A New Tool for Predicting Economic Growth

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Generative AI can gauge managers' expectations to forecast economic indicators.

By Katia Savchuk March 11, 2025

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Researchers have long surveyed consumers about their expectations to help predict where the economy is heading. Since people's perceptions influence spending, they can signal future growth or contraction.

Asking leaders of large companies about their outlooks should be at least as informative. Publicly traded companies in the United States employ nearly 30 percent of the workforce, excepting farm labor, and account for more than a quarter of GDP. Yet surveying a large sample of corporate managers has hitherto proven expensive and challenging.

With generative artificial intelligence, economists now have another option. Research by Georgia State University's Manish Jha, Jialin Qian, and Baozhong Yang and Chicago Booth's Michael Weber finds that managers' expectations, gleaned from conference-call transcripts using generative AI, are a reliable predictor of major economic indicators in the short run and for years afterward. They argue that this method not only provides valuable information about specific companies and industries, but also can inform general economic policymaking.

The researchers obtained more than 120,000 transcripts of quarterly conference calls held between 2006 and 2023 by more than 5,500 publicly traded companies. During these meetings, managers typically share their views about the future of their company and the broader economy.

By feeding the transcripts into Open AI's ChatGPT (powered by GPT-3.5 Turbo), the researchers were able to gather predictions. After inputting each transcript, they prompted ChatGPT to consider itself a financial expert and asked it, "How does the firm anticipate a change in optimism about the US economy?" The model selected from one of five responses, ranging from "decrease substantially" to "increase substantially," and assigned a score to each.

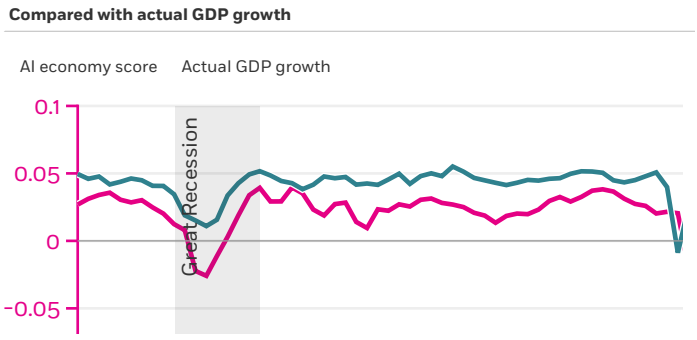
To ensure ChatGPT's analysis was accurate, the researchers read over a random sample of about 1,000 transcripts and checked them against the model's responses. They also compared trends in the scores ChatGPT produced with movements in GDP growth, as

well as professional forecasters' predictions of GDP growth. Both methods indicated that the model's output was reliable.

AI captures manager sentiment

ChatGPT's assessment of managers' economic expectations, as gleaned from corporate earnings call transcripts, closely aligned with realized growth and professional forecasts, the research finds.

ChatGPT's measure of managers' economic expectations for the next quarter*



*Responses were based on the prompt "How does the firm anticipate a change in optimism about the US economy?" A score greater than zero indicates an increase in optimism.

Jha et al., 2024

The researchers then aggregated scores from individual transcripts to produce an average AI economy score for

each quarter, as well as one for various industries. At the national level, they find that the AI economy score strongly predicted the following quarter's GDP, adjusted for inflation, with the effect lasting for a year after the conference call. The metric was also a significant predictor of other economic indicators, including industrial production, employment, and wages, for up to 10 quarters.

At the industry level, they find, the average score solidly anticipated GDP growth for even longer—up to four years. Zooming in further, they note that both the company's score and the average score for its industry was predictive of a company's sales and earnings, again for up to four years.

The researchers also used ChatGPT to derive scores for managers' expectations of the future of specific economic variables, including employment, wages, and industrial production. These narrower scores correlated with the overall AI economy scores and also held significant predictive power both nationally and at the industry level, and both in the short run and over time. In some cases, such as for unemployment rates, the specific scores were better at predicting the future than the overall measure.

When pitted against the widely used Survey of Professional Forecasters from the Federal Reserve Bank of Philadelphia, the AI economy score was a stronger predictor of inflation-adjusted GDP than professional predictions in the short run.

To ensure that ChatGPT wasn't drawing on information beyond the transcripts that wasn't available at the time of the calls, the researchers removed dates, names, and other identifying information from the texts for 10 percent of the sample. After repeating their analysis, they find that the overall AI economy score was still significantly correlated with inflation-adjusted GDP for the following quarter and had a "strong forecasting ability" for industrial production, employment, and wages.

Finally, they repeated the experiment with Meta's Llama 3, a more accessible large language model, and got similar results, suggesting the predictive power holds up regardless of the generative AI tool used.

Tracking managers' expectations using AI won't replace surveys of consumers and financial experts, the researchers note. But they suggest that this method can complement traditional sources by giving scholars, investors, and regulators easy access to a dataset with predictive power for a host of economic measures. "Our study and method may help to open more avenues for economic research with the help of AI," they write.

Works Cited

Manish Jha, Jialin Qian, Michael Weber, and Baozhong Yang, "Harnessing Generative AI for Economic Insights," Working paper, October 2024.

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