GEOSPATIAL PARTICULARITIES OF FARMING FORMATION IN UKRAINE

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ABSTRACT:
Social-geographic essence of farming mode is disclosed. Four historic periods of peasant farming mode are outlined. Geospatial particularities of farming development in Ukrainian present-day period are considered. Present-day farming formation stages are accentuated upon and characterized. Farming economies number and their provision with agricultural lands in Ukraine are analyzed on the 1990-2010 farming development examples.
First 82 farming economies in independent Ukraine registered in the early 1991 used 2 thousand ha of agricultural lands. As from then, farming movement showed considerable progress with 42 thousand farms using 4,3 million ha in 2012.

Key-words*: agriculture, farming formation, farming development dynamics, growth rates, increment rates.*

1. INTRODUCTION

Reformation of agrarian relations gave rise to new social-geographic processes and phenomena in Ukrainian agriculture, where the formation of new modes and sub-modes was most remarkable. It seems obvious that such changes in agrarian sphere should be studied and analyzed to help predict social-economic development and functioning of economies with different modes, while the study of farming that represents a new and highly perspective mode in Ukraine is uncompromisingly necessary. The farming mode's exceptional perspective is to the fullest extent proved by such realias as peasants' growing interest to such form of economy and corresponding increase of farming economies number; introduction of regulatory and legal framework to help efficiently develop this form of economy, and by the development perspectives from the point of view of state agrarian policy, etc.

The present study aims at the analysis of those Ukrainian farming economies that were let considerable agricultural lands. In this regard, the dynamics of farming economies number, farms' average size and their provision with lands were studied; farming development indices were estimated with application of the base and chain methods, as well as growth and increment rates were counted.

2. REFERENCE LITERATURE OVERVIEW

Problems of agro-industrial complex reformation and development of different agricultural modes were studied in the works by P.T.Sabluk, V.V.Yurchyshyn, V.Diyesperov, M.M.Shevchenko, V.Kh.Brus (Gorokhovska, 2010), P. Haydutskyy, M.D.Pistun, Ya.B.Oliynyk, H.V.Balabanov, V.P.Nahirna, V.P.Horyovyy (Beckett, 1990), I.M.Pushkar, P.O.Sukhyy, etc. Farming mode from times of its formation and peculiarities of its functioning were described in scientific contributions by E. Beckett (Horyovyy, 2007), V.Ya.Mesel-Veselyak, I.V.Konovalov, R.V.Pikus, M.I.Tudel, F.G.Oleshchenko,

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Z.I.Grozenkov, V.Bashmachnikov and others. Historic stages of farming formation are presented in the studies by D.Bagaliy, O.Yefymenko, I.Kamanin, O. Lazarevskyy, I.Luchynskyy, M.Hrushevskyy, etc (times of Cossacks); I.Gurzhiy, Ye. Druzhynina, P.Lyashchenko, P.Telychuk, etc (times of market capitalistic transformations); A.Khryashchov, Yu.Larin, V.Myshkis, O.Chayakov, A.Alterman, V. Botushanskyy, V.Nechytaylo, I.Shulga (Zaiachuk, 2012) etc (times of national-democratic revolution and Bolsheviks' regime); V. Diyesperov, P. Sabluk, M.Yakymenko, V. Horyovyy, P.Makarenko, P.Sukhyy (Yurchyshen et al, 2004), M.Zaiachuk (Statistical Bulletin, 2011; Sukhyy, 2008), etc (present days of farming formation). Questions of efficiency in production of certain types of agricultural goods, labor productivity in private sector and formation of priorities towards development of private economies are presented in publications by O.M. Shpychak, V.P. Sytnyk, V.S.Diyesperov, M.Y. Malik, O.S. Shchekovych, etc.

3. STUDY SOURCES AND METHODS

Official statistics available with Ukrainian Administrative Regions' Head Departments for Statistics was our informational source. Social-economic study of farming formation geo-spatial particularities seems to require application of a group of methods pertaining to both general and specific sciences, in particular, genetic method (to help disclose peculiar features of farming mode genesis in Ukraine), mathematical (calculation of farming development dynamics indices by way of base and chain methods, disclosure of growth and increment rates), cartographic (development of farming dynamics and its geo-spatial organization cartographic models), comparative-geographic (clarification of similarities and differences in farming development), axiomatic-deductive (to help introduce hypotheses and disclose trends in farming geo-spatial organization), etc.

Time series that characterize phenomena temporal changes and represent efficient means to estimate trends and regularities in phenomena development were found appropriate to be applied in social-geographic analysis of farming formation of present-day period. Proceeding from the elements of 1995-2010 time series we used the base (all parameters are compared to 1995) and chain (all parameters are compared with previous period) methods to define growth and increment rates with regard to farming economies in Ukraine.

Growth rate is the figure within the time series showing how many times the current value has grown in comparison to previous or base period, and is calculated by the formulas as follows:

$$T_1 = y_i / y_0 \text{ (base)},$$

$$T_2 = y_i / y_{(i-1)} \text{ (chain)},$$

where T_{1-2} is the farming economies growth rate, and y stands for the number of such economies in the year.

Increment rate is the figure within the time series showing to how many percents the current value has grown in comparison to previous or base period:

$$T_3 = T_1 - 1 \bullet 100\% \text{ (base)},$$

$$T_4 = T_2 - 1 \bullet 100\% \text{ (chain)},$$

where T_{3-4} represents the farming economies increment rate.

Note that the middle level in interval time series is calculated as arithmetic mean.

4. STUDY RESULTS

The chronology of farming-type peasant economy formation is characterized by its discretion and at the same time succession. The lower chronological limit represents the genesis of Cossack isolated farmsteads on Ukrainian lands in XVII century, these being the predecessors of present-day farm economies. Historians emphasize upon four periods of farming-type peasant economies formation and point at significant influence of agrarian reforms of 1848, 1861, 1906 – 1916, and 1990s (Zaiachuk, 2012).

Land and property relations of the first period (squatting as a way to have lands, regulation of the Cossack landed property, formation of commodity-nature free economies, peasantry social mobility within the Cossack state) contributed to formation of diversified economies, that is, the Cossack economies oriented to production of commodities with the use of hired farm-work.

Second period of formation of farming-type peasant economies coincides with that of capitalistic market relations finding their feet. The abolition of serfdom and Stolypin's reforms were the milestone events for Ukrainian lands. Capitalistic modernization of agriculture and its gradual adaptation to market environment resulted in wide-scale formation of farming-type economies; land resources accumulation by well-situated peasants; formation of peasant's specific attitude towards land, i.e., the one that disabled situations of lands' non-rendering from father to son (Zaiachuk, 2012).

Individual peasants and farmers are mentioned in class and political characterizations of prosperous peasants-entrepreneurs during the third (Bolsheviks') period. In fact, prosperous peasants-farmers were the carriers of economic progress in agriculture, but Soviet totalitarian regime's attitude towards them caused a social tragedy.

The fourth (present-day) period of farming formation begins in the early 1990s. *Peasant (Farm) Economies Act* adopted by the Verkhovna Rada, Ukraine, in 1991, and *Changes and Additions to Peasant (Farm) Economies Act,* brought to effect in 1993, had become a legal basis to start development of farming economies.

Thus, the *farming economy* is a from of entrepreneurial activity in the status of legal entity for individuals who wish to produce marketable agricultural goods, undertake agriproduct processing and sale to gain profit from land areas entitled for management of their economies.

The formation of present-day farming in Ukraine is remarkable for four stages that differ in trends of changes occurring with farming economies number, land use total areas, overall agricultural production, etc (Beckett, 1990).

State encouragement in the form of establishment of the Ukrainian Fund for Farming Economy Support together with peasants' concernment and transformational processes in national economy had become a big impulse for farms number intense increase in the first stage of farming formation (Gorokhovska, 2010). The quantity of farms grew 16,6 times (34,8 thousand) in 1992-1995, whereas the areas of land use – almost 20 times. The number of newly organized farms was subject to territorial differences: while Lviv Region was remarkable for the highest number of farms in 1990 (36 or 44% of the whole quantity of Ukrainian economies), 11 administrative regions of Ukraine had none, and 5 regions showed one farming economy each. Situation significantly changed in few years when

hundreds of economies were registered in each administrative region in 1995 to represent a minimum of 310 economies in Zhytomyr Region. The maximum number of farms functioned in steppe regions, namely, Mykolayiv (4981), Odessa (4095), Kherson (2783), Dnipropetrovsk (2549) and Donetsk (2089) Regions, totaling to 47% of the whole number of farms in Ukraine. In the aspect of administrative districts, Bashtanka District of Mykolayiv Region (986), Bilgorod-Dnistrovsk District, Odessa Region (510), Voznesensk (491) and Zhovtnevyy (461) Districts of Mykolayiv Region, Tatarbunarsk District of Odessa Region (422), Berezneguvate District, Mykolayiv Region (393) and Simferopol District, Autonomous Republic of Crimea (391) showed the most number of registered farms. However, the majority of administrative districts represented insignificant number of farming economies in 1995, whereas 5 such districts had none (Statistical Bulletin, 2011). This can be in the first turn explained by peasants' inactivity and the "efficiency" of local authorities and self-governing bodies who were granted powers to lease lands into use, present conditions of such lease, assist in material/technical provision of production process, permit the use of existing agro-potential, etc.

Later, the limited capacity of the above-mentioned Fund, inefficient price and crediting policies and internal problems within economies (weak material and technical basis, poor seed selection and provision, problems with agricultural product processing, storage and sales) significantly restrained farming development that hardly showed 2-3% of annual growth on a national scale in 1996-2000 and the number of farms, therefore, amounted to only 38,4 thousand in 2000. At the same time as new economies were organized, some previously registered farms terminated their activity (Nechytaylo, 2008). It was majorly the matter with small economies that objectively could not organize profitable agricultural production on unessential land areas. The highest increase in farms number was observed in Odessa (+772), Zaporizhzhia (+496), Dnipropetrovsk (+478), Kirovograd (+424) and Zakarpattia (+400) Regions, and 12 more administrative regions showed insignificant increase. At the same time, the farms number decreased in 8 Ukrainian regions, with the most sensitive reduction in Mylolayiv Region (-721 farms) and northern regions (Sumy (-159), Chernigiv (-100), Volyn (-67) Regions). The crisis' depth is more vivid when administrative districts are analyzed. It was only in two districts that the number of farms exceeded 400 (Tatatarbunary District, Odessa Region, had 727 economies which is 305 farms more than in 1995, and Bashtanka District, Mykolayiv Region with its 569 economies had 471 farms less than in 1995), whereas the same excess was observed in 7 districts in 1995 (Topchiev, 2005).

The third stage of farming development (2000-2005) is connected with introduction of new Land Code and constructive state initiatives which resulted in new wave of farms number and land use areas increase (42,4 thousand against 38,4 thousand), and was mostly due to members of former collective agricultural enterprises who preferred leasing their land shares to farmers. Simultaneously, formation of big farming economies by way of association of agrarian enterprises was observed together with employees' number and production capacities increase (Sukhyy, 2008). It should be noted that all stages and especially the one of 2000-2005 were the evidence of land-poor farms liquidation with simultaneous increase of the number of farms using over 100 ha of agricultural lands. The number of farms significantly increased in Odessa Region (+1346), Autonomous Republic of Crimea (+482), Khmelnytskyy (+415), Vinnytsia (+400), Cherkasy (+398), Dnipropetrovsk (+378) and Kirovograd (+369) Regions. Nine more administrative regions also showed expansion, while remaining nine regions showed figures of reduction (most significantly in Donetsk (-352) and Kherson (-484) Regions. Tatarbunary (1040 farms, +313),

Bolgrad (569, +258), and Izmayil (544, +142) Districts of Odessa Region and Zhovtneve (423, +43) District of Mykolayiv Region were the leaders in the number of registered farming economies among all administrative districts of Ukraine (Topchiev, 2005).

The trend of farming economies number reduction with simultaneous enlargement of some highly profitable farms and association of smaller farms into agrarian unions (clusters, alliances, partnerships, etc) is observed since 2005 through this present day (fourth stage). Beside traditional problems (weak material and technical resources, impossibility of processing, absence of provision with fertilizers and seeds), farmers faced the problem of limited possibility of ready product sales. Supermarkets are predominantly oriented toward imported agricultural production (better shape, packing quality and transportability), while the wholesale agricultural markets organized by local authorities proved their value only partially. Situation results in low procurement and high consumer prices. Farmers majoring in agricultural production encounter low profitability and their activity in many cases becomes unprofitable. The number of farming economies in 2005-2010 reduced from 42,4 to 41,4 thousand, with the highest reduction observed in AR Crimea (-463), Odessa and Kirovograd (-128) and Kharkiv (-118) Regions. Five more regions also showed farms number decrease. However, the last period is also notable for a nominal expansion in 13 regions, where the most significant increment of farms was observed in Vinnytsia (+261), Zakarpattia (+169), Poltava (+130), Ternopil (+117) and Mykolayiv (+110) Regions. Activation of farming movement should be acknowledged in western and central regions of Ukraine, whereas its significant decline is observed in the regions pertaining to Steppe Zone. With regard to administrative districts, only three of them demonstrated the figure of over 400 farms with certain slight reduction, namely, Tatarbunary (972, -62) and Izmayil (524, -20) Districts of Odessa Region, and Bashtanka District (458, -14 farms) of Mykolayiv Region. Territorial differences in farms number dynamics on the level of Ukraine administrative districts are shown in the mapscheme.

With average national-scale growth rate amounting to 1,17, calculations by way of base method (compared to 1995) point to farming stable development (growth rate exceeds 2) in Cherkasy, Khmelnytskyy and Zhytomyr Regions, while it is unbalanced in Sumy, Chernigiv, Ivano-Frankivsk, Donetsk and Mykolayiv Regions (growth rate is less than 1). Growth rates calculated by way of chain method show the same stability with farming development in Cherkasy, Khmelnytskyy and Zhytomyr Regions (1,32 – 1,36), and show problems in Sumy, Donetsk, Ivano-Frankivsk, Chernigiv, Mykolayiv and Kherson Regions (0,91 – 0,97 with average national rate of 1,07).

Applying the same base and chain methods and considering the growth rates, we counted the increment rates of farming development, and these values (base calculations starting from 1995) vary from +113% (Cherkasy Region) to -22% (Sumy Region) with average national rate amounting to +17%. As regards chain method, increment rates here vary from +36% (Khmelnutskyy) to -9% (Sumy) with average rate being +7% (**Table 1**).

Analysis of growth rates derived from applying base and chain methods has become the foundation to work out general rating of farming development in Ukrainian regions and accordingly typify the same as follows:

1.Regions of stable development (Cherkasy, Khmelnytskyy, Zhytomyr, Vinnytsia and Rivne);

2. Regions with positive dynamics of development (Kyiv, Zakarpattia, Odessa, Kirovograd, Zaporizhzhia and Dnipropetrovsk);

3.Regions with average dynamics of development (Kharkiv, Lugansk, Poltava, Chernivtsi, Volyn, Kherson, Ternopil and Autonomous Republic of Crimea);

4.Regions of unbalanced development (Lviv, Mykolayiv, Ivano-Frankivsk, Chernigiv< Donetsk and Sumy).

5. DEBATABLE ISSUES

It seems problematic to definitely assess reformation results in Ukrainian agrarian sphere as well as predict the place of farming economies in organizational/functional structure of future agriculture. Optimal number of farming economies and areas of their land use are also a matter of dispute. We suggest analyzing the dynamics of farms number using the time series (growth and increment rates) and at the same time emphasize upon the process of enlargement (association) of land-poor economies. Beside traditional production focus and natural-geographical conditions, the problem of optimal economy size depends upon collaboration with local authorities, material/technical farms provision, farmers' financial standing, etc. And, at last, the question of whether "introduction of lands market become a positive motivation for a new stage of development or a new stage of farming decline in Ukraine" is also discussable.

6. CONCLUSIONS

Four stages of farming formation in present-day Ukraine are outlined, these differing in the dynamics of farms number, areas of land use, volumes of agricultural production, etc. Cherkasy, Khmelnytskyy, Zhytomyr, Vinnytsia and Rivne Administrative Regions are distinctive for positive trends in farming development. At the same time Odessa, Mykolayiv and Dnipropetrovsk Regions enjoy the highest number of farming economies and significant areas of agricultural lands, including tillable lands. Farming development is most expansive in Tatarbunary and Izmayil Districts of Odessa Regions, and Bashtanka District of Mykolayiv Region, etc.

Analyzing the indices of farming development in Ukraine we should note that it managed to show itself in every major branch of agricultural production. Farming development came to a level of constitutive positions in rural economies. However, even with consideration of farmers' leading positions in production of certain types of agricultural goods, their contribution into agrarian market is still unessential, while their situation is tight.

Farmer problems negligence on national and regional levels, doubtful advantages of land market introduction (farmers' point of view), etc may become the factors of farming development closure in Ukraine and beginning of a period its decline.

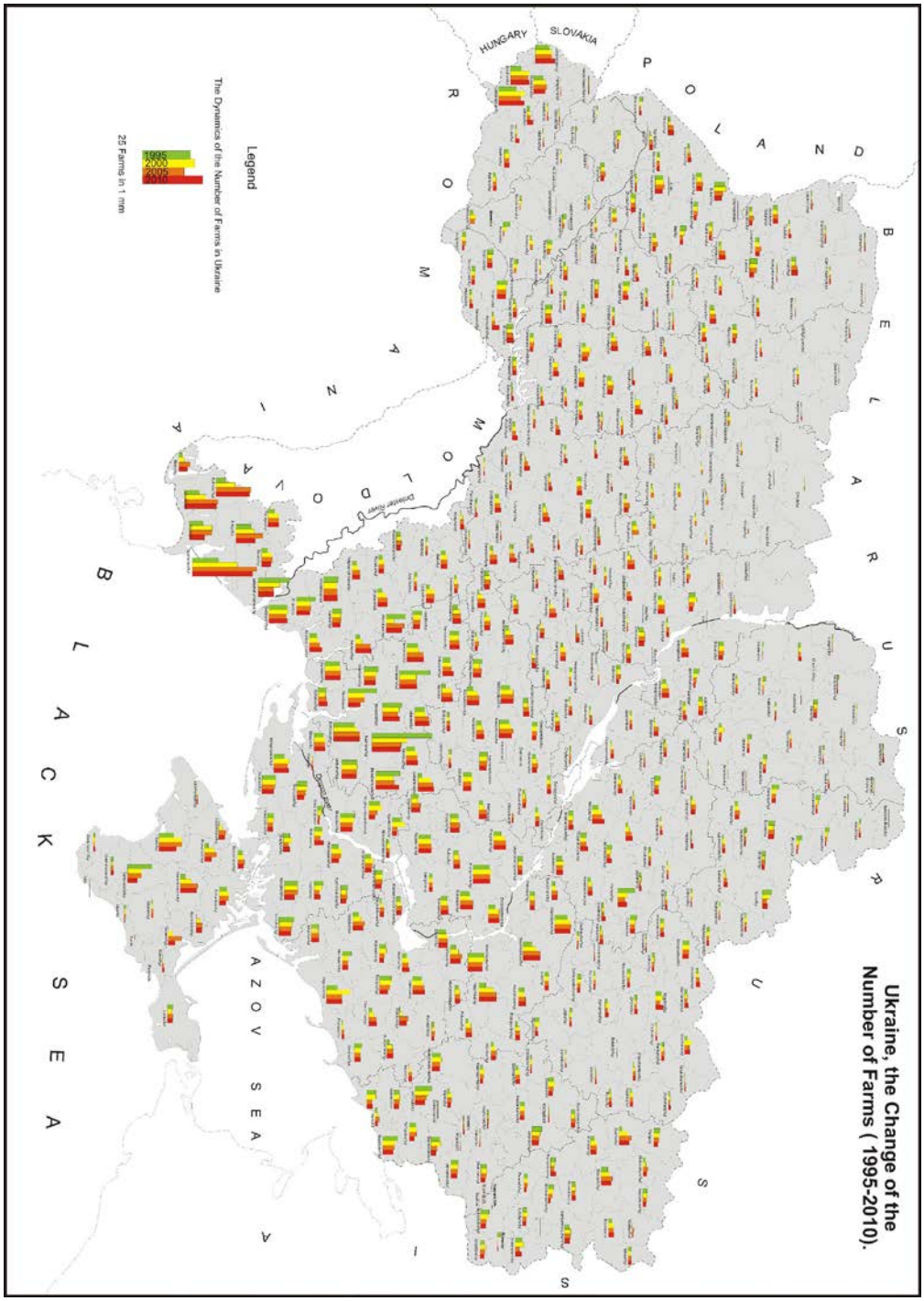
Ukraine, the Change of the Number of Farms (1995-2010).
HUNGARY
SLOVAKIA
POLAND
BELARUS
ROMANIA
MOLDOVA
Dniester River
Dnieper River
Legend
The Dynamics of the Number of Farms in Ukraine
1995
2000
2005
2010
25 Farms in 1 mm
BLACK SEA
AZOV SEA

Table 1. Farming in Ukraine, 1995 – 2010. (Topchiev, 2005)

No	Administrative-Territorial Units	Farming Economies				Growth rate (average)		Increment Rate (%, average)	
		1995	2000	2005	2010	base method	chain method	base method	chain method
1	2	3	4	5	6	7	8	9	10
1	AR Crimea	1218	1535	2017	1554	1,40	1,11	+4	+11
2	Vinnytsia	846	974	1374	1670	1,58	1,26	+58	+26
3	Volyn	595	528	754	706	1,10	1,09	+10	+9
4	Dnipropetrovsk	2549	3027	3405	3341	1,28	1,10	+28	+10
5	Donetsk	2089	2154	1802	1569	0,88	0,91	-12	-9
6	Zhytomyr	310	501	686	741	2,07	1,36	+107	+36
7	Zakarpattia	1054	1454	1447	1606	1,42	1,16	+42	+16
8	Zaporizhzhia	1695	2191	2337	2283	1,34	1,11	+34	+11
9	Ivano-Frankivsk	697	632	531	561	0,82	0,94	-18	-6
10	Kyiv	923	1222	1479	1395	1,48	1,16	+48	+16
11	Kirovograd	1792	2216	2585	2457	1,35	1,12	+35	+12
12	Lugansk	1293	1532	1474	1401	1,13	1,03	+13	+3
13	Lviv	1189	1164	1194	956	0,93	0,94	-7	-6
14	Mykolayiv	4981	4260	4445	4555	0,89	0,97	-11	-3
15	Odessa	4095	4867	6213	5766	1,37	1,13	+37	+13
16	Poltava	1343	1393	1527	1657	1,11	1,08	+11	+8
17	Rivne	347	495	505	550	1,48	1,18	+48	+18
18	Sumy	956	797	728	730	0,78	0,91	-22	-9
19	Ternopil	753	696	656	773	0,94	1,01	-6	+1
20	Kharkiv	1035	1179	1314	1196	1,19	1,05	+19	+5
21	Kherson	2783	3013	2529	2393	0,95	0,96	-5	-4
22	Khmelnytskyy	522	784	1199	1267	2,08	1,36	+108	+36
23	Cherkasy	509	713	1102	1132	2,13	1,31	+113	+31
24	Chernivtsi	629	626	681	774	1,10	1,10	+10	+10
25	Chernigiv	575	475	461	481	0,82	0,95	- 18	-5
26	UKRAINE	34778	38428	42445	41524	1,17	1,07	+17	+7

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