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An Analysis of Firms' Expectations about Activity and Employment†

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Abstract

This paper uses individual firm data from the Cyprus Business Surveys for the period May 2009 - April 2011 to assess the extent to which expectations about activity and employment stated in a given month agree with realisations reported by the same firms in subsequent Surveys. The results show that the probability of a firm stating expectations that are consistent with future realisations varies systematically with firm-specific characteristics such as size, district and sub-sector of operation. The heterogeneity in this probability can be viewed as a description of the shocks experienced ex post by different types of firms.

Keywords: business surveys, expectations, firm-level data, probit model.

1. Introduction

Business Survey data contain information on firms' perceptions and expectations regarding their business activity, demand, production, sales, order books, employment, and prices. The surveys cover the key sectors of the economy: services, retail trade, construction and industry. The usefulness of such data lies in the timeliness of the information they contain, since they are released at the end of each reference month.

Business Survey data are used in the computation of monthly confidence indicators that capture the economic conditions in different sectors. An aggregate Economic Sentiment Indicator (ESI) incorporates replies from both Business and Consumer Surveys and is intended to provide an overview of the overall economic climate in a country.[1] These composite

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[1] More details on the methodology of the Business and Consumer Surveys can be found in the User Guide, published by the European Commission: http://ec.europa.eu/economy_finance/indicators/business_consumer_surveys/userguide_en.pdf

indicators are found to contain leading information for economic activity and therefore can be used as a tool for monitoring the economy, as well as for short-term forecasting (e.g., Bańbura and Rünstler, 2007; Carriero and Marcellino, 2007; Hahn and Skudelny, 2008). Because of the importance of Business and Consumer Survey data, the European Commission carries out monthly harmonised surveys in EU member states and a number of candidate countries.

There are many studies which find that Business and Consumer Survey data contain useful information in forecasting aggregate economic activity in European economies (e.g., Bańbura and Rünstler, 2007, and Claveria et al., 2007, for the euro area; Hansson et al., 2005, for Sweden; Taylor and McNabb, 2007, for the UK, France, Italy and the Netherlands). There have also been a large number of studies, mainly by the European Commission and institutes that conduct the Surveys in European countries, that investigate the information content of these data not only for predicting economic activity but also in leading the developments in employment and prices/inflation in different sectors. Research in these institutes has also dealt with the construction of optimal indicators that combine the survey replies with the largest information content. For example, Jonsson (2007) assesses the predictive content of managers' employment expectations for the euro area and finds that survey data are useful in forecasting actual employment growth, although the size of the forecast gains from including employment expectations is modest. Friz (2008) uses aggregate data for the EU and the euro area, as well as data for large EU economies to examine the reliability of managers' selling price expectations as a leading indicator of the producer price index in the manufacturing sector. Her analysis shows that selling price expectations contain leading information for producer prices and she concludes that this finding could be used in identifying inflationary pressures at the earlier stages of the production chain. In search of alternative confidence indicators, Clavel and Minodier (2008) use dynamic factor analysis and data from business tendency surveys to construct a monthly synthetic indicator of the business climate in France. Their evaluation in terms of real-time stability, turning point detection and out-of-sample forecasting performance with respect to GDP growth, suggests that a synthetic indicator obtained from the set of components of sector-specific confidence indicators outperforms other alternatives.

Contrary to the studies mentioned above that use the survey data in aggregate time series form, we employ micro, firm-level data to assess the consistency of firms' responses by comparing their expectations stated in a given month with the realisations reported by the same participants in subsequent surveys. The motivation of this exercise is the fact that firms'

responses to many expectation questions are used in the construction of sector-specific and economy-wide confidence indicators. In order for expectations to incorporate valuable leading information for future developments in economic variables, the expectations stated by firms should be reflected in future realisations, with the exception of random shocks i.e., expectations may differ from realisations if firms experienced new shocks after their expectations had been recorded by the Surveys. We therefore assume that when firms state their expectations about their future activity or employment levels they exploit all available information at the time, which can be loosely interpreted as expressing "efficient" expectations (see Souleles, 2004). Thus, we investigate whether the probability of survey participants providing correct predictions (i.e., expectations that are in agreement with realisations) relates to firm-specific characteristics, since under "efficiency" this probability should be uncorrelated with already-known attributes.

The rest of the paper is structured as follows. Section 2 describes the data. Section 3 presents the results of a descriptive and an econometric analysis based on panel data constructed using firms that have been participating in Cyprus Business Surveys during the period May 2009 - April 2011. Section 5 concludes.

2. Data

We use monthly data obtained from Cyprus Business Surveys for the period May 2009 – April 2011. Each month 600 firms from services (200), retail trade (200), construction (100) and industry (100) are interviewed.[2] Firms are asked to assess recent trends in production, orders and stock of finished products (industry), their business activity in the past three months (construction, retail trade and services), their order books (construction), stocks (retail trade), turnover and employment (services), as well as to state their expectations about production (industry), business activity (construction, retail trade and services), orders to suppliers (retail trade), turnover (services), selling prices and employment.[3] Individual data therefore, are in the form of qualitative responses. Moreover, the dataset includes information about a number of firm-specific characteristics such

[2] The sample of firms in each sector is selected with a probability proportional to the firm size in terms of number of employees (for details see Kontolemis et al., 2010).

[3] The answers are given according to a three-option ordinal scale: “increase” (+), “no change” (=), “decrease” (-); or “more than sufficient” (+), “sufficient” (=), “not sufficient” (-); or “too large” (+), “adequate” (=), “too small” (-).

as the year of establishment, the number of employees, legal entity type, economic activity classification, district, etc.

Aggregate data are given by the percentages of firms that provide positive or negative replies. Net balances are defined as the difference between the proportion of positive from negative responses; hence signifying the aggregate optimism or pessimism of firms about an economic variable.

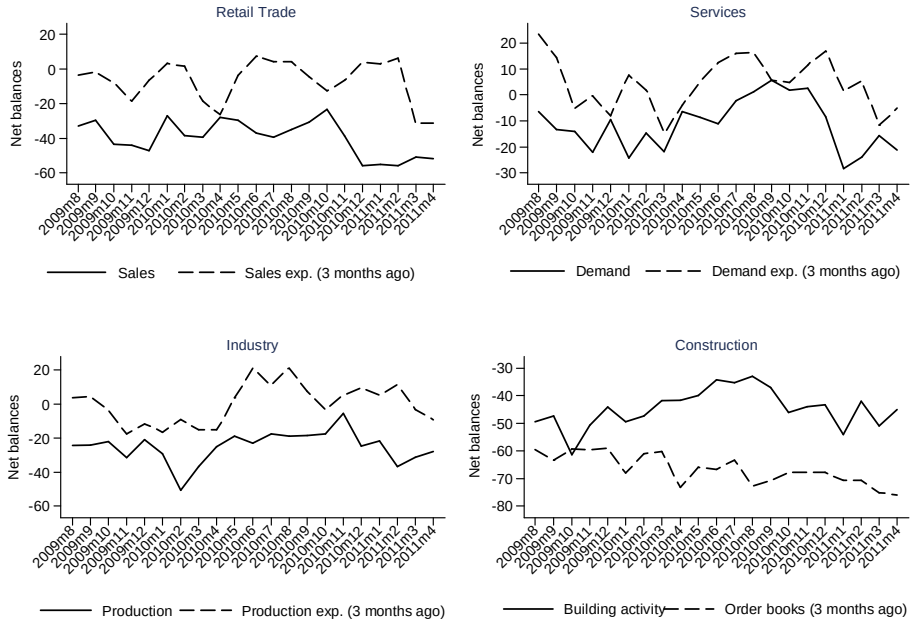
In order to examine graphically whether firms' aggregate expectations are consistent with their future (aggregate) responses over time, we plot, in Figures 1 and 2, the net balances of specific questions, from August 2009 until April 2011. In particular, for each month we compare firms' expectations concerning their economic activity and employment over the next three months, expressed three months ago, to the firms' realisations regarding the past three months, stated that month. To facilitate the comparison, expectation variables are shifted backwards three months in order to be juxtaposed with the corresponding realisations. Following this graphical approach, we can see that expectations expressed in a given month about activity/employment, move together with actual outcomes reported three months later, in services and industry, but less so in the other two sectors. In retail trade, services and industry firms, on average, tended to over-predict their economic activity; in other words they had expected higher sales/demand/production than the actual outcome they reported three months later. In construction, on the other hand, respondents had been expecting systematically more pessimistic activity levels than those stated three months later. Although every month the majority of firms were reporting a deterioration in their building activity, i.e., negative net balances, aggregate expectations about activity were much lower than realisations, indicating the negative economic climate in the construction sector throughout the period under examination. Employment expectations appear to be in greater agreement with realisations in the services sector than in construction, where firms most of the time had the tendency to overestimate their number of employees. The result for construction, where firms under-predicted their future activity but at the same time over-predicted their future employment level, is rather paradoxical.

Figures 1 and 2 indicate that during the period of economic slowdown in Cyprus, the most unfavourable economic climate was prevailing among firms in the construction sector, which registered the lowest net balances. Moreover, at the aggregate level there is an obvious disagreement between expectations and realisations in most of the sectors, which could be a result of the uncertain economic environment during the period considered and of the changing sample composition between survey waves, in that a number of participants drop out of the sample each month and are

replaced by other similar firms. In order to investigate further the relation between firms' expectations and realisations in the next section we focus on a panel of firms, i.e., the same firms appear every month in the sample.

FIGURE 1

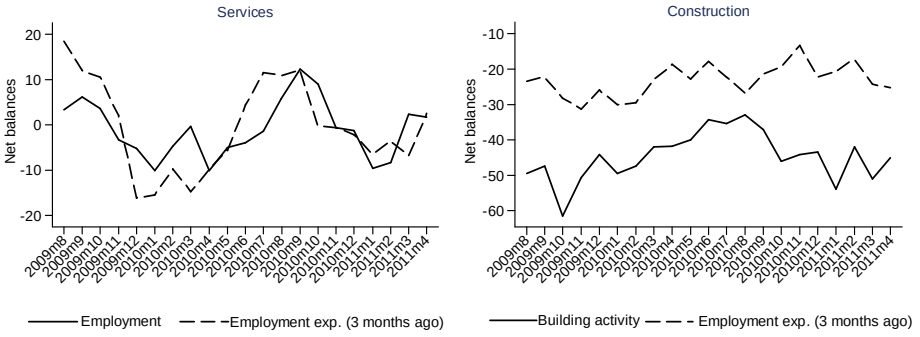
Expectations vs. realisations: economic activity



Source: Authors' calculations.

FIGURE 2

Expectations vs. realisations: employment



Source: Authors' calculations.

3. Data analysis

3.1 Panel of firms

In this section, we carry out a more detailed micro analysis of individual firm data to compute the percentages of firms that offered correct predictions, i.e., their expectations matched their realisations. In particular, we use a panel of firms that took part in all monthly Business Surveys in Cyprus, from May 2009 to April 2011, in order to examine whether expectations stated in a particular month are consistent with realisations registered by the Surveys in following months. The resulting datasets consist of 56, 71, 19 and 34 firms from services, retail trade, industry and construction, respectively, observed over 24 consecutive months. Our analysis focuses on economic activity variables (i.e., demand in services, sales in retail trade, production in industry and building activity/order books in construction) and employment. Respondents are asked one question regarding actual outcomes over the past three months, and one question regarding expectations over the next three months.[4] Thus, we compare the responses concerning outcomes in a particular month (e.g., August 2009) to expectations expressed by respondents three months ago (e.g., May 2009). This comparison can reveal the extent to which respondents' expectations are realised, or, in other words, how accurately they can foresee their future economic activity and employment.

Figure 3 presents the percentage of firms that predicted correctly, overestimated or underestimated their economic activity. By correct prediction we mean that the expectations expressed by a firm in a given month about its economic activity in the next three months matched the realisations stated by the same firm three months later. For example, a firm in the services sector interviewed in May had reported an expected increase in demand in the next three months and the same firm when surveyed again in August stated that its demand in the last three months increased. By overestimation (underestimation) we mean that the expected change in activity reported by the respondent had been higher (lower) than the actual change in activity stated by the same respondent three months later.[5] In industry and construction, expectations were found to be

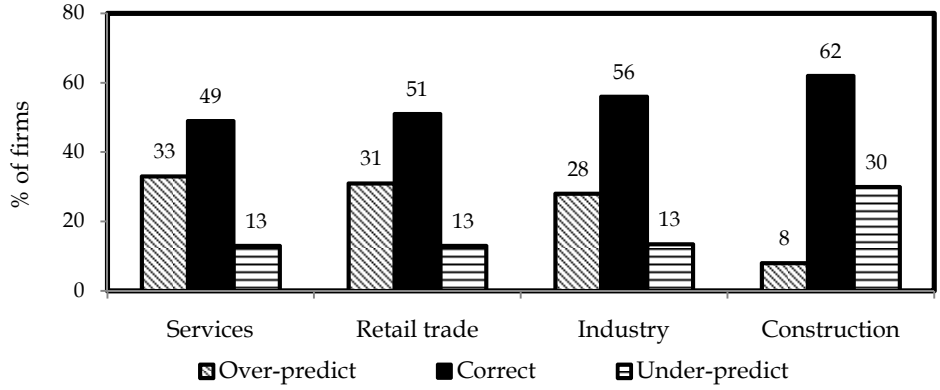
[4] The survey in the construction sector does not ask directly about expected economic activity. Thus, we compare the responses about building activity (realisations) with those about the order books since the latter incorporate expectations. Furthermore, the construction survey includes a question about expected employment but does not include a question on current employment, thus we use again building activity as realisations since construction is a labour-intensive sector.

[5] For details, see Table A1 in the Appendix.

consistent with realisations for more than half of the cases considered, while in services and retail trade predictions agreed with realisations for about half of the cases. However, about one third of firms in services, retail trade and industry overestimated their economic activity, while smaller percentages (13%) expected lower demand, sales or production than their actual outcomes. In contrast, in the construction sector 30% and 8% of cases underestimated and overestimated their activity, respectively.

FIGURE 3

Percentage of firms that provided correct (incorrect) predictions: economic activity



Source: Authors' calculations.

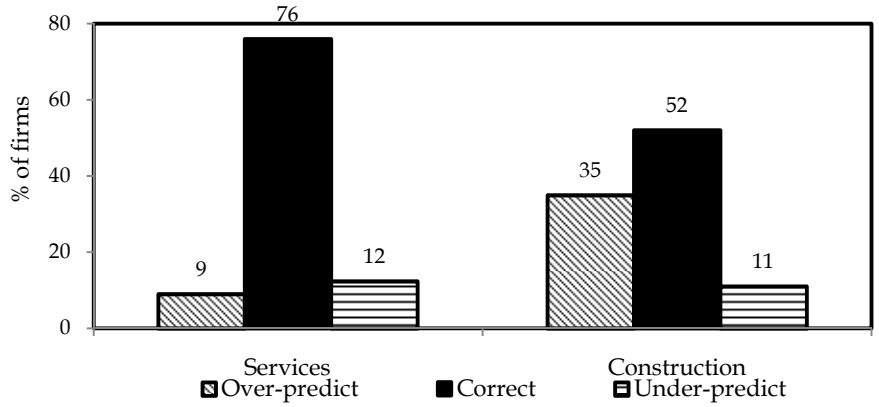
In services and industry the majority of firms that supplied correct predictions had stated that their demand and production respectively would have remained unchanged and afterwards they reported no change in their actual activity. In retail trade and construction the largest percentage of correct predictions came from respondents who had anticipated a deterioration in their activity that was realised three months later (Table A1).

The percentage of firms in services and construction that conjectured accurately or overestimated/underestimated the change in their employment is shown in Figure 4. In services a quite high proportion of correct predictions (76%) is observed. In construction, even though expectations matched realisations for half of the companies, a significant proportion (35%) overestimated the change in the number of employees, since their realisations registered a decrease in employment instead of no change which was the anticipated outcome. It seems that the economic downturn affected to a greater extent the construction than the services sector, causing firms in construction to experience more unanticipated

changes in their employment levels. In both sectors, the vast majority of firms that predicted their employment levels accurately, had not expected any changes in the number of their employees (Table A1).

FIGURE 4

Percentage of firms that provided correct (incorrect) predictions: employment



Source: Authors' calculations.

3.2 Econometric analysis

Next, to examine the effects of various firm-specific characteristics on the probability that firms' expectations match their future realisations about activity and employment we estimated probit models for the different sectors. The dependent variables are binary, i.e., they take the value 1 if the firm's expected change in activity/employment in the next three months, stated in month *t* (e.g., May), agreed with the change in the firm's activity/employment in the last three months reported in month *t*+3 (e.g., August), and 0 otherwise. Tables 1 and 2 show the estimated marginal effects of various characteristics on the probability of correct prediction, for activity and employment respectively. The independent variables include the firm's years of operation, firm size, legal entity, district, type of interview and sub-sector of activity. We also use time dummy variables that capture potential heterogeneity between the different three-month periods for which expectations are compared to realisations.

The pseudo R^2 values indicate that the models improve by 2 to 12% on a model which specifies the probability of correct prediction as being a

constant.[6] The largest improvements are observed in the specifications for activity in industry (10%) and for employment in services (12%).

TABLE 1

Estimated marginal effects on the probability of correct prediction: economic activity[1]

	Services (demand)	Retail trade (sales)	Industry (production)	Construction (order books)
Firm size (1-9)[2]				
10-49	0.026 (0.647)	-0.045 (-1.385)	-0.056 (-0.565)	-0.098 (-2.051)**
50-249	-0.041 (-0.850)	0.019 (0.178)	-0.111 (-0.875)	-0.121 (-1.522)
250+	0.312 (3.027)***	-	0.325 (2.349)**	-
Years of operation	0.001 (0.152)	-0.001 (-0.685)	0.004 (1.069)	0.007 (3.003)***
Legal form (Ltd)[2]				
Private firm	-0.032 (-0.623)	-0.079 (-2.132)**	0.026 (0.119)	-0.037 (-0.455)
Partnership	0.072 (0.663)	0.172 (1.215)	-	-0.026 (-0.155)
Interview type (Phone)[2]				
Fax	0.327 (4.609)***	-	0.224 (1.708)*	-
Email	0.162 (2.405)***	0.057 (0.527)	0.156 (1.374)	0.080 (0.685)
Sub-sector				
Transport (Hotels & Restaurants)[2]	-0.199 (-3.740)***			
Financial services, etc	-0.050 (-0.837)			
Legal & accounting	-0.146 (-1.861)*			
Other professional services	-0.148 (-1.875)*			
Other service activities	-0.028 (-0.648)			
Sale of motor vehicles (Other goods)[2]		-0.136 (-1.258)		
Maintenance of motor vehicles etc.		-0.126 (-2.810)***		
Food, beverages, tobacco		-0.018 (-0.488)		
Automotive fuel		0.368 (2.106)**		
Investment goods (Non-durable consumer goods)[2]			0.005 (0.047)	
Intermediate goods			-0.029 (-0.341)	
Buildings (Specialised construction activities)[2]				-0.040 (-0.901)
District (Nicosia)[2]				
Limassol	0.115 (2.122)**	-0.068 (-1.974)**	0.143 (1.159)	-0.088 (-1.532)
Larnaca	0.006 (0.097)	-0.007 (-0.156)	0.084 (0.614)	-0.043 (-0.677)
Famagusta	-0.011 (-0.196)	-0.133 (-1.568)	-	-
Pafos	0.028 (0.531)	-0.071 (-0.771)	0.277 (2.896)***	0.096 (1.709)*
Number of observations	1139	1388	387	708
Log likelihood	-739.50	-934.52	-236.99	-451.99
Pseudo R^2	0.062	0.024	0.102	0.031
Wald χ^2 [p-value]	92.01 [0.000]	45.30 [0.093]	54.04 [0.009]	30.73 [0.429]

Notes: [1] Heteroskedasticity robust t-statistics are provided in parentheses. The symbols ***, ** and * denote statistical significance at 1%, 5% and 10% respectively.

[2] Denotes the baseline group.

[6] In general, for discrete choice models such as the probit models estimated here, the goodness-of-fit measures are quite low.

The firm-specific characteristics are highly jointly significant, as suggested by the Wald statistics, except for the case of activity in construction and retail trade. Thus, at first glance, correct predictions or equivalently prediction errors are not random but rather systematic and dependent on firm-specific characteristics.

The probability that a firm's expected level of activity matches the realised activity level is higher for larger firms in services and industry. Firms of 10-49 employees in construction are associated with the smallest probability of expressing expectations consistent with realisations. The years of operation have a positive effect on the probability of correct prediction only in the construction sector. The legal entity form of the company influences the probability of correct prediction only in retail trade. In particular, private firms in retail trade have a smaller chance of having their stated expectations realised than firms of other legal forms in the same sector.

The type of interview appears to be connected with the firm's ability to state expectations about activity that are consistent with realisations in two out of the four sectors considered. Firms in services that answer via fax followed by those who reply via email exhibit a higher probability of predicting their demand correctly than firms that respond by phone. Firms in industry that reply by fax give somewhat more accurate predictions than companies that use other interview methods.

We also observe some variation in the probability of correct predictions within sectors. In services, this probability is the lowest for transportation activities. Legal and accounting firms, as well as other professional services (e.g., advertising and market research, architectural and engineering activities, computer programming and consultancy services) are less likely than firms in the hotels and restaurants sub-sector to express demand expectations that agree with future realisations. In retail trade, firms operating in the automotive fuel sub-sector have the best chance of expressing expectations about sales that are consistent with outcomes reported three months later, while firms in the maintenance of motor vehicles and sale of accessories are the least likely to provide correct predictions

The district where a firm is located appears to have a role in shaping expectations consistent with subsequent realisations. Limassol-based firms in services have a better chance of predicting their demand correctly than companies in other districts; the opposite holds for retail trade businesses. Firms located in Pafos operating in the construction or industry sector are more likely to provide correct predictions than companies in other districts in the corresponding sectors.

TABLE 2

Estimated marginal effects on the probability of correct prediction: employment [1]

	Services	Construction
Number of employees(1-9)[2]		
10-49	-0.102 (-3.008)***	0.084 (1.680)*
50-249	-0.249 (-5.789)***	0.126 (1.609)
250+	-0.184 (-2.199)**	-
Years of operation	-0.001(-0.438)	-0.007 (-2.828)***
Legal form (Ltd)[2]		
Private firm	0.115 (3.033)***	-0.317 (-3.628)***
Partnership	0.073 (1.091)	-0.188 (-0.998)
Interview type (Phone)[2]		
Fax	0.161 (3.411)***	-
Email	0.101 (2.247)**	0.077 (0.572)
Sub-sector		
Transport (Hotels & Restaurants)[2]	0.147 (4.199)***	
Financial services, etc	0.061 (1.420)	
Legal & accounting	-0.174 (-2.580)***	
Other professional services	-0.017 (-0.285)	
Other service activities	-0.005 (-0.156)	
Buildings (Specialised construction activities)[2]		-0.032 (-0.695)
District (Nicosia)[2]		
Limassol	-0.103 (-2.295)**	-0.059 (-0.991)
Larnaca	-0.044 (-0.894)	-0.165 (-2.446)**
Famagusta	-0.028 (-0.611)	-
Pafos	-0.057 (-1.289)	-0.231 (-3.751)***
Number of observations	1162	703
Log likelihood	-537.29	-442.56
Pseudo R^2	0.121	0.089
Wald χ^2 [p-value]	142.64 [0.000]	79.59 [0.000]

Notes: [1] Heteroskedasticity robust t-statistics are provided in parentheses. The symbols ***, ** and * denote statistical significance at 1%, 5% and 10% respectively.
[2] Denotes the baseline group.

The variation between time periods pairing expectations and realisations is very small and in the vast majority of cases statistically insignificant, thus estimation results are omitted for brevity; no particular pattern, such as seasonality, is detected.

Next we turn to the factors that influence employment predictions. The size of the firm affects strongly the probability of correct employment prediction in services. Firms with 10 employees or more are less likely than smaller-sized firms to give correct predictions about employment. In particular, firms with staff of 50 to 249 people provide the most inaccurate employment predictions. Micro firms therefore seem to be in a better position than larger firms to foresee changes in their employment. This might be attributed to the flexibility of smaller-sized firms to adapt to changing economic conditions since they may face lower labour and adjustment costs (e.g., Broersma and Gautier, 1995).

In construction the years of operation of the firm impact negatively on firm's ability to express employment expectations that are consistent with realisations. Private firms and partnerships in services have a better chance of providing correct predictions about their number of employees than limited companies. On the other hand, in construction private companies seem to give the least accurate predictions.

The mode of interview affects the probability of correct employment prediction only in the services sector. Firms who submit their survey answers by fax or email are more successful in expressing employment expectations in agreement with realisations than those interviewed over the phone.

Regarding sub-sectors, firms operating in the transport activities sub-sector are the most likely to have their stated employment expectations realised, while legal and accounting companies are the least likely. The result regarding the transport sub-sector is the opposite of that found in the case of activity. It could be that employment levels in transport services are more inelastic than demand hence changes (or no changes) in employment are more predictable.

The district where a firm is located influences the probability of correct prediction in both services and construction sectors. For services, the probability that expectations about the number of employees match realisations is the lowest for firms in the Limassol district. The aforementioned probability is much lower for construction firms based in Pafos or in Larnaca than for those in Nicosia.

Time variation, as in the case of activity, is quite small and statistically insignificant in most cases and hence is not reported.

4. Conclusions

This paper attempts to assess the quality of Business Survey data for Cyprus at an individual firm level, using data for the period May 2009 – April 2011. Using a panel of firms, we examined the consistency of their replies by comparing their expectations stated in a particular month with realisations reported by the same participants in subsequent surveys. Furthermore, we investigated whether there are any systematic patterns that determine a firm's probability of stating expectations that are in agreement with future realisations. It appears that the firm size and the district where a company is located are among the key factors that influence the probability of correct prediction in terms of activity and employment. We also find significant heterogeneity in the probability of

correct prediction within sub-sectors of services and retail trade, as well as between interview types used in services.

The findings imply that prediction errors are not random and vary systematically with firm-specific characteristics, rendering expectations inefficient. The heterogeneity in the probability of correct prediction can also be viewed as a description of the shocks experienced ex post by various types of firms, in that aggregate shocks impact differently on different groups or that firms receive group-level shocks (e.g., Souleles, 2004, conducts a similar analysis for the US using consumer survey data). For example, during the period of economic downturn under examination firms with 10 to 49 employees in construction might have experienced disproportionate shocks compared to construction firms of other sizes or to firms of similar size in other sectors. Within the two large sectors, i.e., services and retail trade, we find substantial variability in the probability of correct prediction at a sub-sector level. The expectations of firms in transport, legal, accounting and other professional services, as well as in the maintenance of vehicles sub-sector of retail trade, appear to have undergone considerable revisions during the period of analysis. From a policy perspective, these results can be viewed as providing some indications as to the profile of firms (size, legal entity, sub-sector, district) that were hit by the current economic recession. Nevertheless, a panel of longer time dimension should be used to draw robust conclusions on firms' predictive ability under varying macroeconomic conditions, but there is a trade-off between the time and cross section dimension of the dataset, since a number of firms drop out of the sample each month. The analysis can also be extended to include quantitative variables on firms' activity and employment by matching the existing dataset with data from quantitative business surveys. Another possible extension is to apply similar techniques in the case of Consumer Surveys.

The results of the micro analysis imply some useful findings for the computation of confidence indicators at a more aggregate level. For example, the result that large firms are more likely to state expectations about activity which are later realised could lead to the construction of a confidence indicator based on the responses of the largest firms in the sample. Similarly, we could compute indicators based on sub-sectors that exhibited relatively high probability of correct predictions, for example, the hotels and restaurants sub-sector. Such indicators could contain valuable leading information both at aggregate and sector level. The finding that employment expectations are more accurate than activity expectations - due to the more predictable nature of employment - can be exploited in the development of leading indicators for the economy and its

main sectors. In fact, a preliminary analysis showed that employment expectations capture very well future movements in real GDP growth.

The assessment of the predictive ability of the Cyprus Business and Consumer Survey variables at the aggregate level and the evaluation of the forecasting performance of models that include the aforementioned variables has been the subject of ongoing research by the authors with encouraging results for their properties in terms of leading economic developments and forecasting the macroeconomy. Hence, Business and Consumer Survey data could constitute a supplementary tool for monitoring the state of the economy in Cyprus that could be exploited by policy-makers and businesses.

References

Bańbura, M., and Rünstler, G. (2007) 'A Look into the Factor Model Black Box: Publication Lags and the Role of, Hard and Soft Data in Forecasting GDP', Working Paper Series, No 751, European Central Bank.

Broersma, L., and Gautier, P. (1997), 'Job Creation and Job Destruction by Small Firms: An Empirical Investigation for the Dutch Manufacturing Sector', *Small Business Economics*, 9, 211-224.

Carriero, A., and Marcellino, M. (2007), 'Sectoral Survey-Based Confidence Indicators for Europe', Working Paper Series, No 320, Università Bocconi.

Clavel, L., and Minodier, C. (2008), 'A Monthly Indicator of the French Business Climate', Working Paper, Institut National de la Statistique et des Études Économiques (Insee), Available at: http://ec.europa.eu/economy_finance/db_indicators/surveys/documents/workshops/2008/ec_meeting/minodier_insee.pdf

Claveria, O., Pons, E., and Ramos, R. (2007), 'Business and Consumer Expectations and Macroeconomic Forecasts', *International Journal of Forecasting,* 23, 47-69.

European Commission (2007), 'The Joint Harmonised EU Programme of Business and Consumer Surveys: User Guide', Directorate General for Economics and Financial Affairs.

Friz, R. (2008), 'Are Managers' Selling Price Expectations a Good Prediction of Producer Prices?', Working Paper, Directorate General for Economics and Financial Affairs, Available at: http://ec.europa.eu/economy_finance/db_indicators/surveys/documents/workshops/2008/ec_meeting/friz_ecfin.pdf

Hahn, E., and Skudelny, F. (2008), 'Early Estimates of Euro Area Real GDP Growth: A Bottom up Approach from the Production Side', Working Paper Series, No 975, European Central Bank.

Hansson, J., Jansson, P. and Löf, M. (2005), 'Business Survey Data: Do They Help in Forecasting GDP Growth?', *International Journal of Forecasting*, 21, 377-389.

Jonsson, A. (2007), 'Managers' Employment Expectations', Working Paper, Directorate General for Economics and Financial Affairs, Available at: http://ec.europa.eu/economy_finance/db_indicators/surveys/documents/workshops/2007/ec_meeting/jonsson_ecfin.pdf

Kontolemis, Z., Pashourtidou, N. and Tsiaklis, A. (2010), 'Business and Consumer Surveys in Cyprus and the Euro Area', Economic Analysis Paper, No. 01-10, Economics Research Centre, University of Cyprus.

Souleles, N. (2004), 'Expectations, Heterogeneous Forecast Errors, and Consumption: Micro Evidence from the Michigan Consumer Sentiment Surveys', *Journal of Money, Credit and Banking*, 36, 39-72.

Taylor, K. and McNabb, R. (2007), 'Business Cycles and the Role of Confidence: Evidence for Europe', *Oxford Bulletin of Economics and Statistics*, 69, 185-208.

Appendix

TABLE A1

Percentage of firms that provided correct (incorrect) predictions[1]

	Correct (% of firms)				Over-predict (% of firms)				Under-predict (% of firms)			
	++	==	--	Total	+=	+-	=-	Total	-=	-+	=+	Total
Services												
Demand	10	25	14	49	14	8	11	33	7	2	4	13
Employment	5	68	3	76	5	0	4	9	6	1	5	12
Retail trade												
Sales	8	18	25	51	9	7	15	31	7	2	4	13
Industry												
Production	4	34	18	56	8	6	14	28	8	1	4	13
Construction												
Order Books	0	18	44	62	1	0	7	8	24	4	2	30
Employment	1	32	19	52	3	0	32	35	7	1	3	11

Notes: [1] The symbols "+", "=" and "-" denote "increase", "no change" and "decrease" respectively, and in each pair shown in columns 2-4, 6-8 and 10-12 the first symbol refers to expectations and the second to realisations.

[2] Totals do not add up to 100% due to a small percentage of non-respondents.

[3] The number of firms in services, retail trade, industry and construction was 56, 71, 19 and 34 respectively.