural residents (Yevimov op. cit., p. 78).

The share of the household plot in the economy of the household decreased progressively. The household plot still helped provide half the income of a family in the 1940s (Maurel, 1979, p. 552), and 46% in 1954 (Schiller, 1956). Later, although the remuneration of collective farm members and their living standards increased, the contribution of the household plot to their total income decreased. Nevertheless, it still helped them secure more than one third of their income towards the middle of the 1960s and approximately one quarter at the end of the 1970s (Maurel, op. cit., p. 552).

Furthermore, household plots provided a considerable share of Soviet agricultural production, particularly in the market gardening domain and that of livestock products. In 1975, the 'subsidiary economy' was still providing 52% of the potato production, and 30% to 40% of the vegetable production and animal production (meat, eggs, and milk) in the USSR (N. Khoziaĭstvo, cited by Maurel, op. cit., p. 551).

How the Household Plot Survived the Post-Soviet Crisis

During the 1990s, the country experienced a serious crisis: the status of kolkhozes and sovkhoses changed (they became types of joint-stock companies) and progressively evolved towards private companies, often held by former leaders (e.g. directors, accountants, and chief agronomists). These companies were generally in debt at the end of the 1990s, and many were sold for a cheap price to investors who sometimes were outsiders to the agricultural sector, who then established business or capitalist farms operating with reduced salaried personnel^{vii}.

However, these large farms, which from then on were private and did not have ownership of the land. The agrarian reform of the 1990s (Acts of 1995 and 1999) led to the equitable distribution of land between all former labourers (including pensioners) of kolkhozes and sovkhoses, and each received a piece of land of a few hectares, namely, a *pai*. This piece of land was registered but constituted a small portion of a very large

parcel (of several dozens or hundreds of hectares), stemming from the re-parcelled land of the Soviet era. This situation made it difficult for the owner of such a piece of land to access it and farm it directly, except for those whose land share was located near a road and near the village. Moreover, where in the past the beneficiaries of the agrarian reform only had a village household plot and associated manual tools at their disposal, it was almost impossible for them to gather the required equipment to farm their 4 or 6 hectares of *pai* directly (Cochet, 2012).

Although the land was shared equally between former labourers, sharing the capital led to a different result. When the decree of December 1999 instituting the sharing of capital between eligible parties^{viii} was implemented, this capital had already been largely used by the accelerated decapitalisation of former structures during the 1990s (back salaries were settled in, e.g., cows and pigs). The residual capital was then evaluated and divided between former labourers, proportionate to their former salary and seniority. Although former managers could be allocated a tractor or equivalent machine, others were allocated less important equipment comprising only a few recovered materials to be taken from the agricultural buildings of former kolkhozes... (*ibid*).

Thus, except for a small number of beneficiaries, who were better off than the others because of their position in the hierarchy of the former structure, and who were in a position directly to farm their land share and that of their relatives, most of the 'beneficiaries' of the agrarian reform had to rent their share to the large private farms, stemming from the former kolkhozes. As a result, it was to these millions of former kolkhoz and sovkhoz labourers that Ukrainian agricultural businessmen turned to with an objective to rent, by collective lease, the land shares (small in size but gathered into large blocks) required for farming.

Although villagers still working in large farms today are found in limited numbers, land status maintains a strong link between the villagers who benefitted from the agrarian reform and the large farms. Moreover, as these families continue to farm the household plots inherited from the Soviet era (most often in their original size) with market gardening and various animal production, they have the right to demand from the large neighbouring farm that rentals be paid in kind (grains and fodder in particular) to feed their livestock. The payment of rent replaced, in part at least, the advantages in kind from which collective farm members could benefit before, reproducing, in a new light, the

organic links between the ‘personal subsidiary farm’ and the large farm (Cochet, 2012)^{ix}. Although large farms prefer to pay rent with money and attempt to favour this means of payment, landowners from the village who demand payment in kind are still largely in the majority. In 2010, out of the 4,6 million land shares rented out by villagers^x, 71% of the rents were paid in kind; the remainder was paid either in cash or in labour (e.g. plot ploughing services; Land Committee of Ukraine).

Five Million Micro-Farms?

How many household plots are farmed today in Ukrainian villages? A first estimate is based on the number of ‘rural’ households: an estimated 5,2 million in 2013 based on vital statistics (Статистичний збірник , 2013^{xi}). Among these 5,2 million rural households, 38,5% (i.e. approximately 2 million) hold a household plot smaller than 0,5 ha, 16,7% (i.e. approximately 0,867 million) hold a household plot of between 0,5 ha and 1 ha, and 38,8% (i.e. approximately 2,015 million) own a surface area of between 1 and 10 hectares (*idem*). In all likelihood, this last category represents the current holders of land shares distributed during the land reform at the end of the 1990s, who are still living in the countryside. The same study mentioned that 54,3% of Ukrainian households own a household plot (i.e. 9,205 million households) and that more than 29% (i.e. 4,952 million families) own ‘cattle, poultry, or bees’.

Another indirect estimation of the number of household plots is based on the number of land shares rented to large farms today: 4,6 million in 2010 according to the Land Committee of Ukraine (*supra*). Historically, land shares were associated with household plots—where each former kolkhoz labourer or pensioner, who by definition is the owner of a household plot, received a piece of land—and their number is similar to that of people’s farms. Two opposing elements can make these estimations different: First, certain beneficiaries of the agrarian reform of the 1990s, whose numbers are low, farm their land share directly (which does not appear in the aforementioned figure), and second, the population decline in Ukraine, which is particularly high, resulted in certain household plots being abandoned and taken over, according to various terms and conditions, by neighbours or parents, to ensure that several land shares (*pai*) could be incorporated into the same village farm. Last, many families cultivate a household plot without holding a piece of land either because they were not kolkhoz labourers or settled only recently.

3. Structure and Diversity of Village Farms

Stemming directly from the Soviet period, the majority of village farms today are of a size comparable to that of the household plot imagined by the Soviet power in the 1930s (0,5 ha), with the livestock relying partly on collective pastures, and the fodder and grains being produced by the large neighbouring farm (several thousands of hectares) and paid in the form of rental in kind.

Despite their very small size compared with the nearby structures, and despite that often, a dominant portion of the production is home-consumed—two characteristics shared by all micro-farms—this section of Ukrainian agriculture is, nonetheless, heterogeneous. Although implemented production systems often have in common a highly developed market gardening activity, the maintenance of a few fruit trees and associated animal productions (milk cows, poultry, and farm-bred pigs), these micro-farms are nonetheless different in several respects: they can vary in size, in whether or not they receive a ground rent after the family *pai* has been rented, and in the agricultural market access conditions and equipment available. This last factor depends very much on the social status of the farmer in the former Soviet structures and on the unequal conditions for the distribution of their residual capital (*supra*)^{xii}.

The first type comprises of household plots held by very old people, often already retired from the former collective structures when these were dismantled. Household productions have been decreasing slowly as the labour capacity of their owners decreased. The activity has thus been reduced to a small surface area of market gardening (0,1–0,2 ha maximum, cultivated essentially with potatoes and vegetables) and keeping one or two goats. The milk cow of former days has often been given up because very old plot holders have the insufficient energy required to keep large animals. The entire production is then home-consumed, and a portion is preserved in jars, dehydrated, or salted. Although the annual income earned by these micro-farms is low, approximately 800 to 1 000 euros^{xiii} per labourer, it enables their owners to fulfil their basic food requirements, with money coming in depending on small additional activities (e.g., small shopkeeping,

pension). By contrast, the value added produced per unit area is generally very high, insofar as these farms are very labour intensive and produce foodstuff with high value added: market gardening, fruit and canned vegetables, and animal productions. The value added per hectare often reaches 1 000 euros, namely, five times more than in the large farms nearby. Sometimes it reaches 3 000 to 4 000 euros/ha when the value added by post-harvest transformation is considered^{xiv}.

The Second Type of household plot, very much in the majority, can be illustrated as follows: in addition to market gardening, potato production, and farmyard animals, the family can keep, on a slightly less restrictive surface area (0,6 to 2 ha), one or two milk cows, and often one or two pigs as well, which helps family members improve their situation. Part of the surface area is then dedicated to forage crops (lucerne, fodder beet, and forage cereals). Often producing approximately 4 000 litres of milk per year, one cow contributes a small monetary income that complements home consumption. The total annual income is then approximately 1 000 to 2 000 euros per labourer. Major differences in income depend on whether a farmer can increase the value of her or his cow's milk by selling it directly in the markets (which requires a means of transport) or only at the factory^{xv}. On these farms, the value added produced per unit area is often not as high as in the first type because fodder areas are mobilised for cattle farming within or outside the household plot. Value added is then approximately 600 to 1 000 euros per hectare and more rarely 1 000 to 1 500 euros^{xvi}. Similar to the household plots of the first type, those of the second type only have very low capacity manual tools at their disposal, despite the ingenuity used to improve their efficiency.

The third type of village resident owns a horse and animal traction equipment. Although tillage by animal traction has often been perceived as backwards, and for this reason, deemed unthinkable (Yevimov op. cit., p. 111), there is a revival of this means of traction. This situation is partly because 'farmyard' labour (e.g. fodder supply) was still conducted by animal traction in many kolkhozes until the end of the Soviet era and beyond^{xvii}. Horses were subsequently taken over by collective farm members when the capital was shared, or as back salary settlement during the 1990s (*supra*). This equipment led farmers to contemplate extending the cultivated area, as long as other household plots were available in the village (after they were abandoned), or because of obtaining additional parcels of land from the municipality. However, the cultivation of a *pai* directly by the owner remained exceptional at that stage because this land share was enclaved by the land

cultivated by the neighbouring farm. With a surface area of a few hectares and by keeping one or two milk cows, and sometimes more, a farmer's annual income could reach between 1 500 and 3 000 euros^{xviii}.

The fourth type of village farmer has access to motorised traction, that is, generally a small used tractor (40 hp) taken over when the old collective structures were dismantled, or purchased more recently. In the last case, it will often be a motorised cultivator or a small tractor (12 hp) made in China^{xix}. The area being cultivated is then extended because of municipal reserve lands being accessed or by directly cultivating the land share obtained through the land reform (and provided that it is on the edge of a road). Having this type of equipment also allows for offering neighbours ploughing services. With a few hectares, sometimes a dozen, and provided that animal productions (milk cows in particular), farmyard animals, and intensive market gardening are not abandoned, the income of approximately 2 000 or 3 000 euros earned per labourer and per year becomes comparable to the average Ukrainian income^{xx}.

Contrary to the image sometimes projected, village agriculture is not the prerogative of old people. Except for the first type, some of these micro-farms show unsuspected dynamism. Some have acquired small tractors (typically made in China), and in addition to farming their household plot, offer neighbours mainly ploughing, harrowing, and transport services (fourth type). Others have been actively developing animal traction (third type). Moreover, these farmers, men and women, are often well acquainted with cultivation and breeding techniques, contrary to what is often believed. They pay great attention to opportunities of all types, and more of them than what is believed invest or attempt to, even if the facilities they manage to pull off comprise, for the moment, bits and pieces (waste material) and piled up on an overly restricted space^{xxi}. Furthermore, these farms use fewer synthetic inputs and fuel and show high resilience capacities in an environment where intermediate consumptions are increasingly becoming more expensive.

4. Compared Performance: Results and Discussion

Although incomes earned by these micro-farms are modest, they make it possible for millions of families to escape extreme poverty and live off their activity as best they can. Their role in maintaining economic activity in the country and in fighting poverty is clear. In this, we agree with what other authors have found

concerning Ukraine (Lissitsa and Odening 2005; Keyzer *et al.* 2012; Hervé 2013; Kuns 2017) or other countries of the former Soviet Union (Pallot and Nefedova 2007; Pouliquen 2011; Tudor 2015). Insofar as these farms are highly intensive, labour intensive in particular, and insofar as the production systems implemented produce a great diversity of products, often with high value, their contribution to the agricultural production of the country is not negligible (*supra*).

As announced in the introduction and the first section of this article, the data collected directly on the ground in five *raions* (districts) situated in four *oblasts* (regions; *supra*) make it possible to assess the net value added (NVA) for each production unit (between 45 and 55 in each *raion* examined, *supra*).

A first, a comparison can be established between the levels of land productivity (net value added per unit area: NVA/ha) reached in village household plots and those obtained through field crops on large neighbouring farms, which are equipped with powerful machines and which, unlike household plots, make ample use of synthetic inputs. As aforementioned, we find that the value added produced per unit area in the large 'modern' farms is far from equalling that of village micro-farms. It only represented between 145 and 170 euros/ha in the large farms cultivated on chernozem in the raion of Makariv (oblast of Zhytomyr, as studied by Jaubertie, 2009), 120 euros in the drier Steppes of the Sarata raion (oblast of Odessa, Pardon, 2009), between 290 and 300 euros/ha in the richer chernozem region of Znamienka in 2010 (oblast of Kirovograd, Randimbivololona and Sanchez, 2010), 200 euros/ha in the business farms in the raion of Volodarsk-Volinsky in 2013 (north of the oblast of Zhytomyr, Varlin, 2013), and 140 euros on average in the raion of Glukhov (oblast of Sumy), as studied by Trostel and Cornuau in 2013. In the same regions, the results obtained for NVA per unit area are always greater for household plots in villages (Table 2), although results can vary greatly from one household plot to another (see the aforementioned typology). To avoid overestimating the land productivity obtained on household plots, we added to the surface area of the household plot, *sensu stricto*, the surface area corresponding to the production of forage and grain given to villagers as payment for the rental of their *pai* (when villagers own one and rent it)^{xxii}. As such, the NVA is between 570 and 950 euros/ha in household plots in the south of the oblast of Zhytomyr (5 times higher than that obtained on large farms), between 350 and 3 800 euros in the oblast of Odessa (up to 30 times higher than that obtained on large farms), between 800 and 5 500 euros/ha in the oblast of Kirovograd (3 to 18 times higher), between 1 300 and 1 900 euros/ha in the north of the oblast of Zhytomyr (6 to 9 times higher), and

between 800 and 2 500 euros/ha in the oblast of Sumy (6 to 18 times higher; see Table 2). These results echo the debates on comparing the efficiency of farms according to their area. Our results agree with those of many authors who have demonstrated the capacity of small farms to create more value added per unit area than large farms¹.

Table 2: Comparative results of household plots and agricultural businesses' land productivity (net value added per ha in 2012 euros) in five districts (raions) of Ukraine

Raion [Oblast]	Large farms	People's farms ('household plots')
Makariv [Zhytomyr south] (Jaubertie, 2009)	145-170	570-950
Sarata [Odessa] (Pardon, 2009)	120	350-3 800
Znamienska [Kirovograd] (Randimbivololona and Sanchez, 2010)	290-300	800-5 500
Volodarsk-Volinsky [Zhytomyr (north)] (Varlin, 2013),	200	1300-1 900
Glukhov [Sumy] (Trotel and Cornuau, 2013)	140	800-2 500

Moreover, a notable comparison is the contribution of each farm type, with the creation of value added at the level of a village. Table 3 shows the results obtained at the level of one or two villages or a *raion* (district), in four different oblasts (regions). We compared household plots ('people's farms') with the large agricultural businesses around them. Three indicators were adopted: (1) the relative share of each farm type in the total number of farms, (2) the relative share of each farm type in the total production of NVA, and (3) the relative

¹ See for example Binswanger H.P., 1995; Rosset, P., 1999, Cochet H., 2015a, Van der Ploeg *et al.* 2019.

share of each farm type in the utilised agricultural area. The third farm type, often made up of medium-scale individual farms (from a few dozens to a few hundreds of hectares), low in number, completes the panorama. Notably, these results were established on the basis of one or two villages per district. At the analytical level, it was possible to conduct a rapid census to determine the share of each farm type in each category. The results obtained from our sample, through extrapolation, could then be reproduced on a village scale to deduce (1) the share represented by each farm type, (2) the share of value added created by each farm type, and (3) the area occupied by each farm type.

Table 3: Comparative performance of household plots and agricultural businesses at the village level in the five districts (raions) studied

Villages (and raions)	Farm Type	Share of the number of farms %	Share of the total net value added (NVA) created %	Share of the total usable agricultural area %
Kodnya (raion of Makariv, Mykolaïv) (Pardon, 2009)	1/ Large farms specialised in cereals, as well as protein and oil crops: 1 000 to 5 000 ha	1	45	77
	2/ People's farms ('household plots')	98	53	21
	3/ Other farms: family farms of intermediate size (a few tens to a few hundreds of hectares)	1	2	2
Kryva Balka (raion of Sarata,	1/ Large farms specialised in cereals, as well as protein and oil crops: 1 000 to 2 500 ha	1	43	80
	2/ People's farms ('household plots')			

Odessa)		98	56	18
(Pardon, 2009)	3/ Other farms: family farms of intermediate size (a few tens to a few hundreds of hectares)	1	1	2
Bogdanivka and Dmitrovka (raion of Znamienka, Kirovograd)	1/ Large farms specialised in cereals, as well as protein and oil crops: 1 000 to 2 500 ha	0.1	40	63
	2/ People's farms ('household plots')	99	58	30
(Randimbivolo lona and Sanchez, 2010)	3/ Other farms: family farms of intermediate size (a few tens to a few hundreds of hectares)	0.9	2	7
Groushky (raion of Volodarsk-Volinsky, Zhytomir)	1/ Large farms specialised in cereals, as well as protein and oil crops: 1 000 à 2 500 ha	-*	37	75
	2/ People's farms ('household plots')	-	59	17
(Varlin, 2013)	3/ Other farms: family farms of intermediate size (a few tens to a few hundreds of hectares)	-	4	8
Glukhov (raion of Glukhov, Sumy)	1/ Large farms specialised in cereals, as well as protein and oil crops: 1 000 à 2 500 ha	-	43	91
(Cornuau and Trotel, 2013)	2/ People's farms ('household plots')	-	56	8
	3/ Other farms: family farms of intermediate size (a few tens to a few hundreds of hectares)	-	1	1

*: data unavailable

In the detailed study cases presented in Table 3, the large farms specialised in cereals, as well as protein and oil crops, which benefitted from powerful equipment and work, mainly for the international market, create approximately 40% of the net value added produced at the level of a village (37% to 45%), and to this end, they mobilised three quarters of the available usable agricultural area (63% to 91%). Agricultural businesses are inefficient in job and wealth creation per unit area (the production systems established remain fairly extensive because they abandoned animal productions in particular), and of course, their labour productivity is the highest. Because of these production structures, the cereal potential of the rich chernozem regions will probably flourish easily, and Ukraine will become among the leading producers of grains worldwide.

People's farms are highly productive per unit area (value added/ha, *supra*), more so than the large farms, and this occurs even though they often develop lands with less agronomic potential (pastures, these were considered in the calculation of value added per ha). Moreover, they keep 90% of farm labourers active.

These results contribute widely to restoring to favour the potential role that the so-called 'people's farms' play in the country's economic and social development. Despite all opposition, this sector continues to play a decisive part in the creation of value added in the Ukrainian agricultural sector, and in supplying the domestic market.

Conclusion: Unsuspected Vitality Deserving Political Support

Condemned by many authors, this micro-agriculture is not moribund, and its efficiency in production, value added, and job creation makes no doubt.

However, these micro-farms encounter many difficulties. These result firstly from the small size of the farmstead that can only be extended to the detriment of the farmland, which already has an extremely reduced area and is confined to the village space. The agricultural development of household plots is also limited by the equipment, which is too often exclusively manual. Regarding animal production, the

difficulties encountered in storing and keeping fodder lead inexorably to a sharp decrease in milk production in winter, to the great displeasure of businesses in the dairy industry, for which small farms still play a major role in supplying milk.

Today, this small peasantry is completely restrained in its development and is largely ignored as a productive sector by decision-makers. Considering its importance in maintaining rural employment and agricultural production intended for the domestic market, it deserves more attention from the authorities. Nevertheless, optimism was provided by N. Mamonova, who, since the 'Euromaidan revolution', noticed a 'change in the social imaginary of traditional small-scale farming' (Mamonova, 2018). In the mind of many consumers, this type of agriculture could from now on incarnate a possible—and long-lasting—alternative to the 'large-scale industrial agriculture' of the very large farms emanating from the privatisation of Soviet era kolkhozes and sovkhozes. Perhaps this is the first step towards real institutional recognition, beyond short-lived declarations of principles.

This would still require the implementation of a real support policy applicable to this sector of Ukrainian agriculture. Some authors, recalling the interdependence between large farms and household plots inherited mainly from the Soviet era, have proposed that 'it is virtually impossible to imagine production on small household plots without assistance from the farm enterprise' (Lerman *et al.*, 2007: 79)^{xxiii}. Of course, organic links remain very strong, as recalled in Section 3, but the support given by large farms to household plots remains very modest. Additionally, the annual rent paid to villagers for renting their land share (*pai*) is extremely low (the equivalent of 20 to 30 euros/ha maximum). The village and people's farms are surrounded and strangled by the land of the large farms. Apart from increasing the rent paid by the large farm, loosening its grip on people's farms by allowing those who want to expand their farm around the village to do so seems to be a prerequisite to the development of this productive industry. The economic results presented in this article and other publications (Keyzer *et al.*, 2012; Kuns, 2017) show that even a modest increase in the surface area cultivated by small rural households could have a decisive impact. Indeed, it is highly likely that the extension of these micro-farms would be accompanied by a significant expansion of the equipment used (small motorisation), an extension of the livestock buildings, as well as a significant increase in the value added created and in farm income.

Such a development, which contributes to value added and job creation in the country, would not fundamentally question the development—desired by the authorities—of large farms turning to export but could result in a significant contribution to the Ukrainian agricultural sector, at a far less environmental and social cost.

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ⁱⁱ Cited by Chombart de L., 1961, p. 137.

ⁱⁱⁱ Concerning Romania, see also P.I. Otiman (2012).

^{iv} Concerning this theme, see also Keyzer et al., 2012; Hervé, 2013; and Kuns, 2017.

^v Self-produced seeds, forage produced on the farm or received as rent for the *pai*, as well as all self-produced intermediate inputs, have not been considered.

^{vi} Concerning the theoretical and methodological issues raised by the comparison of the economic performances of the different forms of agricultural production, see Cochet (2015a).

^{vii} A similar dynamic has been described concerning Russia. See, for example, Ioffe and Nefedova, 1998; and Visser, Mamonova and Spoor, 2012.

^{viii} Shares of the capital ('technical' *pai*) are, in principle, held by the beneficiaries since the first sharing in 1995.

^{ix} We found close relationships between the large farms that emanate from the privatisation of former Soviet structures and the household plots of villagers in the current Russian Federation, as testified to by the eloquent title of O. Visser's article: Household plots and their symbiosis with large farm enterprises in Russia (Visser, 2009). On this theme, see also, for example, Ioffe and Nefedova (1998), as well as Pallot and Nefedova (2007).

^x For a total of 17,5 million hectares, namely, 3,8 ha on average per *pai*.

^{xi} This study was shared by Elena Kireytseva, who we thank.

^{xii} Concerning the diversity of the types of household plots in the case of Russia, see the particularly rich study presented by Pallot and Nefedova (op. cit.). In their publication, the authors relied on case studies conducted in 10 regions of the Russian Federation and highlighted the diversity of household plots on the scale of this immense territory. In the case of this article, the diversity highlighted is more a reflection of the diversity of situations within the same village or the same district (*raion*) than a reflection of regional diversity.

^{xiii} The euros used in this article are 2012 euros.

^{xiv} See for example the SP1 production system described by Pardon (2009), the SP1 and SP2 production systems described by Randimbivololona and Sanchez (2010), and the SP1 and SP2 production systems described by Trotel and Cornuau (2013).

^{xv} See, for example, the cases studied by Pardon (2009) and Cornuau and Trotel (example SP4a and SP4b, pp. 101).

^{xvi} See, for example, the SP4 production system described by Jaubertie (2009); the SP3, SP4, and SP5 production systems described by Randimbivololona and Sanchez (2010), and the SP3 production system described by Varlin (2013).

^{xvii} As, for example, within the Kolkhoze Koloss in 2010, one of the last still active in the region of Kirovograd.

^{xviii} This farm type is illustrated by the SP5 production system described by Jaubertie (2009, p. 105-106) and Jaubertie *et al.* (2010, p. 46), the SP4 production system described by Varlin (2013), or the SP3 production system described by Trotel and Cornuau (2013).

^{xix} B. Kuns also mentions the growing use of these mini-tractors, in his study dedicated to the oblast of Kherson, in the south of Ukraine (Kuns, 2016).

^{xx} See, for example, the SP6 production system described by Jaubertie (2009), the SP6 production system described by Randimbivololona and Sanchez (2010), the SP5 production system described by Varlin (2013), or the SP5 and SP7 production systems described by Trotel and Cornuau (2013).

^{xxi} We agree with the results of Brian Kuns, obtained from ground surveys conducted at the same time as when we conducted our study in the oblast of Kherson, in the south of Ukraine. Kuns highlighted the intensification processes conducted by villagers, regarding market gardening in particular, and investments made: small tractors and irrigation infrastructure (Kuns, 2017, op. cit.).

^{xxii} We have also considered the use (or not) of pastures outside the household plot.

^{xxiii} See also the discussion presented by Kuns (2017, op. cit.).

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