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THE EUROPEAN COMMISSION'S BUSINESS AND CONSUMER SURVEYS AND MALTESE MACROECONOMIC TRENDS

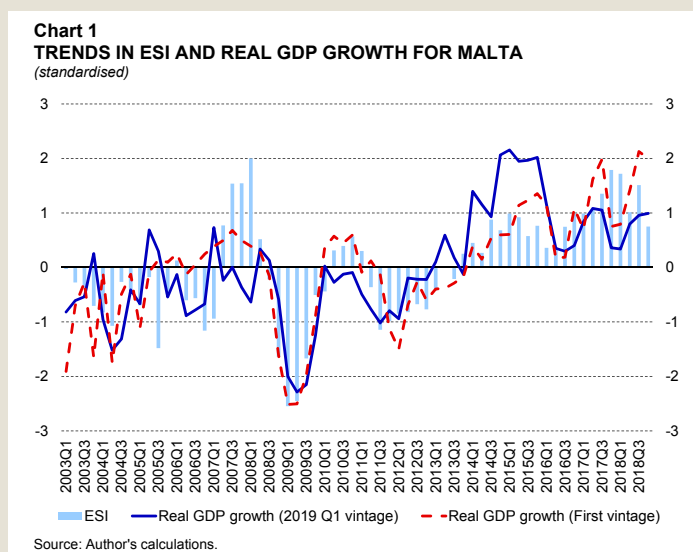
BOX 1: THE EUROPEAN COMMISSION'S BUSINESS AND CONSUMER SURVEYS AND MALTESE MACROECONOMIC TRENDS¹

The European Commission's (EC) business and consumer surveys are the most extensive regular surveys of Maltese firms and households. They have been carried out among the manufacturing sector and households in Malta since November 2002 and subsequently extended to cover services firms, construction companies and the retail sector. This box analyses the link between these survey results and trends in macroeconomic data, focusing in particular on whether the ESI, which is a synthetic indicator derived from these confidence indices, is an effective coincident or leading indicator of Maltese GDP.

The relationship between the ESI and the state of the Maltese economy

Chart 1 shows real GDP growth and the ESI level for Malta, both of which have been standardised to facilitate comparisons.² As real GDP growth data tend to be revised extensively, the Chart also includes data on the first estimate of real GDP growth, which are the data issued closest to the date when the ESI was observed.

While the ESI for Malta is a much smoother variable than the Maltese economy's real GDP growth rate, particularly in the pre-crisis period, the two variables have a close positive correlation of 0.64. When one focuses on the first estimate of real GDP growth, the degree of correlation becomes even more pronounced at 0.78. The stronger correlation with the first vintage of national accounts data rather than later vintages indicates that opinions expressed by economic agents participating in the EC survey are partly driven by available economic data and news prevailing at the time. Moreover, as Table 1 shows, similar to most EU countries the correlation between the ESI and



¹ Prepared by Sandra Zerfa, Coordinator of economic publications within the Economic Analysis Department and Dr Aaron G. Grech, Chief Officer of the Economics Division of the Central Bank of Malta. This box summarises a policy note by Dr Aaron G. Grech on 'The European Commission's business and consumer surveys and Maltese macroeconomic trends'; published by the Central Bank of Malta in May 2019. The views expressed are those of the authors and do not necessarily reflect the views of the Central Bank of Malta. Any errors are the authors' own.

² The time series of the variables is subtracted from its mean value and divided by its standard deviation. A graph of standardised values has the exact shape of a graph of the actual data, but will have a different range. This range, however, would be more easily comparable to that of another time series with different metrics. A positive value implies that the original value of the variable was above its mean, and vice versa.

Table 1
CORRELATION BETWEEN ESI AND REAL GDP GROWTH IN MALTA AND OTHER NATIONS

	Correlation between ESI and real GDP growth		Correlation between Malta's ESI and real GDP growth and those of other nations	
	Zero lag	First lag	ESI	Real GDP growth
Austria	0.86	0.83	0.65	0.26
Belgium	0.88	0.79	0.58	0.23
Bulgaria	0.83	0.73	0.36	0.12
Cyprus	0.90	0.89	0.50	0.08
Czechia	0.90	0.85	0.51	0.38
Estonia	0.92	0.92	0.29	0.26
Denmark	0.64	0.65	0.36	0.45
EU	0.89	0.84	0.70	0.47
Finland	0.83	0.83	0.41	0.24
France	0.87	0.81	0.53	0.27
Germany	0.78	0.74	0.70	0.42
Greece	0.88	0.83	0.31	0.13
Hungary	0.79	0.80	0.73	0.52
Malta	0.64	0.65		
Italy	0.86	0.80	0.55	0.40
Ireland	0.72	0.67	0.71	0.68
Lithuania	0.88	0.84	0.49	0.24
Latvia	0.95	0.93	0.35	0.18
Luxembourg	0.48	0.40	0.49	0.38
Netherlands	0.91	0.89	0.71	0.44
Poland	0.70	0.60	0.56	-0.03
Portugal	0.93	0.85	0.73	0.47
Romania	0.89	0.84	0.26	0.23
Slovakia	0.88	0.87	0.42	0.24
Slovenia	0.93	0.90	0.60	0.39
Spain	0.89	0.93	0.54	0.41
Sweden	0.79	0.73	0.67	0.41
UK	0.72	0.73	0.69	0.46

Source: Author's calculations.

growth in GDP is strongest at zero lag rather than at later lags, suggesting that the ESI is a coincident rather than a leading indicator of economic activity.

Malta's economic sentiment also appears to be quite synchronised with that of major exporting EU countries (see Table 1). In fact, the degree of correlation between Malta's ESI and that in other EU countries (particularly export-oriented economies like Germany and Ireland) is higher than that observed with Malta's own real GDP growth. This may reflect the fact that the ESI gives a disproportionate weight to industrial firms, which tend

to be more exposed to common international factors, rather than to factors that may affect domestic demand (e.g. fiscal measures or changes in domestic credit availability).

Sectoral business survey results and their ability to predict future activity

The sectoral confidence indicators which underpin the ESI are quite highly correlated (see Table 2). While the retail sector's confidence indicator displays the least relative co-movement, the construction sentiment indicator is the one that is most synchronised with sentiment in other sectors.

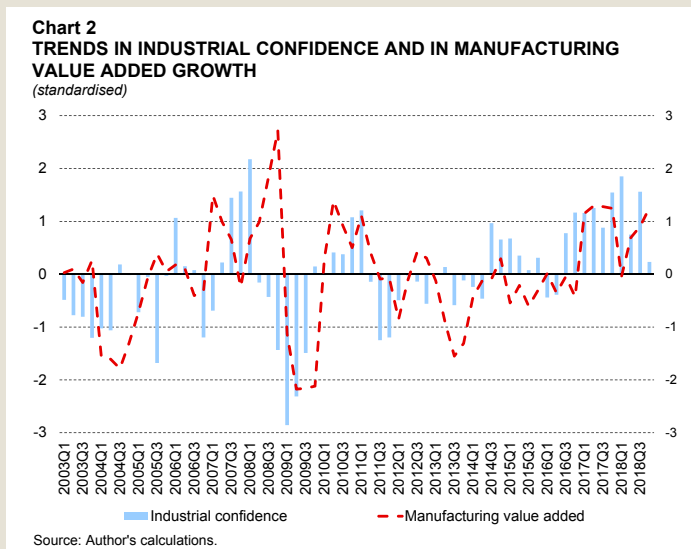
Sectoral value added data from the national accounts for construction, services, retail and industry are much less correlated, though the construction sector again shows the highest degree of co-movement with other sectors. Correlation between the ESI and national accounts sectoral indicators varies greatly. On the one hand, private consumption expenditure and construction value added are strongly correlated with construction and consumer confidence indicators. Industry value added and the industrial confidence indicator show some degree of co-movement. By contrast, there is little correlation between national accounts estimates for the services and retail sectors and the sentiment indicators for these sectors. The strongest correlations are found between private consumption growth and the construction and services confidence indicators. The degree of co-movement is lowest between retail value added and services sector confidence.

Table 2
CORRELATION BETWEEN ESI AND NATIONAL ACCOUNTS INDICATORS (2011 TO 2018)

ECONOMIC SENTIMENT					
	Construction ESI	Consumers ESI	Industry ESI	Retail ESI	Services ESI
Construction ESI	1.00	0.67	0.73	0.78	0.81
Consumers ESI	0.67	1.00	0.66	0.55	0.79
Industry ESI	0.73	0.66	1.00	0.47	0.71
Retail ESI	0.78	0.55	0.47	1.00	0.59
Services ESI	0.81	0.79	0.71	0.59	1.00
NATIONAL ACCOUNTS					
	Construction	Consumers	Industry	Retail	Services
Construction	1.00	0.63	0.31	0.27	0.15
Consumers	0.63	1.00	0.37	0.32	0.08
Industry	0.31	0.37	1.00	-0.13	-0.16
Retail	0.27	0.32	-0.13	1.00	0.65
Services	0.15	0.08	-0.16	0.65	1.00
	Construction ESI	Consumers ESI	Industry ESI	Retail ESI	Services ESI
Construction	0.60	0.56	0.51	0.38	0.58
Consumers	0.69	0.60	0.43	0.57	0.68
Industry	0.53	0.20	0.48	0.19	0.50
Retail	0.11	0.10	-0.06	0.21	-0.04
Services	0.22	0.48	0.23	0.27	0.19

Source: Author's calculations.

The change in manufacturing value added is not closely related with the concurrent level of industrial confidence (see Chart 2). However, if one looks at data after 2011 excluding the significant variation induced by the Great Recession, the degree of correlation between the concurrent values for the change in manufacturing value added and industrial confidence is nearly double that seen for the whole time series. Hence, the industrial confidence indicator appears to be becoming a good indicator of changes in manufacturing value added.



The change in manufacturing employment is also strongly correlated with the balance of manufacturing firms stating whether they would be increasing or decreasing employment in the months ahead. The degree of correlation in this case is noticeably stronger than that seen between industrial confidence and the change in manufacturing value added. Restricting the period to 2011, the degree of correlation between employment intentions and the actual change in employment is similar to that seen between industrial confidence and the change in manufacturing value added.

Responses to questions on manufacturing firms' planned or past production are only weakly correlated with changes in the index of industrial production compiled by the National Statistics Office (NSO). By contrast, manufacturing firms' replies to the two questions posed in the EC survey on past and planned future production appear very closely correlated suggesting that despite reported relatively volatile changes in output, expectations of future production are driven to a large extent by past production.

Table 3 looks at whether survey responses on future activity and employment changes are indicative of observed changes in national accounts sectoral estimates for different sectors.

Table 3
CORRELATION BETWEEN SECTORAL NATIONAL ACCOUNTS INDICATORS AND SURVEY EXPECTATIONS (2011 TO 2018)

	Manufacturing	Construction	Retail	Services
Activity	0.35	0.37	0.09	0.05
Employment	0.43	0.69	0.18	0.49

Source: Author's calculations.

In general, sectoral expectations on future activity appear to be less strongly correlated to changes in national accounts sectoral value added than survey responses to planned employment changes are to observed changes in sectoral employment. This is particularly true for services. Whereas services firms' expectations of activity are not indicative of subsequent observed changes in sectoral value added, employment expectations are much more closely related with actual outcomes. This may reflect the composition of the survey itself, as it may focus more on the larger employers in the sector.

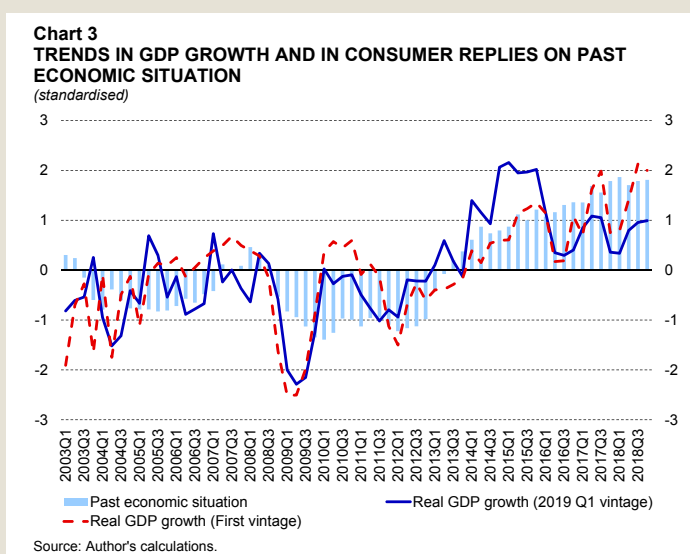
By contrast, the replies of construction firms are quite indicative of observed changes in both activity and employment, whereas the replies of retail firms have much less predictive properties on observed sectoral developments.

The economic expectations of Maltese households

Households replying to the EC's consumer confidence survey are asked to provide their opinion on the current and future state of economic activity as well as to provide an evaluation on how the general economic situation evolved over the last 12 months and how they expect it to change in the 12 months ahead. Chart 3 suggests that when comparing the balance of consumers' replies on how the economic situation changed with the first and last vintages of real GDP growth, the degree of correlation is quite strong. It is also comparable to that found between real GDP growth and the ESI. However, whereas in the latter case the correlation is stronger for the first vintage, in the case of consumer replies on past economic growth the correlation is slightly stronger with the last vintage of GDP data. Nonetheless, restricting the analysis to more recent periods rather than the whole time series shows that the degree of correlation is strongest with the first vintage of GDP data.

Consumer evaluations of economic activity tend to be quite stable (see Chart 3). Once the evaluation turned negative in mid-2003, it remained so till early 2007, followed by a brief interlude during the pre-crisis peak in activity. This was followed by another long period during which replies remained negative, despite the recovery in activity after the crisis. Since mid-2013 the trend in consumer replies on the past economic situation have tended to be nearly consistently upwards, even though the rate of GDP growth has fluctuated.

Consumer expectations about the future economic situation are very closely correlated with their evaluation of the



past evolution of economic activity (degree of correlation of nearly 1). This suggests that Maltese consumers form their expectation mostly based on their assessment of the past. However, an equation that utilises the lagged value of consumer expectations about future economic activity beats a simple auto-regressive model of real GDP growth in terms of forecasting ability. This suggests that while consumer expectations of economic growth may be backward-looking they have some predictive power.

Maltese households expectations about future movements in unemployment are very closely correlated with past trends in the unemployment rate (as measured in the LFS). The degree of correlation seen for Maltese consumers is nearly double that observed at EU average level. However, Maltese households' expectations on unemployment are backward-looking whereas those at EU level appear to have more predictive power.

By contrast expectations of inflation are somewhat less related to past changes in official measures of inflation, though since 2011 Maltese consumers' inflation expectations and their experience of inflation are becoming more aligned with trends in the official measure of inflation. This possibly reflects the fact that during this period, Malta's inflation rate has become significantly less volatile. Nonetheless, consumer expectations on future inflation do not appear to have acquired any predictive properties and remain quite highly correlated to the current level of observed inflation.

Conclusion

This box summarises a first study that looks at the relevance of the EC surveys as coincident or leading indicators of economic activity in Malta. Analyses of correlation results indicate that the sectoral composition of the ESI is becoming less aligned with that of the national economy. Nonetheless, the ESI remains a good coincident indicator of economic activity and can help predict first estimates of Malta's real GDP growth.

Economic expectations of Maltese households appear to be mostly reflective of current conditions and can be useful as coincident indicators, particularly for forecasting variables that are issued with some time lag, like real GDP growth. Nonetheless, the usefulness of survey indicators is more limited for variables such as inflation and unemployment, where data is issued on a monthly basis.

With regard to industrial and construction firms, their replies are quite indicative of observed changes in their activity and employment. By contrast, the replies of retail firms have less predictive properties. In the case of services, it appears that the effectiveness of the survey may be declining over time, particularly if the focus is on trends in value added rather than those in employment.