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Business Conditions in Agriculture

Abstract

This paper presents the findings of the most recent business survey (April 2004) in agriculture in the context of earlier surveys. All results were derived from the data collected from business surveys carried out by the Research Institute for Economic Development of Warsaw School of Economics since April 1992.

The paper begins with a brief description of the survey and of the composite business indicator used to assess changes in business conditions in agriculture. Next it is shown that in the transformation period four distinct phases can be singled out, the latest being a stable recession. The survey data collected at RIED allow to identify factors differentiating business conditions, namely: region, farm's size, farmer's age and farmer's education level. These factors and their correlation with the perceived business condition in agriculture are also discussed. The last part of this paper contains an analysis of selected results of surveys, referring to financial conditions as perceived by farmers.

Key Words: business survey, composite business indicator

1. Preliminaries

Business surveys of agriculture are carried out by the Institute of Economic Development of Warsaw School of Economics four times a year, at the beginning of each quarter. Each covers about 1500 farms. These farms are larger than the average ones in the country, more productive and which is most important, they are run by young farmers, in general, interested in the market-oriented agricultural production, purchasing prices of agricultural products and conditions in the market. This factor is of the utmost importance in the surveys, for it gives appropriate signals both about what is going on in the market and what the conditions of the market-oriented farms are. A special value of the surveys comes from the fact that they have been carried out without any break since 1992 on the stable sample of farmers.

The survey is based on a questionnaire both published in the Agrobazar Monthly and sent out to the Agricultural Extension Service Centers which also participate in the survey. The farmers fill in the questionnaire and send it back to the Institute. They are asked questions concerning the problems included in the questionnaire in the following way: more (+), same, less (-), or better (+), no change, worse (-) or above norm (+), normal, below norm (-) or more than enough (+), enough, less than enough (-). Percentage of positive (+), neutral (i.e. no changes) and negative (-) answers is counted for each question (problem) as well as difference between percentage of positive and negative answers. These differences are *the percentage balances* which form the basis and source of our knowledge about the economic situation of agricultural farms i.e. business situation of the Polish agriculture (see: questionnaire form in the Appendix).

2. Construction of the composite business indicator

The construction of the composite business indicator in agriculture, applied in RIED is original. The indicator is calculated on the basis of two different individual indicators, namely:

- indicator of smoothed income,
- indicator of assessment concerning prospects for further running the farm or the so-called optimism indicator.

The indicator of smoothed income is calculated on the basis of four balances, each two for the state in a given and previous survey, as well as for a forecast taken from two surveys. For instance, the indicator calculated for April 2004 comes from the January survey (balance of January income and balance of January forecast for April income) as well as from the April survey (balance of April income and April forecast for July income).

For April 2004 the indicator of smoothed income reached the value:

$$\frac{(-35.5) + (-19.5) + (-15.3) - (-8.9)}{4} = \frac{-79.2}{4} = -19.8 \quad (1)$$

It is seen that the farmers were rather pessimistic in January because their forecast balance for April amounted to -19.5 point, whereas a real income balance in April 2004 was less negative (-15.3). The farmers were more optimistic in April this year, because their forecast balance for July was less negative (-8.7 point). It should be taken into account that the indicator of smoothed income is subject to big seasonal fluctuations within a year. It is on the rise in the second half of the summer and in the autumn and on the decline in the winter and early spring.

Confidence indicator is based on replies to the following question in the questionnaire: "How does a farmer see the future of his economic activity?" There are three possible answers to this question: 1- "with confidence", 2- "with concern", and 3- "with fear". The two extreme replies are assigned weights of +1 and -1, respectively, and the medial one the weight of -0.1.

In April the indicator of confidence reached the value:

$$12.3 \times 1.0 + 70.8 \times (-0.1) + 16.9 \times (-1.0) = -11.7 \quad (2)$$

The indicator of confidence does not demonstrate such regular, cyclical seasonal changes within a year, as does the indicator of smoothed money income, although in longer periods the shape of the first is close to the latter.

The composite business indicator is calculated as a weighted mean of both individual indicators and, by construction, it is more influenced by the indicator of smoothed income, which constitutes 2/3 of the composite indicator, while the indicator of confidence constitutes only 1/3 thereof.

In April 2004 the general composite indicator reached the value:

$$\frac{(-19.8 \times 2) + (-11.7)}{3} = -17.1 \quad (3)$$

3. Differentiation of business conditions in the period of the Polish transformation 1990-2004

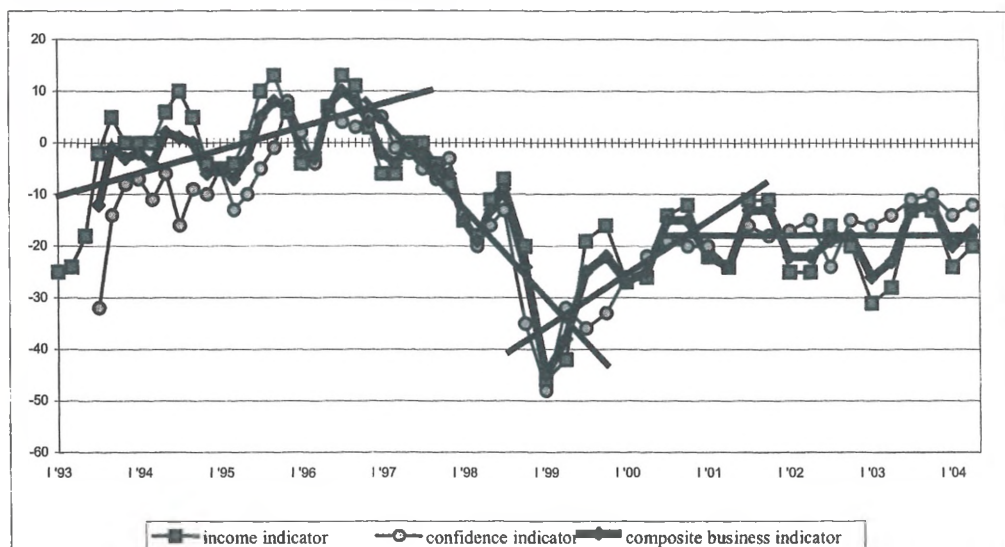
The values of the composite business indicator and its components for the years 2002-2004, computed in the above-mentioned way are shown in Table 1:

Table 1. Composite business indicator and its components

Type of indicator	2002				2003				2004	
	I	IV	VII	X	I	IV	VII	X	I	IV
Smoothed money income	-25	-25	-16	-20	-31	-28	-13	-13	-24	-20
Business optimism among farmers	-17	-15	-24	-15	-16	-14	-11	-10	-14	-12
Composite indicator	-22	-22	-19	-18	-26	-23	-13	-12	-20	-17

The indicators shown in Table 1, as well as the indicators from the previous years, not shown in this table, were the basis for the graph (Graph 1) to demonstrate business conditions in agriculture during the Polish transformation.

Figure 1. Business indicators in agriculture



To assess business conditions in agriculture since the beginning of the survey till spring 2004, four clearly different periods can be singled out:

- *the first*, after a sharp worsening of business conditions in the first years of transformation (1990-1992, which are not included in the Graph 1), business situation was getting better from 1993 till the turn of 1996/1997;
- *the second*, from the late spring of 1996 till January 1999 business conditions were getting worse; business conditions became the worst at the turn of 1998/1999;
- *the third*, from the beginning of 1999 the business conditions were slowly getting better as a result of slight changes in agricultural policy (increasing intervention on the market such as direct subsidies to grain purchasing, intervention purchases of some products, export subsidies, etc.
- *the fourth*, in which from the beginning of 2002 this slow improvement stopped and symptoms of a stable recession became visible. It was demonstrated by drawing of a straight line, parallel to axis of abscissas (horizontal). This reflects the stable recession at the level of about -17 points.

4. Differentiation of business conditions in macroregions

Poland's disappearance from the political map of Europe after losing independence (1795-1918) and decision to move Polish borders to the west, made by the victorious powers after WWII in 1945 still have a big impact on the situation in the Polish agriculture. It is reflected in a large regional differentiation in land structure, level of agricultural production and cultivation and in many other aspects as well. Therefore, when the survey was extended to regional studies of business conditions in April 1999, it was very easy to class 16 voivodeships with 5 macroregions which are clearly different on one hand, but constitute pretty coherent territorial entities on the other.

Two of these macroregions are situated in the Western Territories, regained after WWII in 1945. These are: the Northern Macroregion (three voivodeships, named in Table 2), with the biggest number of the largest farms, established on the basis of the state-owned farms or PGR, liquidated in the first years of the Polish transformation (1990-1993) and the Western Macroregion (three voivodeships) of a similar but slightly different origin from the Northern one. The Middle-Western Macroregion corresponds with the Prussian Sector, situated within the boundaries of Germany in the 19th century. This region has the best developed agriculture, with the biggest number of large and medium-sized farms (10-20 hectares) and highly developed animal production (pigs, dairying), numerous food-processing plants and strongly market-oriented agriculture. The Middle Eastern Macroregion corresponds to the Kingdom of Poland, constituting a part of Russia in the 19th century. The region has had the most backward agriculture so far, with medium-sized farms (5-10 hectares), low output and weak market orientation. The Southern Macroregion is situated in the former Austrian district, with the most fragmented land structure (1-4 hectares) and farms with the weakest market orientation, whose owners are interested only in supplying themselves with food products

The composite business indicators were computed for these five macroregions, like for the whole country. Table 2 compares arithmetic means of the indicators resulting from 21 surveys carried out between April 1999-April 2004.

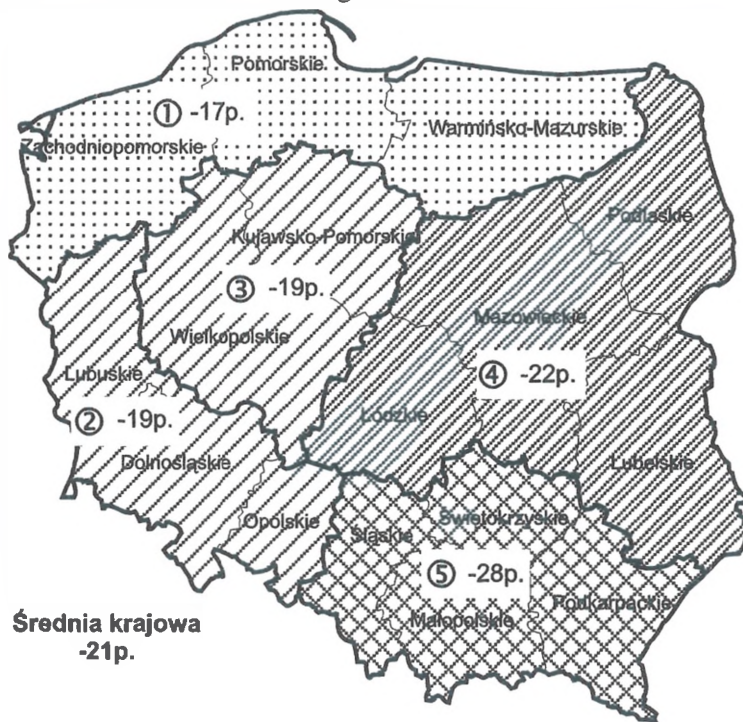
Table 2. Business indicator in macroregions in the years 1999-2004 (arithmetic mean of 21 surveys)

Whole country	Macroregions, Voivodeships				
	Northern	Western	Middle-Western	Middle-Eastern	Southern
	1. West-Pomeranian v. 2. Pomeranian v. 3. Warmia-Mazurian v.	1. Lubuskie v. 2. Lower Silesian v. 3. Opole v.	1. Great Poland v. 2. Kujawy-Pomeranian v.	1. Łódź v. 2. Mazovian v. 3. Podlasie v. 4. Lublin v.	1. Silesian v. 2. Little Poland v. 3. Świętokrzyskie v. 4. Sub-Carpathian v.
-21	-17	-19	-19	-22	-28

Recession dominates in all regions of the country. Its intensity does not differ too much, though in the years 1991-2001 the differentiation between the north-western and south-eastern part of the country was significant.

In the last eight surveys (July 2002-April 2004) the Middle-Western Macroregion was the biggest loser (low profitability of hog breeding and milk production), while the Northern Macroregion was the biggest beneficiary (thanks to subsidies to grain purchases given to big farms by the Government).

Figure 2. Business indicator in macroregions



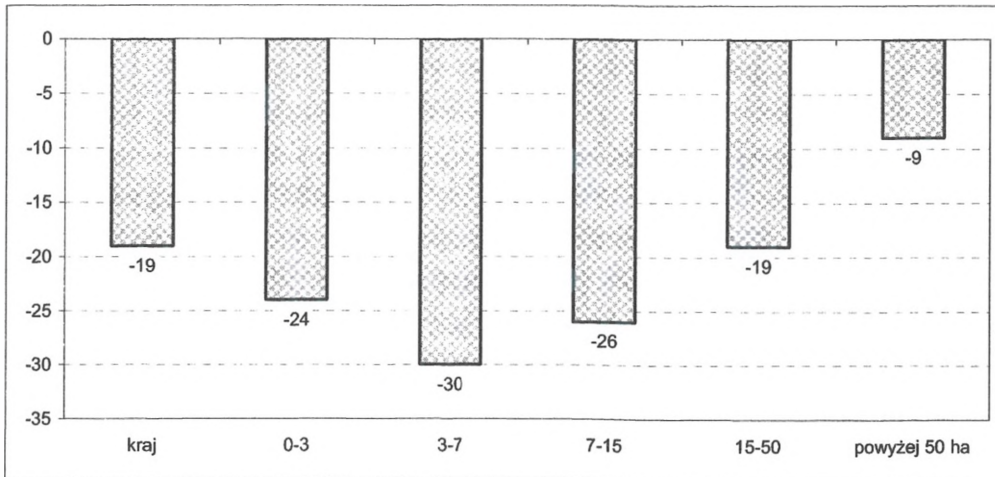
National average -21

The figures contained in Table 2 were the basis for preparation of a graph to demonstrate more vividly a slight differentiation of business conditions between north-western and south-eastern part of the country. The north-western part has bigger and market-oriented farms, whereas in the south-eastern part of the country the farms are smaller and their owners are to a greater extent interested in supplying their families with food products.

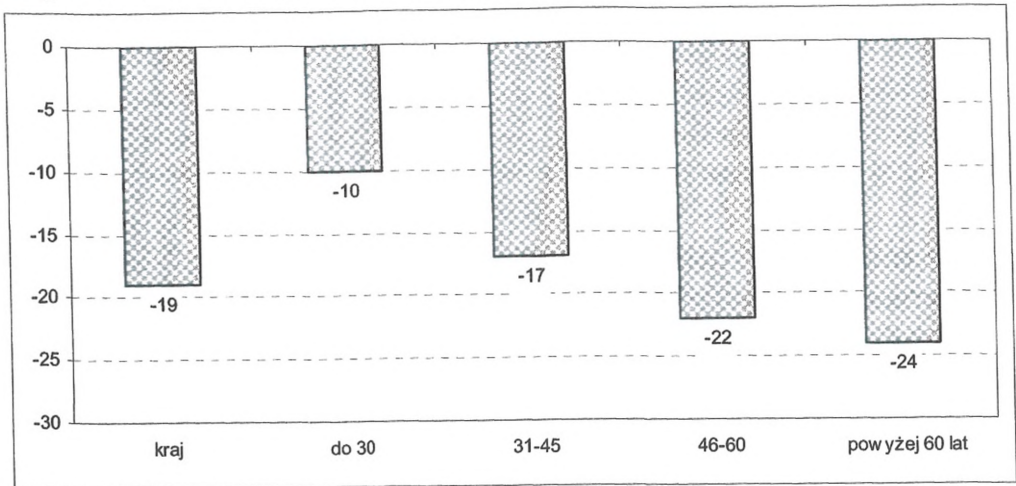
5. Differentiation of business conditions according to area of farms, age of farmers and level of farmers' education

Business conditions slightly differ, according to area of farms. From among five different area groups the biggest recession was seen in the farms of 3-7 hectares. These farms try to increase their production potential, therefore they invest, but they are not strong enough to cope with it. Bigger farms have better results which is demonstrated in the graph below. However, even the biggest farms are hit by a moderate recession.

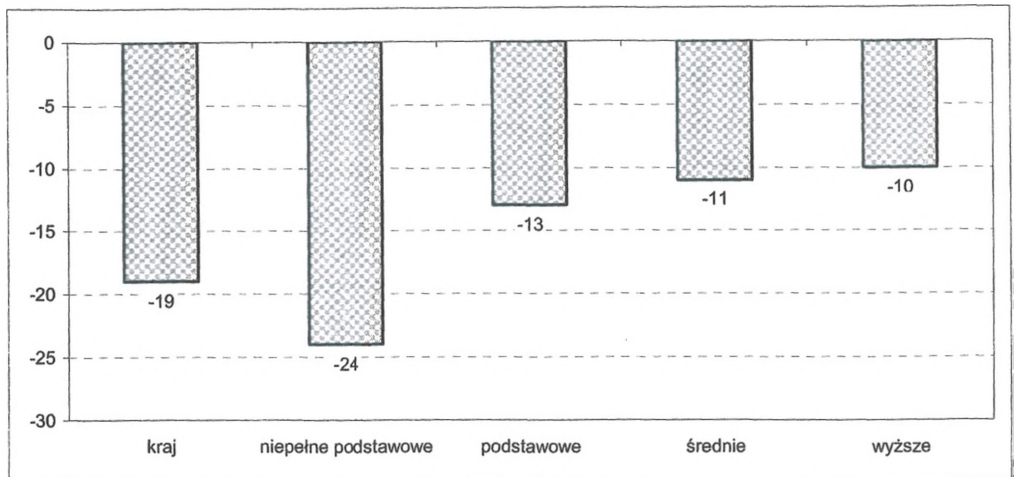
Graph 3. Business indicator in the years 2001-2004 according to farms' area



Intensity of recession clearly depends on the age of farmers. There is a very clear correlation between the age of farmers and the intensity of recession: the older farmers are, the deeper recession their farms are hit by.

Graph 4. Business indicator in the years 2001-2004 according to the age of farmers

Likewise, a lower level of farmers' education or the lack of any education results in deeper recession in their farms. It should be added, however, that there is a correlation between the age of farmers and their education level: younger farmers are better educated and better prepared for farming in the conditions of market economy.

Graph 5. Business indicator in the years 2001-2004 according to farmers' education

6. Level of farms' savings

The level of farms' own savings constitutes a very important supplementary indicator to reflect their economic performance. In each survey the indicator is

calculated on the basis of four quotations (like the income indicator); the two calculated for a diagnosis in a given and previous survey and two calculated for a forecast in the above-said surveys. The savings indicator values are demonstrated in Table 3.

Table 3. The smoothed savings indicator in the years 2000-2004

Months	2000	2001	2002	2003	2004	Average
I	-42	-35	-40	-42	-39	-40
IV	-44	-40	-45	-42	-41	-42
VII	-35	-30	-38	-33	-	-34
X	-29	-28	-36	-32	-	-31

Deeply negative smoothed savings indicators result from the fact that overwhelming majority of farms assess very critically the level of their savings, particularly in winter and spring. A dramatic shortage of financial means in the farms surveyed, typical for the Polish transformation in spite of credit availability, is the main barrier to their development. The drastic shortage of financial means is common for all macroregions of the country. In the last years the shortage is very visible in the Middle-Western macroregion which has the largest percentage of highly market-oriented farms with predominantly animal production (meat, milk). Existing surplus of supply over demand resulted in low purchasing prices, unfavorable price scissors and money shortages on farms. For the same reasons, the medium-sized and slightly bigger farms are in the most difficult situation. The largest farms which did not breed animals but grew grain or rape, were doing slightly better but were also at a disadvantage. Both, farmers' age and their education had a lesser impact upon the differentiation of the level of smoothed savings.

7. Other survey's findings

A high percentage of farmers affirm **an availability of preferential credits** (recently about 90%). Over a half of the farms surveyed took these credits. Commercial credits with high interest rates are not so popular. All regions are provided with similarly high preferential credits. All owners of farms, regardless of size, are generally aware of preferential credits availability. There is a common knowledge among farmers, irrespective of their age, of the credits, although not so common among the older ones.

The farms are moderately in debt. In the successive surveys in 1999-2004 the farmers maintained that nearly one-fourth of farms were not in debt at all, while those in debt intended to reduce their debts or keep them on unchanged level. In the Southern and Middle-Eastern Macroregion there is a bigger percentage of debt-free farms than in the remaining three regions; at the same time the biggest farms (of 50- and above 50-hectares as well as 15-50 hectares) are in the biggest debt which means that they take credits more willingly than the smaller ones. Young farmers on their way to well-being take credits more willingly than the old ones, likewise the farmers with higher and secondary education are more in debt than the farmers with primary education.

Being short of financial means the farmers curtail **the purchases of liquid means of production**. This lack of purchases looks similar in all regions of the country, but it is more strongly visible among the smaller farms and older farmers. In the years 1997-1998 the farmers **undertook fewer investment projects**, which is now common in all regions of the country. Bigger farms (of 50 and more hectares) undertake investment projects more frequently than other farms, the same relates to younger and better educated farmers.

Appendix
FARM'S QUESTIONNAIRE
April 2004

Encircle respective number

No.	Subject of the question	At present		Prognosis	
		was in April 2004		will be in July 2004	
I Financial standing of the farm		as compared with			
		January 2004		April 2004	
1.	money income	1. higher 2. same 3. lower 4. none	1. higher 2. same 3. lower 4. none	1. higher 2. same 3. lower 4. none	1. higher 2. same 3. lower 4. none
2.	savings (in PLN, foreign currency, etc.)	1. bigger 2. same 3. smaller 4. none	1. bigger 2. same 3. smaller 4. none	1. bigger 2. same 3. smaller 4. none	1. bigger 2. same 3. smaller 4. none
3.	indebtedness	1. bigger 2. same 3. smaller 4. none	1. bigger 2. same 3. smaller 4. none	1. bigger 2. same 3. smaller 4. none	1. bigger 2. same 3. smaller 4. none
II Current purchases		You bought(and) in spring 2004 comparing with spring 2003			
4.	chemical fertilizers	1.more 2.same 3.less 4.no			
5.	fodder	1.more 2.same 3.less 4.no			
6.	pesticides	1.more 2.same 3.less 4.no			
III Investments		made(and) or will make			
7.	machinery and equipment	1.yes 2.no			
8.	construction (houses, farm buildings, greenhouses, etc.)	1.yes 2.no			
IV Credits					
9.	Are preferential credits available?		1.yes 2.no		
10.	Are you going to apply for credit?		1.yes 2.no		
11.	Did you take credit:	preferential	1.yes 2.no		
		commercial	1.yes 2.no		
V Assessment of prospects for the farm					
12.	Family sees the future of the farm		1. with confidence 2. with concern 3. with fear		

Circle a respective number

Give requested information

1. Voivodeship: (name it)
2. Quote the area of your farm in hectares
3. Farm manager is:
 1. up to 30
 2. 31-45
 3. 46-60
 4. 61 and more
4. Farm manager has:
 1. incomplete primary education
 2. primary or vocational education
 3. secondary or professional college education
 4. higher education