DO INFLATION EXPECTATIONS OF FIRMS AFFECT THEIR BUSINESS DECISIONS: CASE OF UKRAINE

by

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Abstract

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Inflation expectations gained much attention in a recent couple of decades. Still, despite the agreement on their importance in the decision-making process, there is no agreement on how exactly they affect the decisions of economic agents. While there are studies for advanced economies with extremely low levels of inflation and a long history of communication practices, emerging market economies with double-digit inflation were not covered yet. This thesis focuses on the effects of inflation expectations on firms' decisions, such as investment and employment in the emerging market economy with high inflation variation. We find that after controlling for the situation at the firm, and its overall outlook regarding the economic development, inflation expectations do not have much effect on the willingness to increase investment and employment. It implies that in an emerging economy environment, firms pay more attention to the situation at the firm, and expectations regarding the general situation in the country rather than some specific indices such as inflation.

TABLE OF CONTENTS

LIST OF FIGURES

Number *Page*

LIST OF TABLES

Number *Page*

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Chapter 1

INTRODUCTION

In a recent couple of decades, both economists and policymakers started focusing their attention on not only actual movements of economic indicators but also on what economic agents expect the latter would be. In modern economic theory, expectations considered to play a vital role in agents' decision-making process, influencing the outcomes of different policy measures.

Naturally, economic agents have expectations regarding different economic variables. One of the most important and frequently mentioned in real life is inflation. Expectations of inflation have become one of the main concerns in today's monetary policy process. Notably, they have gained much attention in developed countries, in the light of the need for economic stimulus under recession. As pointed out in Romer (2013), higher inflation expectations can trigger higher spending: a small increase in expected inflation can lower real borrowing costs, and encourage spending on cars, homes and business equipment. Thus, as it is noticed in Coibion et al. (2018), when traditional policy tools are limited, in order to stabilize economic conditions, one can use policies directly influencing agents' inflation expectations. That is why central banks in advanced economies started using expectations channel to achieve their monetary policy objectives. In emerging market countries, such practice is still in the process of developing.

Importantly, to benefit from inflation expectations effects, policymakers have to understand their nature and all the related aspects. To contribute to the knowledge on the above, the researchers have devoted many studies to topics of inflation expectations rationality, their determinants, and influence on agents' decisions. The first and probably the most explored topics in the literature among

the mentioned are the questions of inflation expectations formation and their rationality. Still, economists are not in accord over this topic. Depending on the models tested, and the data used, there are different results produced either supporting rational expectations hypothesis or contradicting it (Mullineaux,1978; Pesando, 1975; Gramlich, 1983; Evans and Pesaran, 1984). One of the reasons for the evidence contradicting rationality hypothesis Andolfatto (2008) names the small sizes of the samples used in economic research. Coibion et al. (2018) paper adds that there are many reasons for observed deviations from full-information rational expectations, which are to be explored further.

Similarly, the question of inflation expectations effects on agents' decisions has not been settled yet. As pointed out in Coibion et al. (2018), there is some empirical evidence, which reveals the existence of a significant effect of inflation expectations on agents' actions. However, the underlying mechanisms are still to be identified, especially for firms. Given such rhetoric, the topic of inflation expectations, and their influence is worth being on the research agenda.

Naturally, one may ask, whom is this research relevant for? First, the results would be valuable for monetary policymakers. The economists are in accord over the importance of expectations in the monetary policy transmission mechanism since the 1950s (Guler, 2016). Along with the knowledge about expectations formation, information about the effects of expectations on the actions of economic players is one of the keys to successful implementing of the monetary policy measures via the expectations channel. The latter proved to be the main channel to transmit the unconventional policy measures in advanced economies (evidence for Japan – Tsuji, 2016). Expectations channel works in a way that when central bank implements an appropriate policy measure, it affects expectations of different economic agents about the future dynamics of the economy, and inflation in particular, which in its turn shape the decisions on production, investment or saving, and consumption. Thus, a better

understanding of the public reaction helps to improve the policy measures, and eventually execute successful monetary policy. Moreover, understanding of inflation expectations effects is essential not only in terms of monetary policy but in terms of other policy areas as well. It is the truth for agents' decisions, eventually affecting aggregate demand and shaping the economic development, and society's well-being, which embraces plenty of variables being under control of many other authorities.

On this account, this research aims to contribute to the existing literature exploring the link between agents' inflation expectations and their decisions, focusing on firms in particular. Here I will outline why this contribution is on demand. One has to admit that some papers have explored the link mentioned above. However, the majority of them are devoted to the expectations of households, and not firms (Banchman et al., 2015; Duca et al., 2018) partly because of the more deficient data for firms available. Moreover, the results found in the literature are somewhat ambiguous. For instance, while Bachmann et al. (2015) does not find much correlation between inflation expectations of the households and their expected consumption, Crump et al. (2015), as well as Dräger and Nghiem (2016), and Duca et al. (2017) have found strong positive relationship between the two variables. As for the papers related to the firms, such as Grasso and Ropele (2016), Coibion et al. (2018), they use the datasets of developed countries, with the period including zero lower bound (ZLB)[1] on policy interest rates. Correspondingly, the results are that firms with higher inflation expectations have more incentives to invest, as they expect higher demand for their products. The results are in line with New Keynesian theory that higher expected inflation stimulates spending through lower real interest

[1] Zero lower bound - a situation when the central bank interest rate reaches or nears zero, so that the central bank cannot lower the interest rate further to stimulate the economy.

rates given the nominal interest rate is fixed. Still, this is not always the case. Coibion et al. (2018) notice, that outside the ZLB, firms which have higher inflationary expectations are not that optimistic regarding their prospects. Besides, when inflation is high, it is associated with more uncertainty in the economy (Golob, 1994). Given these points, I consider it to be reasonable to proceed with further research to check whether in emerging market economies with higher inflation the relationship between inflation expectations of firms and their business decisions may be different. This way, the thesis contribution is to reveal the effect of inflation expectations for firms rather than households, and for the developing economy, rather than the advanced one.

The question of this research is whether inflation expectations of firms, operating in an environment with higher than the optimal level of inflation affect their business plans, and if they do, what is the sign of the effect. What I expect is that high expected inflation will negatively affect firms' willingness to expand their business operations, for their having a more negative outlook on the economy's dynamic in the country. This view is also supported by Smith and van Egteren (2005). At first sight, it may seem trivial; however, when taking into account that Ukrainian firms are found to have irrational expectations (Moiseieva, 2018), not examining and interpreting macroeconomic indices in an inefficient manner, it is unknown whether inflation expectations do have an effect in such case at all. Thus, it is an interesting question to find out.

To study the question mentioned above, I use the dataset from the Business Outlook Survey, conducted by the National Bank of Ukraine. The responses to the survey are collected quarterly during the period from the 1st quarter 2006 to 4th quarter 2017, which is the period, characterized by unexpected spikes in inflation.

I estimate two specifications with the means of ordered probit regression. The dependent variables are the expected changes in the firm's investment and employment that are categorical. In line with the theory, the hypothesis is based on the assumption that higher inflation stimulates investment spending and employment, as firms expect higher earnings, however, when inflation becomes large enough, the uncertainty costs become very high, and it dampens firms' activity. Thus, the overall effect is expected to be non-linear arch-shaped.

Estimating the above-mentioned relationship, I control for the factors, which may influence investment and employment like the firm's current and expected future performance, inventory level, overall "optimism/pessimism" regarding economic development, market interest rate, and expected exchange rate change. Additionally, I include industry, firm size, and international trade to control for heterogeneity. As literature founds that firms are not homogeneous in their responses to inflation expectations, inflation expectations effects may be different as well. More details on the methodology are given in Chapter 4.

The estimation results do not suggest any support for the importance of inflation expectations in the firm decision-making process. At least in terms of investment and employment. Nevertheless, some evidence of the expected shape of the relationship is present.

The paper is organized as follows. In the next chapter, I review the literature focused on the topic of inflation expectations and their link with agents' decisions. Chapter 3 describes the dataset and provides the main characteristics of the variables used. In Chapters 4, I focus on the empirical methodology, and in Chapter 5 discuss the obtained results. Chapter 6 highlights the main findings and implications.

Chapter 2

LITERATURE REVIEW

In this chapter, I will summarize the general theoretical views on the relationship between inflation expectations and agents' economic decisions in various economic models and then discuss empirical evidence on such a relationship from different countries.

2.1. Theoretical studies

Since the Keynesian economic theory, the role of inflation expectations in determining other economic variables has become an important issue in economic research. Back to the new Keynesian model, economists considered the effect of inflation expectations on current inflation rates. It was revealed to be realized via the dynamic optimization behaviors of economic agents.

In recent years, even more, attention has been paid to the effects of inflation expectations because of receding economies and liquidity traps that central banks are facing. Considering these problems, Krugman (1998), developed a simple two-period model, aiming to explain how policymakers can deal with a liquidity trap. One of the most important messages in this paper was that the crucial role in monetary policy decision process should be given to managing inflation expectations, which are the critical factor in stimulating the demand through the interest rate reduction. In other words, higher inflation expectations will stimulate economic agents to spend and invest more.

Although in modern macroeconomic theory, theoretical models are based on the assumption that inflation expectations are a crucial factor influencing agents' decisions (agents maximize their expected utility according to their beliefs), there

is still no consensus on the direction of such effect, and the mechanism of it remains unclear.

Some economists suggest that higher expected inflation stimulates agents to spend. This theory is based on two assumptions. The first assumption, supported by the Euler equation, is that expenditures have an inverse relationship with the real interest rate. The second one, resulting from the Fisher relationship, states that higher expected inflation lowers the real interest rate, holding the nominal rate fixed. The inference from these assumptions is that when inflation expectations are higher, the real interest rate decreases and it, consequently, provides incentives to higher spending. However, Mackowiak and Wiederholt (2012) state that, in the boundedly rational environment, economic agents may not pay much attention to real interest rates when making their decisions. Thus the effect of inflation expectations is not that evident.

In addition, even lower real interest rates may restrain spending in the current period if the income effect dominates the intertemporal substitution effect. It was found to be the case in Japan (Nakagawa et al., 2000).

Besides, higher inflation expectations may also cause higher uncertainty in terms of price stability, leading to a reduction in spending and an increase in precautionary savings (e.g., Bloom, 2009).

Contractionary effects of inflationary expectations are also supported in Smith and van Egteren (2005). The paper studies a link between inflation and economic activity, focusing on firms' side. Their model predicts that both expected and unexpected inflation directly distort firms' decisions on their financing, reduce the level of investment as well as its efficiency and contract aggregate output.

Volcker (2011) and Taylor (2011) consider higher inflation expectations as a sign of incertitude for policy-makers. A similar view is developed in an imperfect information model by Wiederholt (2012). Inflation being a tax on cash holdings

and other highly liquid assets, might be a tax on economic activity. It means that higher expected inflation might dampen spending and therefore, is an economic activity tax.

To summarize these theoretical developments, for the zero lower bound case, higher inflation expectations indeed may have a stimulative power, increasing incentives to spend for households and stimulating output. However, when inflation is not low, but on the contrary is at a high level, agents expecting higher future inflation may have concerns regarding the future, and when it comes to firms, they will be reluctant to expand their activity in such circumstances. The latter hypothesis, in my view, is more appropriate for the case of Ukrainian firms. However, with such controversial views, it may be better to look at the evidence on the mentioned relationship from real economies, so here we proceed to the empirical studies.

2.2. Empirical studies

Review of empirical studies is useful not only because it reveals findings on particular relationships obtained from different datasets, but also because of the estimation techniques and information on which variables authors employ for each particular aspect of the study, as well as on how researchers deal with one or other estimation problems.

Talking about empirical findings on the topic of this research, one should note that the literature provides limited evidence on the relationship between firms' inflation expectations and their business decisions. The evidence on the households' side is much more abundant and is also useful for this study. In general, findings suggest that households' inflation expectations have a substantial effect on their consumption decisions; in particular, higher inflation

expectations are associated with higher levels of consumption. So, one may guess that a similar relationship may apply to firms in terms of their willingness to expand their business activity, for instance. However, we will return to this hypothesis a little later in this chapter.

Though some evidence suggests that the relationship between inflation expectations and consumers' willingness to spend is positive, it does not appear always to be true. Bachmann et al. (2014), for instance, analyze the data of the Michigan Survey of Consumers to examine the relationship between expected inflation and spending behavior. In their empirical specification, they use survey responses on the consumers' readiness to spend money on durable goods as the categorical dependent variable, and one-year ahead inflation expectations are taken as the explanatory variable of interest. One important thing to consider in such specification is the endogeneity problem. The variable that may affect both readiness to spend and inflation expectations, as noticed in the paper, is trust in economic policy. Lower trust leads to lower willingness to purchase at the same time causing higher concerns about future inflation. To deal with this issue, the authors include idiosyncratic expectations about aggregate economic indicators. Such an approach is useful in the estimation process in this thesis paper as well, since, in the estimated equation, the expectations appear on both sides.

The results of the ordered probit model in Bachmann (2014) are contradictory to the prediction of standard theoretical models in a way that higher expected inflation negatively affects the readiness to spend on durables. The effect is found to be significant, though small at the zero lower bound, and insignificant outside of it. The author argues that such small effects, however, do not suggest missing relevance of inflation expectations for the households' spending decisions: with no control for the other idiosyncratic expectations, including the economic policy trust variable, inflation expectations have a significant adverse effect on households' spending attitudes. This finding is consistent with a Volcker's (2011)

andTaylor's (2011) view that high inflation foretells bad and uncertain economic times.

Ichiue and Nishiguchi (2015) reconsider the effect of inflation expectations on consumer spending behavior using the microdata from Japan. With the same estimation techniques like in Banchman et al. (2015), the paper, however, takes advantage of the richer dataset and employ two specifications. The first one is intended to examine whether the intertemporal substitution effect is observed at the zero lower bound. For this, survey responses to the question of whether a household expects to have higher spending in the future are taken as a dependent variable. In the second specification, the authors use the answers to the question whether a household prefers to spend more now than in the future as a dependent variable to check whether intertemporal substitution effect dominates other adverse effects. The results from these specifications, checked for robustness, tell us that higher expected inflation induces consumers to spend more in the current period while reducing their willingness to spend in the future.

Somewhat different results were obtained for the European countries. D'Acunto et al. (2016) study the causal effect of unconventional fiscal policies on consumption expenditure via the inflation-expectations channel using the data from Germany. The finding is that increased German households' inflation expectations caused by the announcement of an increase in VAT led to an increase in German households' willingness to purchase durable goods by 34%. At the same time, no effect of the income or wealth change or evidence of intertemporal substitution from nondurable to durable consumption was found to drive the results.

Duca et al. (2018) paper focuses more on the question of how the association between inflation expectations and consumer spending varies across different economic and social characteristics of consumers. An extensive dataset from a

multi-country survey of consumers of the Euro area for the period 2003-2016 is used. As the problem of endogeneity is present like in similar studies, they address it, but in a somewhat different way. The first thing they do is consider the difference between an individual consumer's expectation on future inflation and their perceptions about current inflation as the key factor influencing consumer's readiness to spend. The intuition is that consumers consider expected future inflation relative to their perceptions about the current inflation rate. Secondly, they include individual and aggregate controls like expected financial situation, labor market conditions, and the outlook for the economy in general to alleviate a source of endogeneity. While the first part of the method cannot be applied in this study because of the lack of data, the second one is handy. The results of the paper suggest the positive relationship between expected inflation and spending for the Euro area in general and for almost all of its constituent countries (except for Malta), which supports the view on the importance of intertemporal substitution linked to the real interest rate channel.

As mentioned before, there is a lack of research on the effects of firms' inflation expectations on their economic decisions. However, there is some evidence to provide an insight of how strong the effect of expectations is for firms' decisions regarding their future activity.

Gennaioli and Shleifer (2016) study how firms' expectations of earnings growth affect both planned and actual investments. They build their empirical investigation on the q-theory-based model of investment with actual expectations instead of the stock market data. As a dependent variable, capital spending growth in the next 12 months is used; it is considered as a proxy for firms' current investment plans. It is similar to the case of this study, as I use responses about the expected output growth in the next 12 months. As a primary driver of the spending incentives, authors consider expectations of earnings growth. The study shows that expectations have significant explanatory power when predicting the

dynamics of both planned and actual investments. This evidence suggests the usefulness of data on actual expectations for understanding economic behavior of firms.

More closely related to the topic of current research is the study of Grasso and Ropele (2016), which investigates the relationship between investments and expectations of inflation for firms, using survey data on Italian firms. The authors find that an increase in expected inflation (both short- and long-term) leads to higher expected investment expenditure. However, the authors notice that one should keep in mind that the empirical analysis provided in the paper covers a specific period, including part of the sovereign debt crisis and the aftermaths so that different period for the other phases of the business cycles might produce a different result.

Study of Coibion et al. (2018) continues this topic in the case of Italian firms. The paper focuses on the effect of expectations on the firm's decisions on pricing, employment, and investment. As an estimation technique, the authors use an instrumental variable approach, using the treatment variable as a proxy for exogenous variation in firms' expectations. In order to study how this exogenous variation affects firms' economic decisions, the authors built a dummy treatment variable taking the value of "1" when the firm is in the treatment group[2], and "0" – in the control group. The finding is that higher inflation expectations lead firms to raise their prices, increase their utilization of credit, and reduce their employment. However, under the effective lower bound constraints, demand effects dominate so that firms do not reduce their employment. In addition, the evidence suggests that the firms, which have higher expectations on inflation, have a more pessimistic outlook for their activity.

[2]The treatment group was provided with the information on the inflation over the last period, before responding to the question on the inflation expectations.

As I have mentioned earlier, most of the literature on the considered topic is concerned with the developed countries. In emerging economies, the topic of inflation expectations is not examined well. Meanwhile, the process of the formation of inflation expectations in developing economies is a bit different from that of developed. As reported in the World Bank study[3], inflation expectations in emerging markets and developing economies are more sensitive to global and domestic developments than inflation expectations in advanced economies. Thus, I consider it is reasonable to ask whether the mechanism of how firms' inflation expectations determine their expectations on business developments is the same for all stages of economic development. To the best of the author's knowledge, studies that one may find for the case of developing economies are mostly focusing on inflation expectations in general and on heterogeneities between and within different groups of agents, as well as the question of expectations rationality. Ukraine, having implemented inflation targeting regime not so long ago, only starts moving in the direction of research on inflation expectations in our environment.

In particular, Coibion and Gorodnichenko (2015) explore the data on inflation expectation in Ukraine for different groups of agents. For firms, in particular, the authors report that there is substantial disagreement on the levels of inflation between firms, and when judging about the future inflation firms rely on the exchange rate data.

Moiseieva (2018), in her Master thesis, explores the formation process of inflation expectations for Ukrainian firms and test their rationality. Estimating multinomial logit and OLS, she has found that firms are not rational in forming their expectations. They mostly rely on the exchange rates; also, they take into account

[3] The study "Inflation in Emerging and Developing Economies: Evolution, Drivers and Policies".

data on GDP and unemployment levels. Heterogeneity across all the considered factors was confirmed.

Considering all the mentioned evidence, this research has two goals. First is to contribute to the research on inflation expectations in Ukraine, exploring whether inflation expectations of Ukrainian firms influence their economic decisions. It is a highly relevant topic for our country, given the recent transition to inflation targeting and communication with economic agents. The second goal is to add evidence on the mentioned relationship for the developing country and compare them with what found for the developed economies.

Chapter 3

DATA DESCRIPTION

First, in this section, I will describe the design of the Business Survey, which I use as a data source for the research. Then, I will provide a description of the variables available in the dataset.

3.1 Data Sources

For the purposes of this study, I use the firm-level dataset constructed from the Business Survey responses provided by the National Bank of Ukraine. These data is a quota-based sample of non-financial sector enterprises, representing the Ukrainian economy in its most essential aspects. These are main industry types (agriculture, mining industry, manufacturing industry, energy, construction, wholesale trade, retail trade, transport, others), enterprise sizes by number of employees (small enterprises have less than 50 employees, medium ones employ between 50 and 250 people, large firms have more than 250 employees), regions[4], and participation in international trade (export, import, both export and import, neither). In each category, the shares between firms are distributed according to the inputs into the country's gross value added.

The questionnaires are given to financial or planning managers, heads of businesses, or economic analysts who possess the most comprehensive knowledge on the topics covered by the Survey. The last one collects expectations for one-year ahead price changes in the economy in a way that respondents

[4] Before occupation of Ukrainian territories, there were 24 oblasts included in the Survey. Afterward, the list shortened to 22 oblasts.

choose the answer from the given intervals of the percentage price changes. A particularity to be mentioned is that within the timespan of the Survey, the intervals were adjusted to reflect the changes in the actual inflation. For instance, the upper interval in 2006 was "20% and more", and in 2012 it was "15% and more".

Respondents are asked to provide information about some basic current firm characteristics (firm's size, industry, participation in international trade), expected changes in their business indicators (financial state, investments, employment, sales, need in financial resources, change in price for the firm's goods/services) and their expectations of the change in the leading indicators of the country's economy (price, exchange rate, and the general economic state).

It worth mentioning, that the Survey, however, has a couple of drawbacks. First is that the questions on inflation expectations are constructed only in the interval form, so that it provides not as rich information as it could be in case of the open question. Moreover, the interval nature of questions may distort the distribution of responses in the times of quick changes in inflation, as the Survey design might not be adjusted immediately to reflect the inflation and its perceptions changes, it may result in highly skewed distributions, as most of the responses will be concentrated in the upper or lower intervals. Additionally, the change of the interval width may affect the respondents' expectations of the actual change range. On the other hand, the guidance that the intervals provide helps to avoid some extreme responses.

3.2 Descriptive Statistics

The final dataset used for the analysis contains more than 50,000 pooled observations with categorical variables constructed from the Survey responses.

Variables to be taken as the dependent are the expected changes in employment, and investment, which have three categories: "will increase", "will not change", "will decrease". Other survey responses were also transformed into categorical variables. Here I will review the distribution of the variables used in this study and their basic characteristics.

First, I focus on the variables taken as dependent. The majority of responses about investment and employment indicate no change in the variables in the next 12 months, as can be seen from Figure 1. It implies that firms are a bit "sticky" in terms of these variables. The share of expected non-changes in employment and investment are 65% and 62%, respectively, average over the considered period.

However, the average over the period value may not be very informative, and it is more interesting to look at the changes in the variables during the sample period, which are very significant, as depicted in Figure 2. One can see the evolution of the net percentage of increase[5] in the given variables over the years 2006-2017. No surprise that the net percentage changes clearly depend on the business cycles. For instance, the negative net percentage of increase in investments and employment was in 2009 and 2014-2015, right after the crises, in times of economic downturn, uncertainty regarding the future economic development and high inflation. Respectively, the highest net percentage of increase was in 2006-2007, the time of strong economic growth in Ukraine.

[5] The net percentage of increase is calculated as the difference between the sum of the percentage responses of increase and the sum of the percentage responses of decrease in each of the indicators.

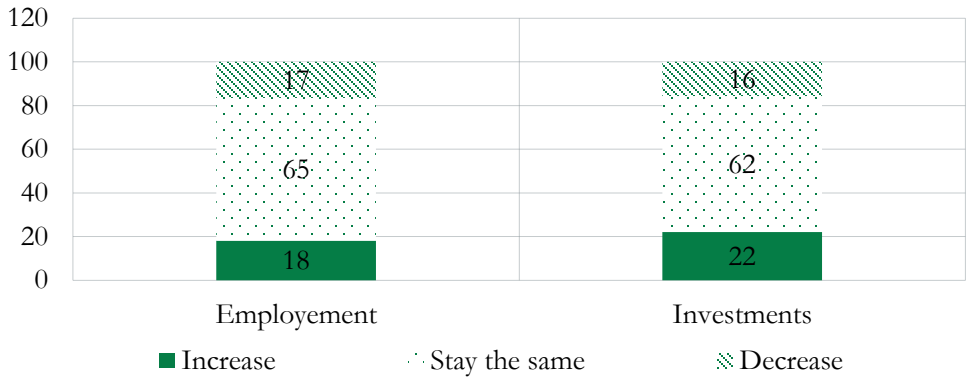

Figure 1. Distribution of responses for the expected change in the firm's indicators in the next 12 months. Average over the period, %

Figure 2. Dynamics of the net percentage of increase of expected investment and employment, p.p.

The next important thing to report here is the difference in expectations across different groups of firms by industry, size, and performance of foreign trade operations. As one may see from Figure 3 below, the lowest percentage of firms planning to invest more is in the transport industry, while the processing and refining industry has the largest share of them. As for employment, there is not

much heterogeneity between firms except for the 3-fold difference between the mining industry and construction.

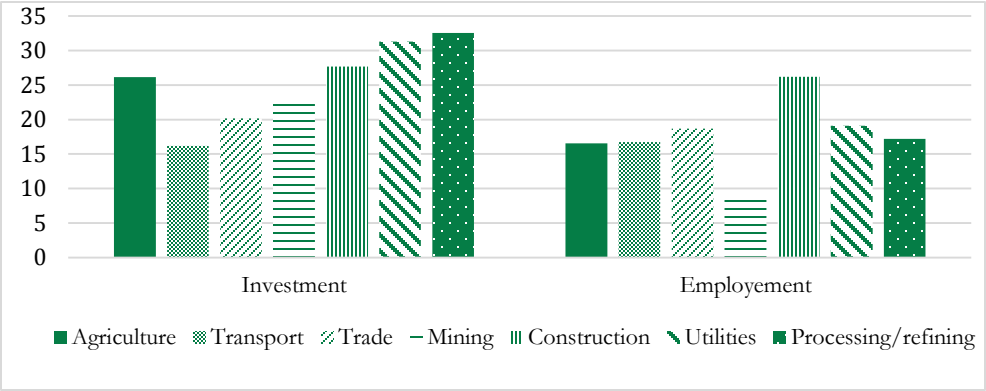

Figure 3. The difference in shares of responses about the expected increase in investment and employment by industry, %

When focusing on the firm's size, the trends are somewhat similar to the industry particularities. Firms do not differ much in their responses regarding future employment, while in terms of the planned investments, they differ significantly. The share of the large firms expecting an increase in investment is almost twice higher than that of the small ones.

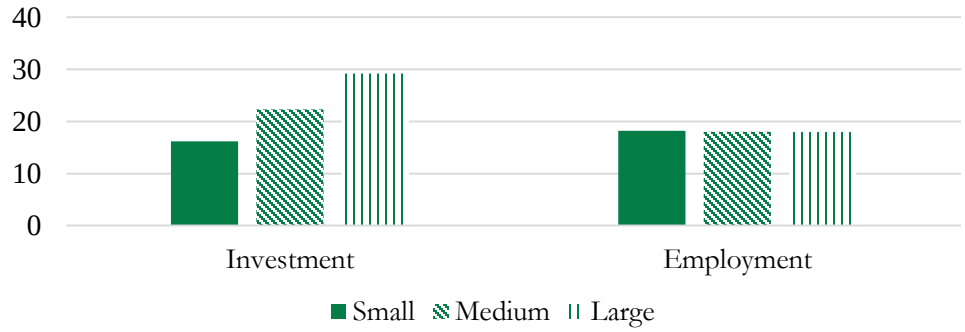

Figure 4. The difference in shares of responses about the expected increase in investment and employment by enterprise size, %

Next, I focus on the explanatory variable of interest - firms' expectations of the future changes in the price level. A problem with this variable is that the intervals in the questionnaire were changed several times during the sample period for the responses to follow the normal distribution. For this very reason, it is impossible to use the same categories for different periods. There are two ways of how to tackle this problem. First, is to aggregate the categories of responses into three wide categories: 1 – price level is expected to decrease or increase up to 5%, 2- price level is expected to increase by 5-15%, 3 - price level is expected to increase by more than 15%. It results in the following distribution of the responses: 71 percent of responses indicate expectations of moderate inflation of between 5-10%, 13 percent - of low inflation (less than 5%) or even deflation, and 16 percent – of inflation more than 15%, which is similar to the normal distribution.

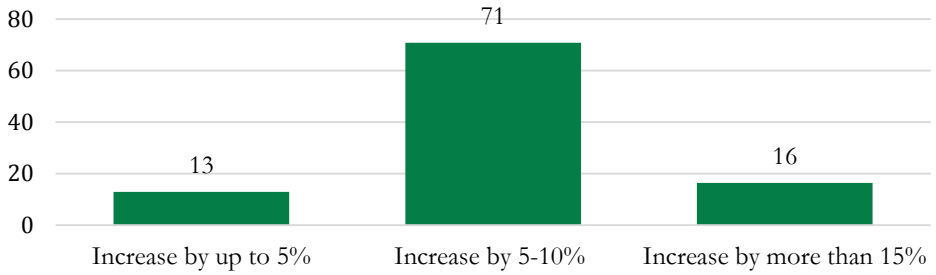

Figure 5. Distribution of aggregated categories of responses to the question on the expected change in the price level, %

The second way to construct the variable of inflation expectations is to take the midpoints of each interval chosen for the expected price change. For open top/bottom intervals, the midpoints are taken as the lowest/ highest value of the interval value plus/minus half of the interval step. Such methodology was also employed in Coibion and Gorodnichenko (2015). The result of 13.7 mean value is in line with the interval aggregation results. The quantitative representation of

this variable allows us to look at the dynamics of the value of inflation expected on average and compare it with the actual values of the CPI.

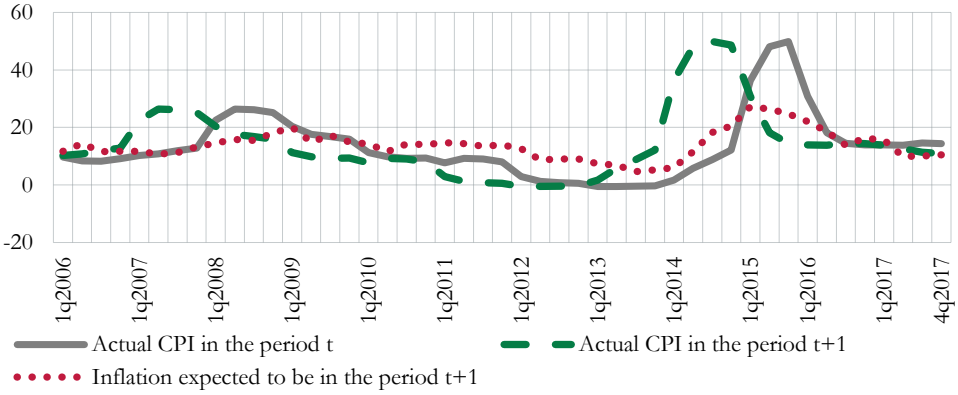

Figure 6. Dynamics of mean inflation expectations derived from interval responses,%

In Figure 6, one may see the dynamics of the mean expected inflation, which reflects the movements of the actual CPI in the period when the prediction is made. It is worth noting that respondents overpredict inflation when the latter is moderate or low and underpredict it in times of rapid increases, which is understandable as these rapid increases are caused by unexpected factors.

This study also uses some macroeconomic indexes and variables, like business outlook index, the index for prices in construction, and interbank interest rate. Descriptive statistics for these variables one may find in Table 3 in Appendix A.

There is also an important thing to pay attention to while describing the data. One should look at the correlation of the variables to check whether there may be multicollinearity in the estimated model. As the variables used in the model are categorical, the correlations are calculated with the Spearman's Rank Correlation Coefficient, which is usually used for the ordered variables. The correlation matrix is shown in Table 1 below. Variables, which are not ordered,

are not reported here. The variable of the firm' inventory was restricted to three ordered categories, the third category that does not indicate the order was not counted. The results show no evidence of a high correlation between variables to be used as predictors; thus, multicollinearity should not cause any problems in the estimation process. The most correlated with investment and employment are current and expected financial performance, while expected inflation shows rather weak correlation, being close to 10 percent.

Table 1. Spearman's Rank Correlation Coefficient of the ordered categorical variables

	1	2	3	4	5	6	7	8	9	10
1	1									
2	0.06	1								
3	0.13	0.14	1							
4	0.01	-0.05	-0.04	1						
5	0.19	0.14	0.33	-0.07	1					
6	0.00	0.05	0.00	-0.10	-0.01	1				
7	0.22	0.05	0.13	0.07	0.14	-0.02	1			
8	0.10	0.19	0.30	-0.06	0.22	0.00	0.14	1		
9	0.08	0.21	0.32	0.06	0.22	-0.01	0.11	0.37	1	
10	0.03	0.03	0.02	-0.17	0.04	0.03	-0.05	0.01	-0.01	1

Note: to save space, the variables are encoded as follows. 1 - inflation expectations, 2 – current financial performance, 3 – financial performance expected in 12 months, 4 – size of the firm, 5 – expected change in country's economic situation, 6 - level of inventory, 7, 8, and 9 - expected change in exchange rate, investment and employment correspondingly, 10 – NBU policy interest.

Chapter 4

METHODOLOGY

For the purposes of this research, I am to estimate the effect of inflation expectations on the firm's investments and employment with two specifications. Since the options for the responses to questions on two variables appear in the qualitative form, "increase/stay the same/decrease", the dependent variables to be used in the models are of categorical trichotomous nature. For this reason, I employ an ordered probit estimation method consistently with an approach taken in the literature (Banchman et al., 2015; Grasso and Ropele, 2016). According to this estimation approach, it is assumed that there is some unobserved continuous measure of willingness to increase the firm's sales/investment/employment. The changes in this unobserved continues measure can be modeled as follows:

$$y_{it}^{*} = \beta_1 \pi_{i,t}^{e12m} + \beta_2 er_{i,t}^{e12m} + \gamma x_{i,t} + \varphi x_{i,t}^{e12m} + \omega z_i + \varepsilon_{i,t}, \qquad (1)$$

where $\pi_{i,t}^{e12m}$ and $er_{i,t}^{e12m}$ is price and exchange rate change that the firm *i* expects in period t to occur in the next 12 months; $x_{i,t}$ is a vector of idiosyncratic characteristics of a firm *i* in period *t*, $x_{i,t}^{e12m}$ is a vector of expected values of particular firm characteristics in the next 12 months; z_i is the vector of macroeconomic indices and indicators, and $\varepsilon_{i,t}$ is a normally distributed error term with zero mean and unitary variance.

Though continuous dependent variable is not observable, there are discrete responses, which give us some information on the variable. They are encoded as follows: '1' indicates that the firm is planning to increase its

employment/investment, '2' indicates that the indicator will remain at the same level, and '3' implies decreasing. The association between y_{it}^{*} and y_{it} is as follows:

$$y_{it} = \begin{cases} 1 \; if \quad y_{it}^{*} \leq a_1 \\ 2 \; if \; a_1 < y_{it}^{*} \leq a_2 \\ 3 \; if \; a_2 < y_{it}^{*} \end{cases} \tag{2}$$

where a_1 and a_2 are some thresholds separating the categories of responses.

This empirical specification allows one to estimate the effect of an increase in inflation expectations on the probability of expecting the dependent variable to increase/stay the same/ decrease. It should be noted that the ordered probit estimation technique produces the coefficients, which cannot be interpreted directly as marginal effects; they can only provide information on whether the effect of the particular variable is significant. Thus, the marginal effects are to be calculated separately. Their interpretation is discussed later in Chapter 5.

Returning to the model specification, one must highlight several points. First, is that according to the literature, heterogeneity in forming inflation expectations has been one of the main features of agents' beliefs (Madeira & Zafar, 2016). Therefore, this heterogeneity may be reflected in firms' reaction on their inflation expectations in terms of other economic firm-specific variables as well, which is confirmed in Coibion et al. (2018)[6]. That is why including firms' characteristics is vital in ensuring the unbiasedness of the estimates. These characteristics include occupied industry, size of the firm (defined by the number of employees), and

[6] The study finds that the effect of inflation expectations on firms planned actions is heterogeneous across different groups of firms.

access to international markets (performing either import, export or both types of operations).

Another point is that aiming at revealing the "causal" effect of inflation expectation, one has to control for the other factors, which may influence the expected change in investment and employment. In this research, there are common factors influencing both dependent variables under study. First to be mentioned is the current situation in the firm. The enterprise with a better financial situation is supposed to be more likely to increase its future investments and employment, compared to those with an inferior situation. In addition, it is essential to control for what the firm expects its condition will be in the future. It may be that today's situation is not as good, but in the next 12 months, it will improve, and the firm may consider this improvement as the ground to expand on.

What also needs to be considered, is that the dependent variables are not the actual values but the expectations of the latter. Therefore, the expectations on the change in the dependent variable may reflect just the overall "mood" of the company or even of the respondent regarding the future. To account for this, I use the economic outlook variable, which indicates the expectation about the change in the economic development of the country in the next 12 months. From this variable, I construct the variable indicating whether the firm is more pessimistic, optimistic, or rather neutral concerning the future development of the economy than the majority of the sample. The base category in the constructed variable is "4", which has more than 50% of responses and reflects the outlook of the majority. "1" reflects responses which are more pessimistic than the majority, "3" - more optimistic, and "2" - neutral responses in times when the majority is not of the neutral opinion about the future. Such classification of responses is done for each quarter of the sample separately.

To control for the aggregate macroeconomic environment, I add the index of business expectations[7], which is calculated by the National bank of Ukraine on a quarterly basis. Additionally, similar to the methodology used in Banchman et al. (2015)[8], I add the variable, which indicates how often the firm is following the NBU activity. It is important, as I suppose that awareness of the NBU's policy may influence the decisions of the firms.

There is also one particularity about the Ukrainian environment to be accounted for. Though inflation is an important indicator, what may be not less important is the exchange rate. As found in Coibion & Gorodnichenko (2015), the exchange rate is the primary signal for firms and households about future price movements in the economy. Thus, I also include firms' expectations of the exchange rate, as they may have a significant effect on the decisions about the dependent variables.

Another factor to be important for the performance and planning of the firm is inventory. There is a number of studies exploring the effect of inventory on the performance of the firm (Abuzayed, 2012; Eroglu et al., 2011). Therefore, I consider one needs to control for the level of inventory in the firm, as the factor, which managers keep in mind when making decisions on business development.

Next, I return to investment in particular and consider one more thing. In Grasso and Ropele (2016), the authors controlled for the loan interest rate costs. Similarly, I include the interbank loan interest rate as a proxy for the costs of investment. More than half of respondents (56%) indicated that they use bank

[7] Index of business expectations - aggregate indicator for the expected development of business in the next 12 months, calculated as the balance of responses regarding the changes in the financial and economic condition of enterprises and the future economic activity.

[8] In Banchman et al. (2015), the authors used a variable, indicating the opinion of the firm on whether the government is doing a good, a fair, or a poor job, fighting inflation and unemployment to measure the trust of the firm in economic policy.

credit to finance their activity. Though not all of them may finance exactly investment activity with borrowed funds, for those who do not take out a loan to invest, the interbank loan interest rate may reflect the opportunity costs.

There is also an essential question of whether respondents provided their expectations about change in the nominal or real values in the given indicators when answering about investments, as it is not clear from the questionnaire. To check the assumption that the future investment is considered in nominal terms, it is useful to look at the structure of responses on the expected change in investment by different levels of the investment price increase. Since I have the question about the investment in construction and modernization, I took the index of construction prices provided by the State Statistical Service of Ukraine. The structure is shown in Figure 7 below. One can see that indeed in periods when the prices for construction rise, a larger share of firms report expected an increase in investment. Therefore, it is crucially to control not only for the price of funding for investment but also for the price of an investment in particular. For this purpose, I include the construction price Index in the equation for the expected investment.

Finally, since I have the pooled data, I need to control for the time effects; therefore, I add the year and quarter dummies to the estimated specifications. All variables used in the estimated specifications are indicated in Table 4 in Appendix B.

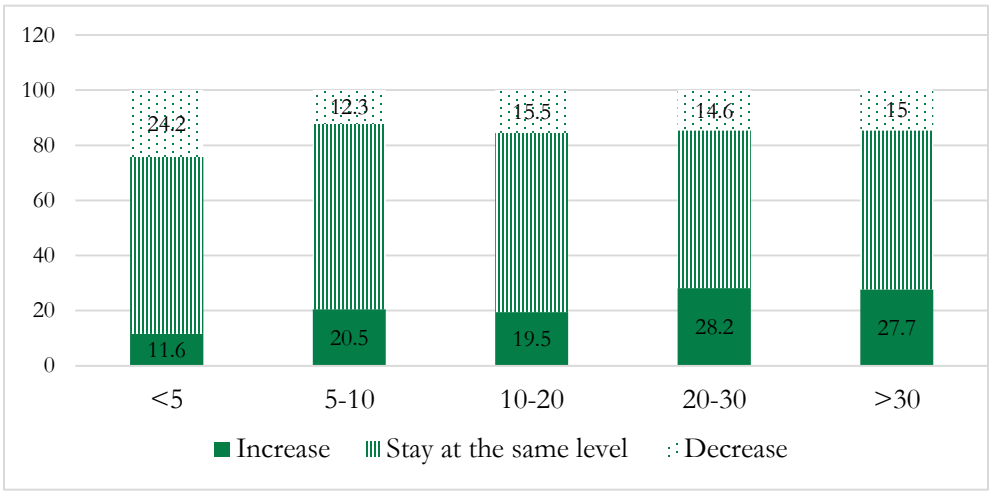

Figure 7. Structure of responses for the expected change in the firm's investment in the next 12 months by the levels of the price index in construction

Chapter 5

EMPIRICAL RESULTS

In this Section, I present the main results from the ordered probit estimation of the equations for Investment and Employment. I start with the effects of the Baseline specifications and then go over the results from the model variations.

5.1 Baseline results

In the baseline specification for Investment, I focus on the expected investment in construction and 12-months ahead inflation expectations over the period 1q2006-4q2017. The estimation in the form of the average marginal effects is shown in Table 2. The same goes for expected in the 12 months Employment. To save space, firm type controls – industry, firm size, and participation in international trade are not shown, though included in the models. Reported average marginal effects are the difference in the predicted probabilities of willingness to increase investment between each of the two boundary categories of expected inflation and the base second category of the latter. For average marginal effects evaluation, all other independent variables are set as they are.

As one may see from the results, the first category of expected inflation does not differ significantly from the second one, so that expected inflation at the level of less than 5% has the same effect on the predicted probability to increase investment as when inflation is expected to be 5-10%. At the same time, results for the third category show that there is a difference in predicted probability between this and the first two categories in 1 percentage point, significant at 5 percent level.

Table 2. Average marginal effects on the predicted probability of an increase in the dependent variable in the next 12 months

Independent Variable	Dependent variable	
	Investments	Employment
Inflation expectations		
lower than 5%	0.005	-0.008*
	(0.005)	(0.004)
higher than 15%	-0.010*	-0.012**
	(0.004)	(0.004)
Expectation of the exchange rate		
Hryvnia will appreciate	0.018**	0.022***
	(0.007)	(0.006)
Hryvnia will stay at the same level	-0.005	0.001
	(0.004)	(0.003)
Current inventory level		
Higher than normal level	-0.011	-0.038***
	(0.007)	(0.005)
Normal level	0.015**	0.001**
	(0.004)	(0.003)
Lower than normal level	0.004	-0.018**
	(0.007)	(0.005)
Interest rate	-0.002	
	(0.0009)	-
Construction index	-0.004	
	(0.0004)	-
Current financial state of the firm		
Good	0.058***	0.062***
	(0.005)	(0.004)
Bad	-0.069***	0-.083***
	(0.004)	(0.003)
Expected financial performance in 12 months		
Will improve	0.111***	0.135***
	(0.004)	(0.004)
Will worsen	-0.098***	-0.089***
	(0.003)	(0.002)
Optimistic	0.064***	0.057***
	(0.005)	(0.004)
Neutral	0.019***	0.021***
	(0.006)	(0.005)
Pessimistic	-0.021***	-0.033***
	(0.004)	(0.003)
Number of observations	38,203	45,411
Pseudo R2:	0.1073	0.1117

Note: Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 '.' 1. Standard errors in parentheses.

That is, on average, predicted probability of firm to expect an increase in investment when it expects inflation to be about 5-15% is 0.21, whereas, for the firm, which expects inflation to be more than 15%, such probability equals 0.2. Still, despite some differences in the categories, the overall variable significance remains marginal at the 10 percent level. Moreover, the effects of other factors are much stronger than that of inflation expectations. As expected, both current and anticipated financial and economic performance appeared to be the most significant factors in the model. Firms with reported good performance on average are about 6 p.p. more likely to expect an increase in investments compared with the firm with the average performance. At the same time, those with bad performance are about 7 p.p. less likely to increase investments. Put it differently, there is 13 p.p. difference in the predicted probability of willingness to increase investment between good- and bad-performing firms. In addition, expecting performance to improve in the nearest 12 months, firms are 11 p.p. more likely to invest more.

The same level of importance as financial and economic performance has, goes to the optimism of the firm. The overall difference in predicted probability between more optimistic and more pessimistic firms is about 8 p.p. of the predicted probability of an expected increase in investments. For both firm performance and the outlook for the future of the economy, the difference between categories is not only statistically strong but has an economic significance as well. We can make such inference since the average predicted the probability of an increase in investment is about 20 percent, so the difference of about 10 percentage points is substantial variation.

The next point is that neither interest rate or index for construction prices turned out to be important, despite in basic analysis, there was a relationship between the construction index and expected a change in investment. This finding is related to the one in Grasso and Ropele (2016), where the authors did not find

the link between the firms' borrowing costs and investment decisions. As for the expected exchange rate change, in line with the expectations, its influence on firms decisions is though not very large but still present. Expected hryvnia appreciation, compared to depreciation, increases the predicted probability of investment increase by almost two percentage points.

Next, I discuss some modifications of the models to check for the robustness of the results.

5.2 Other specifications

This part presents the results of the following exercises: 1) using the binary response variables for expected investments; 2) splitting the sample into two periods.

Similar to Grasso and Ropele (2016), I experimented with regrouping of the dependent variable. In their paper, authors had five categories of the dependent variable; however, they estimated equations with the variable regrouped in three categories and then compared the results to the equation with five categories. I do the opposite way: first, I used the dependent variable with three categories, and now I compare these results to those, obtained from probit model estimation with a binary dependent variable for an increase in investment. Such estimation method, however, did not bring any substantial changes to the results. Results can be found in Table 5 in Appendix C. In overall, the values and significance of the most valuable variables in the baseline specification did not change, both current and expected financial performance remained the most strong in predicting the probability to increase investments while the overall significance of inflation expectations is not confirmed even at the 10 percent level.

I also experimented with the instrument for expectations and checked their exogeneity, estimating the instrument variable probit regression. The procedure is as follows. I assumed that there is a variable, which is correlated with inflation expectations, and it does not affect the dependent variables of interest directly, it may affect them only via the inflation expectations channel. I picked the information on recent inflation as such variable. For sure, not all the respondents are aware of the recent level of inflation; however, I assume that those who indicate that they carefully follow the NBU activity are very likely to be aware of it. Thus, I construct the variable, which is equal to the CPI (year-over-year) in the t-1 period (quarter) for the observations, where it is indicated that the firm actively follows NBU activity, and zero otherwise. I use this variable as an instrument for inflation expectations. For this exercise, however, I used the numerical inflation expectations variable, as they described in Chapter 3. The estimation confirmed the exogeneity of inflation expectations.

What also I have experimented with is estimating the models for sub-samples of different years. In particular, I estimated equations for the periods 2006 – 2015 and 2016-2017 separately. The reason for such sampling is to check whether the inflation targeting regime, implemented from the beginning of 2016, did change the picture. The results reported in Table 6 and Table 7, Appendix C, however, do not evidence any change in favor of the significance of inflation expectations, and again, the most influential factors did not change their significance in the estimated models, neither insignificant ones gained more value.

All in all, the sizes of all the effects are almost unchanged, and the marginal effects on inflation expectations remain insignificant. This is true for both investment and employment variables. Obtained results are in line with what found in Banchman et al. (2015) for the consumer decisions in terms of durable goods purchases whereas the effect in Grasso and Ropele (2016) for expected investments of Italian firms was somewhat stronger. Such found negligibility of

inflation expectations may be explained by the particularities of the Ukrainian environment. In economy which is only developing, and capital market business mechanisms are just emerging, there are many factors which may constrain business development, and which firms need to keep in mind when thinking of strategical and tactical business movements.

Another factor, likely to influence the results is some imperfections of the data. Aggregating responses into categories does not bring much information. It would be much more informative to have the point estimates of inflation expectations. Another imperfection goes with the subjectivity of answers regarding the firm's characteristics. It would be more reliable to have real firm indicators, instead of the reported perceived state in the firm.

Also, there are some limitations in terms of the estimation technique. Because of the categorical nature of the dependent variable, and particular estimation method of the ordered probit model, there is a limited number of post-estimation tests, like the one for heteroscedasticity, although, the literature using such estimation technique does not discuss any kinds of such tests. Also, there is no way to do a regression with instruments for the case of the ordered dependent variable. At least, I did not find any such mentions in the literature.

In this regard, there is still much area for further research, should better dataset be available.

Chapter 6

CONCLUSIONS

The topic of inflation expectations stays on the agenda in central bank environment nowadays. Nevertheless, it has not been explored well yet. There is decent research in this field, as the last available paper on this topic (to the best of the author's knowledge) Coibion et al. (2018). Reviewing the literature, one may find that there is slight disagreement on how do inflation expectations affect the decisions of economic agents, and firms in particular. The big part of evidence does not find any significant effect, while the others find little but strong effects, of both positive and negative relationship.

It is worth noting that all the papers consider the effect of inflation expectations to be linear. The inflation range on the timespan in most studies, however, is not wide. Having more variation in inflation in the available dataset, I assumed that there is a non-linear relationship between inflation expectations and firm's decisions. At the low levels of inflation its higher values is a sign of the positive movements in the economy, and thus they incentivize firms to expand their operations; however, when inflation is at a high level, the firms will have a negative outlook on their business activities.

Having estimated the models for the determinants of expectations of investment and employment based on the Ukrainian data, I have found evidence confirming the research hypotheses, though they appear to be weak. In particular, the difference between the category of higher than 15% expected inflation and the category of expected inflation 5-10% is about one percentage point of predicted probability of an increase in willingness to invest. Moreover, the overall variable significance is confirmed at 5 percent level only for selected and not all the specifications. This is far from the strong effect found in Grasso and

Ropele (2016) but is in line with what found in Banchman et al. (2015). Other variables, such as current and expected firm performance appear to be far more significant than inflation expectations.

What may it imply? Possibly, in an emerging market economy, which is subject to couple of crises, there are many factors, restricting economic development of firms, and constituting the major sources of their concerns. The fact that throughout the estimation process inflation expectations were losing their importance mostly when the variable of the outlook about the general economic situation in the country was added may evidence that the firms most likely react to changes not in inflation per se, but in factors, which may cause it, and are related to the general economic situation. Also, the exchange rate is at this point, the factor to which firms pay more attention, compared to inflation expectations.

Observed negligence in terms of inflation may also be explained by a not very long history of central bank communication in respect of the given phenomena. Perhaps, in the future, when the economy will be more developed and central bank policy will have a long history of being transparent, we will observe a more significant effect of inflation expectations. As for now, in terms of stimulating economic growth (at least in terms of investments and employment), inflation expectations are not a strong channel.

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APPENDIX A.

DESCRIPTIVE STATISTICS

Table 3. Descriptive statistics for numerical variables used in the paper

Variable	Mean	St. dev.	Min	Max	Number of observations
Inflation (CPI-100)	13.5	11.1	-0.2	43.3	52 115
Construction index	16.9	9.3	4	41.1	48 117
Business outlook index	114.8	16.3	72	140.2	50 933
Interbank interest rate	16.9	3.1	3	27.8	52 115
The expected exchange rate change	14.4	8.6	6.6	33	31 272
Expected inflation	13.7	8.3	-2.5	47.5	51 644

APPENDIX B.

METHODOLOGY

Table 4. Variables included in the baseline estimated equations

Variables used in the equation	Investment	Employment
Industry 8 categories Base: Agriculture	+	+
Firm size - 3 categories Base: Small	+	+
International trade – dummy Base: no international trade	+	+
Current financial performance 3 categories Base: normal	+	+
Financial performance expected in 12 months 3 categories Base: Will remain the same	+	+
Firm's "optimism" as for the economic situation in the next 12 months 4 categories Base: like the majority	+	+
Business outlook index (numerical)	+	+
NBU policy interest 3 categories Base – follows from time to time	+	+
Expected UAH/USD ER change in 12 month 3 categories Base: hryvnia depreciation	+	+
Current inventory level 4 categories Base: no inventories used	+	+
Interbank loan interest rate (numerical)	+	-
Construction price index (numerical)	+	-

APPENDIX C.

COMPARISON OF RESULTS FROM ALTERNATIVE SPECIFICATIONS

Table 5. Average marginal effects on the predicted probability of an increase in the dependent variable. Results from the probit model

Independent Variable	Dependent variable	
	Investments	Employment
Inflation expectations		
lower than 5%	-0.012*	-0.004
	(0.006)	(0.005)
higher than 15%	-0.004	0.002
	(0.006)	(0.005)
Expectation of the exchange rate		
Hryvnia will appreciate	0.011	0.026***
	(0.007)	(0.007)
Hryvnia will stay at the same level	-0.010*	-0.023
	(0.005)	(0.004)
Current inventory level		
Higher than normal level	0.047***	-0.011
	(0.007)	(0.008)
Normal level	0.043***	0.012***
	(0.004)	(0.004)
Lower than normal level	0.025***	0.020***
	(0.007)	(0.007)
Interest rate	-0.0002	
	(0.0009)	-
Construction index	-0.0001	
	(0.0004)	-
Current financial state of the firm		
Good	0.005***	0.067***
	(0.006)	(0.005)
Bad	-0.066***	-0.049***
	(0.005)	(0.004)
Expected financial performance in 12 months		
Will improve	0.124***	0.162***
	(0.005)	(0.005)
Will worsen	-0.042***	-0.055***
	(0.005)	(0.004)
Number of observations	38,203	45,112
Pseudo R2:	0.1268	0.1265

Note: Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 '.' 1. Standard errors in parentheses.

Table 6. Average marginal effects on the predicted probability of an increase in expected change in investments for two sub-samples

	2006-2015	2016-2017
Inflation expectations		
lower than 5%	-0.004	-0.022
	(0.005)	(0.015)
higher than 15%	-0.007	-0.017
	(0.005)	(0.011)
Expectation of the exchange rate		
Hryvnia will appreciate	0.021**	-0.033
	(0.006)	(0.026)
Hryvnia will stay at the same level	-0.007*	-0.027*
	(0.004)	(0.013)
Current inventory level		
Higher than normal level	-0.014	0.035
	(0.007)	(0.025)
Normal level	0.015***	0.016
	(0.004)	(0.013)
Lower than normal level	0.003	0.015
	(0.007)	(0.018)
Interest rate	-0.0003	0.013
	(0.001)	(0.009)
Construction index	-0.0003	-0.012
	(0.0004)	(0.010)
Current financial state of the firm		
Good	0.058***	0.060***
	(0.005)	(0.015)
Bad	-0.068***	-0.079***
	(0.004)	(0.01)
Expected financial performance in 12 months		
Will improve	0.112***	0.101***
	(0.005)	(0.024)
Will worsen	-0.096***	-0.107***
	(0.003)	(0.009)
Number of observations	33 850	4 1344
Pseudo R2:	0.1093	0.0940

Note: Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1. Standard errors in parentheses.

Table 7. Average marginal effects on the predicted probability of an increase in expected change in employment for two sub-samples

	2006-2015	2016-2017
Inflation expectations		
lower than 5%	-0.005	-0.005
	(0.004)	(0.012)
higher than 15%	-0.011**	0.003
	(0.004)	(0.009)
The expectation of the exchange rate		
Hryvnia will appreciate	0.021***	-0.017
	(0.005)	(0.023)
Hryvnia will stay at the same level	-0.0006	-0.027*
	(0.003)	(0.010)
Current inventory level		
Higher than normal level	-0.038***	-0.028
	(0.006)	(0.022)
Normal level	0.009*	0.003
	(0.003)	(0.010)
Lower than normal level	-0.021***	-0.002
	(0.006)	(0.015)
The currentThe current financial state of the firm		
Good	0.062***	-0.044***
	(0.004)	(0.003)
Bad	0.084***	0.105***
	(0.003)	(0.004)
Expected financial performance in 12 months		
Will improve	0.133***	0.053***
	(0.004)	(0.013)
Will worsen	-0.088***	-0.078***
	(0.003)	(0.008)
Number of observations	40,690	4 722
Pseudo R2:	0.1140	0.1208

Note: Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 '.' 1. Standard errors in parentheses.