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How do you do forecasting when abnormal exogenous shocks hit the industry?

Sometimes there are challenges you don't count on. For us here in research at the Canadian Tourism Commission (CTC), we have been hit with two unexpected challenges recently – the U.S.-led military action in the Middle East and the SARS health scare in Toronto.

These are the kind of shocks to the tourism industry we don't usually think about nor expect. As has been well noted in the commercial media, the cost to the tourism industry of these two events was enormous, and so in research we had to react with information that is useful.

At CTC research we do a lot of forecasting, for the other departments of the CTC and for the industry. Both short-term perspectives, looking ahead three months, and longer term forecasting, looking ahead three to five years, are done on an ongoing basis, and the forecasts are published on the CTC industry website.

For those working in the tourism sector, this information is invaluable in making planning decisions. Forecasting is especially necessary because tourism is an evolving and fast-changing phenomenon. When there are fluctuations in the business cycle, you can bet that fluctuations in the tourism sector will be even greater. We need to ensure that the industry is abreast of dominant trends.

But every now and then we encounter abnormal shocks from outside the tourism sector – what we call exogenous factors – which are events large enough to either affect all the variables we usually deal with when we make forecasts or overwhelm all the other factors and trends. Events like the Gulf War of 1990-91 and September 11 2001 are this sort of extreme event. They affect consumer and business confidence, the cost of doing business and access, as well as macroeconomic factors.

When war started to loom again in the middle east, we saw this as an opportunity for us to apply the knowledge that we have learned so far, as well as to use the technology and research infrastructure that we have built, in order to produce a new animal – the scenario analysis.

Scenarios are a significant departure from the normal business that is done around the CTC. Forecasts are done for the industry on an ongoing basis, but scenarios are done only for extreme events.

When doing forecasting, we run simulations using the CTC's travel forecast model. Data on past travel trends, Gross Domestic Product, consumer price indicators and currency exchange rates are used to produce the economic model. For a forecast, generally, we take econometric results and review them, and adjust for non-economic factors that are known (such as special events, or news on seat capacity) and produce a fairly accurate picture of what the future will hold.

For scenario analyses, we build an image of possible future outcomes of the phenomenon in question. And then, through assumptions, we translate those outcomes into various parameter values for our econometric and non-econometric factors in our forecasting models.

In the case of the Iraq conflict, we generated the economic data, and then separately generated a forecast on psychological factors, and then combined the two. The distinguishing economic uncertainty would be the price of oil. And the exogenous shock was a combination of this with new military spending, fear of terrorist reprisals, and consumer confidence that was shaken by the events. We divided the world into three zones – North America, Europe and Asia Pacific.

The result is still on the CTC website. The Iraq war scenario is the product not just of a couple months of work, but rather several years of work. Since we relied on expertise doing regular forecasting, and then factored in things we knew from the Gulf War of 1990-91 and September 11, 2001. There are similar scenarios we published on the SARS crisis as well.

How accurate are the scenarios? It bears saying that we have a limited amount of experience with extreme events, and we were also working with a limited number of assumptions. We have estimated conservatively with our projections. In reading them, people should keep this in mind. We don't pretend to wipe out uncertainties, but we do aim to reduce the uncertainties to measurable risks.

That is what people like about forecasts in general, and scenarios in particular. It gives them a little more edge when facing the possibility of the future, and making planning decisions based on that.

Hopefully we will not be called upon to do too many more scenarios in the future. We can all live with fewer extreme events! But when they come, we'll be ready.

You can find the Iraq and SARS scenarios on the Canadian Tourism Commission industry website, canadatourism.com.