The Agents' scores: a review

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The Bank's Agents collect economic intelligence from the business community around the United Kingdom, enriching the range of information available to the Monetary Policy Committee (MPC). This intelligence is largely qualitative, and provides timely insights into economic conditions and behaviour not available from published data alone. While the greatest value from their intelligence gathering is such insight, Agents also make quantitative judgements about economic conditions in the form of a series of scores. With a decade of scores now available, this article reviews their properties and usefulness. The scores are found to be well correlated with many official data series, with correlations tending to increase through time. Some scores are also useful in predicting revisions to official data, or capturing major turning points in economic activity. Consequently, they make a valuable addition to the broad suite of information reviewed by the MPC in its policy deliberations.

Introduction

The Bank has long been engaged in gathering economic intelligence, through both its previous branch network and, in more recent decades, its regional Agencies.[2] Following the Bank's independence in 1997, intelligence gathering became the Agencies' principal function. In the years since then, the approach to this task has become progressively more focused, and the use of economic intelligence in the monetary policy process has increased, with Agents regularly seeking answers to questions of specific interest to the MPC. As a by-product of this more focused approach, the Agents have developed a series of 'scores' to represent their quantitative judgement about various economic factors. These scores are published monthly in a statistical annex to the *Agents' Summary of Business Conditions* and are one of a range of communications devices for the Agencies to relay observations about economic conditions to the MPC.

With a decade of scores now available, this article explains the role of economic intelligence in policymaking, and reviews the usefulness of the Agents' scores. In doing so, it extends earlier work by Ellis and Pike (2005)[3] by exploring the distinguishing characteristics of the information that informs the Agents' scores, and by looking more closely at the relationships between scores and official data.

A role for economic intelligence

Central banks make decisions about monetary policy in an environment of uncertainty. They face uncertainty about the

nature of the shocks hitting an economy, the magnitude and duration of those shocks, and the availability and quality of data with which to assess them. There is also uncertainty about the underlying model of the economy, and the way in which the economy might respond to events.[4] These uncertainties make it important for policymakers to have access to diverse and timely sources of information about economic developments. While official data play the most prominent role in assessment of economic conditions, it is particularly useful to supplement this with information from those who actually make economic decisions day to day. Not only can these decision-makers be an additional source of quantitative information about the economy, they are a crucial source of qualitative information about companies' behaviour and expectations. As a result, many central banks now highlight the benefits of liaison with the business community in informing their decision-making.[5] The way in which this information is collated and used by the Bank of England is summarised in the box on 'Collecting and reporting economic intelligence' on page 48.

(2) There are twelve of these Agencies located around the United Kingdom. Some have a history dating back to the 1820s and others are more recently established. Since the 1930s, Agencies have been engaged in gathering economic intelligence to help inform the Bank's assessments of economic conditions. For earlier discussions of the role of the intelligence collected by Agencies in the monetary policy process, see Beverly (1997) and Eckersley and Webber (2003).
(3) Ellis and Pike (2005) describe the introduction of the Agents' scores and their comparability with ONS data.
(4) See, for instance, Jenkins and Longworth (2002) for a useful summary of types of uncertainty.
(5) For example, Macklem (2002) and Jenkins and Longworth (2002) provide a Canadian perspective, while Stevens (2006) provides an Australian example.

Collecting and reporting economic intelligence

The Agents draw on information from around 8,000 contacts which come from a cross-section of the business community in terms of industry, size and location. Collectively, each month the Agents talk to around 700 contacts, with coverage that is broadly representative of the economic structure of their respective areas and is monitored through time. Their conversations relate to the current conjuncture and outlook, and also focus on specific issues of interest to the MPC. Importantly, the Agents conduct face-to-face interviews with the decision-makers in organisations, so they obtain a timely, detailed and well-informed picture of economic conditions.

Agents summarise the themes from their intelligence gathering into monthly economic reports (MERs) for their areas. These MERs include an assessment of recent trends in demand, output, employment costs and prices, as viewed from the region. They are accompanied by a statistical annex which comprises the scores for economic conditions in each area.

The twelve regional MERs are then distilled into a national summary. The Agents' statistical annex for each area, which includes their scores, is combined to form a national statistical annex (with national average scores weighted by the gross value added generated by each main region and country in the United Kingdom).

The Agents also conduct surveys on topics of particular interest to the MPC. There are usually around ten special surveys a year in which contacts are asked three or four key questions on a policy-relevant issue.

The intelligence gathered by the Agents informs the presentations they give to the pre-MPC meeting that the Committee has with Bank staff each month. One presentation always provides an update on economic conditions over the past month, and when a survey has been conducted it too will be presented. Subsequently, the *Agents' Summary of Business Conditions*, along with the national scores, are published. They are available on the Bank's website at www.bankofengland.co.uk/publications/agentssummary/index.htm.

In recent years, the economy has experienced a number of major economic events, such as the marked pickup in inwards migration, financial market turmoil and sharp increases in energy prices. These have contributed to an unusual degree of uncertainty, both about the true nature of the pre-existing environment, and about how these events have subsequently affected economic activity. In such an environment, economic intelligence can play a particularly important role.

In essence, the picture of conditions compiled by the Agents helps fill information gaps. Agents are able to report on factors for which there are no timely, published data. Where published data have moved in surprising ways, Agents are well placed to advance possible explanations of such change, as reported by their contacts. And Agents can tap into the attitudes and expectations of contacts to suggest why some economic events have evolved in a particular manner. Their ability to harness such information has deepened the Bank's understanding of a range of issues, as highlighted in the box on 'Filling information gaps' on page 49.

The richness of the testimony of those making economic decisions will always be the greatest benefit of the Agents' intelligence. But users of this intelligence also want to know the actual extent to which conditions are changing. Given this need, information about key variables has been usefully represented by Agents' scores. As these scores cumulate to form time series, they allow current conditions observed by Agents to be compared with past experience. Scores can also be compared with other data. And in some cases they can provide a signal about the extent of change in variables for which there are no published data. With Agents' scores now available for a decade, they are an increasingly useful source of quantitative intelligence and are one of the many sources of information that the Bank considers in its effort to reduce uncertainty, particularly data uncertainty.[1]

The Agents' scores

Each month, the Agents assign scores for variables covering demand, output, labour market conditions, capacity pressures, costs and prices. There are typically separate scores for different sectors. While the number and definition of scores have changed through time as the Bank has reviewed their usefulness, at present 25 variables are subject to scoring:

Demand and output
• Retail sales values
• Services turnover (consumer services, professional and financial services, and other services)
• Manufacturing output (domestic markets, export markets)
• Construction output
• Investment intentions (manufacturing and services)

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(1) For a discussion of the Bank of England's approach to data uncertainty, see Cunningham and Jeffery (2007).

Filling information gaps

Agents play an important role in filling information gaps in a range of topics. They do so primarily through collecting intelligence in their regular meetings with contacts, but also through their surveys on topics of special interest to the MPC. For example, the Agents have recently made significant contributions to the Bank's understanding of the following issues:

Inwards migration
Agents reported the rapid growth in the supply of migrant labour well ahead of it being evident in official data. Their identification of this significant addition to the total labour supply was an important input to the MPC's assessment of the inflation outlook.

Credit conditions
Immediately following the onset of the recent financial turmoil, a key question was the extent to which companies were being affected by tighter credit conditions. Little information was available initially, and early data related to providers rather than users of credit. The Agents monitored their contacts' exposure to changes in credit conditions, along with their actual and predicted responses. They established that most companies were not directly affected by tighter conditions in the initial phases of the credit tightening, but there was some evidence of reduced investment intentions due to concern about the effect of financial turmoil on demand.

Factors weighing on employment growth
For much of 2007, there was evidence that the economy was experiencing capacity pressures. But companies were not responding by adding to employment to an extent the Bank had expected. The Bank was interested in whether the earlier surge in energy and other inputs costs was playing a role. Agents found that this effect had played some role, though recruitment difficulties and increases in productivity were the key factors weighing on employment growth.

Costs and prices
• Costs (materials and imported finished goods)
• Manufacturers' domestic output prices
• Retail prices (goods and services)
• Business-to-business services prices
• Total labour costs per employee (manufacturing and services)
• Pre-tax profitability (manufacturing and services)

Factor utilisation
• Employment intentions (manufacturing, business services and consumer services)
• Recruitment difficulties
• Capacity constraints (manufacturing and services)

Scores relate to the level of a variable in the past three months compared with the same period a year earlier,[1] though there are a few exceptions.[2] The score for each variable ranges from -5 to +5, with +5 indicating a rapidly rising level, 0 indicating an unchanged level and -5 indicating a rapidly falling level. Comparison with levels a year earlier controls for variations in conditions that are seasonal rather than economically important.

The process of assigning a score imparts discipline to the intelligence-gathering process. It encourages Agents to collect information about a range of key economic variables, and to consider carefully the momentum in them. Scoring also provides a vehicle for synthesising a large amount of information into a whole-economy view. With scores for 25 variables now well established, the Bank has been combining weighted averages of sectoral components of a given variable to infer a whole-economy score for that variable. Other scores have been combined to infer scores for various types of aggregate expenditure and output. (For details of these 'composite scores', see the Annex.)

The composite scores can only approximate true whole-economy aggregates, as not all relevant components of a variable are subject to scoring. In particular, stocks, imports and service exports are not included in the score for aggregate demand, while primary industries and utilities are excluded from aggregate output. Nonetheless, they provide a useful 'broad-brush' view, making it easier to relate the economic intelligence obtained from companies to judgements about developments in economic activity. Examples of composite scores for aggregate demand and output are shown in **Charts 1** and **2**, and track the broad trends in official data fairly well.

(1) The scores are based on information collected over the past three months, rather than a single month's meetings with contacts. As such, they draw on a larger sample of evidence, and are better placed to track underlying economic trends than if they were based solely on potentially noisy monthly information.
(2) Exceptions are recruitment difficulties and capacity constraints, which are not considered in terms of an annual change in levels, but the current level relative to normal.

Chart 1 Aggregate demand

Three months on same period a year earlier
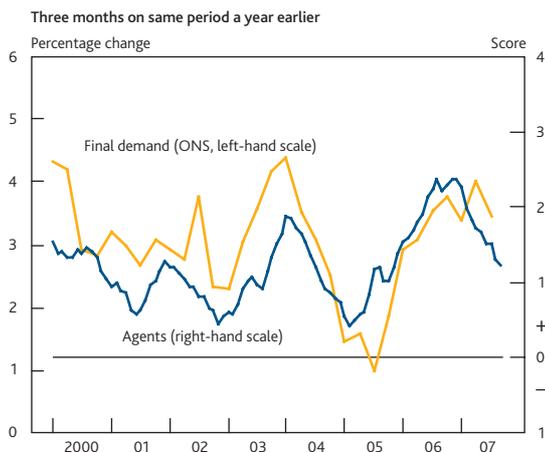
Note: For definition of Agents' aggregate demand score see the Annex.

Chart 2 Aggregate output

Three months on same period a year earlier

Note: For definition of Agents' aggregate output score see the Annex.

How do Agents' scores differ from business surveys?

Given the array of scores now available, how do scores differ from responses that are readily obtainable from business surveys? Certainly, they lack the benefit of the large sample sizes of the major business surveys. The key difference between Agents' scores and business surveys is, however, the properties of the information on which they are both based. An Agents' score is primarily informed by an interview, rather than a questionnaire, as is the case for a business survey. Since Agents engage contacts face-to-face at their workplace, they can observe their economic environment directly. This provides scope for dialogue and clarification, and enhances the accuracy and detail of the information reported. Furthermore, contacts have been cultivated over time so that Agents have access to the opinions of decision-makers in an organisation, whereas the expertise of a survey respondent is not always known. But perhaps more importantly, there are fairly stable relationships between the Agents and their contacts as interviewers and interviewees tend to be paired through time.

And with a large share of visits in any given month being with contacts Agents have spoken to at the same time a year earlier, the information set has features of a 'matched sample' (where respondents are the same between reporting periods). Consequently, a change in an Agents' score should primarily reflect changes in underlying economic conditions rather than differences in reporting behaviour or other sources of noise that might stem from relatively small sample size.

Agents' scores have the additional advantage of timeliness, being available immediately at the end of a reference period, ahead of comparable surveys and around three months ahead of comparable National Accounts estimates. Also helpful is the fact that Agents' scores comprise regional components, as this allows the Bank to judge how geographically widespread an economic development might be.

But Agents' scores are only one indicator from a large set of information that has been collected, rather than the main set of information, as is the case for a survey. As a result, the scores are accompanied by the insights of the individual contacts, or of the Agents themselves who observe themes emerging in reported conditions. This insight allows for an explanation of the drivers of change, companies' behaviour, their expectations and perceptions of risk. Such qualitative information plays an important role in the Bank's assessment of economic conditions. So for all these reasons, the Bank considers the Agents' scores along with a range of business surveys and official data when forming its best judgement about the true rate of growth in key economic variables.[1]

How useful are the scores?

How can the usefulness of the Agents' scores be judged? Because the key benefit of the Agents' intelligence lies in the qualitative responses to interviews, it is not necessary for the scores to outperform other business surveys in a statistical sense. Nonetheless, for the scores to have value, it is important that they meet certain minimum conditions. They should be well correlated with key economic indicators and they should capture turning points. In other words, a score should provide a credible 'early-warning' signal of changes in economic conditions.

So in the first instance scores are compared with corresponding published data and the correlation between them is examined; the sample period covers the full history of the scores. In the sections that follow, the type of signal provided by an Agents' score is then looked at more closely. For the purpose of this analysis, it is assumed that the corresponding ONS data represent the true growth in a variable.

[1] The true value of a series is initially unobservable due to a lack of appropriate data, creating a role for other sources of information, including Agents' scores, when forming judgements about its behaviour. See Cunningham and Jeffery (2007).

Simple correlations

As Agents' scores are for conditions in the past three months compared with the same period a year earlier, they are compared with percentage changes in ONS data over the same time frame. Correlations are performed over the full sample period for which scores and corresponding ONS data are available, and for the period since 2000. (This subsample is considered because when scoring first commenced in mid-1997, not all Agencies were established and the process of scoring was still being refined.) Leads and lags of Agents' scores are also considered and the results are detailed in the Annex, with the highest correlations shown in **Chart 3**. The performance of the scores by this simple metric of correlation is varied. On average, though, the correlations with ONS data are favourable, especially in the post-2000 period. At around one half, the average correlation generally accords with that found for business surveys.[1] And there is a subset of Agents' scores for which there is high comovement with ONS data.

Chart 3 Correlations between Agents' scores and ONS data
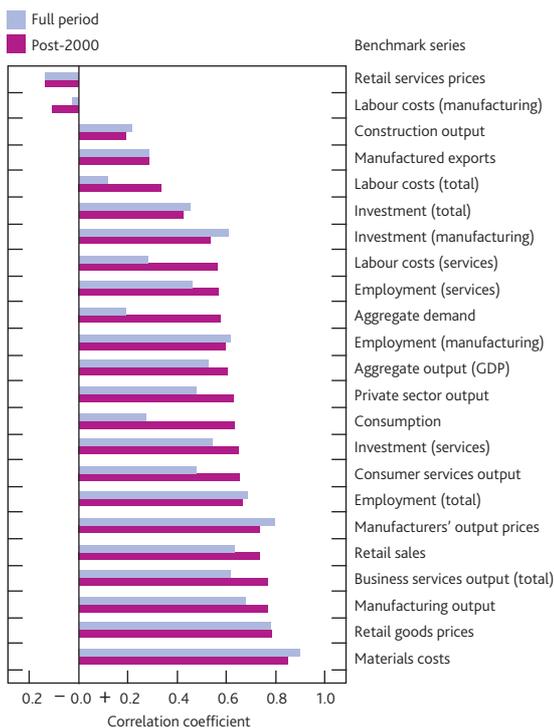
Note: The full period sample varies across series, but is most often from mid-1997 to December 2007. For details see the Annex. The highest correlation is shown.

Importantly, strong correlations are found for various series that help inform an understanding of fluctuations in activity. This is so for service sector output, an area for which there are limited timely published indicators. It is also true for output in interest rate-sensitive industries (such as retail trade) and expenditure classes (such as business investment). Consistent with this, healthy correlations can be observed for scores relating to aggregate demand and output, at least in the post-2000 period. Furthermore, correlations are high for some

prices, notably input and output prices in the goods sector, helping inform assessments of upstream inflationary pressures. Given the information needs of a central bank, these outcomes are desirable. Of course, it is also desirable that scores have been compiled for those variables for which there are no official data. Some of these variables — such as capacity utilisation — help in assessing inflationary pressures, making information about them particularly useful to a central bank.

Where correlations between Agents' scores and ONS data are below average, it is important to consider why this might be. In some instances, there may be challenging information requirements for Agents to assign a score.[2] In other cases, there may be conceptual differences between the definitions of the variables scored by Agents and official data.[3] Correlations can also be sensitive to sample periods and the existence of turning points in the data. Indeed, for a series in which there have been few major turning points, a low correlation may not preclude a score being a useful predictor of movements in official data in some future period. Moreover, official data may themselves be poorly measured, or subject to revision. So other metrics of performance should be considered in addition to simple correlations.

A closer look at comovement
Improving through time
Given the sensitivity of correlations to the sample period, one question is whether Agents' scores have become more useful indicators of official data through time. This may reflect 'learning by doing' as Agents refine their approach to scoring, or simply reflect the opportunity to capture major swings in a

Chart 4 Consumption correlations over time
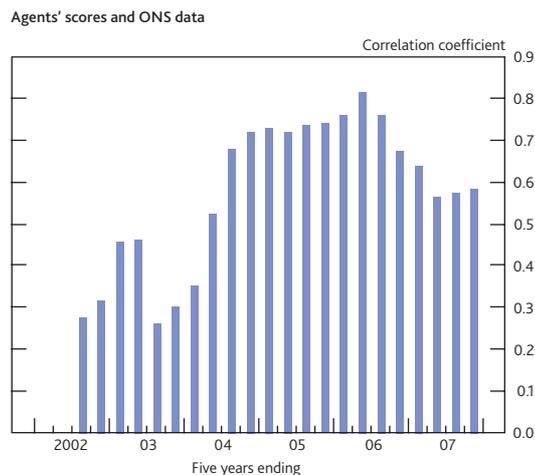
(1) For example, the correlation between ONS data and Agents' scores over the period from 1997 is similar to that between ONS data and business surveys for services output, manufacturing output, business investment and retail sales.
(2) Prices in the services sector are a case in point, given the difficulties in defining the unit of output to be priced and appropriate adjustments for quality. In fact, these are challenging issues for statisticians generally. See Diewert (2003).
(3) This is so for total labour costs which are defined more broadly than official data on earnings.

given variable. Many scores have seen an increase in comovement. This is apparent for scores relating to consumption, where early scores displayed little positive comovement with published data. This stemmed from the Agents' initial focus on retail trade rather than broader indicators of consumption. Subsequently, however, Agents' scores and official consumption data have displayed a much closer correlation (**Chart 4**). Consequently, more confidence can be placed in the signal this composite score affords about aggregate activity.

Reducing data uncertainty

When assessing the usefulness of Agents' scores as timely indicators of trends in official data, it also matters that some official data are characterised by systematic patterns of revisions (Cunningham and Jeffery (2007)). Given that these revisions can occur in successive periods, there is a risk that initial releases of official data can give a misleading signal about the degree of momentum in a variable for some time. So a useful exercise is to consider whether Agents' scores are better at predicting mature vintages of data than early releases.

Comparing correlations between Agents' scores and each vintage of corresponding National Accounts data, it appears that Agents' scores can more usefully predict mature vintages of output data than initial data.[1] This can be demonstrated by taking a series of rolling five-year windows in which the correlation between the Agents' score is compared with both the first available vintage of output data and the most mature output data currently available (that is, data which have been balanced through at least two *Blue Books*). The earlier the period, the closer the revision process is to completion. As shown in **Chart 5**, the correlations between the Agents' scores and private sector output growth in the National Accounts are reasonably high, with this correlation generally increasing

Chart 5 Private sector output growth

Correlations between Agents' scores and first and last vintages of ONS data
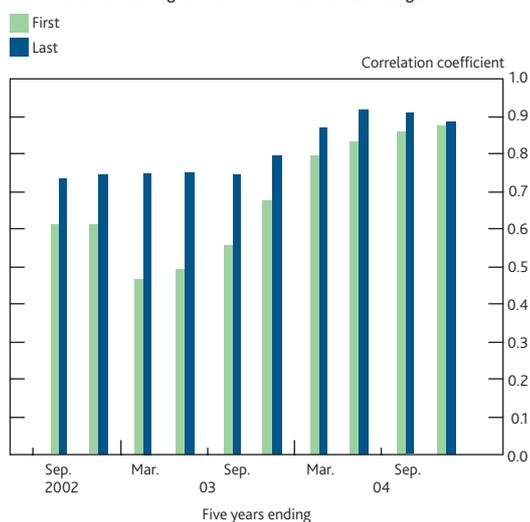
through time. Strikingly, the correlations with more mature vintage data are higher than with the first vintage, particularly in the early periods. So the signal from the Agents' scores of aggregate output would have provided a better signal of momentum in private sector output than the published data of the day indicated.

Looking at the individual industry level, the ability of the Agents' scores to predict mature vintage data is particularly evident in business services, a large sector of the economy that is known to be difficult to measure and for which data uncertainty remains high (**Chart 6**).[2] Indeed, this is a good example of the idea that when a variable is difficult to measure, there is merit in obtaining economic intelligence directly from participants in that industry. This form of intelligence is especially useful in the current conjuncture where financial turmoil is likely to have had its most pronounced effect on activity in the service sector, the results of which will not be confirmed in official data for a considerable period.

Chart 6 Business service sector output growth

Correlations between Agents' scores and first and last vintages of ONS data
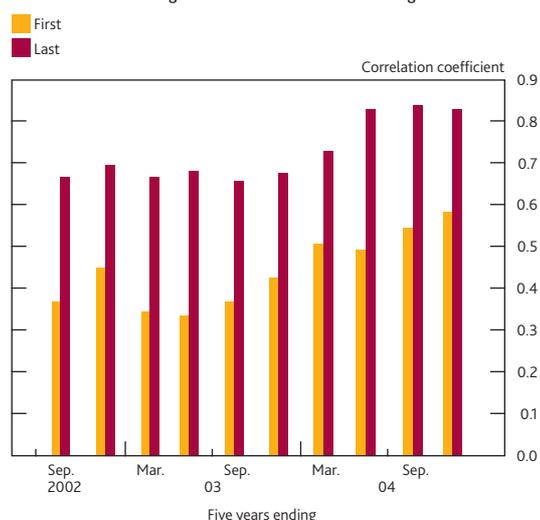
Capturing turning points

Another important issue is whether scores have directional accuracy so that they can meaningfully capture turning points. The precise relationship between a score and official data is of less interest to a central bank than whether the score provides a useful signal about a possible change in economic conditions, particularly an extreme event. While correlations are the most commonly used guide here, it is also instructive to look at other indicators that suggest this ability.

(1) For expenditure variables, however, there is little difference in the correlations between early and mature vintages.
(2) For a discussion of how uncertainty about estimates of service sector output persists through the cycle of revisions, see Ashley *et al* (2005), page 27.

One simple approach to gauge the directional accuracy of the scores is to compare the sign of the change in a score with that in a benchmark series (considered most accurately to capture growth in the variable). The higher the share of changes in both series that are of the same sign, the greater the directional accuracy of the scores, so that the greater will be the similarity in the profile of the series. The sign of changes in scores and benchmark data were compared for demand, output and price variables. Around 60% of the time, an Agents' score and a benchmark variable move in the same direction, month to month (or quarter to quarter). This is also true for some scores that did not display especially high correlations. Interestingly, for the composite scores on aggregate expenditure and output, basic directional accuracy is even greater than for other series (**Chart 7**).[1]

Chart 7 Profile of Agents' scores against benchmark series

Share of changes in same direction as benchmark data
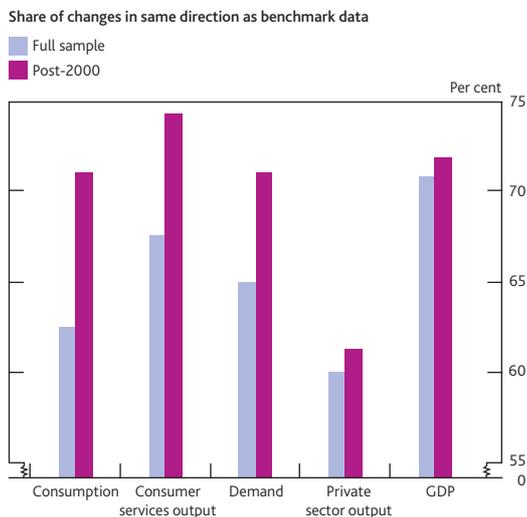
A further test of directional accuracy is whether the actual peaks and troughs in Agents' scores and benchmark data coincide. The history of the Agents' scores is fairly short with respect to such a test. So a simple approach is considered. Rather than focus on major turning points, of which there are few, local maxima and minima in selected Agents' scores and corresponding ONS data are identified and compared.[2] Consistent with their relatively high directional accuracy, the Agents' scores identify a high share of turning points evident in the benchmark data. They also identify slightly more turning points than in the benchmark data, and so may occasionally provide false signals. So a signal to noise ratio is relevant. It is defined here simply as the total number of turning points identified relative to the number of false turning points. This ratio clearly exceeds unity and in some cases is quite high (**Table A**). Furthermore, a reasonably high share of turning points in Agents' scores occurs within the same six-month window as official data. This is a desirable outcome given the timeliness of Agents' scores relative to the benchmark data.

Table A Indicators of turning points in selected variables

Benchmark series	Total number of peaks and troughs in Agents' scores (a)	Number of major false signals (b)	Signal to noise ratio (a)/(b)	Share of turning points in same six-month window
Output	8	1	8	1
Retail sales	10	2	5	0.9
Materials costs	9	2	4.5	0.7
Consumption	8	2	4	1
Consumer services	8	2	4	0.7
Aggregate demand	8	2	4	0.5
Private sector output	8	2	4	0.8
Manufacturing output	8	2	4	0.8
Output prices	8	2	4	0.4
Construction output	11	3	3.7	0.8
Business services output	8	3	2.7	0.6
Retail goods prices	9	4	2.3	0.8
Total labour costs	6	4	1.5	0.3

Future work

The Bank is currently investigating ways of further improving the Agents' ability to capture and synthesise the insights of economic decision-makers in large companies across the United Kingdom. Large companies have a disproportionate effect on economic activity and their decisions can influence those of other firms. They also tend to be key drivers of change in the functioning of the economy and have well-developed views about the outlook. So capturing information from these influential firms can usefully inform policymakers' assessment of economic conditions. The Agents are ensuring that their approach to gathering economic intelligence from large companies is more comprehensive and systematic so that the benefits of relationships with such contacts are enhanced. In particular, they are grouping information according to companies' specific economic characteristics so that economic questions could be answered more precisely, and the scope for analysis broadened.

A further example of work that builds on relationships is the participation of Agents' contacts in the Bank's major pricing survey, currently in the field. This survey, the second in ten years, seeks to improve understanding of the inflation process since the adoption of inflation targeting. Using a sample of well-established contacts who are also decision-makers enables extraction of deeper insights into pricing behaviour than would otherwise be the case.

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(1) The increase in directional accuracy is likely to have been enhanced by the fact that benchmark data are measured on a quarterly basis, as quarterly data series have smoother profiles than monthly series.
(2) The focus is on those variables with a reasonable correlation with ONS data and where there is a particular benefit to policymakers of timely identification of turning points.

Conclusions

The economic intelligence gathered by the Agents is a valuable part of the suite of information considered by the MPC. By drawing on the expertise and experience of contacts, it helps fill information gaps about economic developments. It gives insights into the nature of change, why it is occurring, and the extent of such change. Agents' judgements about the extent of change are captured in their scores. After a decade of scoring, relationships between these scores and other data can be more clearly established. For the most part, Agents' scores display useful comovement with benchmark series that has tended to increase through time. In some cases, they have displayed an ability to predict revision, with higher correlations evident with mature vintages of data. Importantly, they also have a tendency to capture turning points. These quantitative indicators, combined with the richness of the accompanying qualitative information, equip the Bank with an additional set of information as it makes policy decisions in an environment of uncertainty.

Annex
Correlations

Table A1 Correlations between Agents' scores and ONS data

Score	Related ONS variable	Data frequency	Start date	Contemporaneous correlation	Highest correlation	Number of periods by which scores lead (+)/lag (-)
Demand and output						
Consumption						
Retail sales values	Retail sales values	M	July 1997	0.63	0.63	1
Consumer services turnover	Consumer services output	Q	Sep. 1997	0.44	0.48	1
Weighted average	Consumption	Q	Sep. 1997	0.27	0.27	0
Business services turnover	Business services output	Q	Sep. 1997	0.54	0.62	1
Professional and financial	Finance, real estate, business	Q	Mar. 2005	0.13	0.60	1
Other	Transport and communications	Q	Mar. 2005	0.71	0.78	-1
Investment intentions						
Manufacturing	Manufacturing business investment	Q	Sep. 1997	0.48	0.61	2
Services	Services business investment	Q	Sep. 1997	0.37	0.55	2
Weighted average	Business investment	Q	Sep. 1997	0.34	0.45	2
Manufacturing						
Domestic	Manufacturing output	Q	Sep. 1997	0.68	0.68	0
Exports	Manufacturing exports	Q	Dec. 1999	0.26	0.29	-1
Construction	Construction output	Q	Sep. 1997	0.11	0.22	-1
Aggregate demand	Total domestic expenditure	Q	Sep. 1997	0.04	0.19	2
Aggregate output	GDP	Q	Sep. 1997	0.53	0.53	0
	GDP backcast	Q	Sep. 1997	0.63	0.63	0
	Private sector output	Q	Sep. 1997	0.48	0.48	0
Costs and prices						
Materials costs	Manufacturing input prices	M	July 1997	0.90	0.90	-1
Costs of imported finished goods	Imported finished goods	M	Jan. 2005	0.26	0.39	-2
Total labour costs per employee						
Manufacturing	Manufacturing AEI (including bonuses)	M	June 1998	-0.13	-0.02	-2
Services	Services AEI (including bonuses)	M	June 1998	0.26	0.28	-2
Weighted average	Whole-economy AEI (including bonuses)	M	June 1998	0.11	0.12	-1
	Private sector AEI (including bonuses)	M	June 1998	0.20	0.21	-1
Manufacturers' domestic prices	Manufacturing output prices	M	July 1997	0.78	0.80	-2
Retail goods prices	CPI goods prices	M	May 2000	0.76	0.78	-2
Retail services prices	CPI services prices	M	May 2000	-0.21	-0.13	2
Labour market						
Employment intentions						
Manufacturing	Manufacturing workforce jobs	Q	Sep. 1997	0.37	0.62	2
Business services	Business services workforce jobs	Q	Mar. 2005	-0.93	-0.40	-2
Consumer services	Consumer services workforce jobs	Q	Mar. 2005	0.46	0.94	2
Services	Services workforce jobs	Q	Sep. 1997	0.46	0.46	0
Weighted average total	Workforce jobs	Q	Sep. 1997	0.69	0.69	2

Note: Where ONS data are quarterly, the Agents' score in the end month of each quarter has been used.

Data issues affecting correlations

Sample length
Agents' scores were only introduced for some variables in 2005 so the sample period is too short to properly gauge relationships (see sectoral subcategories of service sector turnover, investment intentions, employment intentions and imported finished goods prices).

Definitional differences
Sometimes definitions of a variable differ between Agents' scores and corresponding ONS variables. This is most evident for labour costs where Agents score a broader range of wage and non-wage factors than captured in most published measures of aggregate earnings. In other cases, the Agents' score relates to intentions over the next twelve months (investment) or over the next six months (employment and capacity pressures) and so should have a leading relationship with ONS variables.

Vintages of data
Correlations are calculated against current vintages of data with the exception of GDP where the Agents' score is also compared with growth in the central case of the Bank's backcast of GDP, which represents the Bank's best judgement of what GDP will be when the process of revision is complete. See pages 24–25 of the August 2007 *Inflation Report*.

Composite scores

Demand and output

- Consumption
  Weighted average of scores for retail sales and consumer services[a]
- Investment intentions
  Weighted average of scores for manufacturing and service sector investment[b]
- Aggregate demand
  Weighted average of scores for retail sales, consumer services, manufacturing investment, services investment and manufacturing exports[a]
- Aggregate output
  Weighted average of scores for output in manufacturing, construction, consumer services, professional and business services and other services[c]

Costs and prices

- Pre-tax profitability
  Weighted average of scores for manufacturing and services profitability[c]
- Total labour costs per employee
  Weighted average of scores for manufacturing and services labour costs[d]

Labour market

- Employment intentions
  Weighted average of scores for employment intentions in manufacturing, business services and consumer services[d]

Factor utilisation

- Capacity constraints
  Weighted average of scores for capacity pressures in manufacturing and services[c]

(a) Weights proportional to expenditure shares in the National Accounts.
(b) Weights proportional to shares of business investment.
(c) Weights proportional to shares of output in the National Accounts.
(d) Weights proportional to shares of jobs.

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