CHAPTER II. DEMOGRAPHY AND AGRICULTURE (1846 – 1883)

DOI: https://doi.org/10.30525/978-9934-26-533-4-2

1. Sources, research history

In no way lessening the scientific achievements of colleagues (Hurzhii, 1954, pp. 53–56, 60–64, 66–74, 83–95, 99–104, 115–117, 120–122, 140; Smolii, 2006, pp. 321–331, 357–388; Subtelny, 2009, pp. 251–278; Smolii, 2011, pp. 545–555, 601–611), the author has forced to note that the problem of human interaction with the environment in the process of important socio-economic transformations of the mid-nineteenth century not only in the Forest-Steppe, but throughout Ukraine, has not yet been raised or considered. The first attempt at such a study, covering the pre-reform period, only recently appeared (Boiko, 2023). The proposed research relies on the obtained results and also brings the study of the problem to a new qualitative level: the time frame covers not only eighteen years before the peasant reform but also the first twenty years after its beginning. Significant expansion of the source base and methodology improvement made it possible to proceed to a comparative analysis of two consecutive states of the "population–vital resources" system within the Forest-Steppe region of Ukraine in 1846 – 1883.

Theoretical aspects of studying the mutual influence of population growth and the economy, such as models of their practical application are developed in the works of leading experts in this field (Simon, 1977; Ehrlich et al., 1977; Robinson, 1981). The history and methodology of studying the problem are considered in most detail in the monograph by Helen Briassoulis (Briassoulis, 2020, pp. 76–194). Interesting examples of practical application of fundamental theoretical developments can be found in the publications of other authors (Wood, 1998, pp. 99–135; Golley, 2015, pp. 15–32). Our research methodology involves creating and analyzing time rows that depict changes in the state of the system's main components. At the beginning of the study, is proposed a positive hypothesis regarding the correlation between population growth rates and changes in the agricultural resource base of the region. To test this hypothesis, the time

rows were created for the population and each type of resource to determine the dynamics of change. To increase the accuracy of observations, the period under study was divided into two segments: before and after the peasant reform. To combine partial models into a whole, quantitative values of the area of arable land, hayfields, pastures, and the number of domestic animals per capita were recalculated. By comparing the values of all indicators at the beginning and end of each segment of the studied historical period, we could trace the dynamic nature of the changes. A detailed description of each stage of the study and the results obtained is presented below.

2. Population

The available statistical data on the population of Forest-Steppe Ukraine between 1846 and 1883 is shown in the tbl. II.2.1. In 1846, the most populated were Kyiv and Poltava provinces (1,730 and 1,688 thousand), followed by Podillia province (1,540 thousand). Volyn, Chernihiv, and Kharkiv provinces had more than 1,400 thousand inhabitants. In total, 4,684 thousand people lived on Right-Bank, 4,516 thousand on Left-Bank, and about 9,200 thousand in the region as a whole. Two decades later, by 1863, the population increased, but the order of the provinces in terms of their population remained the same: Kyiv – 1,912 thousand, Podillia – 1,869 thousand, Volyn – 1,603 thousand, Chernihiv – 1,487 thousand. The total population of Right-Bank remained slightly larger than that of Left-Bank (5,484 and 4,990 thousand people). In total, at the time of the peasant reform, nearly 10,470 thousand people lived in the Ukrainian Forest-Steppe, which accounted for 17% of the population of the European part of the Russian Empire (Voyenno-statisticheskiy sbornik, 1871, p. 46). The next twenty years after the reform were a time of further increase in the number of inhabitants. In 1883, the first place was kept, as before, by Poltava and Kyiv provinces, having equaled in terms of population (2,521 against 2,492 thousand); the second place was taken by Podillia and Kharkiv provinces (2,303 and 2,225 thousand), with a small margin from Volyn and Chernihiv (2,097 thousand and 1,996 thousand respectively). The subregions of the Forest-Steppe again, as in 1846, became almost equal in terms of population (6,892 thousand on Right-Bank and 6,742 thousand

on Left-Bank). At that time, the population of Forest-Steppe Ukraine was already 13,634 thousand people.

Thus, consideration of the time row "population" suggests that the change in its quantitative characteristics was not linear. The time rows "growth", is presented in tbl. 1 and fig. 1, help to study the issue in detail, especially since the dynamics of change before (1846 – 1863) and after (1863 – 1883) reform is visible here. In the first part of the period, the population growth in the region amounted to 13.8% (10.5% on Left-Bank and 17.1% on Right-Bank). Among the provinces, Podillia stood out sharply with an increase of 21.4%, followed by Kyiv (16.3%), Volyn, and Poltava (13.4% and 13.3%). Kharkiv (11.6%) and Chernihiv (6.0%) closed the row. After 1863, the situation changed. The population growth rate for the next twenty years in the Ukrainian Forest-Steppe was 30.2%. The process has progressed more quickly on Left-Bank (35.1%) than Right-Bank (25.5%). The demographic boom affected the former outsiders, specifically Chernihiv (34.2%) and Kharkiv provinces (39.5%). Similar results were demonstrated by pairs of provinces such as Poltava and Volyn (31.9% versus 30.8%) on the one hand and Kyiv and Podillia (23.9% versus 23.2%) on the other. As a result, by 1883 there was a steady tendency to overcome the sharp disproportion in the population of the provinces, which we noted in 1846. The internal mechanisms of this phenomenon require special study.

The consequence of such significant changes in the population of the region was an increase in its impact on the environment, which was reflected in changes in the "population density" indicator (tbl. II.2.1). In our case, it was calculated as the ratio of the population to the area of the province, subregion or region, measured in square versts[1]. The dynamics of density growth fully aligned with the dynamics of population growth. In 1883, the highest population density was in the provinces of Podillia (62.4), Poltava (57.5), and Kyiv (55.6), while the lowest was in Volyn (33.2). Between 43.4 and 46.5 were the density fluctuations in Chernihiv and Kharkiv provinces. The differences between the indicator values for Right-Bank (47.6) and Left-Bank (48.9) from the region's average (48.2) are not significant and can be attributed to measurement errors.

[1] Versta – an ancient measure of length, equal to 1.06 km.

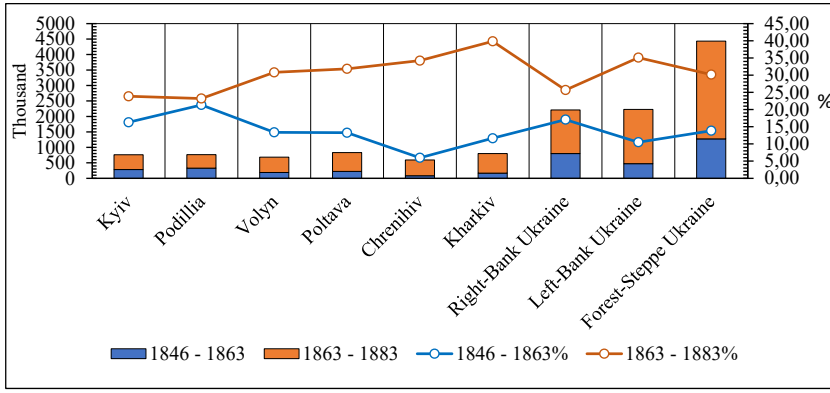

Figure II.2.1. Population growth (1846 – 1863, 1863 – 1883)

Table II.2.1. Population statistics of Forest-Steppe Ukraine (1846–1883)

Case	Provinces, subregions, and region								
	Kyiv			Podillia			Volyn		
Year	1846	1863	1883	1846	1863	1883	1846	1863	1883
Population*	1730	2012	2492	1540	1869	2303	1414	1603	2097
Growth*	–	282	480	–	329	434	–	189	494
Growth %	–	16.3	23.9	–	21.4	23.2	–	13.4	30.8
Density**	38.7	45.0	55.6	41.3	50.1	62.4	22.4	25.6	33.2
Case	**Poltava**			**Chernihiv**			**Kharkiv**		
Population	1688	1912	2521	1403	1487	1996	1425	1591	2225
Growth	–	224	609	–	84	509	–	166	634
Growth %	–	13.3	31.9	–	6.0	34.2	–	11.6	39.8
Density	38.7	38.2	57.5	30.5	32.3	43.4	29.8	33.3	46.5
Case	**Right-Bank Ukraine**			**Left-Bank Ukraine**			**Forest-Steppe Ukraine**		
Population	4684	5484	6892	4516	4990	6742	9200	10474	13634
Growth	–	800	1408	–	474	1752	–	1274	3160
Growth %	–	17.1	25.7	–	10.5	35.1	–	13.8	30.2
Density	32.4	37.9	47.6	32.8	36.3	48.9	32.6	37.1	48.2

* Thousand. ** Inhabitants per sq. versta. Sources: (Statisticheskiy vremennik Rossiyskoy imperii, 1886 a, pp. 32, 38, 48, 56, 58, tbl. II).

3. Agricultural land

The total area of six provinces of Forest-Steppe Ukraine was about 29,360 thousand desiatins (des.) in the middle of the nineteenth century (tbl. II.3.1)[2]. The most extensive was Volyn province with 6,525 thousand des. The sizes of the other provinces ranged from 3,885 (Podillia) to 4,975 (Kharkiv) thousand des. These large areas were not fully used for agricultural needs. There was a disparity in the size of agricultural land in the subregions of Forest-Steppe Ukraine. In 1846, the difference was 2,024 thousand des. in favor of Left-Bank; by 1863, it decreased to 1,752 thousand des. in 1883, and it was no longer significant (266 thousand des.). In the Forest-Steppe the area for the needs of agriculture rose from 63.8% of the territory (18,736 thousand des.) in 1846 to 65.7% (19,292 thousand des.) in 1883. The dynamics of the observed changes, including provinces, will be considered below, after getting acquainted with the situation around the most important components of agricultural land: arable land and meadows.

The area of arable land in the Ukrainian Forest-Steppe varied from 14,011 thousand des. in 1846 to 14,409 thousand des. in 1883, with a reduction to 13,772 thousand des. during the first years when reform took place. At each of the key points of the period under review (1846, 1863, 1883), there were approximately 100 thousand des. more arable land on Left-Bank than on Right-Bank. The largest arable areas in 1846 were in Chernihiv province (3,065 thousand des.). However, according to witnesses, about a third of them in the northern part at that time were not sown at all due to low profitability on forest and swampy soils (Voyenno-statisticheskoye obozreniye. Chernigovskaya guberniya, 1851, p. 76). In 1883, Kharkiv province took the lead in terms of arable land with a total amount of 3,070 thousand des.

Meadows and hayfields were intended for summer grazing of animals and the preparation of valuable fodder for the winter time, mainly for sheep and horses. During the period under review, the maximum size of pastures and hayfields in the Ukrainian Forest-Steppe reached 5,472 thousand des. or 20.2% of the entire area in 1863. Left-Bank, particularly in Kharkiv and Poltava provinces, played a significant role. A peculiar enthusiasm for the expansion of the green fodder base, primarily sheep and, to a lesser extent,

[2] Desiatina (des.) – an old unit of land area, equal to 1.09 hectares.

horses, fell in the middle of the period, the beginning of the 1860s, when the peasant reform was being prepared and carried out. After that, by 1883 the size of pastures and hayfields there decreased again and quite noticeably. Comparing Left-Bank with Right-Bank, it is easy to see that on Right-Bank the main trend was towards a gradual increase in the size of such lands and their share in the structure of territories.

A change in the ratio of arable land and fodder land was possible both due to a slight increase in the area of agricultural land in general and, most often, due to a reduction in the size of arable land. To correctly assess the changes that have occurred in the region's agricultural lands and their components, a graphical model of the dynamics of growth in the values of the corresponding characteristics for 1846 – 1863 and 1863 – 1883 was created (tbl. II.3.2; fig. II.3.2), with adding to it the data of the population growth calculated above (tbl. II.2.1; fig. II.2.1). In the pre-reform period (1846 – 1863), the increase in arable land occurred in Kyiv, Volyn, and Poltava provinces, but it stagnated in Kharkiv province. The curves of the increase in the size of agricultural land coincide with the population growth curves in those provinces. In the provinces of Podillia and Chernihiv, where part of the arable land was most intensively replaced by pastures and hayfields, population growth was not accompanied by an expansion of the base for the production of main foodstuffs. After the start of the reform, in Podillia province, while maintaining the increased size of meadows and pastures, an attempt to return to the arable area of the mid-1840s was noticeable. In Poltava province, a slight increase in arable land was achieved due to the reduction of meadows, which became excessive in the new conditions due to their enormous size. Kharkiv province's active population growth also resulted in the growth of arable land at the expense of meadows. Increased livestock feed supplies did not balance the decrease in Chernihiv province's arable land. In general, as can be seen from the example of subregions and the entire region, in the post-reform period some positive changes can be traced only on Right-Bank with a simultaneous reduction in agricultural areas on Left-Bank and the stagnation of the situation that had developed by the early 1860s within Forest-Steppe Ukraine. The gap between population growth and the main resource necessary for its normal existence in an agrarian economy became apparent and alarming by the end of the period under review.

Table II.3.1. Agricultural land statistics of Forest-Steppe Ukraine (1846 – 1883)

Case	Provinces, subregions, and region								
	Kyiv			Podillia			Volyn		
Year	1846	1863	1883	1846	1863	1883	1846	1863	1883
Province area*	4650	4650	4659	3879	3879	3885	6518	6518	6525
Agriland*	2799	3125	3247	2684	2631	2982	2873	2990	3284
Arable *	2353	2657	2548	2440	2015	2354	2109	2200	2209
Meadows*	446	468	699	244	616	628	764	790	1075
Case	Poltava			Chernihiv			Kharkiv		
Province area	4541	4541	4550	4788	4788	4769	4975	4975	4983
Agriland	3209	3478	3082	3394	3220	2764	3777	3800	3933
Arable	1775	2000	2119	3065	2600	2109	2269	2300	3070
Meadows	1434	1478	963	329	620	655	1508	1500	863
Case	Right-Bank Ukraine			Left-Bank Ukraine			Forest-Steppe Ukraine		
Province area	15047	15047	15069	14304	14304	14302	29351	29351	29371
Agriland	8356	8746	9513	10380	10498	9779	18736	19244	19292
Arable	6902	6872	7111	7109	6900	7298	14011	13772	14409
Meadows	1454	1874	2402	3271	3598	2481	4725	5472	4883

* Thousand desiatins (des.).

Sources: (Voyenno-statisticheskoye obozreniye Rossiyskoy imperii. Kiyevskaya guberniya, 1848, tbl. 1; Ibid. Podolskaya guberniya, 1849, tbl. 1; Ibid. Kharkovskaya guberniya, 1850 a, tbl. 1; Ibid. Poltavskaya guberniya, 1848 a, tbl. A; Ibid. Chernigovskaya guberniya, 1851, tbl. 3; Ibid. Volynskaya guberniya, 1850 a, tbl. 2; Statisticheskiy vremennik Rossiyskoy imperii, 1866, pp. 4–5, 158; Ibid., 1883, part I, pp. 3, 5, 10, 11, 15, 16; Ibid., 1884, part A, pp. 10–15; Boiko, 2023, pp. 28–33, 38-40, tbl. 1, fig. 1).

Table II.3.2. Agricultural land and population growth (1863 to 1846, 1883 to 1863)

Case	Provinces, subregions, and region					
	Kyiv		Podillia		Volyn	
Year	1863	1883	1863	1883	1863	1883
Agriland*	326	122	-13	351	117	294
Arable*	304	-109	-425	339	91	9
Meadows*	22	231	412	12	26	285
Population*	282	480	329	434	189	494
Case	Poltava		Chernihiv		Kharkiv	
Agriland	269	-397	-174	-456	23	156
Arable	225	119	-465	-491	31	801
Meadows	44	-515	291	35	-8	-645
Population	224	609	84	509	166	634
Case	Right-Bank Ukraine		Left-Bank Ukraine		Forest-Steppe Ukraine	
Agriland	430	766	118	-719	548	47
Arable	-30	240	-209	398	-239	637
Meadows	460	527	327	-1117	787	-591
Population	800	1408	474	1752	1274	3160

* Thousand.

Sources: calculated by the author according to the tbl. II.2.1, II. 3.1.

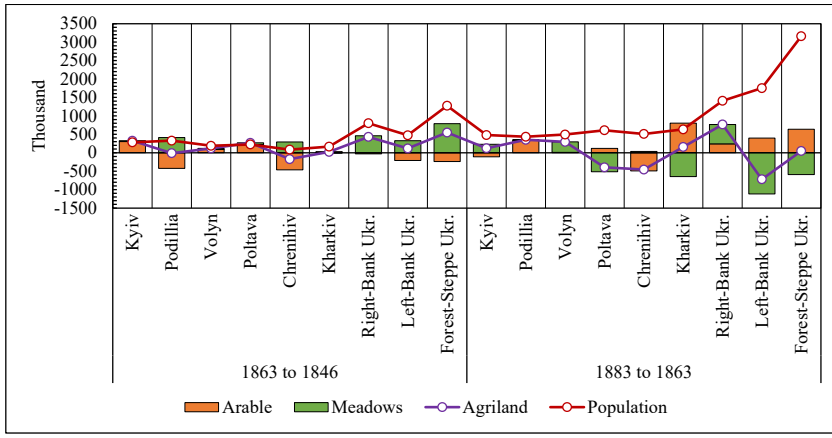

Figure II.3.1. Agricultural land and population growth (1863 to 1846, and 1883 to 1863)

4. Livestock

The local people's daily life included horses, cattle, sheep, and pigs – domestic animals that had the primary economic importance (tbl. II.4.1). The region had approximately 12,311 thousand head of livestock in 1846, with 5,111 thousand on Right-Bank and 7,200 thousand on Left-Bank. In 1883, the herd of domestic animals in the Ukrainian Forest-Steppe was about 14,560 thousand, of which the most numerous were sheep (6,240 thousand) and cattle (3,470 thousand), followed by pigs (2,480 thousand) and horses (2,400 thousand).

The main function of horses was to be used as draft animals on the farm. In the Forest-Steppe, they often lost in this respect to the oxen that were more familiar to Ukrainians. At the beginning of the period, the smallest number of horses were in Poltava (67 thousand) and Podillia (95 thousand) provinces, while in Chernihiv and Volyn, there were about 285 and 224 thousand, respectively. The northern districts of the latter were located in a forest zone, where a significant part of the non-Ukrainian population preferred horses as draft animals and for transportation. It is important to note that horse meat was not consumed at all by Ukrainians, except in force-

majeure circumstances. The number of horses grew rapidly and widely after the reform of 1861, suggesting that oxen were partially replaced as the primary working animals.

This trend had almost no effect on the number of cattle, which remained the most important component of the local population' herd as a source of valuable food products and industrial raw materials. If at the beginning of the period, Left-Bank, with its vast pastures, was the leader in the number of these animals, then by 1883, there were already about 100 thousand more of them on Right-Bank, not least due to the stagnation of cattle growth on Left-Bank between 1863 and 1883.

Sheep breeding was present in varying degrees of intensity throughout the Ukrainian Forest-Steppe, but the main mass of these animals was located on the pastures of Left-Bank in Poltava and Kharkiv provinces. The difference with Right-Bank did not fall below 1.2 to 1.5 million heads throughout the period.

The wealthy had large flocks of sheep and pastures, both of which were intended to obtain wool for the weaving industry and hides. The meat of these animals has never been considered important in the Ukrainian food system.

Perhaps pigs were the only large domestic animals intended primarily for food in Forest-Steppe Ukraine. In contrast to horses, cattle, and sheep, pigs are omnivorous and have the same food niche as humans, although they can be raised in forests and meadows during the summer. Additionally, pigs have a high fertility rate and can quickly gain weight. The industry utilized these animals' skins, bristles, and fat.

Their numbers grew rapidly on Right-Bank but gradually decreased on Left-Bank, where as early as 1846, there were twice as many of them as in the provinces west of the Dnipro. In 1883, there were already 262 thousand more pigs on Right-Bank than on Left-Bank. Interesting observations took place when analyzing the dynamics of changes in livestock development indicators in the region before and after the reform of the early 1860s against the background of corresponding population growth (tbl. II.4.2; fig. II.4.1). As one can see, between 1846 and 1863, the dynamics of population growth and herd growth coincided for Podillia, Volyn, Poltava provinces, and the Forest-Steppe as a whole. The faster growth of the number of animals compared to the population can be traced to Chernihiv

province and the Left-Bank subregion. Some discrepancies between the dynamic population and animal growth curves are observed in Kyiv, Kharkiv provinces, and the Right Bank subregion.

Table II.4.1. Livestock statistics of Forest-Steppe Ukraine (1846 – 1883)

Case	Provinces, subregions, and region								
	Kyiv			Podillia			Volyn		
Year	1846	1863	1883	1846	1863	1883	1846	1863	1883
Total*	1796	1815	1976	1375	1771	2453	1940	2080	2338
Horses*	112	135	283	95	160	449	224	215	506
Cattle*	567	530	454	407	440	678	412	514	655
Sheep*	821	820	866	683	779	807	997	958	695
Pigs*	296	330	373	190	392	520	307	393	482
Case	**Poltava**			**Chernihiv**			Kharkiv		
Total	3003	3254	2982	1546	2090	2456	2651	2545	2393
Horses	67	170	277	285	420	572	110	230	312
Cattle	691	633	645	254	400	515	584	651	528
Sheep	1648	1930	1680	633	790	948	1463	1242	1244
Pigs	597	521	381	374	480	421	494	422	309
Case	**Right-Bank Ukraine**			**Left-Bank Ukraine**			**Forest-Steppe Ukraine**		
Total	5111	5666	6767	7200	7889	7831	12311	13555	14598
Horses	431	510	1238	462	820	1161	893	1330	2399
Cattle	1386	1484	1787	1529	1684	1688	2915	3168	3475
Sheep	2501	2557	2368	3744	3962	3872	6245	6519	6240
Pigs	793	1115	1374	1465	1423	1110	2258	2538	2484

* Thousand heads.

Sources: **(***Voyenno-statisticheskoye obozreniye. Kiyevskaya guberniya, 1848, tbl. 1; Ibid. Podolskaya guberniya, 1849, tbl. 1; Ibid. Volynskaya guberniya, 1850 a, tbl. 1; Ibid. Poltavskaya guberniya, 1848 a, tbl. A; Ibid. Chernigovskaya guberniya, 1851, tbl. 3; Ibid. Kharkovskaya guberniya, 1850, tbl. 2; Statisticheskiy vremennik, 1866, p. 158; Ibid.,1883, pp. 10–11; Boiko, 2023, pp. 33–38, 40–41, tbl. 2, fig. 2).*

Before reform, it appears that livestock farming, which is the most mobile component of the agricultural economy's resource base, was capable of adequately addressing the challenges presented by demographic growth. After the reform, there is no longer a complete correlation between the growth rates of population and domestic animals. Their maximum convergence was fixed for Kyiv, Podillia, Volyn, Chernihiv provinces,

and the Right-Bank subregion. Poltava and Kharkiv provinces, which had been leading in livestock farming until recently, appear to have reached the limit of their feed supply capacity. The process of noticeable limitation of the increase in the number of animals began at significant rates of human growth. This is responsible for the imbalance in inhabitants and herd growth in Left-Bank and the entire Ukrainian Forest-Steppe. In addition, almost all of the total increase in domestic animals after 1863 in the region was achieved by horses (tbl. II.4.2), which played some positive role in agriculture farming but were not a food resource for the local population.

Table II.4.2. Livestock and population growth (1863 to 1846, 1883 to 1863)

Case	Provinces, subregions, and region					
	Kyiv		Podillia		Volyn	
Year	**1863**	**1883**	**1863**	**1883**	**1863**	**1883**
Horses*	23	148	65	289	-9	398
Cattle*	-37	-76	33	238	102	282
Sheep*	-1	46	96	28	-39	243
Pigs*	34	43	202	128	86	-302
Total*	4	279	590	1237	140	194
Population*	282	480	329	434	189	494
Case	**Poltava**		**Chernihiv**		**Kharkiv**	
Horses	251	-272	544	-152	-106	-152
Cattle	103	107	135	82	120	82
Sheep	-58	12	146	-123	67	-123
Pigs	282	-250	157	2	-221	2
Total	578	-404	982	791	-140	-190
Population	224	609	84	509	166	634
Case	**Right-Bank Ukraine**		Left-Bank Ukraine		Forest-Steppe Ukraine	
Horses	555	1101	689	-58	437	1069
Cattle	79	728	358	341	253	307
Sheep	98	303	155	4	274	-279
Pigs	56	-189	218	-90	280	-54
Total	788	1943	1420	198	1244	1043
Population	800	1408	474	1752	1274	3160

* Thousand.

Source: calculated on the tbl. II.4.1.

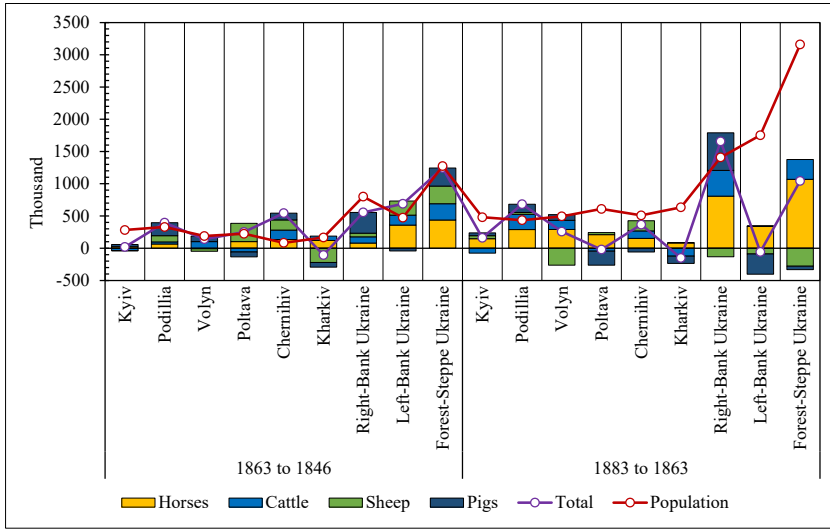

Figure II.4.1. Livestock and population growth (1863 to 1846, and 1883 to 1863)

5. Population to resource ratio

The particular models proposed above for the dynamics of population growth and changes in the main components of the agricultural resource base of the region in 1846 – 1883 allowed us to identify some important trends:

1. Population growth was 0.8% per year from the mid-1840s to the early 1860s but increased to 1.5% per year after the reform.

2. In this regard, signs of a gradual imbalance in the system became apparent, which was reflected in increasing discrepancies in changes in demographic growth curves, agricultural land size, and livestock numbers. This is especially clearly seen in the example of the Left-Bank subregion and the Ukrainian Forest-Steppe as a whole towards the end of the period under review (fig. II.3.1; II.4.1).

However, these observations were made based on a simple comparison of the dynamics of growth of each type of resource separately with population

growth and are speculative. For more accurate measurements of the influence of the demographic factor on changes in the resource environment, the indicator of the distribution of farmland and livestock per resident of the region (tbl. II.5.1) was used, as well as its deviation from the previous state during certain periods (tbl. II.5.2). The resulting model is presented at fig. II.5.1. When studying it, one is alarmed by the steady decline in the size of agricultural land per capita, from -0.19 des. in pre-reform to -0.42 des. in the post-reform period, when this process accelerated significantly on Left-Bank (-0.65 des.) compared to Right-Bank (-0.21 des.). In the structure of the agricultural land itself, the reduction affected its most valuable part – arable land, and in 1846 – 1863 this process was most active in Podillia and Chernihiv provinces, where the areas for growing fodder and grazing livestock increased significantly, which led to certain successes in animal husbandry. After the reform, the most balanced structure of farmland can be observed only in Podillia province, where a positive increase in most types of domestic animals per capita was maintained with the highest density of inhabitants. In all other provinces, changes in the structure of farmland were spontaneous and largely chaotic, which could not but affect the productivity of agriculture and livestock raising and led to a sharp drop in the provision of each resident with necessary resources, primarily food. The transition from stagnation to crisis between 1846 and 1863 was marked by significant expansion and depth due to the peasant reform of the early 1860s.

The author's positive "null" hypothesis about the correlation between population growth rate and agricultural resources in Forest-Steppe Ukraine between 1846 and 1883 was not validated. For agricultural societies at the start of their industrial transformation, this outcome can be deemed natural. The deep systemic crisis was a global phenomenon encompassing the entire European part of the Russian Empire. A way out of this situation could be a transition to intensive agriculture and cattle breeding, which was constrained by the lack of access to the financial, land, and labor market not only for peasants but also for the majority of landlords (Istoriko-statisticheskiy obzor promyshlennosti Rossii, 1883, pp. 12, 16). The political culmination of the crisis was the assassination of emperor Alexander II, "the Liberator," by revolutionary terrorists on March 1, 1881.

Table II.5.1. Distribution of basic agricultural resources per capita (1846 – 1883)

Case	Provinces, subregions, and region								
	Kyiv			Podillia			Volyn		
Year	**1846**	**1863**	**1883**	**1846**	1863	1883	1846	1863	1883
Agriland*	1.62	1.55	1.30	1.72	1.41	1.29	2.03	1.87	1.57
Arable*	1.36	1.32	1.02	1.58	1.08	1.02	1.49	1.37	1.05
Meadows*	0.26	0.23	0.28	0.13	0.33	0.27	0.54	0.49	0.51
Horses**	0.06	0.07	0.11	0.06	0.09	0.19	0.16	0.13	0.24
Cattle**	0.33	0.26	0.18	0.26	0.24	0.29	0.29	0.32	0.31
Sheep**	0.47	0.41	0.35	0.44	0.42	0.35	0.71	0.60	0.33
Pigs**	0.17	0.16	0.15	0.12	0.21	0.23	0.22	0.25	0.23
Case	**Poltava**			**Chernihiv**			**Kharkiv**		
Agriland	1.97	1.82	1.22	2.42	2.17	1.38	2.65	2.39	1.77
Arable	1.09	1.05	0.84	2.18	1.75	1.06	1.59	1.45	1.38
Meadows	0.88	0.77	0.38	0.23	0.42	0.33	1.06	0.94	0.39
Horses	0.04	0.09	0.11	0.20	0.28	0.29	0.08	0.14	0.14
Cattle	0.42	0.33	0.26	0.18	0.27	0.26	0.41	0.41	0.24
Sheep	1.01	1.01	0.67	0.45	0.53	0.47	1.03	0.78	0.56
Pigs	0.37	0.27	0.15	0.27	0.32	0.21	0.35	0.27	0.14
Case	**Right-Bank Ukraine**			**Left-Bank Ukraine**			**Forest-Steppe Ukraine**		
Agriland	1.78	1.59	1.38	2.33	2.10	1.45	2.03	1.84	1.42
Arable	1.47	1.25	1.03	1.59	1.38	1.08	1.52	1.31	1.06
Meadows	0.30	0.34	0.35	0.73	0.72	0.37	0.51	0.52	0.36
Horses	0.09	0.09	0.18	0.10	0.16	0.17	0.10	0.13	0.18
Cattle	0.30	0.27	0.26	0.34	0.34	0.25	0.32	0.30	0.25
Sheep	0.53	0.47	0.34	0.84	0.79	0.57	0.68	0.62	0.46
Pigs	0.17	0.20	0.20	0.33	0.29	0.16	0.25	0.24	0.18

* Desiatina. ** Head.

Sources: calculated by the author according to the tbl. II.2.1, II.3.1, II.4.1.

Table II.5.2. Deviation of basic agricultural resources' statistics per capita (1863 to 1846, 1883 to 1863)

Case	Provinces, subregions, and region					
	Kyiv		Podillia		Volyn	
Year	1863	1883	1863	1883	1863	1883
Agriland*	-0.07	-0.25	-0.31	-0.12	-0.16	-0.30
Arable*	-0.04	-0.30	-0.50	-0.06	-0.12	-0.32
Meadows*	-0.03	0.05	0.20	-0.06	-0.05	0.02
Horses**	0.01	0.04	0.03	0.10	-0.03	0.11
Cattle**	-0.07	-0.08	-0.02	0.05	0.03	-0.01
Sheep**	-0.06	-0.06	-0.02	-0.07	-0.11	-0.27
Pigs**	-0.01	-0.01	0.09	0.02	0.03	-0.02

Case	Poltava		Chernihiv		Kharkiv	
Agriland	-0.15	-0.60	-0.25	-0.79	-0.26	-0.62
Arable	-0.04	-0.21	-0.43	-0.69	-0.14	-0.07
Meadows	-0.11	-0.39	0.19	-0.09	-0.12	-0.55
Horses	0.05	0.02	0.08	0.01	0.06	0.00
Cattle	-0.09	-0.07	0.09	-0.01	0.00	-0.17
Sheep	0.00	-0.34	0.08	-0.06	-0.25	-0.22
Pigs	-0.10	-0.12	0.05	-0.11	-0.08	-0.13
Case	**Right-Bank Ukraine**		**Left-Bank Ukraine**		**Forest-Steppe Ukraine**	
Agriland	-0.19	-0.21	-0.23	-0.65	-0.19	-0.42
Arable	-0.22	-0.22	-0.21	-0.30	-0.21	-0.25
Meadows	0.04	0.01	-0.01	-0.35	0.01	-0.16
Horses	0.00	0.09	0.06	0.01	0.03	0.05
Cattle	-0.03	-0.01	0.00	-0.09	-0.02	-0.05
Sheep	-0.06	-0.13	-0.05	-0.22	-0.06	-0.16
Pigs	0.03	0.00	-0.04	-0.13	-0.01	-0.06

* Desiatina. ** Head.

Source: calculated by the author according to the tbl. II.5.1.

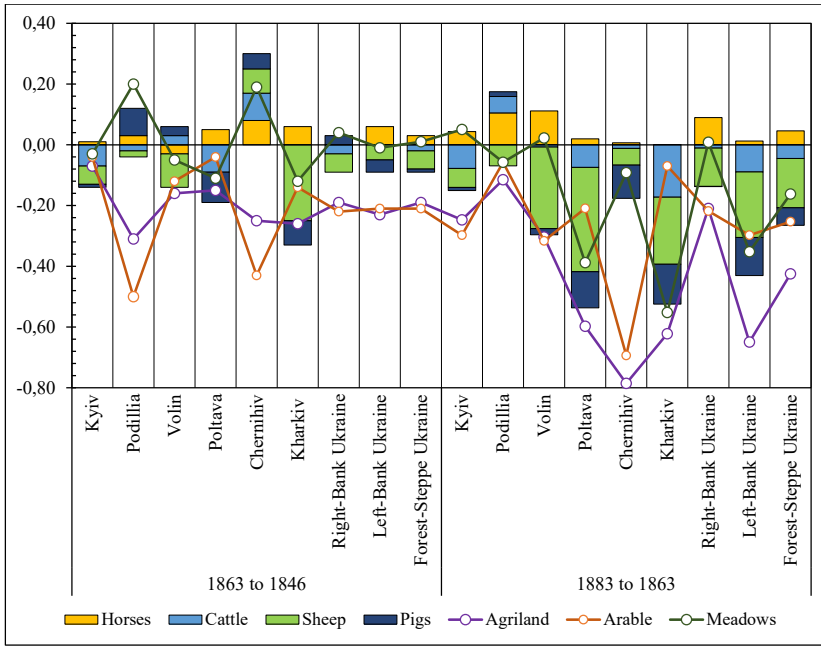

Figure II.5.1. Deviation of basic agricultural resources' statistics per capita (1863 to 1846, and 1883 to 1863)