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# **Methodology of the Agriculture Business Climate Index (ABI)**

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## **About the Project “German-Ukrainian Agricultural Policy Dialogue” (APD)**

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The German-Ukrainian Agricultural Policy Dialogue provides policy advice to Ukrainian state authorities and business associations on reforming agricultural policy and legislation in accordance with principles of a market economy. In our advisory work, we take into account relevant German as well as international experience and practice (EU, WTO). The project is funded by the German Federal Ministry of Food and Agriculture under its Cooperation Program through GFA Consulting Group GmbH as the mandatary as well as IAK AGRAR CONSULTING GmbH and the Leibniz Institute of Agricultural Development in Transition Economies (IAMO) as project developers. From the Ukrainian side responsible for the execution of the project is the Institute for Economic Research and Policy Consulting (IER).



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## 1. JUSTIFICATION

The Agriculture Business Climate Index (ABI) is an early indicator for the development of the agriculture sector in Ukraine. It was developed in close collaboration between the Ukrainian Agribusiness Club (UCAB) and the German-Ukrainian Agriculture Policy Dialog (APD) in order to get fast, reliable insides to the subjective evaluation of the business climate by agriculture producers. ABI focusses particularly on the stability of general policies, the reliability of the agriculture policy framework and the expected development of the overall economic situation. In addition to the collected statistic data the index provides useful input to policy decision makers as well as to the business community.

Given that there is a strong need in reliable information about the recent trends in agricultural sector in Ukraine: prices, regulations, investment intentions of agricultural producers, perception of the ease of doing agribusiness in Ukraine by the participants of agricultural market, etc. Agriculture Business Index will be introduced in order to evaluate effectiveness of the state regulation policies, development of the sector and its investment attractiveness.

## 2. GENERAL APPROACH

The calculation methodology follows in broad terms the German "Ifo Business Climate Index" (BCI) elaborated and implemented since 1972 by the Leibniz-Institute for Economic Research of the University Munich <sup>1</sup>. Although BCI reflects only a limited share of gross domestic production it has shown his relevance for policy and business. The index is of particular significance for outlooks on reversals in economic growth, whereas turnarounds in the economic development can be forecasted with a quite high level of reliability.

Agricultural producers are asked to give their assessments of the **current business situation** and their **expectations** for the next six months. They can characterize their current situation as "good", "satisfactorily" or "poor" and their business expectations for the next 12 months as "more favorable", "unchanged" or "more unfavorable". The replies are weighted and aggregated according to the impact on gross production of corresponding producer group. The **balance value** of the current business situation is the difference of the percentages of the responses "good" and "poor", the balance value of the expectations is the difference of the percentages of the responses "more favorable" and "more unfavorable". Thus **business climate** is a mean of the balances of the business situation and the expectations.

### ***Example to illustrate how the balance values are calculated in BCI:***

*Of 100 responding firms, 40% appraise their business situation as satisfactory, 35% as good and 25% as poor. The requested producers that assessed their situation as satisfactory are considered to be "neutral" and do not affect the results of the business-situation appraisal. The two remaining percentage values (35 - 25) are now balanced. The resulting value of 10 percentage points is the business-situation appraisal, i.e. the first component of the business climate in the form of a balance. The six-month expectations are calculated the same way. From the situation and expectations appraisal the mean is formed, which is the Agriculture Business Climate balance for the individual month:*

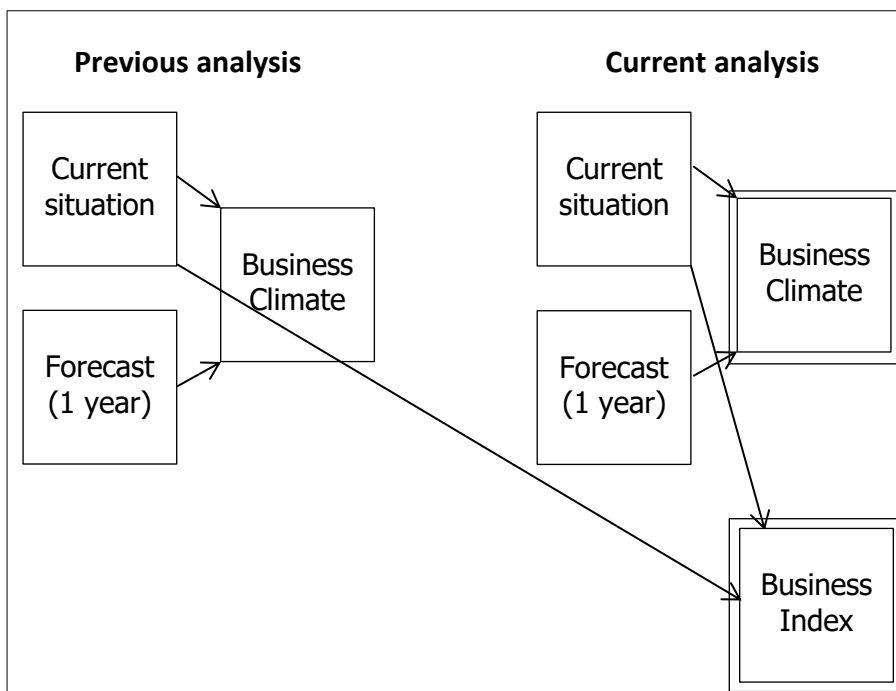
<sup>1</sup> <http://www.cesifo-group.de/ifoHome/facts/Survey-Results/Business-Climate/Geschaeftsklima-Archiv/2015/Geschaeftsklima-20150522.html>

$$\text{Business Climate} = \sqrt{(\text{situation} + 200)(\text{expectations} + 200)} - 200$$

The Agriculture Business Climate balances can fluctuate between extreme values of -100 (i.e., all responding firms appraise their situation as poor or expect business to become worse) and +100 (i.e., all responding firms assessed their situation as good or expect an improvement in their business). For calculating the **index values** of the business climate and its components - situation and expectation - the balances are all increased by 200 and normalized to the average of a base year (currently 2005).

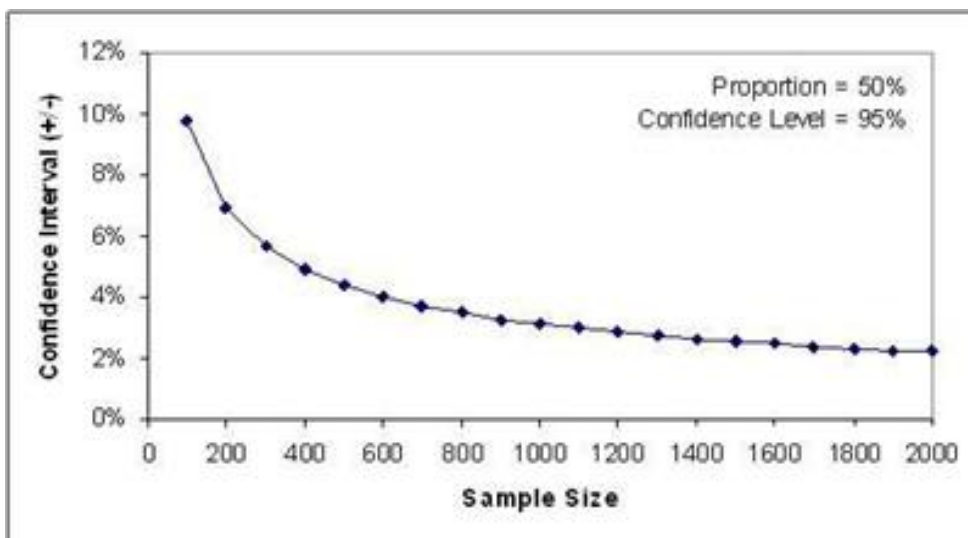
$$\text{Index value} = \frac{\text{balance in the current month} + 200}{\text{average balance in the base year} + 200} \times 100$$

**Figure: Scheme of calculation of Business Climate and Business Index**



### 3. SPECIFIC APPROACH ON ABI

In case of ABI, the results of the first implemented survey, August 2015, will serve as a base. The ABI is expected to get carried out three times per year (February, August, November).



Interviewing 400 agricultural producers will provide statistically reliable data at the county level with the margin of error  $\pm 4,85\%$  at a confidence level 95%. Decrease of the sample size will lead to lesser statistical accuracy of the results. Altogether sample plots are scatter into 28 elements (see page 3 and table 1), whereas on an average each element is represented by  $400 / 28 = 14,3$  responses.

Total input of participants of the survey into gross agriculture production is calculated on a level of about 11%, which seems sufficient comparing it with the experiences of BCI in Germany.

#### Analyzed clusters and structure

The sample of agricultural producers is clustered on the basis of their specific input into agricultural GDP of Ukraine by three main factors: region, ownership structure and specialization.

- 4 Regions (in parenthesis – share of agriculture GDP):
  - Southern step areas (Odesa, Mykolaiv, Zaporizhzhya, Kherson regions) - 18%,
  - Black soil areas (Kmelnytsk, Vinnytsya, Cherkasy, Kirovograd, Dnipropetrovsk, Poltava regions) - 39%,
  - Carpathian region and (Chernivtsi, Ivano-Frankivsk, Zakarpattya, Lviv, Volyn, Rivne regions, Ternopil) - 17%,
  - North-Eastern sand soil areas (Kyiv, Chernigiv, Zhytomyr, Symy, Kharkiv regions) - 26% see map in graph



- 2 sectors by specialization (in parenthesis – share of agriculture GDP) :

- Animal and mixed production (24% for agriculture enterprises),
- Plant production (76% for agriculture enterprises),
- 4 “enterprise” structures (in parenthesis – share of agriculture GDP):
  - Individual producers (households) (46%),
  - Independent enterprises (33%)
    - Small and medium farmers - up to 5.000 ha (78% or 26% of total sample)
    - Big farm enterprises - more than 5.000 ha – (22% or 7% of total sample)
  - Agriholdings (21%)

***Definition of enterprise” structures***

*Individual Producers (households):*

*Owners of agriculture land, stemming from the privatization during early 90ies, mainly in a size range between 1-5 ha, without juridical and fiscal status, but with significant shares of important agriculture production, such as milk and meat, among others via direct marketing on individual sales markets.*

*Independent Enterprises:*

*Juridical entities, with fiscal registration, which run agriculture business on their own land and on rented from individual owners agriculture land.*

*Agriholdings:*

*Conglomeration of independent enterprises in the ownership of one entrepreneur, with more or less common business approaches.*

Taken that state enterprises are to be privatized in the nearest future, it would be more relevant to consider these enterprises as private ones (in the study state enterprises are considered in the cluster of independent private enterprises up to 5000 ha). Further, as the key argument for reflecting agriculture producer structures in ABI is their share in gross production, it seems evident, that individual producers need to be included in the survey, due to their significant market share in meat, dairy, vegetables and fruit production.

**Table: Model of a sample clusterization<sup>2</sup>**

<b>Region</b>	<b># of respondents</b>	<b>ownership</b>	<b># of respondents</b>	<b>specialization</b>	<b># of respondents</b>
<b>Southern step areas</b>	72	Private household	33		33
		independent up to 5000 ha	24	animal production	6
				crop production	18
		independent over 5000 ha	7	animal production	2
				crop production	5
		private enterprise in a holding structure	8	animal production	2
		crop production	6		
<b>Black soil areas</b>	156	Private household	72		72
		independent up to 5000 ha	41	animal production	10

<sup>2</sup> will be completed after the final sample size is defined

Region	# of respondents	ownership	# of respondents	specialization	# of respondents
Carpathian region	68	independent over 5000 ha	12	crop production	31
				animal production	3
		private enterprise in a holding structure	31	crop production	9
				animal production	7
		Private household	31	crop production	24
		Private household	31	crop production	31
		independent up to 5000 ha	17	animal production	4
				crop production	13
		independent over 5000 ha	5	animal production	1
				crop production	4
private enterprise in a holding structure	15	animal production	4		
		crop production	11		
Private household	48	crop production	48		
North-Eastern sand soil areas	104	independent up to 5000 ha	27	animal production	6
				crop production	21
		independent over 5000 ha	8	animal production	2
				crop production	6
		private enterprise in a holding structure	21	animal production	5
private enterprise in a holding structure	21	crop production	16		
<b>Total #</b>	<b>400</b>		<b>400</b>		<b>400</b>

#### 4. TECHNICAL IMPLEMENTATION AND VIABILITY OF ABI

The survey respectively collection of data is expected to be implemented via telephone interviews with owners, respectively leading managers. Main advantages of the telephone interviewing of agricultural producers in Ukraine is a relatively high response rate and affordable price. Data collection is conducted by qualified interviewers. Raw data will be available in Excel and SPSS format. The database of agricultural producers is collected from existing databases with UCAB, APD and others. User right of the term "Agriculture Business Climate Index" are fixed to APD and UCAB as partners during a joint venture.



## ANNEX

### Questionnaire for interviews

#### 1. Questions on the current economic situation

Single choice answers: "good", "satisfactory", "poor",

How would you assess ....	Weight
<b>• your current economic situation as an agriculture producer?</b>	<b>1</b>
• productivity level of your business?	0.1
• cost level of your business?	0.1
• extent of your business (in terms of land bank, number of animals etc.)?	0.1
• your access to third party capital, e.g. credits?	0.1
• your access to qualified employees?/professional knowledge (for individual households)	0.1
• your access to modern machinery and equipment?	0.1
• impact by the general policy situation in Ukraine on your business?	0.1
• state support (subsidies) for your business?	0.1
• impact of general economic situation in Ukraine on your business?	0.1
• willingness of state authorities to cooperate (bureaucracy, corruption problems)	0.1

#### 2. Questions on the expected economic situation

Single choice answers: "more favorable", "unchanged", "less favorable",

How do you expect over coming 12 months will change ....	Weight
<b>• your economic situation as an agriculture producer?</b>	<b>1</b>
• productivity level of your business?	0.1
• cost level of your business?	0.1
• extent of your business (in terms of land bank, number of animals etc.)?	0.1
• your access to third party capital, e.g. credits?	0.1
• your access to qualified employees? /professional knowledge (for individual households)	0.1
• your access to modern machinery and equipment?	0.1
• impact by the general policy situation in Ukraine on your business?	0.1
• state support (subsidies) for your business?	0.1
• impact of general economic situation in Ukraine on your business?	0.1
• willingness of state authorities to cooperate (bureaucracy, corruption problems)	0.1