Journal of Central European Green Innovation 3 (2) pp. 137-154 (2015)

JOURNAL OF CENTRAL EUROPEAN GREEN INNOVATION
HU ISSN 2064-3004
Available online at http://greeneconomy.karolyrobert.hu/

GLOBAL DETERMINANTS OF THE AGRICULTURE DEVELOPMENT IN POLAND – THEIR EFFECTS AND FUTURE

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Summary
The study presents basic directions and challenges related to the specification of macroeconomic determinants conditioning the development of agriculture and rural areas in Poland in the latest ten years and nearest future. Globalization of the developmental processes leads to the fact that the directions of agricultural development in individual countries are more and more affected by global phenomena. However, the microeconomic policy dominant at the given moment is also very important for determination of developmental directions.

Keyword: agricultural development, agricultural policy, globalization, Poland,

JEL Code: O13, Q15, Q18,

Introduction

Polish agriculture has been undergoing very dynamic economic and political transformations over the last twenty years: beginning with the system transformation processes, through European integration, to the phenomenon of globalization overlapping those processes. But despite considerable dynamics occurring in those phenomena over the recent years, it must be remembered that changes in agriculture are usually long-term and closely related to the pace of economic development of the country and the world.

Generally, agricultural changes in Poland and all over the world are subject to transformations involving two processes: lowering the absolute number of farms and polarization of their structure. Still, the characteristic features of developmental processes are their susceptibility to global phenomena, which was noticeable as early as centuries ago, when local events influenced the processes of change in faraway places. Therefore, the discussion regarding a long-term strategy of development of agriculture and rural areas necessitates the recognition of such phenomena and appropriate choice of developmental objectives, as well as the answer to the questions concerning: the model of agriculture, competitiveness and agricultural structures.

In this study, the analysis of two main spheres influencing the development of agriculture was carried out. Firstly, the basis for developmental processes is formed by political conditions, whose impact has been particularly visible over the last decades. But global phenomena are equally important for the directions of agricultural development. These are macroeconomic

processes that determine the directions of agricultural development to a great extent, irrespective of the actions of individual countries.

Material and Methods

The aim of the paper is the interpretation of the process of agricultural changes in Poland in the decade of the globalization. The paper tries to show the changes in Poland against the European and global changes. The process of the political and economical deliberalization was shown. The paper is based on statistical data, professional literature, reports of research institutes, statistical yearbooks as well as on other sources available on the Internet.

Results

Political determinants of the changes

The discussion concerning the role of the state in economy has been intensifying in the recent years, and the contemporary world economics usually rejects the thesis that markets are perfect, thus confirming the need of interventions. Perfect competition proves to be insufficient for effective allocation, and the private sector manifests considerable limitations in effectively satisfying certain social needs. Intervention of the state is always desirable when imperfections of the market become visible; that leads to an increasing role of the state in economy.

Such an understanding of economic policy results in formulating development strategies as well as the policy of long-term development of agriculture and rural areas in Poland, based on those strategies. Agricultural policy is an example of active influence of the state on agriculture and rural areas, serving the purpose of realization of economic, social and environmental objectives. Through agricultural policy, impact is made on agricultural producers and funds are redistributed between farmers and entrepreneurs [Kowalski 2005] Augustyn and Nemes [2014] stated that Europeanisation in rural development has been mostly a one-way process of transferring the EU-15 policy.

The external effect of economic policy understood the way that programmes devoted to agriculture and rural areas, which stimulate the occurrence of changes in production structures, improvement of competitiveness, environmental protection and multifunctional development of rural areas. They are the basic instrument, which support the process of modernizing agriculture and rural areas. It must be remembered, however, that the scope of state's interference in the economy always results controversies [Wigier 2011].

In the last financial period for 2007-2013 agricultural subsidies from public funds reached 17,253 million zl. Vast majority of funds (74.7%) was spent on improving the competitiveness of the agricultural and forestry sector and improve the environment and rural areas. As part of these activities focused on:

- modernization of farms - help received 76,420 farms;
- structural changes in agriculture in the form of early retirement payments – 20,400 paid rent plus 53,400 survivors from the previous funding period;
- promoting pro-environmental actions – about 353 thousand beneficiaries (in the previous financial period – 2004-2006 – support received 69 thousand farms);
- support of farms in the mountain areas and the other areas with unfavorable conditions management – about 750 thousand per year supported holdings.

Looking for the main reasons for interventions in the modern world agriculture, J.E. Stiglitz [1987] first of all indicates the high risk level in agricultural activity and ineffective prevention of that risk. Still, it must be remembered that intervention is not always the best way of solving the problem of unreliable market. There occur effects of the taken actions which are hard to predict, and supporting certain interest groups or limited access to the market lead to the appearance of the groups of winners and losers.

The idea of sustainable development of agriculture is implemented in the European Union in the form of so-called European model of agriculture, based on multifunctionality and stability (sustainability). That model is expected to serve various functions, i.e.:

- create safe and high quality food;
- protect biodiversity and landscape features;
- preserve the attractiveness and liveliness of rural areas;
- provide farmers with satisfactory and stable income;
- preserve the cultural heritage of rural areas;
- manufacture products able to compete successfully on the global market;
- make appropriate contribution to solving the food security problem;
- deter the degradation of natural environment on the global scale.

It is worth noting that the objectives enumerated above are contradictory in many spheres. Besides, there is a contradiction between such a model of agriculture (multifunctionality and sustainability) and the course of economic processes [Zegar 2012]. Nowadays, farmers are subject to greater and greater pressure from the market to increase productivity (including both the scale of production and higher specialization) all the time, which reduces the possibility to serve non-market functions included in the model of European agriculture. The pressure to increase productivity, in turn, causes a threat to the development of a number of regions, since the contemporary market promotes concentration of farming in regions with the most favourable conditions and withdrawing it from regions where the conditions are less favourable.

At the moment, competitiveness is the greatest challenge in the sphere of economy. In the situation of overproduction, market forces (especially of the global market) inevitably lead to the growing competition and drive agriculture in the above-mentioned direction towards further concentration, specialization and intensification of production. Lack of competitive skills inevitably results in relatively going back. Politics should take into account the fact that the market values the utility goods purchased by consumers but does not value public goods which are not subject to market appraisal. However, the developmental delay of Polish agriculture for historical reasons, noticeable when compared to the industrial model, reduces its competitive skills. This is going to lead to impossibility to take up competitive challenges in the nearest years.

Structural changes in polish agriculture

The process of the land concentration leads to a significant increase in agricultural production (Figure 1). In 2002, output per hectare of agricultural land was just over 3500 zl, and the final and commodity production in 2591 and 2223 respectively. Within ten years, the production has increased significantly – global to 6281 zl, while the final and commodity respectively for 4855 and 4596 per hectare of the arable land. Particularly important are the details of the

showing rate of growth of different types of agricultural production (Table 1). It turns out that the highest growth rate was recorded in the production of goods, which in the observed period more than doubled. This means that the Polish agricultural farms are increasingly linked with the market.

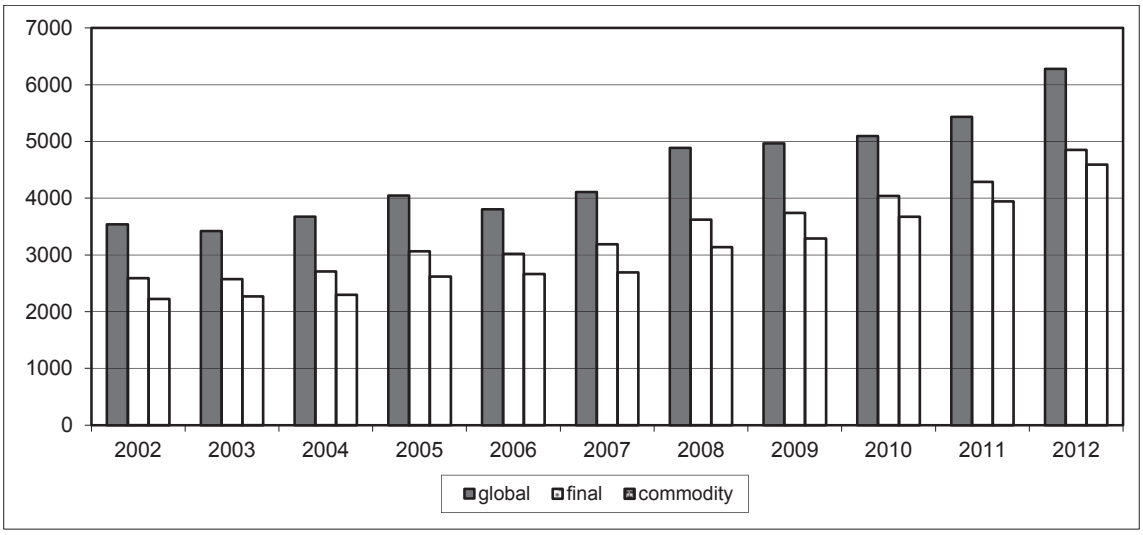

Figure 1. Agricultural production (in constant prices of the previous year) per 1 ha of agricultural land in zl. Source: own elaboration based on CSO data http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (24.01.2014)

Table 1. Dynamics of changes in agricultural production in 2002 = 100.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Global production	100,0	97,0	104,0	114,0	107,0	116,0	138,0	140,0	144,0	154,0	177,0
Final production	100,0	99,4	104,6	118,4	116,6	123,1	139,8	144,5	156,1	165,7	187,4
Commodity production	100,0	102,1	103,3	117,9	119,9	121,3	141,3	148,0	165,4	177,4	206,7

Source: own elaboration based on CSO data http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (24.01.2014)

Table 2. Commodity structure of agricultural production in the years 2002-2012.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Plant	36,1	37,6	43	36,6	35,3	36,9	41,5	42,1	37,7	42,5	42,9
Animal	63,9	62,4	57	63,4	64,7	63,1	58,5	57,9	62,3	57,5	57,1

Source: own elaboration based on CSO data http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (24.01.2014)

Significant changes in the structure of commercial agricultural production (Table 2) indicate the processes in Polish agriculture extensification [Józwiak Ziętara (ed.) 2013]. The concentration of land in large farms aiming to use economies of scale, resulted in an increase in the scale of production mainly plant but as shown in the following part of the paper, including livestock.

Changes in land use structure in the form of loss of use of arable land to grassland, pasture and permanent crops or extensification use forms-unoccupied trench were reflected in changes in the structure of crops (Table 3). Farmers are used to sow more and more cereals,

which in 2012 was estimated for almost 71% of the crop. The significant reduction of growing areas and relatively smaller increase in the share of cereals in the structure should have a detrimental effect on the size of the grain harvest, but the overall level of collections increased by more than 6%. This was possible due to a significant increase in yields per hectare, which increased during the decade by more than 14%. It seems that the potential for growth in this area is quite large given the relatively low yields of cereals in Poland in relation to other European countries. It should be emphasized, however, be a very large variability to both crop harvest as well as in subsequent years, which is mainly due to occurrence of adverse weather conditions [Runowski 2013].

Table 3. Production of cereals in the years 2002-2012.

	area in ha		share of cereals in the arable area in %	yield on 1 ha in dt		dt collection	
	total	individual farms		total	individual farms	total	individual farms
2002	8 293 690	7 523 245		32,40	31,10	268 773 031	234 066 050
2003	8 163 290	7 310 466		28,70	27,40	233 907 579	200 475 379
2004	8 377 273	7 573 705	66,0	35,40	33,30	296 351 479	252 518 817
2005	8 328 904	7 526 103	68,9	32,30	30,40	269 278 459	228 823 722
2006	8 381 129	7 625 252	67,8	26,00	24,70	217 759 315	188 087 044
2007	8 352 859	7 626 669	71,1	32,50	31,30	271 428 092	238 543 433
2008	8 598 812	7 845 098	71,8	32,20	30,60	276 643 060	239 806 575
2009	8 582 783	7 859 231	71,5	34,80	33,10	298 266 201	260 415 719
2010	7 637 653	6 893 929	70,2	35,60	34,10	272 280 999	234 764 029
2011	7 802 971	7 110 782	70,7	34,30	32,70	267 673 521	232 581 317
2012	7 704 322	7 010 422	70,9	37,00	35,20	285 438 436	246 701 366
change 2002= 100	92,9	93,2		114,2	113,2	106,2	105,4

Source: own elaboration based on CSO data http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (24.01.2014)

The livestock production also shows some characteristics of the pursuit of extensive production on farms. In the case of pigs (Table 4) we observe systematic, very dynamic decrease the number of livestock in both the overall scale, as well as the reduction in the sows' number. This process is more drones in individual farms already in 2012 led to the decrease in the number of pigs by almost 50%. Researchers perceive the main causes of this phenomenon in the low competitiveness of our producers against European producers [Runowski 2013]. Unfortunately turbulences and problems with the trade with Russia and other countries associated with the occurrence in Poland in cases of African swine fever in early 2013 and the imposition therefore embargo on the export of pork may be expected to lead a decrease in the number of pigs to the level of 5-6 million units.

Table 4. The number of pigs in the period of 2002-2012 in units.

years	total		sow		pig population on 100 ha of agricultural land
	total	individual farms	total	individual farms	
2002	18 997 032	17 387 078	1 820 661	1 635 518	112,4
2003	18 439 236	16 800 845	1 704 691	1 525 372	114,0
2004	17 395 568	15 790 678	1 648 460	1 467 440	106,5
2005	18 711 294	16 840 589	1 808 079	1 613 760	117,6
2006	18 812 975	16 631 821	1 786 398	1 579 065	117,9
2007	17 621 213	15 383 457	1 587 368	1 371 547	108,9
2008	14 242 273	12 283 327	1 278 828	1 096 680	88,2
2009	14 252 509	12 330 540	1 360 812	1 176 333	88,4
2010	14 775 694	12 713 302	1 328 237	1 142 860	95,3
2011	13 056 411	11 009 094	1 124 946	936 212	84,5
2012	11 132 184	9 079 857	1 012 107	833 908	74,0
change 2002=100	58,6	52,2	55,6	51,0	65,8

Source: own elaboration based on CSO data http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (24.01.2014)

The status of the cattle population (Table 5) confirms earlier observations of extensification of production on farms. The number of dairy cows kept mainly on individual farms, decreased by about 20%, while the total cattle-head was relatively stable, and for several years has remained at about 5.5 million units. This has been reflected in the growth of the cattle stock, converted on 100 ha of agricultural land (growth rate of over 14%).

Table 5. The number of cattle in the period of 2002-2012 in units.

years	cattle		dairy cows		cattle population on 100 ha of agricultural land
	total	individual farms	total	individual farms	
2002	5 420 987	5 121 660	2 934 622	2 808 316	32,1
2003	5 276 810	4 967 210	2 816 144	2 684 223	32,6
2004	5 200 173	4 889 024	2 730 448	2 596 710	31,8
2005	5 384 981	5 050 767	2 754 810	2 616 183	33,9
2006	5 280 967	4 948 245	2 636 956	2 506 887	33,1
2007	5 405 545	5 072 392	2 677 275	2 552 262	33,4
2008	5 563 564	5 234 790	2 696 920	2 572 171	34,4
2009	5 590 219	5 283 525	2 584 749	2 467 175	34,7
2010	5 561 747	5 266 036	2 529 428	2 417 429	35,9
2011	5 500 936	5 208 851	2 446 136	2 333 944	35,6
2012	5 520 345	5 228 812	2 346 097	2 235 820	36,7
change 2002=100	101,8	102,1	79,9	79,6	114,3

Source: own elaboration based on CSO data http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (24.01.2014)

A significant increase in population of cattle mainly in the direction of the meat was reflected in meat production per hectare of arable land (Table 6). The scale of the observed period, the increase was over 33%. In addition to a significant extent (over 20%) increased milk production per hectare of arable land. The facts above testified the intensification of the production unit. Thanks to those facts Polish farms are becoming more and more competitive, not only in the domestic market but also by the EU.

Table 6. Production of milk and meat on 1 ha of agricultural land

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	change 2002=100
milk in l	682	714	703	728	729	726	747	750	769	780	822	120,5
meat in kg	197,6	225,1	212,0	224,1	242,0	243,3	232,2	224,7	252,1	256,8	264,3	133,8

Source: own elaboration based on CSO data http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (24.01.2014)

The intensification of the unit is reflected in the size of the production of milk and meat (Table 7). Generally, in the years 2004-2012 farmers increased milk production by more than 7% and the meat by nearly 13%. This was mainly for the reason of the dynamic growth in unit yield of cows and also eliminating the least-senior households that keep dairy cows, as a result of the introduction of the milk quota after the accession to the EU [Dzun 2012], [Runowski 2013]. The relatively greater increase in meat production calculated for the total number of farms indicates that the direction of production as relatively more extensive is preferred in other forms of organizational than individual farms.

Table 7. Production of milk and meat in thousands tone

years	thousand tons of milk		thousand tons of meat	
	total	individual farms	toatal	individual farms
2004	11 822	10 964	4 565	4 161
2005	11 923	10 976	4 699	4 278
2006	11 982	11 011	5 054	4 594
2007	12 096	11 183	5 178	4 697
2008	12 425	11 500	4 975	4 409
2009	12 447	11 523	4 834	4 258
2010	12 279	11 410	5 205	4 579
2011	12 414	11 519	5 284	4 686
2012	12 668	11 758	5 279	4 696
change 2004=100	107,2	107,2	115,6	112,8

Source: own elaboration based on CSO data http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (24.01.2014)

Polish agriculture encounters a significant dilemma of the choice of production direction: to produce mass goods at relatively cheap prices or to produce niche goods. When producing mass goods, Polish farmers must meet the challenges of competition with farmers from highly developed countries and countries whose natural and economic conditions are more favourable for agriculture. When producing niche goods (organic food, local products based on traditional technologies), competition seems to be much easier, but still it is not going to be an easy way to earn big money. Grzelak and Maciejczak (2013) analyzed the market of organic products in the United States and in Poland and concluded the less the market is developed (such as in Poland), the more important is basic knowledge about the products.

These differences should be taken into account by states when developing policies on organic agriculture interested in the growth of the organic market
The factors resulting in possible increase in competitiveness of Polish products of that type can be the high quality of products, their taste, ecological origin and a strong brand. Realistically, however, we have to expect a mixed model in the foreseeable future, with the tendency for agriculture to get industrialized. The increase in the Polish livestock export was one of the highest after the EU accession among the Central and Eastern European countries. Forgács (2010) stated that the one main reason of the increase was that Poland focused on improvement of cooperation and concentration of supply chains and processing. Takács-György (2013) highlighted that Polish agriculture is a winner while Hungary is a loser of the EU accession from the side of Polish – Hungarian bilateral trade although Poland and Hungary had different historical backgrounds – mainly the property structure – the economic and social environment was the same during the last decade.

The basic issue about to determine the direction of development in the nearest years will be a drive to change the agricultural structure. The fragmented agricultural structure (characteristic of Polish agriculture) usually results in a small scale of production and lower competitiveness, which translates into low income from farming. This, in turn, determines a low investment potential of farms. On the other hand, the influence of concentration on sustainable development of rural areas is definitely negative from the environmental and social point of view.

In recent years, seen enough scale sweeping changes in the land use. In less than eight years the area of agricultural land reduced by nearly 8%. Given the fact that even the smallest changes in the classification of the smallest agricultural farms from 2010 and falling out of about 500 thousand combinations. ha used in this type of units, the decline is still important. The reasons for this should be seen primarily in the enormous pressure from other sectors of the economy, which took over farmland (mainly arable land) for other purposes[9].

Significant changes occurred in the structure of land use (Table 8). It has been a significant decrease in arable land to expand the area of meadows and pastures and perennial crops. This means that farmers are generally directed towards more extensive land use [Józwiak Ziętara (ed.) 2013], [Mickiewicz Mickiewicz 2013]. It is interesting that since the accession to the European Union, there was a significant decrease in the area of fallow land, and in 2012 they accounted for only 25% of the state in 2004. This effect is due to the introduction of a system of direct payments, which quite attractive levels encouraged many farmers to acquire the use of even relatively poor farmland. Some of this land has been earmarked for forestation, which was reflected in the increase in forest area, but it should also be borne in mind that a significant proportion of fallow land has been utilized for agricultural purposes. It can not be seen as positive, because given the likely very poor quality of the land would be more rational to their permanent exclusion from agricultural use.

[9] Similar changes occur in the whole of Europe and for example in the UK over the past ten years, the average annual loss of agricultural land was about 0.2%.

Table 8. Use of land in farms in the years 2004-2012 in ha

years	Agricultural land	Meadows and pastures	Arable land	Gardens	Perennial crops	Fallow
2004	16 327 411	3 365 157	12 684 614	39 102	282 439	1 761 708
2005	15 905 965	3 387 502	12 084 719	75 440	350 760	1 062 010
2006	15 957 290	3 215 648	12 357 372	37 579	338 505	1 025 407
2007	16 177 081	3 271 236	11 748 025	74 932	375 017	440 939
2008	16 154 250	3 184 383	11 972 709	70 164	374 101	491 525
2009	16 119 584	3 179 687	11 997 844	67 783	372 987	528 248
2010	15 502 969	3 283 529	10 877 560	44 190	397 959	449 849
2011	15 442 385	3 290 975	11 044 398	54 471	390 388	468 403
2012	15 050 331	3 206 463	10 871 437	53 529	397 990	439 867
change 2004=100	92,2	95,3	85,7	136,9	140,9	25,0

Source: own elaboration based on CSO data http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (24.01.2014)

Data showing the number of farms (Table 9) indicate a relatively slow process of reducing the total number of farms. This shows that in recent years there was no impulse to a more dynamic economically vulnerable farms. Rather it can be said that the conditions that have arisen at the time of integration has led many farmers to keep operators and benefit from this aid.

It should be noted that despite the passage of more than twenty years since the release of the ground-mar continues structure is characterized by a high dispersion (Table 10) and the concentration processes occurred in relatively small extent. In general, we observed a decrease of the total number of farms and resulted mainly from a decrease in the number of farms to 20 hectares. The number of farms with an area of over 20 hectares increased steadily and the most rapid growth was observed in the group of an area of over 50 hectares. Their total number in the period 2000-2012 increased by over 80% in the case of individual farms has doubled the number of households.

Table 9. Number of farms in the years 2000-2012.

years	total		to 20 ha		20-50 ha		over 50 ha	
	total	individual farms	total	individual farms	total	individual farms	total	individual farms
2002	2 933 228	2 928 578	2 817 469	2 815 965	95 943	95 512	19 816	17 101
2003	2 845 935	2 841 085	2 736 465	2 735 092	88 296	87 826	21 174	18 167
2004	2 844 168	2 839 664	2 726 915	2 725 728	95 106	94 622	22 147	19 314
2005	2 733 364	2 728 909	2 612 671	2 611 419	99 156	98 728	21 536	18 761
2006	2 598 624	2 594 579	2 481 400	2 480 436	94 783	94 373	22 441	19 770
2007	2 579 178	2 575 113	2 452 353	2 451 339	102 723	102 315	24 104	21 461
2008	2 565 969	2 562 085	2 441 918	2 441 036	98 727	98 318	25 324	22 731
2009	2 501 337	2 497 642	2 376 650	2 375 858	97 742	97 351	26 944	24 432
2010*	2 277 613	2 273 284	2 153 186	2 152 108	97 277	96 837	27 150	24 339
2011*	2 253 135	2 249 533	2 128 590	2 127 845	98 014	97 617	26 533	24 073
2012*	1 543 540	1 540 031	1 412 888	1 412 187	101 486	101 096	29 165	26 747
change 2002=100	52,6	52,6	50,1	50,1	105,8	105,8	147,2	156,4

* - changes resulting from the new definition of a farm.

Source: own elaboration based on CSO data http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (24.01.2014)

Despite the overall decrease in the number of farms in Polish agriculture is dominated by economic state small and very small with low competitive potential, which is largely due to the new regulations [Mickiewicz 2013] tending to keep land in the hands of the family. Individual units from 1 to 5 hectares account for over 40% of the total households (Table 10), and there is no reason to anticipate a significant change in this area in the future. It should rather believe that precisely these small farms will provide a brake for the agriculture development in Poland in the upcoming years.

Table 10. Number of individual farms in the years 2000-2012.

years	to 1 ha	1-5 ha	5-10 ha	10-20 ha	20-50 ha	over 50	total	% 1-5 ha farms of total
2002	976 852	1 146 298	426 520	266 295	95 512	17 101	2 928 578	39,1
2003	990 634	1 087 421	408 723	248 314	87 826	18 167	2 841 085	38,3
2004	987 887	1 077 952	402 944	256 945	94 622	19 314	2 839 664	38,0
2005	946 577	1 031 965	388 182	244 695	98 728	18 761	2 728 909	37,8
2006	788 184	1 029 810	414 980	247 462	94 373	19 770	2 594 579	39,7
2007	771 050	1 036 511	399 869	243 909	102 315	21 461	2 575 113	40,3
2008	755 575	1 032 050	412 044	241 367	98 318	22 731	2 562 085	40,3
2009	731 702	1 009 878	390 503	243 775	97 351	24 432	2 497 642	40,4
2010*	714 871	861 440	351 462	224 335	96 837	24 339	2 273 284	37,9
2011*	597 869	955 306	341 818	232 852	97 617	24 073	2 249 533	42,5
2012*	63 502	780 193	350 598	217 894	101 096	26 747	1 540 031	50,7

* - changes resulting from the new definition of a farm.
Source: own elaboration based on CSO data http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (24.01.2014)

In addition to these negative phenomena should be pointed out a lot of positive ones even as the strengthening of the largest holdings [Gonet 2013], which in the face of integration processes will be able to compete.

The process of reducing the number of farms despite the simultaneous loss of agricultural land area in farms leads to an increase in the average area of the farms (Table 11). In the years 2003-2012 the average size of farms over 1 hectare increased by over 24%. This means that the process of reducing the number of farms was more dynamic than the loss of farmland.

Table 11. The average area of agricultural land in farms over 1 hectare (ha).

years	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
ha	7,4	7,5	7,6	7,7	7,8	7,8	8,0	8,6	8,3	9,2
change 2003=100	100,0	101,4	102,7	104,1	105,4	105,4	108,1	116,2	112,2	124,3

Source: own elaboration based on CSO data http://stat.gov.pl/bdl/app/strona.html?p_name=indeks (24.01.2014)

Global determinants of changing in agriculture – now and the future

Poland is about to choose the direction of development and although it is definitely not going to abandon the uniform communal market, it will surely have to take into account the processes occurring in the world economy to a greater extent. It is so because globalization changes the principles of market activity. Therefore, future macroeconomic determinants of development of Polish agriculture will depend on the level of openness of the European

Union's policy to global problems. Poland, as a member of the European Union, has committed itself to observe the union treaties and their stipulations. That is why the threats resulting from globalization processes also apply to us. The following things are crucial for the development of Polish agriculture within the nearest years:

- increase (decrease) in prices of agricultural raw materials;
- increase in biofuel production;
- global increase of food demand;
- increasing influence of transnational corporations;
- increasing protectionism of individual countries and supranational organizations;
- progressing liberalization of goods exchange regarding food;
- duration of the current economic crisis and a growing number of national conflicts (even in the sphere of integration groups) resulting from the crisis;
- local threats to livestock production associated with epidemics.

The increase in prices of agricultural raw materials was the effect a lot of the factors connected with demographic, economic, sociology, environmental and of course speculation factors. For the first time in recent decades, the price increase was recorded in 2004-2005, after 25 years of relative stabilization [Figiel 2012]. The period since the beginning of the financial crisis has been characterised by rapid fluctuations of prices of agricultural raw materials. Initially, in the years 2007/2008, the greatest rise in prices within 30 years had occurred, followed by their rapid drop. Then, there was another rise in 2010/2011 and another drop. Unfortunately, those fluctuations mostly resulted from economic issues caused by speculative actions of individuals as well as transnational corporations. Other factors influencing the increase in prices of agricultural raw materials include:

- increasing world population;
- production of biofuels;
- protectionist activities of individual countries or groups of countries;
- liberalization of goods exchange;
- dynamic development of developing countries and changes in the model of consumption;
- reduction of the surface area of arable land;
- water deficit in many places in the world.

Unfortunately, higher prices did not translate into higher income of farmers, since the prices were taken over by a number of companies in the food chain.

On the other hand, as a significant threat to the development of agriculture may be a decline in prices of agricultural products. Such processes have been observed in the summer 2014 years and concerned mainly fruits and vegetables. The reasons for this should be sought in fueling conflict between the Polish economy and Russia. The embargo imposed by Russia on a number of agricultural products from Polish and other EU countries led to the emergence of large surpluses of these products on the internal market. Deflation on the market for agricultural products has affected the income of farmers and the longer its duration, or even its deepening processes can lead to significant problems in the agricultural sector.

The increase in biofuel production is preferred in strategic programmes of agriculture development of many countries. The main goals of producing biofuels are the limitation of carbon dioxide emitted to the atmosphere and pressure on the price of oil. However, more and more often it is recognized that the pressure on lowering oil prices is not so strong, as production of biofuels only satisfies 3-5 per cent of the world demand of liquid fuels. This has been confirmed by recent events, when surges in prices of oil occurred, despite increasing production of biofuels at the same time. The emission of carbon dioxide was not reduced either.

Sadly, an increase of biofuel production leads to numerous perturbations on the food market. According to the some studies, currently biofuels (bioethanol and biodiesel) are accountable for 30 per cent of the increase in food prices all over the world. In the years 2006-2011, bioethanol production grew from 58.1 to 105 billion litres, which means it nearly doubled. As for the production of biodiesel, in the same period it increased from 5.7 to approximately 18.1 million tons [Rosiak Łopaciuk, Krzemiński 2011] the increase was threefold.

It should be noted that some recent research does not assign the role of biofuels as a significant price increase [Oladosu G., S. Msangi 2013]. Indicates that food crises and rising prices of agricultural products were the result of many factors and the impact of biofuels are only one of many factors influencing the market turmoil.

About 90 percent of the world biofuel production is concentrated in the USA, Brazil and in the EU-27. It should be noticed, however, that the share of those countries is going to decrease, as more and more biofuels are produced in China, Malaysia or Indonesia. Besides, a specific specialization occurs within their production, which also affects local farming. In the USA and Brazil, bio ethanol constitutes about 90 per cent of biofuel production, and in the EU-27, bio diesel is the key biofuel product.

The basic raw materials for manufacture of biofuels are mainly cereals (in the USA, particularly maize), sugar cane (Brazil) and rape (the EU): raw materials which have so far been processed and consumed by people or used as forage in animal production. Further development of the biofuel market may, unfortunately, result in limitation of food availability [Matyka 2011]. It is anticipated that the share of arable land used for biofuel production all over the world will rise from 1 per cent in 2004 to 2.5 – 4.2 per cent to 2030. Even more land is going to be used for production of raw materials for biofuel manufacture in the EU, where in 2020 about 15 per cent of farmlands are going to be devoted to that. This is going to translate into a dramatic decrease of the acreage used for cultivating consumable agricultural raw materials, which will definitely result in further global increase in food prices.

Additionally, in most countries (with the exception of Brazil), production of biofuels without support (subsidizing) is unprofitable. Prices of the raw materials are estimated to constitute approximately 55-70 percent of production costs of biofuels [Szajner 2013]. Hence, biofuels evoke more and more doubts.

Doubts as to the reasonableness of increasing biofuel production may also arise in situations of long-term oil prices kinks. Observed in the second half of 2014 years deep fall in oil prices by about 20% caused that relatively biofuel production has become even more unprofitable. This may result in the resignation of a number of entities of the food processing sector with the production direction.

The global increase of food demand results to a great extent from the increase of income and population, as well as changes in dietary behaviours in developing countries. Dynamic development of countries with high numbers of residents, such as China, India, Brazil, Russia,

Mexico, a number of African countries and a number of countries in the South-East Asia, causes a growing food demand.

Quick economic growth of the developing countries results in those societies getting richer. In China, Brazil and India, the speed of economic growth over the last twenty years has been a few per cent every year. Such a high growth has translated into improvement of the society's wealth, and at the same time, into an increase of dietary needs of bigger and bigger groups of people. And it did not only refer to quantity changes but also to changes in the structure of consumption. Along with people getting richer, their preferences are evolving towards consuming greater amounts of goods with high protein content and highly processed goods – instead of cereal products. It is followed by the development of animal breeding and increase of forage crop (mainly cereal) production [Takács-György 2010].

Although the above-mentioned group of developing countries has greatly contributed to the global increase of food demand, this did not result from the growth of consumption alone. It must also be remembered that it is the developing countries that generate a considerable population growth, which also translates into the increase of demand for food [Figiel, Hamulczuk 2012].

The growing impact of transnational corporations – first of all commercial and production ones – operating in the area of food economy, manifests itself among others in controlling and determination of prices. Big transnational corporations have vast possibilities of manipulation with prices of raw materials and farming produce by means of exchange operations and currency exchange rate manipulation. The most modern corporations have great benefits from the sales of their products on the basis of concessions. The solutions which increase food production by means of using agricultural chemicals are particularly criticized, mainly because of dangers to people's and animals' health and degradation of the natural environment. There are also some reservations concerning GMO.

Polish food producers more and more often encounter competition of transnational corporations on the relatively open market. The huge and still growing potential/capacity of transnational corporations results from having such key resources as modern technologies and huge mobile capital as well as commonly known brands of products and well-developed distribution networks, which allow for an easy access to markets. The political strength of transnational corporations is also growing through increasing their impact on state governments and international non-governmental organizations.

The growing protectionism of individual countries and supranational organizations is usually applied in order to ensure food security for their citizens, since availability of food all over the world has been gaining strategic importance recently. One noticeable effect of the rebirth of protectionist tendencies was an increase in the number and means of interventions in the world. Among various tariff and non-tariff barriers to trade, the most often used were: introduction of export restrictions or bans on food importation, subsidizing prices, raising taxes, attempts to control prices of strategic raw materials, quotas and licences, unclear legal regulations, protective and anti-dumping proceedings, rules of standardization, certification and technical norms. So far, barriers have mainly been used by highly developed countries (e.g. the USA, countries of the EU and OECD). They manifested themselves among others in subsidies for agriculture and protectionist practices. In the latest years, developing countries have also begun to use such actions. There, protectionism usually refers to the use of export customs introduced so as to limit rising of food prices on the internal market. For example, export restrictions concerning cereal have been used by its, the countries exporting it so far: Russia, Ukraine, Argentina and Serbia. What is more, export of cereal is also restricted by China, Brazil, Indonesia, Vietnam, Cambodia and Egypt.

An important aspect of the contemporary protectionism is the use of high food regimes. On the one hand, it is an attempt to protect their own consumers from the danger of introducing to the market products contaminated with various chemicals harmful for a human. On the other hand, it is often a means of eliminating competitors from the local markets.

Such actions destabilize the world food trade, contributing to growth and instability of prices of agricultural raw materials, which in turn leads to upsetting the global food security. Yet, it also means the growing pressure on local increase of food production, mentioned before.

Moving these considerations into practice to indicate the growing conflict in 2014 between the EU economic and Russia. The underlying cause of this conflict are the political conditions that occurred in Ukraine, however economically it bounces off negative publicity in Polish agriculture. Embargo on Polish food by the Russians resulted in a significant reduction in the purchase price of milk (about 8% since the beginning of the year), lower prices of pigs (about 20% less than the previous year) and the most publicized in the media, the problems of the apple producers. It is estimated that this last undeveloped market is about 10% of production (over 300 thous. tons). In addition, due to the considerable oversupply of industrial apples price fell by nearly 70% and in the 2014 season was only 3-5 cents / kg. On the other hand, some experts point out that the embargo can help to improve the quality of Polish apples because it will force growers to the reconstruction of orchards in the cultivation of varieties more readily accepted by consumers at home and abroad, eliminating the growing variety Idared sold exclusively on the Russian market.

The progressing liberalization of goods exchange regarding food is related to the growth of the world food trade. That liberalization causes many dangers for our farming, as the union agriculture is not able to be competitive on the global market. However, it may trigger many opportunities as well. Firstly, concessions on the part of the EU regarding liberalization of its agricultural policy are bound to mean shrinking of the European agriculture, including Polish one, and increasing import of cheap food with poorly controlled quality. On the other hand, population in the countries of Western Europe, which have so far been the main recipients of Polish food products, is decreasing. Due to that, those markets may have a lower demand potential in the nearest years. As for global markets, especially Asian and African market, they are going to grow dynamically (the increase of populations and their income). Therefore, Polish food producers should concentrate on markets beyond Europe more than before.

In the case of limitation or liquidation of protective (customs) barriers in the EU, transnational corporations, main producers in industries such as tobacco, sugar, confectionery or tea and coffee processing may withdraw from Poland in favour of developing countries. That may significantly affect the lowering of Polish agricultural potential. It is so because transnational corporations aim at maximization of profits, looking for places where costs of labour, power and raw materials are lower. Furthermore, an important factor taken into consideration in such decisions is food safety and environmental protection regimes, which are lower in less developed countries.

The duration of the current economic crisis and a growing number of national conflicts even in the domain of integration groups, resulting from the crisis, is one of the most significant developmental problems nowadays. The financial crisis is still the basic phenomenon to determine the world's functioning and there are no realistic ideas of how to overcome it. The biggest world economies try to fight it but they do it separately, each with its own means, and a lack of strong global institutions which would take the lead is clearly visible. It is recognized that the pace and direction of further course of the crisis will determine the developmental possibilities of the world and European economies [Kowalski 2011]. But it must also be noticed that prolonging crisis phenomena lead to intensification of local

conflicts: foods from other countries are discredited under the pretext of protecting one's own consumers and domestic agricultural producers.

Local threats to livestock production associated with epidemics in recent years concern mainly the epidemic of ASF[10]. This threat has been affected by the eastern part of the province of Podlasie, but the sound of the problem on a global scale has been used to the introduction of an embargo by the Russians and the local manufacturers have to reckon with many constraints and losses in the production of pork.

Conclusions

On the basis of the presented discussion, it can be concluded that the determinants of development of Polish agriculture and rural areas is the consequence of global determinants and the macroeconomic policy mainly connected with European integration process. Of course, individual countries also play a role in shaping the directions which are most important for the development of particular areas of that sector.

In the Polish agriculture, there have been significant changes in agrarian and it has undergone significant transformation in terms of increase in the size and number of farms. With the economic environment are eliminated, particularly the smallest farms that the owners did not give chance to survive in a market economy. It should be noted that the process of these changes is not intensive so as expected, initially running the state land market [Ziętara 2013], and then implementing a number of new developments related to the process of European integration [Gonet 2013]. In general, we observe that strengthens the group mid-area farms, going to the higher ranges of area. Significant trends were noted increase in the number of farms especially in periods of over 50 hectares, which clearly shows the increase in the competitive potential. The visible effects are also important when it comes to animal production. First of all, there is a continuous increase in its per 1 ha, which is also reflected in the volume of output and goods.

The determinants resulting from globalization processes of the world food economy may be treated as external determinants of forming the future agricultural policy in Poland. Their unquestionable influence will probably increase, which will have a destabilizing and weakening effect on the agricultural policy of the EU and Poland. It will be even more important, because the former model of European agriculture is becoming undermined globally, as the world implements other visions of agriculture. Against the background of world agriculture, European (also Polish) farming is characterized by:

- lower potential of relatively small farms;
- high amount of family labour;
- low scale of production;
- low level of specialization in multidirectional farms;
- relatively high prices of land.

In the age of global economy dominated by openness, liberalism and overpowering flows of capital and goods, limiting the union economy to the group of its member states dooms it to becoming a backwater. That is why continuation of the previous policy and careful

[10] ASF (African Swine Fever) – The disease was first observed in Kenya in 1910. To Europe (Portugal), the disease arrived in 1957. Consecutively including Spain, France, Italy and other countries. From 2012, the disease occurs in Ukraine, in June 2013. Recorded its occurrence in Belarus and since February 2014 outbreak was found in Lithuania and Poland, in Podlaskie. The disease is not dangerous to humans.

observance of changes on global markets is both a protection and a way of rescue for our agriculture.

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