

Terror and tourism

How bad news can harm economic development



In brief

- Reporting on violence often draws attention to countries which are typically not covered by international news outlets, leading to a bad news bias which can affect the view that people hold on these countries and have serious economic consequences.
- Tourism offers a unique chance to study the effect of news because tourists from different countries evaluate the same destinations to decide whether to visit. This means that if different origin countries report differently on the same events then tourists from different countries will react differently to the same events.
- The authors find a robust relationship between the intensity of reporting on violence and subsequent drops in tourism spending and visits, and provide some evidence that the preconditions for a similar bad news bias are set for entire regions of Africa which only receive news coverage when something terrible happens.
- The findings suggest a substantive negative effect of violent events that can be strongly amplified by media reporting.
- The authors make several policy recommendations and argue governments should prepare their own populations for news reporting biases and government agencies need to professionally manage media relations to foreign media.

This project was funded by the IGC.

Overview of the research

In 2016, terrorism in the US has caused less than 0.01% of all deaths but was covered by newspapers more than any other cause of death.¹ Cancer and heart disease cause of more than 60% of all deaths but are only represented in 15% of news. This kind of sensationalist bias can lead to biased perceptions on the causes of death if individuals use so-called availability heuristics, i.e. if individuals judge the probability of a cause by the ease at which information on this cause can be recalled (Tversky and Kahneman (1973)). In psychology these kinds of biases have received a lot attention and recent research reviewed by Zhu et al (2020) suggests that they occur because we use Bayesian sampling intuitively in our heads. These kinds of biased beliefs can affect behaviour and they lower expected welfare if we, for example, avoid public spaces but keep smoking.

However, biases of this sort might also affect the macroeconomy, trade and even economic integration. This is most obvious for developing countries which are rarely covered by international news unless something terrible happens. If this sort of news bias is not discounted by the consumers of news, then it will shape the international image of countries or even entire regions as dangerous and miserable. This will affect travel to these places and, in this way, isolate them economically. However, while plausible, quantifying these effects is typically close to impossible as the effect of events and reporting on these events can typically not be studied separately.

Tourism offers a unique chance to study the effect of news as tourists from different origins need to evaluate the same destination in order to decide on a holiday. This means that if different origin countries report differently on the same events then tourists from different countries will react differently to the same events. In a new paper Besley, Fetzer and Mueller (2020) use this separation to quantify the economic consequences of bad news.

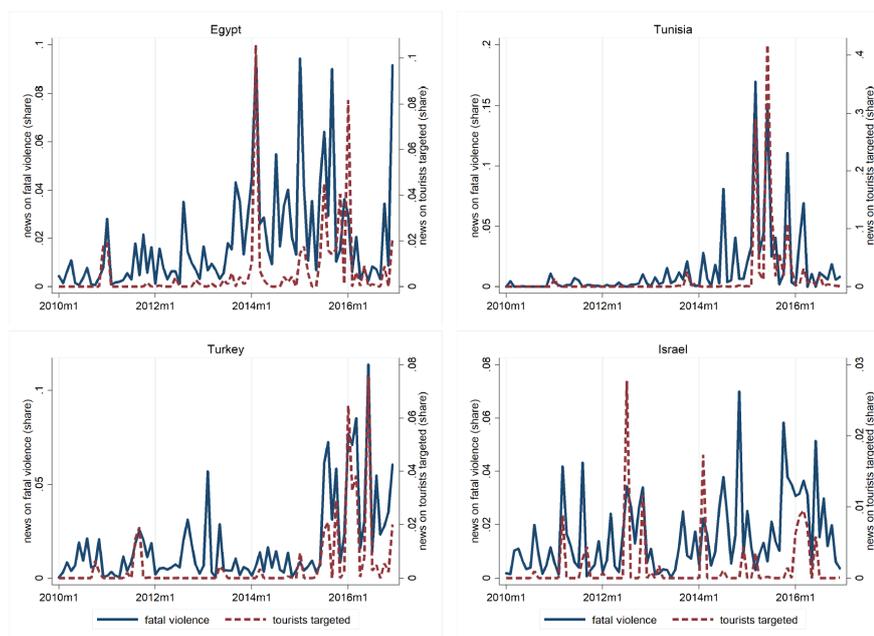
To capture the news environment, we build a corpus of nearly half-million news articles from different origin countries. Our corpus consists of news articles from fifty-seven origin countries covering five destinations (Egypt, Israel, Morocco, Tunisia and Turkey) from 2009 to 2016. We auto-translate all articles and identify a subset of articles that report on fatal violence or violence against tourists. Given the size of the corpus we use methods from computational linguistics and supervised machine learning to develop an automated classifier of reports on violence. This software automatically flags up any article that reports on fatal violence or tourists being attacked. In this way we can compare, for example, how South Korean and German news report on the same events in Egypt, Israel, Morocco, Tunisia and Turkey.

1. Following Combs and Slovic (1979), Owen Shen et al (2018) compares causes of deaths in 2016 to news reporting on different causes of death by the New York Times and other news outlets. Our World in Data compiled this striking summary based on this effort. <https://ourworldindata.org/uploads/2019/05/Causes-of-death-in-USA-vs.-media-coverage.png>.

Findings

Figure 1 below shows the aggregate reporting share of our definitions of bad news. The first measure are reports on fatalities which we plot as blue lines. The other definition of bad news in the context of tourism is whether tourists were targeted. We report this measure as red, dashed lines. In both cases we report the share of bad news relative to all news. This relative measure increases when either the number of bad news increase or reporting on other news decreases. In other words, our relative measure not only allows us to capture the effect of bad news but also the absence of other news. Figure 1 shows that this is a particularly big problem for Tunisia – a country which is reported on very little in international news. Reporting on tourists being targeted captured more than 40% on all reporting on the country in the month of the Sousse attack in 2015. A country of 11 million inhabitants was, to a large degree, defined by a series of terror attack in the eyes of the international readership. For Turkey, a country which also experienced terrible terror attacks a year later, the relative news share of bad news never increased beyond 8%.

Figure 1: Aggregate reporting shares of “bad news”



Notes: Figure plots the time series variation in the share of (any) fatal violence or on violence directed towards tourists across four main countries.

In order to gauge the economic effects of reporting we leverage aggregated and anonymised monthly card spending data proxying tourism activity of MasterCard holders from our fifty-seven origin countries in our five destinations countries – a pairwise data structure very similar to data measuring international trade flows. This data structure allows us study whether tourists react to events at their destination or to reporting at home

and we can therefore learn whether the intensity of bad news is at least partly responsible for changes in card spending. Do countries which report most intensely on an event experience larger drops in their spending? How large is this effect compared to the effect of the event itself?

We document a robust relationship between the intensity of reporting on violence and subsequent drops in tourism spending and visits. The effects that we find are sizeable; we estimate that if media-reporting on a specific dyad-switches from reporting on topics unrelated to violence to covering only stories about tourists being targeted, then tourism spending drops by about 56 percent a month later. Furthermore, this effect is fairly persistent in the first few months but then starts to dissipate, lasting for about nine months following the negative coverage.

News biases and availability heuristics: A damaging combination

Our results show that some destinations receive much more intense relative coverage and that this is to a large degree driven by the absence of other news on those countries. South Korean news outlets, for example, rarely report on Northern Africa. But if they report, it is typically to report that South Koreans have been hijacked or that other tourists have been killed. This leaves audiences at home with the impression that Northern Africa is extremely dangerous. Tourists from Spain see more other news from their neighbours south of the Mediterranean and are therefore more resilient to bad news. But, most importantly, the same is true for different destinations. We find by far the strongest effect of bad news items on spending in Tunisia because the country is reported on so little otherwise.

To fully estimate this relative news effect, we develop a model in which we can separate the effect of the event from the effect of news. To capture the role of news in the model we distinguish between two types of potential travellers. We call the first type of tourist the “sophisticated” type. This type of tourist is assumed to observe actual measures of violence and builds her perception of the risk of danger based on this data. We model build a model of the best possible risk evaluation that tourists like this would have held regarding any of the destination countries. This risk is not origin specific because events at destination drive this risk. The other type of tourists is “naïve” in the sense that they only observe and respond to the information that they observe by watching the news. The worldview of these tourists behaves as if they were using availability heuristics. For constant objective risks the perceived risk of these tourists changes dramatically with news on violence.² Naturally, these two theoretical types are two extremes

2. Of course, in our aggregate data we cannot pin down the explanation for why we observe strong reactions to news stories. For alternative explanations see Azeredo da Silveira and Woodford (2019) and Bordalo et al. (2018).

and individual card spending will be driven by a mix of both behaviours. However, by separating the two types of behaviours this way we can use a grid search to estimate what mixture describes best the aggregate data. We find that a weight of more than 50% for tourists using availability heuristics best describes the data.

The resulting model of tourist behaviour allows us to simulate a combination of a violent event at a destination with a news shock at the origin. The result is shown in Figure 2. We assume that a single, unrepeated event happens. This makes sophisticated tourists change their travel plans and, as tourists book travel in advance, this leads to an effect on tourists spending which only slowly fades out. The resulting reaction is shown as a dashed line. Tourism falls by 4 percentage points and recovers slowly after nine months. Overall an isolated event like this would make a country lose close to 15 percent of one month's tourist revenues.

Figure 2: Simulated news effect

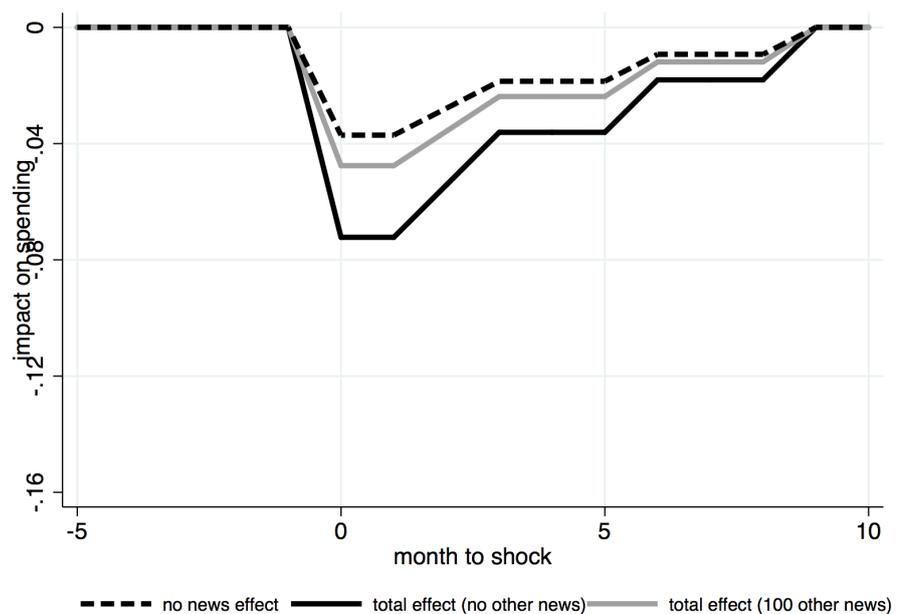


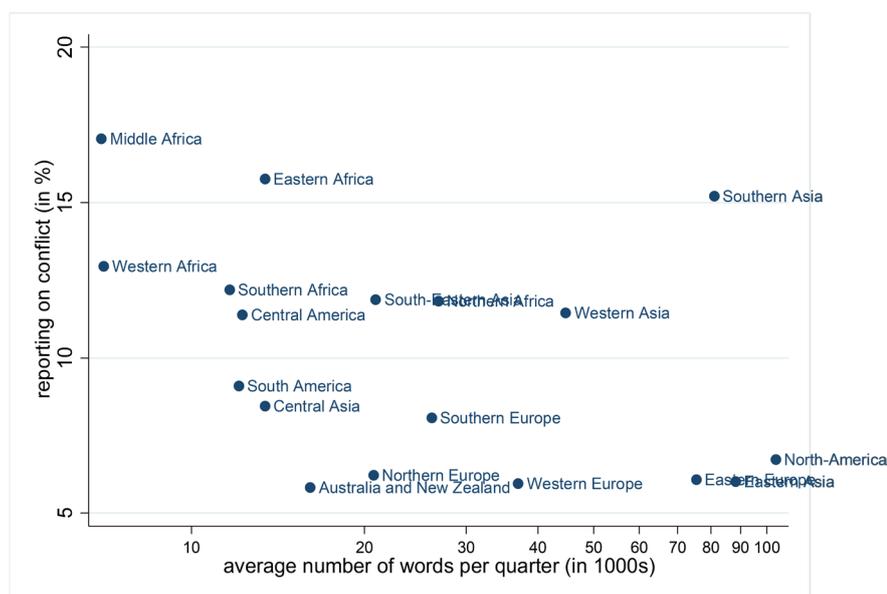
Figure 2 also shows the simulated news effect. If one news item covers the event the potential loss increases considerably. Losses without other reporting drops by close to eight percentage points. This is the kind of undampened effect that many countries experienced as a reaction to events in Tunisia. The combination of a media bias together with the availability heuristic of tourists drove them to update the risk of travel to the country up and this doubles the loss from the original event. However, Figure 2 also shows what would happen with tourists who receive a lot of other news on the destination country. When a hundred other news items are seen together with the bad news then the overall effect of the event is close to the one with only sophisticated tourists.

For a country like Tunisia, with little other coverage this leads to some quite dramatic effects on aggregate spending. We use the estimated model to show, for example, that in 2015 the news effect alone was responsible for a spending decline of about 15 percent. How large was the overall loss for all five countries? The World Bank reports that tourism revenues in 2010 were 3.48 Billion USD in Tunisia, 5.6 Billion USD in Israel, 13.63 Billion USD in Egypt and 26.3 billion USD in Turkey. Back of the envelope calculations based on the estimates in Besley et al (2020) indicate that total losses between 2011 and 2016 could have been over 35 billion USD due to violence with in excess of 10 billion USD being due to negative news reporting. However, our simulations also indicate that Egypt and Tunisia are predicted to have recovered the losses towards the end of the sample period.

What about the broader implications of these findings? How important is negative news as a phenomenon? How balanced is reporting across the world? Figure 3 summarises the impression that readers of the BBC Monitor, The Economist, The New York Times and the Washington Post will have from different regions of the World.³ It plots the average number of words appearing on the respective region per quarter in all of these outlets on the x-axis and compares this with the share of news written on conflict on the y-axis. A clear pattern emerges. Whereas reporting per quarter on developed regions is very intense reporting on Africa and Latin America is considerably lower. At the same time there is much more reporting on conflict in these countries. There are also more conflicts in these regions but the particularly worrying pattern here is that there is the low level of reporting in the absence of conflict. Even if violence is contained, single isolated violent events may still erode perceptions and trust in the relative safety of a country, undermining the economic development that is usually fostered by trade more broadly (see for example Frankel and Romer, 2008; Donaldson, 2018).

3. Data is from Mueller and Rauh (2019). Note, the BBC Monitor tries to source news from all around the world and translates them into English. The numbers will therefore give a very conservative picture of news biases in the UK.

Figure 3: Reporting across regions of the world



Policy recommendations

The evidence points to a substantive negative effect of violent events – that can be strongly amplified by media reporting. There are a host of policy recommendations to be drawn from these findings:

1. Governments should prepare their own populations for news reporting biases that are generated by their own consumer demand. Most people are bad in evaluating small risks and availability bias needs to be taken seriously. Transparency and clear communication of risks are key for managing beliefs.
2. Government agencies need to professionally manage media relations to foreign media especially in the wake of a violent events. Destination marketing efforts may help reduce the negative impacts of news reporting – these could be targeted to tourist origin countries in which a tourist destination usually only rarely features in other violence-unrelated news.
3. Journalists and reporters should understand the full ramifications of their reporting and the effect it will have on business owners reliant on tourism. Countries can struggle to recover economically for up to nine months after a terrorist attack and the independent negative economic effects of reporting are particularly pronounced if it affects a country that rarely features in the news.
4. Governments, multilaterals, and development agencies should focus on ensuring that social insurance and protection measures, such as unemployment insurance systems, are in place to help those indirectly affected by the negative ramification to cushion the negative but transitional economic blow for most vulnerable.

References

Azaredo da Silveira, R. and M. Woodford (2019). Noisy Memory and Over-Reaction to News. *American Economic Association Papers and Proceedings* 109, 557–561.

Besley, Tim, Thiemo Fetzer and Hannes Mueller (2020), *Terror and Tourism: The Economic Consequences of Media Coverage*, CEPR Discussion Paper, 14275.

Bordalo, P., K. Coffman, N. Gennaioli, and A. Shleifer (2016). Stereotypes. *The Quarterly Journal of Economics* (October), 1753–1794.

Combs, Barbara, Paul Slovic (1979) *Newspaper Coverage of Causes of Death*. *Journalism Quarterly*, Volume: 56 issue: 4, page(s): 837-849.

Donaldson, D. (2018). Railroads of the Raj: Estimating the Impact of Transportation Infrastructure. *American Economic Review* 108(4-5), 899–934.

Mueller, Hannes and Christopher Rauh (2019) *The Hard Problem of Prediction for Conflict Prevention*. CEPR Discussion Paper, 13748.

Frankel, J. A. and D. Romer (2008). Does Trade Cause Growth? *American Economic Review* 89(3), 379–399.

Shen, Owen, Hasan Al-Jamaly, Maximillian Siemers, and Nicole Stone (2018) *Death: Reality vs Reported*. <https://owenshen24.github.io/charting-death/>

Tversky, A. and D. Kahneman (1973). Availability: A heuristic for judging frequency and probability. *Cognitive Psychology* 5(2), 207–232.

Zhu, J., Sanborn, A. N. and Chater, N. (2020) *The Bayesian sampler: generic Bayesian inference causes incoherence in human probability*. *Psychological Review*