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Did the Managers’ Expectations Predict the Economic Crisis in Ukraine?

Results of the Business Tendency Survey in Ukraine before and during economic crisis

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Abstract

The question whether the managers’ expectations describe and predict main economic tendency in Ukraine is important question for the economic policy in the country. Nevertheless when we deal with particular country it is necessary to get sufficient evidence of relationship between Business Tendency Survey data and quantitative data of the official statistic. The information about business’s perceptions of their environment became of key importance in the times of change in economic tendencies. The international financial crisis of 2008 is just the such period in economic development of the world. The crisis and next deceleration of world economy have to led a sharp recession of Ukrainian economy in 2009.

In Ukraine the Quarterly Enterprise Survey is the oldest survey belongs to the group of Business Tendency Surveys which has been originally launched in 1996. It covers the period of economic recession (till 1999) and next economic growth (from 2000 till now). In order to evaluate the quality of businessman’s prediction and as results to find out whether the data received from the Ukrainian survey is close to economic tendencies it is necessary to compare the data received from the survey with quantitative data of the official statistics.

In the paper the relationship of the indicators received from Business Tendency Survey to published statistical macroeconomic indicators is analyzed. Comparison is done for all period of observations (from 1998 to 2009) with special attention on 2008-2009 crisis period. Also the description of the dynamic of survey’s variable before deterioration of macroeconomic indicators and during the recession in 2009 has shown.

Key Words: Business Tendency Survey, Leading Indicators, Expectations, Confidence Indicators, Manufacturing, Ukraine

JEL Classification: C42, E32
1. **Introduction**

The aim of the paper is to find to what extent the qualitative data correspond to the “real” economic situation and find out its predicting ability in case of Ukraine in time of economic crisis.

Business tendency surveys (BTS) are the source of information about the state and future progress of selected economic indicators based on the enterprise managers’ opinions and expectations. The BTS data called “qualitative” statistics aims to improve the information basis of trade cycle analyses and forecasts. According to a literature there is a close correlation between quantitative and qualitative data. Thus, EC, (1997) mentioned that the study of a time series of BTS data can give a valuable insight not only of the fluctuations of the respondents’ judgments, but also of the evolution of the variable itself. Nevertheless when we deal with particular country it is necessary to get sufficient evidence of relationship between Business Tendency Survey data and quantitative data of the official statistic. Especially the study of correlation of qualitative and quantitative data is important in time when tendencies of economic development have being change.

The scale of 2008 international financial crisis has been unprecedented shock for the world economy. The crisis has affected Ukraine in a number of ways. It deals with financial sector, real sector, labor market and social welfare. Thus, the crisis and the resulting deceleration of the world economy have led to a shape decline in growth of the Ukrainian economy in the 4th quarter of 2008 (Burakovsky et al., 2009). The negative tendencies of economic development have been continued in 2009. The Institute for Economic Research and Policy Consulting (IER) has kept their estimate of real GDP contraction at 14.1% in 2009 (IER, 2009).

Starting from July 2002 the Institute for Economic Research and Policy Consultations (IER) continues the Quarterly Enterprise Survey (QES), Project, which has been originally launched in 1996 by Soros Group in Ukraine. This is the survey of the managers of manufacturing enterprises that belongs to the group of business tendency survey and follows a methodology developed at the IFO institute in Munich, Germany. Since 2005 the Project is base for Institutional Partnership between the IER and the Swiss Institute for Business Cycles Research (KOF/ETH).

In this paper we continue the comparison the results of the BTS in manufacturing with quantitative data in Ukraine. The special attention is given to the description of surveys finding before deterioration of macroeconomic tendencies in Ukraine. We are looking answer to the question either business opinion has predicted the economic recession in Ukraine in the end 2008 - 2009. The QES data set is used for looking the leading or coincident indicators to corresponding quantitative time-series in the Ukrainian conditions in times of crisis. At the beginning of the paper a lot of attention is pied for data set description.

Correlation analysis is the method applied to analyze the relationship of the indicators received from BTS and quantitative statistic indicators. Correlation is run for period of observations from 1998 to 2009 when it possible. Especially the attention is paid on recent two years period. The both qualitative and quantitative data used for the correlation analysis are seasonally adjusted.
2. Background and Research Objectives

2.1 Background of the research

Before starting our study it is important to describe the economic development in Ukraine in second part of 2008 and first part of 2009. International financial crisis and the resulting deceleration of the world economy have led to a sharp decline in growth of the Ukrainian economy in the fourth quarter of 2008 and next break down of economy in 2009.

![Figure 1. Growth rate of GDP and Industrial Output in Ukraine, yoy](image)

In 2008 real GDP growth decelerated from 6.3% yoy for the first nine months to 2.1% yoy for the year. In nominal terms GDP constituted around UAH 949.9 bn (USD 180.3 bn) in 2008. Ukrainian economy is export oriented one. Export is about 50% of GDP (e.g. 63.6% in 2004, 46.8% in 2008)\(^1\). Reduced demand and prices on international commodity markets have caused an abrupt decrease in Ukrainian export. First, this is felt negatively in ferrous metals and chemical products. Thus, real export of cast-iron dropped by 30.8 percent from September to October 2008. Decline of real export was seen in other categories of no precious metals and in several groups of chemical industry products. Decreased prices and demand for metals has caused major problems in the domestic mining and smelting sector. Reduced domestic demand cased mainly by limited access to consumer credits had a negative influence on machine building. Production of automobile industry has decreased by 40 percent during the last four months of 2008. Demand for production of transport machine building has also dropped. As results, total industrial production in the last quarter of 2008 started to decline. According to the Ukrainian State Statistical Office (Derzhkomstat), industrial output contracted by 3.1% yoy in 2008 in comparison with a 10.2% rise in 2007. The last year with comparable reduction in

\(^1\) State Committee of Statistic of Ukraine, [www.ukrstat.gov.ua](http://www.ukrstat.gov.ua)
industrial production was 1996. In the Figure 1 the growth rate of GDP and industrial output are presented.

Moreover, the contraction of housing and commercial construction that had been observed since the beginning of the 2008 sharply accelerated in autumn of 2008 against the background of crisis in the domestic financial system. In September-October 2008, the banking system faced an outflow of deposits with simultaneous increase in bad loans. Also the autumn 2008 phase of international crisis restricted access to external financial resources. This restriction has significantly affected the active operations of commercial banks in the setting of exhausted interbank financial resources due to problems in real sector. Hryvna devaluation imposes additional difficulties for loans repayment. Exchange rate fluctuation has sharply increased due to imbalance of demand and supply. During October 2008, the exchange rate fluctuated around USD 1:UAH 5.06-UAH 7.05. In the 2009 the devaluation has continued. In the end of August 2009, the interbank exchange rate is USD 1:UAH 8.15 (Burakovsky I. Et Al. (2009).

In 2009 the negative tendencies in Ukrainian economy has been continued in the first half of year. Real GDP contracted by 20.3% yoy in the first quarter of 2009 reflecting the extremely negative influence of the global economic crisis on the Ukrainian economy. On production side, the major decrease in real value added was in construction (by 54.1% yoy) hard-hit by the decline in the investment activity, and manufacturing (by 36.5% yoy) that suffered from the drop in external demand. Only agriculture, healthcare, and education fared relatively well with results ranging from 1.3% yoy growth to 4.6% yoy contraction. in July there are some signal of improving situation. Industrial production contraction decelerated to 26.7% yoy thanks to noticeable acceleration in most sectors. High external demand for metals was the key driver of July manufacturing growth, raising output in metallurgy by 15.3% mom. Related industries – coke production and non-energy mining – increased output significantly as well by 11.2% mom and 16.1% mom, respectively. At the same time, almost fourfold contraction of alcohol production and standstill of chemical giant ‘Stirol’ limited potential production.

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2.2 Research questions and Hypotheses

In this paper we are looking for correlation between qualitative data of BTS and qualitative data of official statistics in Ukrainian conditions with special attention on crisis period. In Kuziakiv, 2008 it was shown existing the strong correlation between the business tendency survey data and corresponding quantitative statistic data. There was identified a set of survey variables that can be leading or coincident indicators for such “real life statistics” as growth rate of value added in manufacturing sector and growth rate of manufacturing output.

In this paper we assume the significant correlation between qualitative and quantitative data can be found in Ukrainian conditions in time when economic tendencies have turned. In order to increase the quality of the research the both qualitative and quantitative series will be seasonally adjusted. The research question is what kind of variables has more predictable power in time of crisis. In order to find it we compare correlation between different ex ante variables and corresponding quantitative statistics. Furthermore tested hypothesis either the composite indicator is better correlate with quantitative reference series than single variable for period 1998-2009 of Ukrainian data.

3. DATA

3.1 Description of the qualitative data set

3.1.1 The QES data and indexes: overall review

The data used in this paper is received from the QES. The QES is conducted quarterly. The QES questionnaire includes questions about managers’ expectation and in past evaluation of selected economic indicators of particular enterprise in one quarter prospective (3 months). The different variables are covered by the survey. There are such as production, sale, export, demand, order, raw material, finished goods, arrears, profit etc. Also the QES includes questions about evaluation of the both current and future business climate in the country and business situation at the enterprise. The completed list of the indicators can be found on http://www.ier.kiev.ua/English/qes_eng.cgi. The panel sample includes 300 enterprise located in the East, West, Central and East regions of Ukraine. Some time series are collected from the 1996 but majority of the data is observed from 1998. Also there were periods when survey was not conducted due to lack of financing.

As it is mentioned above the QES belongs to the group of BTS, the majority of questions used is the same as traditional BTS questions, but the presentation of the QES data differs from traditional presentation of the BTS data. Instead of balance percents, the QES results are presented as indexes. The content as well as interpretation of the QES indexes is the same as balance percents. Taking into account local specifics of Ukrainian research and policy making communities in the mid of 90th — in order to avoid long explanations for the Ukrainian clients of the survey results what is the difference between percents and balance percents — the research groups which was in origins of the QES2 decided to present survey findings as index which vary from –1 to 1. Such index is calculated as weighted arithmetic mean of answers ‘increase’ (+1), ‘the same’ (0) and ‘decrease’ (-1). In other words

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2 The survey has been originally launched in January of 1996 by Soros Group in Ukraine (SIEAG). SIEAG worked on economic policy advices issues from 1994 till 1998 under the supervision of Prof. Anders Aslund.
the index value equals balances percent divided on 100. For example, if total sample is 100 respondents and 20 respondents report an increase/improvement of the issue (i.e. production in the firms, business situation in the firm, overall economic climate etc.), 50 respondents report a decrease/deteriorate, and 30 report no change, the corresponding index value would be –0.30, which corresponds to –30 balance percents.

3.1.2 The data set used for analyses

We work with the time-series data collected from 1998-2009 on the quarterly base. For the analysis we use time series characterized the ex ante changes. Ex ante indexes base on question “how will the indicator change during next 3-4 months in comparison with quarter # X, increase, remain without changes or decrease”. We call them “indexes of expectations”, acronym is IE. In the paper the abovementioned types of indexes are presented for the following variables:

production,
sale,
export
stock of raw materials,
new order,
domestic demand,
capacity utilization,
employment (number of workers),
profitability.

Since 2002 we started to calculate the Industrial confidence indicator (ICI). ICI and its components (production expectations, assessment of current order books and assessment of current stock of finished goods) are used for our analysis also.

3.1.3 Seasonal adjustment procedures

The data is seasonally adjusted. The seasonal decomposition procedure decomposes a series into a seasonal component, a combined trend and cycle component, and an "error" component. We use the procedure is an implementation of the Census Method I, otherwise known as the ratio-to-moving-average method. offers two different The additive approaches for modelling the seasonal factors is used during the seasonal decomposition procedure.

3.2 Defining period of time

The survey is conducted in the first month of the quarter following the studied quarter. For example if data is marked as Q1 2008 it is mean that information was gathered in last two weeks of April 2008. And in this case IE characterized of the managers’ expectations about possible movement of variable in next three months comparing with Q1 2008. IBCe and IBSe are characterized of the managers’ expectations in next six months prospective.

When correlation analysis is applied the IE is shifted on one quarter forwarded. I.e. IE for the Q1 of 2008 would be compared with IC for the Q2 of 2008 or values of qualitative statistic indicator for the Q2 of 2008.

The history of Ukraine economic development are divided by several periods according to important economic and political reasons. First period is 1996-1999. It is period of mid and end of economic recession, which have been started in Ukraine after breakdown of administrative socialist economy in 1991. Second period in 2000-2004 is beginning of economic recovering. Third selected
period is further economic growth but after important political event that influence all institutions in the country. We are talking about President election in 2004 and “orange revolution”. And the deceleration of economic activity in the end of 2008 and 2009 opened the next page of economic development in Ukraine.

3.3 Quantitative data set description

As corresponding indicators to qualitative data we use the main indicators of Ukrainian national statistics. The QES indexes are correlated to the changes in corresponding quantitative variables. It is reasonable due to nature of BTS data which is movement of the variable. And according to international experience (EE (1997) “the appropriate parameter to be compared with is not the variable itself, but the first differences of the corresponding series”. We do not use rate of the GDP growth due to the QES cover only manufacturing sector of Ukrainian economy. Taking into account that in Kuziakiv (2008) it was found that the rate of growth of value added (VA) constituted as the best reference series for production business surveys indicator from the QES, in this study we use only VA as quantitative time series. Growth rate of specific economic indicators was calculated by such formula: (quarter2/quarter1)-1. This means quarter over quarter growth. The quantitative data is seasonally adjusted also.

4. Analysis and its results

4.1 Description of economic tendencies based on BTS findings in 2008-2009

In the beginning of the 3rd quarter the assessments and expectations of the managers regarding performance of the enterprises have started to deteriorate. The value of Industrial Confidence Indicator (ICI) has decreased from 0.06 in April to -0.05 in July 2008. Than the more significant deterioration of the manager’s expectations have been recorded in the beginning of the 4th quarter of 2008. In the October survey the ICI decreased from –0.05 for the 3rd quarter of 2008 to –0.27 for the 4th quarter which is the lowest value since 2003. The indicator decrease is essentially due to deteriorating production plans for the next three months. The other two components of the indicator (production expectations and assessment of the stock of finished goods) have also significantly decreased. The assessment of the volume of present orders has worsened: from –0.64 for the 3rd quarter to –0.72 for the 4th quarter. As to the third component of the indicator – the stock of finished goods – after its increase in the previous quarter it has decreased again to the 2007 level and amounts to –0.29. In the next quarter (the 1st of 2009) the ICI continue its reduction (from -0.27 to -0.39) again because of deterioration of the production plans of the enterprises for the next 3 months. The assessment of the volume of present orders decreased also (from -0.72 to -0.79). At the same time the value of the component “the stock of finished goods” increased significantly (from -0.29 in the 4th quarter to -0.19 in the 1st). Next in April — in survey for the 1st quarter of 2009— ICI has sharply increased by 28 points traditionally because of the significant change of the production plans of the enterprises for the next 3 months. In this time there was recorded the improvement of production plans. Other two components of the ICI also have improved. In July 2009 ICI has decreased by 2 points in comparison to April because of deterioration of the production plans (-0.13). Two other indicators continue to be improved: the stock of finished goods has decreased (from -0.17 in April to -0.23 in July) and order book has increased (-0.73 in April and -0.66 in July). Non seasonal adjusted dynamic of Industrial Confidence Indicator and its components has been presented in the Figure 3. The seasonally adjusted ICI and its components are presented in the Figure 4. According to analysis of ICI dynamic the signal about deterioration of economic situation have been received in the 3rd quarter of 2008.
The other results of the survey indicated that in July 2008 the first signal about decrease of business activity has been received. First of all there are the demand indicators. While the first signal about deterioration have been received in July 2008, but the worst situation has been recorded in October 2008 survey. In particular, values of demand index diminished considerably from 0.02 to -0.50. In the 1st quarter of 2009, managers (65.3%) predict decline in demand for products of domestic market. According to respondents, the volume of sales has decreased notably in the 4th quarter compared to the 3rd quarter: the value of the corresponding index fell from 0.10 to -0.38. Managers expect a further decrease in this indicator in the next quarter: the index of expected sales equals -0.59. Respondents also noted reduction in new orders in the 4th quarter. The value of the index of new orders has dropped from 0.01 in the 3rd quarter to -0.23 in the 4th. The percentage of managers who assess the stock of orders as a satisfactory one, fell from 22.8% in the 3rd quarter to 18.5% in the 4th. It should be noted that 42.1% of all surveyed managers reported that their companies have no stock of orders. For comparison: there was four times less of such cases (10.2%) in the first half of the year.

After the reduction of domestic demand, observed since October 2008, the improvement in indicators of demand was registered in July of 2009:

- the value of the index of domestic demand increased by 38 points (from -0.67 in the 1st quarter to -0.29 in the 2nd). 17.1% of polled managers informed about growth in demand and 48.3% – about its decline (in the previous quarter these indicators were equal to 4.7% and 74.5% respectively).
- in the 2nd quarter the volume of sales noticeably increased compared to the 1st quarter: the value of the corresponding index significantly went up from -0.58 to 0.09.
- managers also noted increase in the number of new orders: the value of the index of new orders has grown up from -0.40 in the 1st quarter to 0.05 in the 2nd.
- the share of managers assessing the portfolio of orders as a satisfactory one slightly increased to 26.9% in July compared to 24.3% in April. On the contrary, the share of companies those have no stock of orders fell from 40.4% in April to 31.6% in July.
Against the background of encouraging trends according to the results of the survey in the 2nd quarter, managers' expectations concerning demand for the following 3-4 months are very careful. In particular, the index of expected demand for the 3rd quarter has the negative value again and it is less, than the respective value for the 2nd quarter (-0.13 vs. 0.04). In the 3rd quarter more than a half of the managers (57.4%) do not expect significant changes in the number of new orders compared to the 2nd quarter; the index of expected new orders makes up 0.09.

Thus, according to non seasonally adjusted survey findings the July 2008 is turn pint when positive tendencies of economic activity in the country have been substituted by negative trend. This negative trend has been continued in October 2008 and January 2009. In that times the pessimistic assessments and expectations were dominated. In April 2009 the first positive tendencies were recorded. The results of the July 2009 do not provide with clear vision either positive tendencies recorded in spring of 2009 would be continued. Comparison of the seasonal adjusted series are described below.

4.2 Correlation between “real life” official statistics and survey data

4.2.1 Singles variables

The results of the cross-correlation between quantitative data and qualitative data are encouraging. The reference quantitative time series is rate of change of value added (VA). All nine variables which were used for analysis have correlation significant at the 0.01 level with growth rate of VA. The highest correlations are recorded for variables sale, new orders, employment, export and production. When we compare the cross correlation between the series which include and exude the period Q2 2008 – Q2 2009 the correlation either still at the same level or even increase. It means the period of change of the economic tendencies do not reflect negatively on correlation between real life statistics and business tendency survey data.
Table 1 Correlation between BTS indicators characterized performance of enterprise (ex ante) and Growth rate of VA (qoq)

<table>
<thead>
<tr>
<th>IE (Indicator of expectations), SA</th>
<th>Lag/Lead</th>
<th>Quantitative indicators VA, SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production exp. (IE)</td>
<td>+1</td>
<td>0.767*</td>
</tr>
<tr>
<td>Sale exp. (IE)</td>
<td>+1</td>
<td>0.802*</td>
</tr>
<tr>
<td>Export exp.</td>
<td>+1</td>
<td>0.781*</td>
</tr>
<tr>
<td>Stock of raw materials (IE)</td>
<td>+1</td>
<td>0.603*</td>
</tr>
<tr>
<td>Capacity utilization (IE)</td>
<td>+1</td>
<td>0.716*</td>
</tr>
<tr>
<td>New orders exp. (IE)</td>
<td>+1</td>
<td>0.782*</td>
</tr>
<tr>
<td>Domestic demand (IE)</td>
<td>+1</td>
<td>0.650*</td>
</tr>
<tr>
<td>Employment exp.</td>
<td>+1</td>
<td>0.794*</td>
</tr>
<tr>
<td>Profitability (IE)</td>
<td>+1</td>
<td>0.756*</td>
</tr>
</tbody>
</table>

* Correlations significant at the 0.01 level (2-tailed)

Source: Own calculations

Figure 5 Production expectation and rate of growth of VA, seasonally adjusted

In the Figure 5 the correlation between production expectation and rate of value added growth are presented. From the figure we find that the turn points (or change in tendency) for production expectations and rate of VA growth are the same. It is the 1st quarter of 2008. But it is still open question either turn point of starting growth tendency for survey based production expectation indicator would be the same with turn point for quantitative rate of VA growth. In order to ask this question the further observations are requested.

4.2.2 Composite indicator (Industrial confidence indicator)

The industrial confidence indicator (ICI) is defined as the arithmetic mean of the answers to the questions on production expectations, assessments of the order books and assessment of the stock of
finished products (the latter with an inverted sign). In Ukraine this indicator start to be produced since the middle of 2002. In the figure 6 the dynamic of this indicator for non-seasonal adjusted series, seasonal adjusted series and trend cycle series are presented. The data is smoothed by one quarter ahead. From the figure we can learn that the 1st quarter of 2008 is turn point of change in trend of this indicator.

Figure 6  Industrial Confidence Indicator: non-seasonal adjusted series, seasonal adjusted series and trend cycle series

The correlation between seasonally adjusted series of ICI and growth rate of VA is 0.76 with significance at 0.01 level. The ICI is smoothed by one quarter ahead while the growth rate of VA is without smoothing. The correlation between trend cycle series for ICI and growth rate of VA is stronger and equals to 0.87. This results of correlation analysis allows to says that in Ukrainian conditions the ICI may be treat as leading indicator. While in the contract to period 2002-2007 the correlation between ICI and rate of VA growth is almost at the same level as correlation between single indicator and quantitative series. (correlation of ICI and rate of VA growth trend cycle series is 0.77). For the period of 2002-2007 the composite indicator was better as leading indicator than single variable then single variable (Kuziakiv, 2008).

In the Figure 7 the fluctuations of ICI in comparison with growth rate of values added is shown. The first quarter of 2008 is point when the both indicators started to break down sharply.

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3 For details see: The Joint Harmonized EU Programme of Business and Consumer Surveys.
5. Conclusion

1. The results of study allow to state that in Ukraine the business tendency survey data have a quite high correlation with corresponding quantitative statistic data in time when economic tendencies to be in change.

2. The highest correlations between reference quantitative time series and BTS data are recorded for such BTS variables as sale expectations, new orders expectations, employment expectations, export expectations and production expectations.

3. For whole period of observations (1998-2009) the composite indicator is the same quality as leading indicator than single variable. Thus, correlation between Industrial composite indicator and growth rate of value added is 0.76 while correlation between production expectations and growth rate of value added is 0.77.

4. According to non seasonally adjusted survey findings the July 2008 is turn point when positive tendencies of economic activity in the country have been substituted by negative trend. This trend has been continued in October 2008 and January 2009. In that times the pessimistic assessments and expectations were dominated. In April 2009 the first positive tendencies were recorded. The results of the July 2009 do not provide with clear vision either positive tendencies recorded in spring of 2009 would be continued in autumn 2009.

5. According to seasonally adjusted survey results the April 2008 is turn point when positive tendencies of economic activity in the country have been substituted by negative one. It true for the both type of indicates: single variables and composite indicator.
6. The turn points reflecting the start of negative tendencies for survey based indicator (production expectations) and reference series of quantitative statistic (rate of VA growth) are the same. But the survey based data is smoothed by quarter ahead. At the same time the answer on question either turn points of positive tendency would be the same for the both quantitative and qualitative data demands future observations.

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