

BANK ĊENTRALI TA' MALTA
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TIMING THE MALTESE BUSINESS CYCLE

BOX 1: TIMING THE MALTESE BUSINESS CYCLE¹

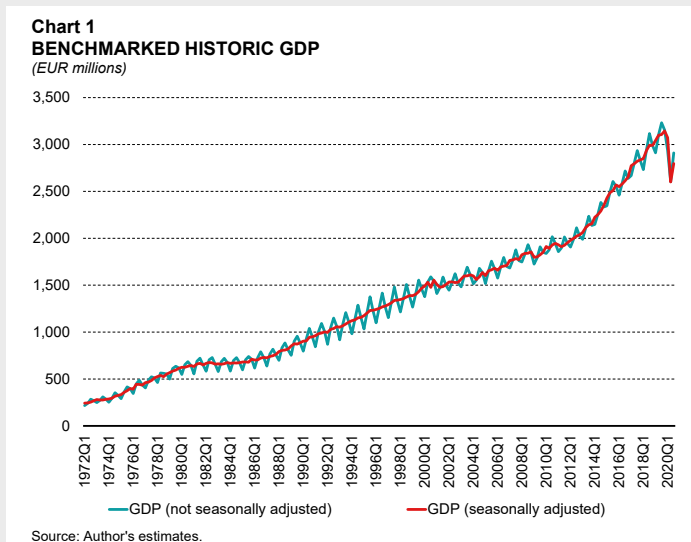
Despite data limitations, formal methods can still be applied to identify business cycle turning points and hence date appropriately the business cycle in Malta. This Box discusses the main findings in Ellul (2021),² which extends the official quarterly GDP time series for Malta to the 1970s, allowing for a historical view on dating the business cycle in Malta. This leads to the identification of a tentative set of recessionary episodes over recent decades. The study uses the most simple and established methods to assess the timing of the Maltese business cycle, and does so in a manner which may be fully replicable by other analysts with the minimum effort necessary.

Benchmarking historic GDP data

The earliest official quarterly national accounts data-point available for Malta refers to the first quarter of 2000. Grech (2018) collected some quarterly observations before this point in 'real' terms from some early vintages of published NSO data.³ Using a combination of sources, namely databases published by the Central Bank of Malta, published statistical releases and old archived websites, a nominal quarterly GDP series was collated and checked as far back as 1972. The first step to create a viable quarterly series consistent with the current vintage of GDP estimates is to use deflators to convert the nominal figures. Annual deflators, found in Grech (2015) were used, interpolated over the whole year.⁴ The resulting quarterly series was then adjusted by forcing the resulting annual growth rates to match those published in Grech (2015). The resulting quarterly GDP series goes back to the first quarter of 1972 (see Chart 1) and has more stable growth rates when compared with official GDP growth figures from the early 2000s, particularly during the 1990s.

Timing the business cycle

Ideally, assessments on turning points and timing of the business cycle ought to be carried out once estimates for economic statistics have been finalised. In Malta, as discussed by Grech (2018), “revisions to initial overall real GDP



¹ Prepared by Reuben Ellul, Principal Economist at the Economic Analysis Department at the Bank. The views expressed in this article represent those of the author and should not be interpreted to reflect those of the Bank. Any remaining errors are the author's own.

² For a full version of this study, see Ellul, R. (2021), "Timing the Maltese business cycle: A historical perspective", *Working Paper WP/01/2021* February 2021.

³ See Grech, O., (2018). An Analysis of Revisions to Maltese GDP Data. *Research Bulletin* 2018, Central Bank of Malta, pp. 27-34.

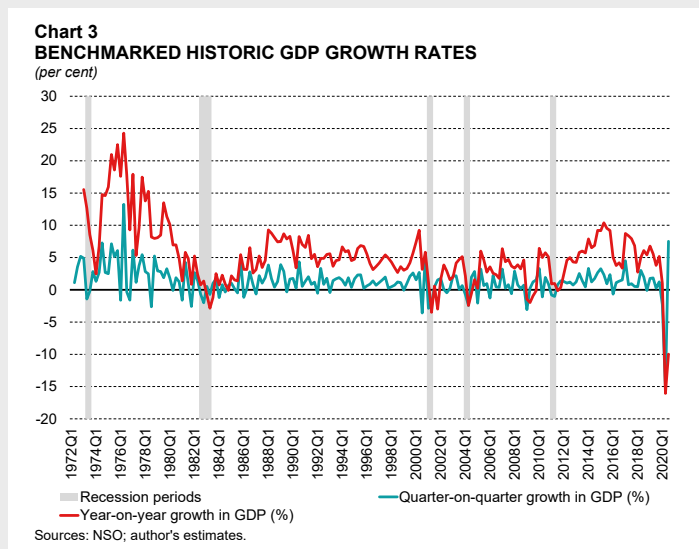
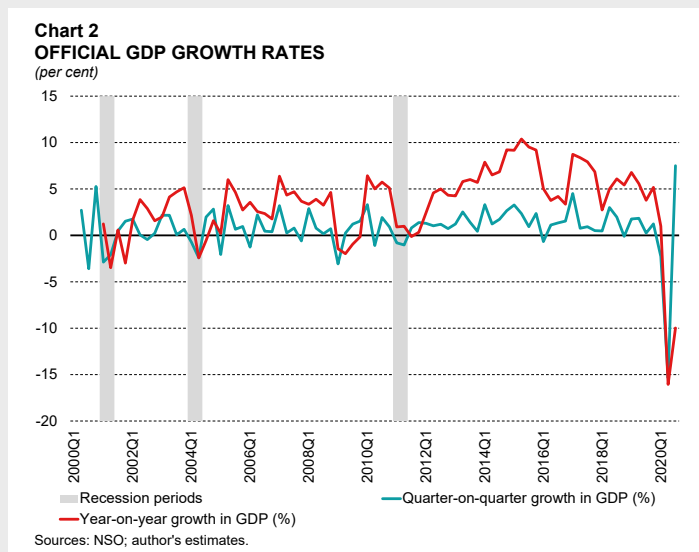
⁴ See Grech, A.G., (2015). The evolution of the Maltese economy since Independence. *Working Paper WP/05/2015*, Central Bank of Malta.

growth rates are sizeable, biased upwards, volatile and increase with the horizon". This would imply that GDP should not be the only variable utilised to time the business cycle.

GDP data

When using the official NSO GDP time series and applying the most common tool in the timing of business cycles, namely the Bry-Boschan algorithm, there is evidence for recessionary episodes between 2001Q1 and 2001Q2, 2004Q1 and 2004Q2, 2011Q1 and 2011Q2, and from 2019Q4 onwards (see Chart 2).

When extending the GDP time series in a benchmarking exercise going back to 1972, recessionary episodes are detected between 1973Q2 and 1973Q3, 1982Q3 and 1983Q2, 2001Q1 and 2001Q2, 2004Q1 and 2004Q2, 2011Q1 and 2011Q2 and from 2020Q1 onwards (see Chart 3). Interestingly, the timing of the last recession is different in the two datasets. This may be due to the sharp drop in GDP in 2020Q2, the first full quarter affected by the pandemic, which affects the timing of the business cycle earlier in the official time-series.⁵ Finally, in the national accounts vintage following the recent NSO benchmark revision exercise, the recession following the 2008/9 crisis disappears from the data and is not captured at all by the Bry-Boschan algorithm.



⁵ This episode, linked with the COVID-19 Pandemic and ensuing mitigation efforts, is excluded from the study as its effects are still ongoing and significantly much larger than any other recession so far. This study was first completed before the publication of GDP estimates for 2020Q1, and thus did not consider the impact of the COVID-19 epidemic on the Maltese economy. Although updated up to the 2020Q3 national accounts vintage, in the spirit of the findings of the paper and the literature, it was thought best to leave an analysis of the recessionary episode in 2020 for a future date.

Applying a Markov switching model to the latest official time-series finds that there are no consecutive quarters where the recession probability is higher than 50.0%, but there are three sharp peaks with short intense periods where the recession probability is high (over 80%). These three instances appear to coincide with the 2001 recession, the 2004 episode, and the 2009Q1 recessionary episode. Another peak observed in 2011 has a lower recession probability of around 60.0%. In the extended timeline, recessionary episodes are found between 1973Q2 and 1973Q4, and between 2001Q1 and 2001Q2.

This latter method also finds single quarters with evidence of a recession, but which are not followed up by a similar recessionary quarter. Such shocks with a short duration, are found in 1976Q4, 1978Q3, 1982Q4, 2000Q3, and 2009Q1. Two other approaches that were considered in Ellul (2021) also consider 2009Q1 to have been a recessionary episode, and provide some evidence for a further episode in 2004. Evidence is sparser for other dates.

Labour market data

The study also looks at the labour market and finds distinct phases in the development of the labour market in Malta, which may be used to explain and analyse the different natures of the recessionary episodes discussed above. This study also computes monthly recession probabilities based on unemployment rate data. Monthly recession estimates are computed from July 1966 onwards, with evidence of at least six consecutive months of negative economic conditions confirmed between September 1972 and July 1973, April and December 1990, January and June 1992, March 1996 and November 1996, and between October 2001 and April 2002 (see Chart 4).

Other shorter periods (less than six months) occur around the Great Recession of 2008/9, in 1977, and in other periods. Unemployment data is seen to be a timely additional source of information, which is useful in gauging the likely state of the Maltese economy, with several caveats linked with underlying differences between the labour market and other sectors of the economy.

All in all, the study concludes that while the dating of the business cycle in Malta is fraught with issues relating to data quality, a scientific and impartial method of dating recessions in Malta is still possible and informative. Finally, any discussion regarding the business cycle in Malta should be based on multiple methods, using both official and extended GDP data, and should ideally be supplemented with additional indicators.

