ESRI Research Note

Nowcasting and the Need for Timely Estimates of Movements in Irish Output

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1.   Introduction

The release of the *Quarterly National Accounts* (QNA) for Q2 2014 surprised many commentators in terms of the strength of the growth in both GDP and GNP. Preliminary estimates by the CSO indicate that GDP increased by 1.5 per cent in volume terms on a seasonally adjusted basis compared with the first quarter of 2014 while GNP increased by 0.6 per cent over the same period. Year-on-year, this suggests growth in GDP and GNP of 7.7 and 9.0 per cent respectively.

Previous *Commentaries* have highlighted certain issues with the reliability of GDP as an indicator of the change in Irish economic activity. For instance, GDP in Ireland can be significantly affected by the accounting practices of multinational firms. In forecasting, therefore, we also focus on GNP, which at times can prove to be a better measure of real economic activity in Ireland. In this Research Note we outline a forecasting methodology which produces new and more timely estimates of both GDP and GNP for the Irish economy.

While the QNA releases provide the most comprehensive available estimate of Irish economic activity, a significant issue arises with regard to the timeliness of these data releases. Currently, the release delay of official economic data is targeted to be no longer than 90 days from the end of a given quarter, meaning that GDP growth for a reference quarter is available at the very end of the following quarter. In particular, for the first two months in any given quarter, the most recent available release of GDP is for the second last quarter and it is only at the end of the third month in each quarter that releases of GDP are available for the previous quarter. Quill (2008) addresses this issue, highlighting the fact that prior to the release of the official GDP release there is a constant flow of data that provides an increasing amount of information with respect to the state of the economy in the reference quarter.

This significant release delay means that conjunctural assessment of the Irish economy would benefit from an early indicator of quarterly growth of sufficient accuracy and timeliness.

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2. Issues with estimates of quarterly Irish output levels

There are two issues which are typically associated with quarterly estimates of Irish output levels. The first is the high volatility, by international standards, of Irish quarterly GDP. McCarthy (2004) notes that Irish quarterly GDP has shown significantly more volatility than corresponding data for any other OECD country and points to the structure of the manufacturing sector in Ireland as one of the main reasons for this volatility.

Secondly, the revisions to Irish quarterly GDP are quite significant by international standards, a point which has been discussed in detail by Bermingham (2006) and Quill (2008). The most significant revisions take place when the detailed annual *National Income and Expenditure Accounts* are published during the middle of the year following the reference year. In this process, the initial quarterly estimates are reconciled with more comprehensive annual data. Although the latest available estimates for quarterly and annual GDP and GNP give the most reliable indications for the state of the economy at any point in time in the past, it could be argued that the first estimates of GDP and GNP have the greatest influence. By the time the later, and potentially quite significant, revisions come out, economic forecasters and policymakers may have moved on and less attention will be devoted to the estimate for that period.

A recent example of such a revision concerns the estimate of GDP growth for the final quarter of 2013. In its initial estimate, released in March 2014, the CSO reported a decline of 2.4 per cent quarter-on-quarter. However, in its first revised estimate in July 2014, the economy was judged to have shrunk by just 0.1 per cent over the same period. Significant revisions to the most recent national output figures have a number of implications, particularly, from a forecasting perspective; forecasts and the decisions based on these forecasts tend to be heavily influenced by the most recent observation of actual data. Thus, if this data are subsequently revised, then not only will the most recently observed history change but the outlook for the forecast period is also likely to be affected.

3. Nowcasting

In this Research Note we outline the results from the adoption of the "nowcasting" methodology as a means of addressing these issues. This approach, following the work of Giannone, Reichlin and Small (2005), enables forecasters to extract predictive information from a large panel of potentially relevant, high frequency, macroeconomic indicators to generate early estimates of economic performance.   In particular we present nowcasts of both GDP and GNP in an Irish context.

A further attraction of the nowcasting approach is that it enables the use of a panel of indicator variables which may be unbalanced at the end of the sample. This is commonly known as a "jagged" edge structure and refers to indicators that are released in a non-synchronous manner and with varying publication lags. Traditional econometric models will generally only use balanced datasets, i.e., where all series would end in the same period. The nowcasting approach, however, exploits the jagged edge structure, enabling empirical models to make use of high frequency information with respect to the reference period and extract the predictive component of output from a large number of data series. This is central to the short-term forecasting process as it enables the most up to date information to be used for the current quarter estimates.

In the nowcasting model 41 variables are used to model Irish output. The dataset begins in January 1985 and is unbalanced at the end of the sample reflecting the different release delays of the indicators. In general, the series are of monthly frequency and are significantly more timely than the GDP releases. Examples of the monthly series include consumer sentiment indices, retail sales and housing market indicators. A full description of the data is contained in Table 2 of D'Agostino, McQuinn and O'Brien (2012).

In Table 1 we present quarter-on-quarter GDP growth rates for the four quarters of 2014. These include both the actual outturns for growth, as measured by the CSO, and our estimates of contemporaneous and future growth using the nowcasting methodology. The left-hand panels of the table report nowcasts estimated in June 2014, i.e., the third month of Q2, for which the most recent available data from the CSO was for Q1 (2.6 per cent growth). At that time we generated a nowcast growth of 2.1 per cent quarter-on-quarter in Q2. We also produced a forecast for growth in the third quarter.

The right-hand panels of Table 1 show a repetition of the process in September 2014, the third month of Quarter 3, after the release of the QNA for Q2. The actual outturn for Q2 was growth of 1.5 per cent, while the CSO revised the growth rate for Q1 up to 2.8 per cent. A quarterly growth rate of 2.3 per cent was forecast for the third quarter.

These results provide evidence that significant growth was emerging in the second quarter, months in advance of the release of the official figures from the CSO. The estimate for Q3, produced during the quarter, implies that growth has continued in this quarter.

TABLE 1 Irish Quarter-on-Quarter GDP Growth Rates for Q1 2014 to Q4 2014

	Quarter in which the Nowcast is Estimated:			
	Q2 2014		Q3 2014	
Period	Nature of Estimate	GDP Estimate %	Nature of Estimate	GDP Estimate %
Q1 2014	Actual	2.6	Actual	2.8
Q2 2014	Nowcast	2.1	Actual	1.5
Q3 2014	Forecast	1.6	Nowcast	2.3

Source: CSO and own estimates.

4.   Concluding Comments

As can be seen from the recent example highlighted here, the value of the nowcasting approach is that it can provide evidence of significant changes in economic activity in advance of official estimates. It is, therefore, an important part of the suite of models used to assess the performance of the Irish economy. Given the importance of GNP in an Irish context, we have now expanded the nowcasting methodology to include this output concept, with a nowcast of 2.4 per cent quarter-on-quarter growth in GNP for the third quarter.

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