AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

ANNALS OF THE POLISH ASSOCIATION
OF AGRICULTURAL AND AGRIBUSINESS ECONOMISTS

received: 31.12.2019
acceptance: 03.02.2020
published: 20.03.2020

Annals PAAAE • 2020 • Vol. XXII • No. (1)

JEL codes: Q15

DOI: 10.5604/01.3001.0013.7906

TOMASZ BERBEKA, KRZYSZTOF RUTKIEWICZ

Wroclaw University of Environmental and Life Sciences, Poland

FARM STRUCTURES IN THE UNITED STATES OF AMERCA IN THE YEARS 1978-2017 – SELECTED ASPECTS[1]

Key words: farm structures, the USA, average farm size

ABSTRACT. The aim of the study was an attempt to assess the level of changes in the agricultural farm structure of the United States of America within the years 1978-2017 in the he area. The main purpose of the study was to determine the share and dynamics in selected farm area groups in the process of farm area changes. The number of farms in the years 1978-2017 decreased from 2.29 million to 2.04 million (a decrease of 11%), while the area occupied by these farms decreased from 1,353 million acres to 900 million acres (down 33.5%) [USDA 2017]. The article puts forward the hypothesis that due to the long period of observation and regional diversity in agriculture – area changes in farms will confirm significant differences in the rate at which this phenomenon has occurred. The study shows the significant diversification of land resources, dynamics within the number of farms and land utilization within selected states. While the number of farms in the period under consideration increased in 17 states, it decreased in 33 states. The average area of farms in the case of 25 states increased, while it also decreased in 25 cases. The aggregated ratio of farm structure changes was characteristic of states where the most significant changes in farm structure occurred (Alaska, Arizona, Hawaii, New Mexico, North Carolina, Nevada and Massachusetts). Research confirmed relatively variable dynamics of farm area changes within a single country. Because of larger scale farms, in comparison to other countries (especially the EU region), the process of farm evolution seems to be slower and, in several cases, remains almost the same in terms of farm structure as 40 years ago. Farm area changes in the USA have shown significant spatial diversity.

INTRODUCTION

According to the data of the United States Department of Agriculture (USDA), 89% of farms are small, with such farms operating on 52% of land in 2017. Large-scale family farms accounted for the largest share of production, at 39%. Family farms of various types together accounted for 98% of farms and 87% of production in 2017. Non-family farms constituted remaining farms (2%) and production (13%). In accordance with the most common farm typology developed by the USDA, farms are classified with regard to gross cash farm income (GCFI) [Burns, MacDonald 2018]. Beside such typology, agricultural farms were classified in terms of farm size: 1-9.99; 10-49.99; 50-69.99; 70-99.99;

[1] The paper was created within the realization of the Grant financed from the Polish National Science Center– agreement no. UMO 2015/19/B/HS/4/00128. Title: "Concentration processes versus principia of sustainable development in agriculture".

100-139.99; 140-179.99; 180-219.99; 220-259.99; 260-499.99; 500-999.99; 1,000-1,999.99; 2,000-4,999.99; 5,000 or more acres. Over the past several decades, there have been significant structural changes in the U.S. farm sector – with production shifting steadily to larger operations. Between 1982 and 2007, the midpoint farm size – the size at which half of all land is on bigger farms and half is on smaller farms – almost doubled from 589 to 1,105 acres [MacDonald et al. 2013]. Using a sales-based farm size measure, Christopher Burns and Ryan Kuhns [2016] showed that, over five years, about 42% of midsize farms transitioned into either small or large farms. Agricultural policy since the 70s and membership in the WTO [Smith et al. 2018] has had a significant impact on US farms.

MATERIAL AND METHODS

The data on farm structure was collected on the basis of the "Census of agriculture" issued from 1978 till 2017 by the United States Department of Agriculture. Farm structure was described by: the number of farms, occupied farmland and average farm size in the United States of America and selected Member States.

In the paper, the comparison and description method was used [Kopeć 1983]. For the evaluation of farm structure changes, the synthetic 3 factor dynamics ratio was used (aggregated indicator of farm area changes) as an absolute value of changes in farm number, occupied area and average farm size. The following hypothesis has been put forward in the paper: in the area of the United States of America, in the investigated period of research, there were significant changes and significant differences in the rate of area changes in farms

RESULTS

In 2017, 2,042,220 farms operated on 900,2 million acres. According to data for 2017, 69% of US farms were operated by full owners, 24% by part-owners and 7% by tenants, while 40% of US farmland was rented from others. Between 1997 and 2017, the number of farms declined by 8% and the amount of farmland declined by 6% [USDA 2017]. The number of farms in the United States in 1978 was over 2.28 million, while in 2017 2.04 million. In the period under consideration, the largest number of farms was in the area group of 10-50 acres and 260-500 acres (Table 1).

At the same time, the share of farms in total, in 1978, was highest in the area groups of 10-50 acres and 250-500 acres, respectively, 17.1% and 15.2% (Figure 1).

In the years 1978-2017, there was a significant loss of utilized agricultural area in the country (by 453.5 million acres). The largest amount of land at the beginning of the considered period was in the area group of 2,000-4,999 acre farms. At the end of the period under study, the largest area was dominated by the area group above 5,000 acres, which accounted for less than 342 million acres (Table 2). The largest farms maintained a similar amount of land throughout the entire investigated period. In the group of smallest farms, there was more than a twofold increase in land ownership. A similar tendency was recorded only in the area group of 50-69 acres.

Table 1. Number of farms, by size

Farms by size [acres]	Number of farms				
	1978	1987	1997	2007	2017
1 to 9	151,233	183,257	153,515	232,849	273,325
10 to 49	391,554	412,437	410,833	620,283	583,001
50 to 69	151,778	129,410	125,985	153,862	135,126
70 to 99	213,977	181,457	169,048	192,043	163,251
100 to 139	209,765	177,245	161,660	175,146	149,478
140 to 179	193,527	156,737	136,279	139,479	116,908
180 to 219	125,789	104,662	91,055	87,502	74,086
220 to 259	108,065	87,426	73,469	68,313	57,096
260 to 499	347,777	286,206	238,245	212,553	183,835
500 to 999	213,209	200,058	175,690	149,713	133,321
1,000 to 1,999	97,800	102,078	101,468	92,656	87,666
2,000 to 4,999	63,301	66,786	74,612	57,699	59,442
5,000 or more	19,611	19,349	20,402	22,694	25,685
Total	2,287,386	2,107,108	1,932,261	2,204,792	2,042,220

Source: own elaboration based on USDA data [USDA1978-2017]

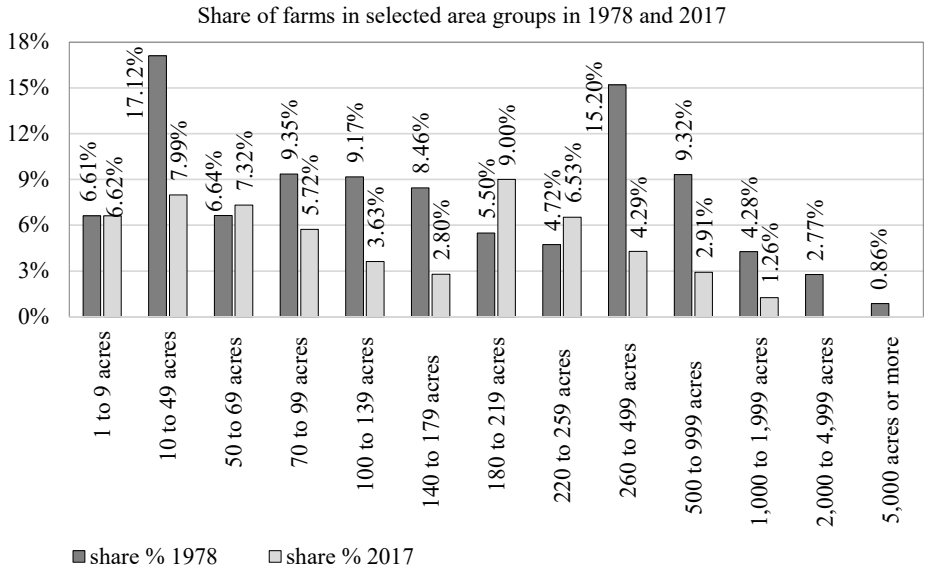

Figure 1. The share of farms in area groups

Source: own elaboration based on USDA data [USDA1978-2017]

Table 2. Land in farms, by size of farm

Farms by size [acres]	Land in farms [acres]				
	1978	1987	1997	2007	2017
1 to 9	554,891	673,676	649,057	1,080,019	1,302,208
10 to 49	10,948,637	11,060,844	10,964,237	15,918,542	14,787,940
50 to 69	8,257,019	7,525,783	7,318,098	8,930,361	7,845,508
70 to 99	17,608,127	14,935,081	13,912,939	15,783,304	13,414,191
100 to 139	24,445,359	20,630,762	18,778,397	20,313,722	17,343,842
140 to 179	30,529,586	24,702,448	21,459,734	21,954,090	18,399,918
180 to 219	24,869,432	20,697,122	17,998,364	17,283,570	14,645,228
220 to 259	25,707,629	20,806,626	17,483,499	16,258,454	13,586,644
260 to 499	124,642,460	102,916,730	85,444,119	75,892,077	65,775,717
500 to 999	146,697,837	138,540,671	122,093,219	104,140,461	92,872,530
1,000 to 1,999	133,085,648	138,809,554	138,793,018	127,595,277	120,680,141
2,000 to 4,999	467,430,609	463,171,328	476,900,574	170,612,215	177,602,657
5,000 or more	338,984,182	324,976,092	318,184,944	326,333,748	341,961,052
Total	1,353,761,416	1,289,446,717	1,249,980,199	922,095,840	900,217,576

Source: own elaboration based on USDA data [USDA1978-2017]

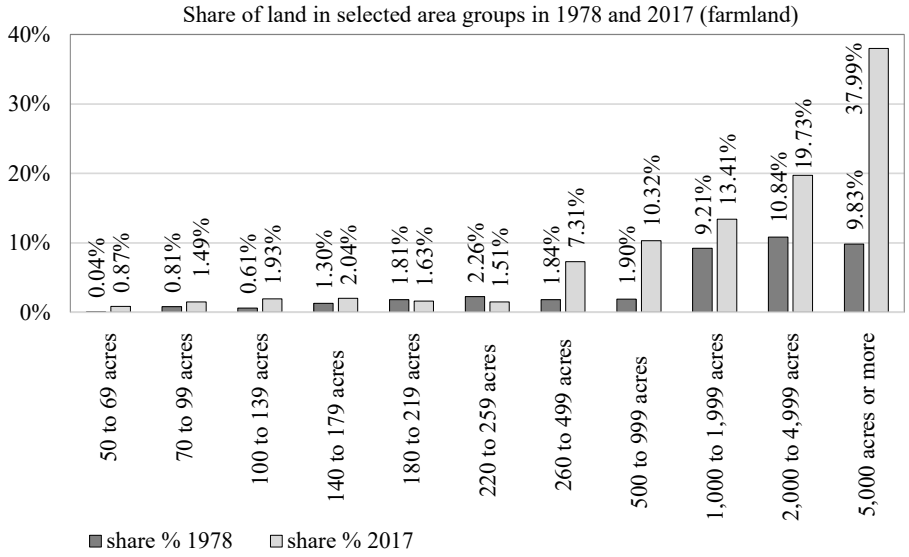

Figure 2. Share of farmland in area groups

Source: own elaboration based on USDA data [USDA1978-2017]

Table 3. Number of farms in the years 1978-2017 by state

State	Year					Change 2017/1978
	1978	1987	1997	2007	2017	
Alabama	42,738	43,318	41,384	48,753	40,591	-5.0
Alaska	383	574	548	686	990	158.5
Arizona	7,660	7,669	6,135	15,637	19,086	149.2
Arkansas	58,766	48,242	45,142	49,349	42,625	-27.5
California	81,706	83,217	74,126	81,033	70,521	-13.7
Colorado	29,633	27,284	28,268	37,054	38,893	31.2
Connecticut	4,560	3,580	3,687	5,006	5,521	21.1
Delaware	3,632	2,966	2,460	2,546	2,302	-36.6
Florida	44,068	36,556	34,799	47,463	47,590	8.0
Georgia	58,648	43,552	40,334	47,846	42,439	-27.6
Hawaii	4,310	4,870	5,473	7,521	7,328	70.0
Idaho	26,478	24,142	22,314	25,349	24,996	-5.6
Illinois	109,924	88,786	73,051	76,860	72,651	-33.9
Indiana	88,427	70,506	57,916	60,938	56,649	-35.9
Iowa	126,456	105,180	90,792	92,856	86,104	-31.9
Kansas	77,129	68,579	61,593	65,529	58,569	-24.1
Kentucky	109,980	92,453	82,273	85,260	75,966	-30.9
Louisiana	38,923	27,350	23,823	30,106	27,386	-29.6
Maine	8,158	6,269	5,810	8,136	7,600	-6.8
Maryland	18,727	14,776	12,084	12,834	12,429	-33.6
Massachusetts	5,891	6,216	5,574	7,691	7,241	22.9
Michigan	68,237	51,172	46,027	56,014	47,641	-30.2
Minnesota	102,963	85,079	73,367	80,992	68,822	-33.2
Mississippi	54,182	34,074	31,318	41,959	34,988	-35.4
Missouri	121,955	106,105	98,860	107,825	95,320	-21.8
Montana	24,469	24,568	24,279	29,524	27,048	10.5
Nebraska	65,916	60,502	51,454	47,712	46,332	-29.7
Nevada	2,877	3027	2829	3131	3,423	19.0
New Hampshire	3,288	2,515	2,937	4,166	4,123	25.4
New Jersey	9,895	9,032	9,101	10,27	9,883	-0.1
New Mexico	14,253	14,249	14,094	20,930	25,044	75.7
New York	49,273	37,743	31,757	36,352	33,438	-32.1
North Carolina	89,367	59,284	49,406	52,913	46,418	-48.1
North Dakota	41,169	35,289	30,504	31,970	26,364	-36.0
Ohio	95,937	79,277	68,591	75,861	77,805	-18.9
Oklahoma	79,388	70,228	74214	86,565	78,531	-1.1
Oregon	34,642	32,014	34,030	38,553	37,616	8.6
Pennsylvania	59,942	51,549	45,457	63,163	53,157	-11.3
Rhode Island	866	701	735	1,219	1,043	20.4
South Carolina	33,430	20,517	20,189	25,867	24,791	-25.8
South Dakota	39,665	36,376	31,284	31,260	29,968	-24.4
Tennessee	97,036	79,711	76,818	79,280	69,983	-27.9
Texas	194,253	188,788	194,301	247,437	248,416	27.9
Utah	13,833	14,066	14,181	16,700	18,409	33.1
Vermont	7,273	5,877	5,729	6,984	6,808	-6.4
Virginia	56,869	44,799	41,095	47,383	43,225	-24.0
Washington	37,730	33,559	29,011	39,284	35,793	-5.1
West Virginia	20,532	17,237	17,772	23,618	23,622	15.0
Wisconsin	89,945	75,131	65,502	78,463	64,793	-28.0
Wyoming	8,495	9,205	9,232	11,070	11,938	40.5

Source: own elaboration based on USDA data [USDA1978-2017]

Changes in the share of agricultural land ownership, in the period under consideration, in the area groups of up to 259 acres, were not significant. These farms accounted for just over 9.5%. Significant changes in the share of farms were recorded in the 260 acres area group. Farms with an area of over 2,000 acres operated on over 57% of utilized agricultural area (Figure 2).

In the list of farms by state, the largest number in 1978 was recorded in the states of Texas, Iowa, Missouri, Kentucky, Illinois, Minnesota, and Tennessee (over 100,000). In 2017, however, the order of states changed as follows: Texas, Missouri, Iowa, Oklahoma, Ohio, Kentucky and Illinois (Table 3). The largest decrease (over 35%), in the number of farms, occurred in the states of North Carolina, Delaware, North Dakota, Indiana, Mississippi. On the other hand, the largest increase in number was observed in the states of: Alaska, Arizona, New Mexico, Hawaii, Wyoming and Utah. In four states: New Jersey, Oklahoma, Alabama and Washington, the situation was stable within the whole period of research.

In 1978, Texas, Montana, New Mexico, Kansas, Nebraska, South Dakota, and North Dakota had the largest resources in terms of land utilization in individual states. Of least significance here, on the other hand, were: Rhode Island, Connecticut, New Hampshire, Massachusetts, Delaware and New Jersey. A similar situation was recorded in 2017, when the states with the largest land resources were: Texas, Montana, Kansas, Nebraska, South Dakota and New Mexico. The greatest dynamics of the loss of agricultural land resources was recorded in the following states: Hawaii, Nevada, New Jersey, Massachusetts, Alaska, Connecticut and Arizona. The smallest loss of land surface area (below 5.5%) was observed in the states of: Utah, Oklahoma, Nebraska, South Dakota, Kansas and West Virginia (Table 4).

The scientific studies on area transformations to date most often refer to changes in the number of farms and the area occupied by them and are described by these two indicators. The largest average farm area in 1978 was recorded for the following states: Arizona, Wyoming, Nevada, New Mexico, Alaska and Montana (over 2500 acres) (Table 5). The smallest area of farms were recorded in the following states: Rhode Island, New Jersey, Connecticut, Massachusetts and North Carolina. The average area of the largest farms in 2017 decreased. Despite this phenomenon, the largest average farms were recorded in: Wyoming, Montana, Nevada, New Mexico, North Dakota and South Dakota. The largest decrease in average farm area was recorded in the states of: Alaska, Arizona, Hawaii, New Mexico, and Nevada and the highest increase (over 37%) in: North Dakota, North Carolina, Nebraska, Illinois and Indiana.

The aggregate area transformation indicator assumed the highest value in the following states: Alaska, Arizona, Hawaii, New Mexico, North Carolina, Nevada and Massachusetts (over 107%). In these states, the most significant changes occurred in the farm area structure. Based on the above indicator, it can be concluded that in 7 states there were slight changes in area structure, taking into account long-term process, and these were: Oklahoma, Washington, Montana, Pennsylvania, Maine, West Virginia and Ohio.

In the overall specification (Figures 3A and 3B), the number of farms in the period under consideration increased in 17 and decreased in 33 states. A slight increase in Utilized Agricultural Area (2.8%) was only recorded in the state of Utah. The situation of changes

Table 4. Farmland in the years 1978-2017 by state

State	Land in farms [acres]					Change
	1978	1987	1997	2007	2017	2017/1978
Alabama	11,547,717	9,142,753	8,704,385	9,033,537	8,580,940	-25.7
Alaska	1,286,463	1,008,162	881,045	881,585	849,753	-33.9
Arizona	38,657,700	36,288,794	26,866,722	26,118,899	26,125,819	-32.4
Arkansas	15,577,474	14,355,611	14,364,955	13,872,862	13,888,929	-10.8
California	33,130,362	30,598,178	27,698,779	25,364,695	24,522,801	-26.0
Colorado	35,470,404	34,048,433	32,634,221	31,604,911	31,820,957	-10.3
Connecticut	500,369	398,400	359,313	362,867	334,209	-33.2
Delaware	679,045	272,574	579,545	362,090	525,324	-22.6
Florida	13,306,231	11,194,090	10,454,217	9,231,570	9,731,731	-26.9
Georgia	13,742,485	10,744,718	10,671,246	10,150,539	9,953,730	-27.6
Hawaii	1,988,282	1,721,521	1,430,308	1,121,329	1,135,352	-42.9
Idaho	14,869,911	13,931,875	11,830,167	11,497,383	11,691,912	-21.4
Illinois	29,730,739	28,526,664	27,204,780	26,775,100	27,006,288	-9.2
Indiana	17,037,075	16,170,895	151,11,022	14,773,184	14,969,996	-12.1
Iowa	33,580,851	3,163,8130	31,166,699	30,747,550	30,563,878	-9.0
Kansas	47,747,446	46,628,519	46,089,268	46,345,827	45,759,319	-4.2
Kentucky	15,040,398	14,012,700	13,334,234	1,399,3121	12,961,784	-13.8
Louisiana	9,604,986	8,007,173	7,876,528	8,109,975	7,997,511	-16.7
Maine	1,606,239	1,342,588	1,211,648	1347,566	1,307,613	-18.6
Maryland	2,713,578	2,396,629	2,154,875	2,051,757	1,990,122	-26.7
Massachusetts	678,714	615,185	464,147	503,171	431,646	-36.4
Michigan	11,448,182	10,316,861	9,872,812	14,988,997	9,764,090	-14.7
Minnesota	28,678,829	26,573,819	25,994,621	26,917,507	2,5516,982	-11.0
Mississippi	13,864,787	10,746,190	10,124,822	11,456,241	10,415,136	-24.9
Missouri	30,848,898	29,209,187	28,826,188	29,026,573	27,781,883	-9.9
Montana	62,269,824	60,203,993	58,607,778	61,388,462	58,122,878	-6.7
Nebraska	46,273,401	45,305,441	45,525,414	45,480,358	44,986,821	-2.8
Nevada	10,474,965	9,988,520	6,409,288	5,865,392	6,128,153	-41.5
New Hampshire	540,807	384,607	415,031	430,852	387,106	-28.4
New Jersey	1,049,435	894,426	832,600	733,460	658,676	-37.2
New Mexico	48,301,326	46,018,005	45,787,108	43,238,049	40,659,836	-15.8
New York	9,906,906	8,416,228	7,254,470	7,174,743	6,866,171	-30.7
North Carolina	11,352,783	944,7705	9,122,379	8,474,671	8,430,522	-25.7
North Dakota	42,025,363	40,336,869	39,359,346	3,9674,586	39,341,591	-6.4
Ohio	16,090,902	14,997,381	14,103,085	1,3956,563	13,965,295	-13.2
Oklahoma	34,344,480	31,541,977	33,218,677	35,087,269	34,156,290	-0.5
Oregon	18,414,484	17,809,165	17449293	16,399,647	15,962,322	-13.3
Pennsylvania	8,747,279	7,866,289	7167906	7,809,244	7,278,668	-16.8
Rhode Island	68,298	48,639	47144	62,037	47,161	-30.9
South Carolina	6,318,617	4,758,631	4,238,848	4,889,339	4,744,913	-24.9
South Dakota	44,543,394	44,147,503	44,354,880	43,666,403	43,243,742	-2.9
Tennessee	13,150,498	11,731,386	11,122,363	11,023,834	10,874,238	-17.3
Texas	137,547,468	130,502,792	131308286	130,398,753	127,036,184	-7.6
Utah	10,17,668	9,989,073	12,024,661	11,094,700	10,811,604	2.8
Vermont	1,752,940	1,407,868	1,262,155	1,146,786	1,193,437	-31.9
Virginia	9,965,481	8,676,336	8,228,226	8,103,934	7,797,979	-21.8
Washington	17,002,288	16,115,568	15,179,710	14,972,789	14,679,857	-13.7
West Virginia	3,867,996	3,372,955	3,455,532	3,501,435	3,662,178	-5.3
Wisconsin	18,106,245	16,606,567	14,900,205	15,190,804	14,318,630	-20.9
Wyoming	33,718,235	33,595,135	34,088,692	30,169,526	29,004,884	-14.0

Source: own elaboration based on USDA data [USDA1978-2017]

Table 5. Average farm size in the years 1978-2017 by state

State	Average farm size [acres]					Change	Aggregated ratio of farm structure changes
	1978	1987	1997	2007	2017		
Alabama	270	211	210	185	211	-21.8	52.5
Alaska	3,359	1,756	1,608	1,285	858	-74.4	266.9
Arizona	5,047	4,732	4,379	1,670	1,369	-72.9	254.5
Arkansas	265	298	318	281	326	22.9	61.2
California	405	368	374	313	348	-14.2	53.9
Colorado	1,197	1,248	1,154	853	818	-31.6	73.2
Connecticut	110	111	97	72	61	-44.8	99.1
Delaware	187	92	236	142	228	22.1	81.3
Florida	302	306	300	195	204	-32.3	67.1
Georgia	234	247	265	212	235	0.1	55.3
Hawaii	461	353	261	149	155	-66.4	179.3
Idaho	562	577	530	454	468	-16.7	43.7
Illinois	270	321	372	348	372	37.4	80.5
Indiana	193	229	261	242	264	37.2	85.2
Iowa	266	301	343	331	355	33.7	74.6
Kansas	619	680	748	707	781	26.2	54.4
Kentucky	137	152	162	164	171	24.8	69.5
Louisiana	247	293	331	269	292	18.3	64.7
Maine	197	214	209	166	172	-12.6	38.0
Maryland	145	162	178	160	160	10.5	70.8
Massachusetts	115	99	83	65	60	-48.3	107.6
Michigan	168	202	215	268	205	22.2	67.1
Minnesota	279	312	354	332	371	33.1	77.3
Mississippi	256	315	323	273	298	16.3	76.6
Missouri	253	275	292	269	291	15.2	47.0
Montana	2,545	2,451	2,414	2,079	2,149	-15.6	32.8
Nebraska	702	749	885	953	971	38.3	70.8
Nevada	3,641	3,300	2,266	1,873	1,790	-50.8	111.3
New Hampshire	164	153	141	103	94	-42.9	96.7
New Jersey	106	99	91	71	67	-37.2	74.5
New Mexico	3,389	3,230	,249	2,066	1,624	-52.1	143.6
New York	201	223	228	197	205	2.1	65.0
North Carolina	127	159	185	160	182	43.0	116.8
North Dakota	1,021	1,143	1,290	1,241	1,492	46.2	88.5
Ohio	168	189	206	184	179	7.0	39.1
Oklahoma	433	449	448	405	435	0.5	2.2
Oregon	532	556	513	425	424	-20.2	42.1
Pennsylvania	146	153	158	124	137	-6.2	34.3
Rhode Island	79	69	64	51	45	-42.7	94.1
South Carolina	189	232	210	189	191	1.3	52.0
South Dakota	1,123	1,214	1,418	1,397	1,443	28.5	55.9
Tennessee	136	147	145	139	155	14.7	59.8
Texas	708	691	676	527	511	-27.8	63.3
Utah	760	710	848	664	587	-22.8	58.6
Vermont	241	240	220	164	175	-27.3	65.6
Virginia	175	194	200	171	180	2.9	48.7
Washington	451	480	523	381	410	-9.0	27.8
West Virginia	188	196	194	148	155	-17.7	38.1
Wisconsin	201	221	227	194	221	9.8	58.7
Wyoming	3,969	3,650	3,692	2,725	2,430	-38.8	93.3

Source: own elaboration based on USDA data [USDA1978-2017]

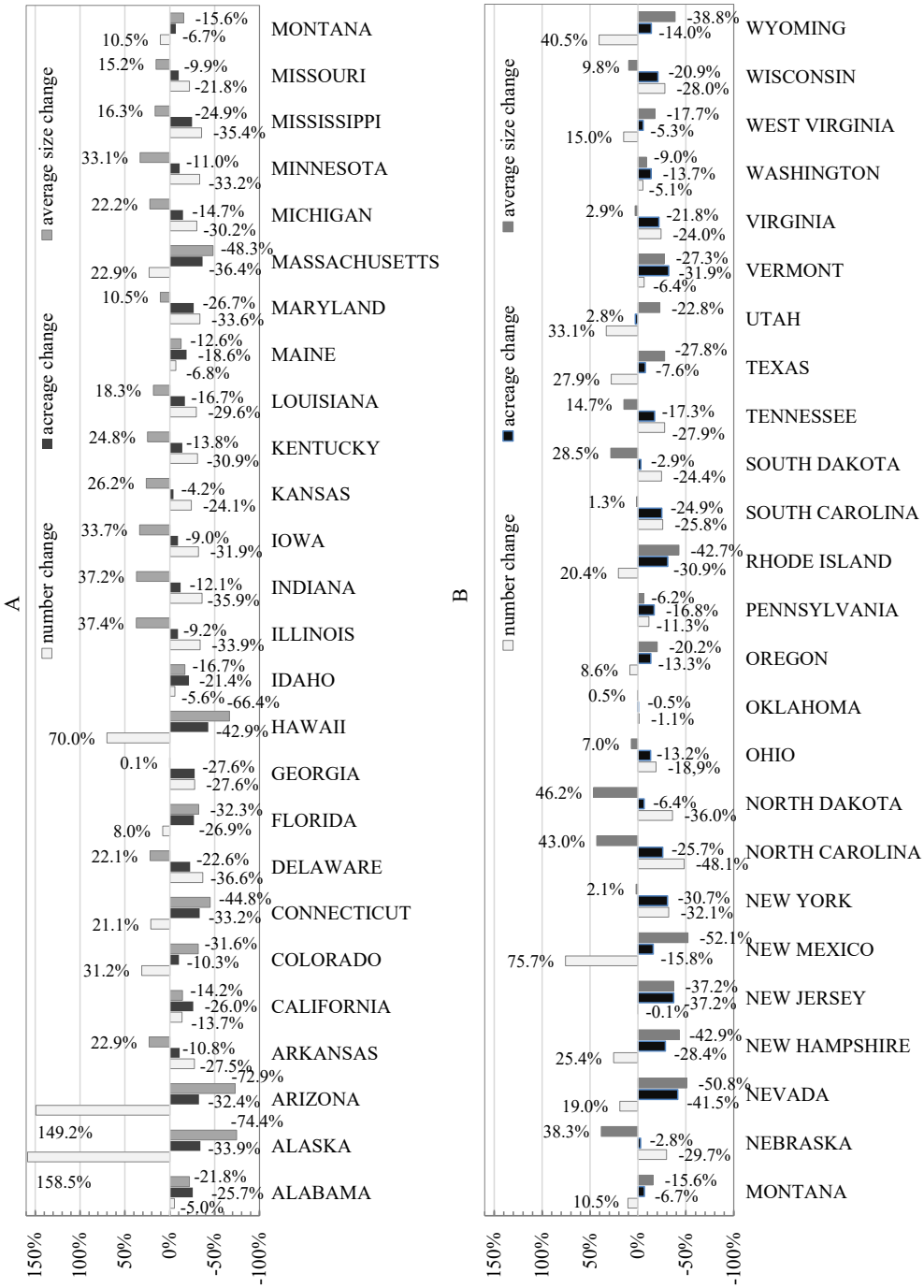

Figure 3A and B. Changes in farm structure and average farm size in the years 1978-2017
Source: own elaboration based on USDA data [USDA1978-2017]

in the average area of farms appears to be most interesting. In the case of 25 states (50% of the population), this area increased but also decreased in 25 states. The aggregated ratio of farm structure changes allowed to identify the states where the most significant changes occurred in this respect. These states include: Alaska, Arizona, Hawaii, New Mexico, North Carolina, Nevada and Massachusetts (value of ratio over 100%).

CONCLUSIONS

American agriculture has shown great spatial diversity in recent decades. Contrary to EU trends, the average farm surface area has decreased. The number of farms in the years 1978-2017 decreased from 2.29 million to 2.04 million (a decrease of 11%), while the area occupied by these farms decreased from 1.353 million acres to 900 million acres (down 33.5%). At the same time, average farm size decreased from 591 to 440 acres. The share of farms by number decreased most significantly in area groups above 260 acres, while their share in utilized agricultural area increased most significantly. The aggregated indicator of area changes in farms allowed to identify the states where the dynamics of changes was the highest: Alaska, Arizona, Hawaii, New Mexico, North Carolina, Nevada and Massachusetts. A very low rate of area change was recorded in the following states: Oklahoma, Washington, Montana, Pennsylvania, Maine, West Virginia and Ohio (value of aggregated ratio of area changes)

There are, however, noticeable land concentration processes in larger units (over 260 acres). An aggregated indicator of changes in the area structure of agricultural farms has been applied in the study. Thanks to the application of the aggregated indicator of area transformations, apart from changes in the number of farms and the area they occupy, changes in average farm area were also included in the study. The value of the index does not inform whether the changes were beneficial or not, although it indicates areas (States) in which they occurred with greatest intensity. From the point of view of sustainable development principles, area transformations taking place in agricultural farms may be interpreted differently. There is, therefore, a need to propose an assessment of the economic, social and environmental justification of area-based transformations that have positive effects in these areas. Undoubtedly, the research hypothesis put forward in the paper has been confirmed. It states that due to a long period of observation and regional diversity in agriculture – area changes in farms will confirm significant differences in the rate at which this phenomenon has occurred.

BIBLIOGRAPHY

Burns Christopher, James M. MacDonald. 2018. America's Diverse Family Farms: 2018 edition. *Economic Information Bulletin* EIB-203: 1-28. United States Department of Agriculture (USDA), Economic Research Service.

Burns Christopher, Ryan Kuhns. 2016. The changing organization and well-being of midsize U.S. farms,1992-2014. *Economic Research Report* ERR-219: 1-52. United States Department of Agriculture (USDA), Economic Research Service.

Kopeć Bohdan. 1983. Metodology of economic researche in agricultural farms. *Skrypt Akademii Rolniczej Wrocław* 269: 166-199.
MacDonald James M., Penni Korb, Robert Hoppe. 2013. Farm size and the organization of U.S. Crop Farming. *Economic Research Report* ERR-152: 1-56. United States Department of Agriculture (USDA), Economic Research Service.
Smith Vincent, Joseph Glauber, Barry Goodwin. 2018. *Agricultural policy in disarray. Volume I.* Washington: American Enterprise Institute.
USDA. 1978-2017. *Census of Agriculture. 1978-2017*. United States Department of Agriculture. National Agricultural Statistics Sevice.
USDA. 2017. *Census of Agriculture, Data Release*. United States Department of Agriculture. National Agricultural Statistics Service.

***

STRUKTURA OBSZAROWA GOSPODARSTW ROLNYCH W STANACH ZJEDNOCZONYCH AMERYKI PÓŁNOCNEJ W LATACH 1978-2017 – WYBRANE ASPEKTY

Słowa kluczowe: struktura obszarowa, Stany Zjednoczone Ameryki Północnej, średnia powierzchnia gospodarstwa

ABSTRAKT

Celem pracy jest ocena poziomu przemian struktury obszarowej gospodarstw rolnych w latach 1978-2017 na terenie Stanów Zjednoczonych Ameryki. Skupiono się na określeniu zmian w liczbie gospodarstw, zajmowanej powierzchni oraz ich średniej wielkości. Liczba gospodarstw w latach 1978-2017 zmniejszyła się z 2,29 mln do 2,04 mln (spadek o 11%), natomiast powierzchnia zajmowana przez te gospodarstwa zmniejszyła się z 1353 mln akrów do 900 mln akrów (spadek o 33,5%). Badania potwierdziły znaczne zróżnicowanie w zasobie gruntów rolnych, dynamikę w zakresie liczby i zmian w powierzchni w wybranych stanach. Liczba gospodarstw w badanym okresie wzrosła w 17 stanach, a zmniejszyła się w 33. Średnia powierzchnia gospodarstw w przypadku 25 stanów wzrosła, natomiast zmniejszyła się również w 25 przypadkach. Zagregowany wskaźnik zmian struktury obszarowej (zagregowana wartość bezwzględna dynamiki zmian liczby, zajmowanej powierzchni oraz średniej powierzchni gospodarstwa w badanym okresie) zidentyfikował stany, w których wystąpiły najbardziej znaczące zmiany w strukturze obszarowej gospodarstw i były to: Alaska, Arizona, Hawaje, Nowy Meksyk, Karolina Północna, Nevada i Massachusetts. Potwierdzono przestrzenne zróżnicowanie przemian obszarowych gospodarstw rolnych na terenie jednego kraju. Ze względu na większą skalę koncentracji zasobów ziemi w gospodarstwach w porównaniu z innymi krajami (zwłaszcza regionem UE), proces ewolucji gospodarstw wydaje się być wolniejszy i utrzymuje w kilku przypadkach prawie niezmienną strukturę, podobnie jak przed 40 laty. Przemiany obszarowe gospodarstw rolnych na terenie USA wykazały istotne przestrzenne zróżnicowanie.

AUTHORS

TOMASZ BERBEKA PHD
ORCID: 0000-0001-5148-8235
Wroclaw University of Environmental and Life Sciences
Institute of Economics
24A Grunwaldzki Sq., 50-363 Wroclaw, Poland

KRZYSZTOF RUTKIEWICZ PHD
ORCID: 0000-0001-7675-4704
Wroclaw University of Environmental and Life Sciences
Institute of Economics
24A Grunwaldzki Sq., 50-363 Wroclaw, Poland