

Drought modelling

News story

We have supported a project to develop an approach to assess the welfare impacts of drought in Sub-Saharan Africa.



The Government Actuary's Department (GAD) has supported a project to develop a standardised approach to estimating the poverty and nutritional impacts of droughts in Sub-Saharan Africa.

The Centre for Disaster Protection is collaborating with the World Bank on this project. They are looking at various drought indicators and welfare measures to find a link between droughts and the impact on households, using historical weather event series as indicators of drought.

To support this work GAD developed a model that simulates soil moisture in Malawi based on historical data. This provided a methodology which can be used to develop models for simulating other drought measures in different countries.

GAD's involvement

The model we developed produces 10,000 simulations, over a 1-year time horizon, of soil moisture at 5-kilometer points throughout Malawi.

To create our model, we had to overcome the challenges posed by trying to accurately capture the following behaviours of the underlying drought indicators:

- temporal – how to capture the seasonal trends and varying levels of soil moisture during the rainy and dry seasons
- spatial – how to incorporate correlations between spatial points – this involved looking at the relationships between 32,000 data points
- scalability – how to make the model flexible and scalable so it can be applied to other countries and drought indicators

It is hoped that our model could be used to improve how we plan for and take

action to avoid or mitigate the impact of droughts in Sub-Saharan Africa.

New approaches through data science

As we are not climatologists, we approached this task using actuarial techniques. We carried out a detailed exploration of historical data to ensure we understood the features and dynamics we needed to capture in our modelling.

We used data science techniques to:

- build a model to reduce the dimensionality of the data
- fit an appropriate time-series model
- create simulated future projections of soil moisture for each of the data points

GAD actuary and project lead Georgina Bedenham said: “The work we have undertaken shows that actuarial work is not just restricted to traditional areas such as insurance and pensions.

“We really enjoyed this project as we were able to use new techniques. We brought together experts across GAD and built on our data science and coding skills. It meant we contributed towards a project that we hope will go on to improve the lives of the most vulnerable people.”

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Forestry Commission acts on new tree disease in Cumbria

Woodland managers, landowners, the forest industry and tree nurseries are being urged to remain vigilant after the Forestry Commission (FC) and Forest Research (FR) identified the tree pathogen *Phytophthora pluvialis* in woodlands in Cumbria.

The UK Chief Plant Health Officer has confirmed the findings, following routine Forestry Commission plant health surveillance activities.

Phytophthora pluvialis is a fungus-like pathogen known to affect a variety of tree species, including western hemlock, Douglas fir, tanoak and several pine species (in particular radiata pine). It is reported to cause needle cast (where needles turn brown and fall off), shoot dieback, and lesions on the stem, branches, and roots.

Although *Phytophthora pluvialis* has been detected on mature western hemlock and Douglas-fir trees at these sites, it is as yet unknown if the pathogen is the direct cause of the observed symptoms. Investigations are ongoing to determine whether other factors are at play.

Forestry Commission, Forest Research and the Animal and Plant Health Agency are rapidly conducting further surveillance and diagnostic analysis to understand more about the pathogen and ensure that any required control measures are swiftly undertaken to stop its spread.

Nicola Spence, the UK Chief Plant Health Officer, said:

We are taking swift and robust action against this finding of *Phytophthora pluvialis*, as part of our well-established biosecurity protocol used for tree pests and diseases.

I urge all sectors to support efforts to tackle this pathogen by checking the health of western hemlock and Douglas-fir trees. [Key symptoms](#) to look for are lesions on the stem, branch or roots. Any sightings should be reported to the Forestry Commission via its [TreeAlert online portal](#).

Given the recent finding, the Forestry Commission will introduce a demarcated area in Cumbria to help prevent the accidental movement of the pathogen. A [Notice](#) will come into force on Friday 26th November.

Further information on tree pests and diseases, and how to identify them, is available [here](#).

Landowners are asked to report any suspect trees via [TreeAlert](#).

[Home Secretary to ban Hamas from UK](#)

Priti Patel has today (19 November) laid before Parliament an order to outlaw the militant Islamist terrorist movement Hamas in its entirety from the UK.

Hamas is an organisation which calls for the establishment of a Islamic Palestinian state under Sharia law and has repeatedly called for the destruction of Israel. It has long been involved in significant terrorist violence.

The organisation's military wing is already banned in the UK but following a new assessment the Home Secretary has concluded it should be proscribed in its entirety. This action will support efforts to protect the British public and the international community in the global fight against terrorism. Hamas is already listed in its entirety by the United States and European Union.

Proscription makes it a criminal offence to be a member of, or invite support for the group, with those found guilty facing up to 14 years in prison.

Today Home Secretary Priti Patel will give a keynote speech on security and counter terrorism at the Heritage Foundation in Washington DC.

She will say:

Today the UK Government has laid an order in Parliament to proscribe Hamas in its entirety – including its political wing.

Hamas has significant terrorist capability, including access to extensive and sophisticated weaponry as well as terrorist training facilities, and it has long been involved in significant terrorist violence.

Hamas commits, participates, prepares for and promotes and encourages terrorism. If we tolerate extremism, it will erode the rock of security.

Hamas' military wing was proscribed by the UK in March 2001. At the time it was the Government's assessment that there was a distinction between the political and military wings of the group. This distinction is now assessed to be artificial, with Hamas as an organisation involved in committing, participating, preparing for, and encouraging acts of terrorism.

Proscribing organisations in the UK makes it difficult for extremists to operate. As well as criminalising membership and support, it supports the takedown of online content.

Hamas is one of 78 terrorist groups proscribed in the UK and the third proscription order laid by the Home Secretary within the last year.

The Home Secretary's decision to proscribe Hamas follows advice from the Proscription Review Group, which brings together experts from across Government including representatives from operational partners and the intelligence community.

The proscription order laid before Parliament on 19 November will now be debated and, subject to approval, will come into force on 26 November.

[Iskandar Regional Development Authority signs MoU with West Midlands](#)

Combined Authority to promote co-operation in transport and urban innovation

The Iskandar Regional Development Authority (IRDA) signed a Memorandum of Understanding (MoU) with the UK West Midlands Combined Authority on 17 November 2021 to co-operate in the area of transport innovation and smart cities development for the next 3 years.

The MoU was signed by Anne Shaw, Interim Managing Director of Transport for West Midlands and Datuk Ismail Ibrahim, IRDA's Chief Executive. It was witnessed by His Excellency Charles Hay, British High Commissioner to Malaysia and Maimunah Jaafar, Director of Technology & Innovation, IRDA.

This MoU will pave the way for Iskandar Malaysia Region and the UK West Midlands to share knowledge, ideas and lessons learned, particularly in the urban and transport planning realms. In addition it will promote mutual recognition of international design standards for inclusive transport. The partnership also reflects the strong ties between the UK and Malaysia in jointly tackling modern challenges via innovative technology adoption.

His Excellency Charles Hay, British High Commissioner to Malaysia said:

Sustainable transport is an essential part of reaching net zero targets, and local authorities play a key role in the transition. These were among the main themes of the [United Nations Climate Change Conference COP26](#) which the UK has just hosted. Partnerships like this will help drive climate action forward.

Datuk Ismail Ibrahim, Chief Executive of IRDA, said:

I am excited about this collaboration, and I would like to express my sincere thanks and appreciation to everyone. I am also optimistic that this strong partnership will bring about strategic mobility transformation and massive benefits to people and businesses in Iskandar Malaysia. This partnership will also inspire many involved stakeholders to embrace more smart innovations by way of technology adoption to enhance our mobility ecosystem that meets the key thrusts of [Sustainable Development Goals](#).

Anne Shaw, Interim Managing Director Transport for West Midlands at TfWM, said:

Transport for West Midlands is pleased to be entering into this

collaboration agreement with Iskandar Regional Development Authority, and is looking forward to the mutual learning and knowledge sharing particularly regarding the roles and function of regional transport authorities that this agreement will facilitate.

We have a track record of delivering innovative data and technical solutions, so combining their experience with the learning that IRDA are gaining from their transport innovation developments will be beneficial for both organisations.

This strategic initiative was facilitated by the UK Global Future Cities Programme in Malaysia under the Foreign, Commonwealth & Development Office. The programme is working to deliver smart and sustainable mobility projects in Iskandar Malaysia and Melaka with support from partners Mott Macdonald and UN-Habitat. The interventions aim to achieve inclusive prosperity and drive economic growth in the cities.

[Chatham House Competition Policy Conference – Closing Address](#)

Introduction

Thank you for the opportunity to give the closing remarks at this important conference. Chatham House concerns itself with the biggest challenges the world is facing. There is no better forum to be considering how competition policy can address some of those challenges. And I'd like to focus my remarks today on 3 of the biggest: climate change, the growing power of big tech, and post-pandemic economic recovery.

Policymakers and commentators are increasingly looking to competition policy, and competitive markets, as part of the solution to these challenges. This must be a good thing. But for competition authorities like the CMA, it also comes with heightened expectations and scrutiny.

The CMA is responding in 3 broad ways.

First, reflecting the shared and global nature of these challenges, we are strengthening our international co-operation.

Second, we are focused on the objective given to us by Parliament: to promote competition in the interests of consumers. It is through delivering on this objective that we will help drive productivity; that we will support the green revolution; and that we will respond to the power of big tech. It's important we don't get distracted from this. Our legitimacy as an unelected body depends on delivering good outcomes for millions of consumers.

Third, where we feel our tools and powers aren't keeping pace with developments in markets, we're helping government with changes to the legal framework. Not because we are power hungry, or because we want to pursue new or different objectives; but rather because we want to deliver the objective we have been set even better.

The importance of international cooperation

Let me first talk a little about international co-operation. Climate change, Covid (coronavirus (COVID-19)), big tech: these are fundamentally global challenges that require a collective response. That applies in the weeds of competition policy just as much as in the stratosphere of COP 26. If competition authorities can work together effectively, they can be greater than the sum of their parts and will be better placed to deliver outcomes that benefit consumers.

But what does that mean in practice? Does it mean moving in lockstep? Does it mean identical rules for digital platforms, or an identical approach to sustainability agreements? I think not.

Different jurisdictions have different starting points. Our experiences and histories of regulation; the nature of our legislative processes; and our existing institutional architecture all differ.

It should be no surprise, therefore, that this is reflected in differing approaches to managing the market power of digital platforms. For the UK regime, its competition law inheritance is reflected in its proposed aim: to promote competition in digital markets for the benefit of consumers. This is in contrast, for example, to the European Commission's proposed Digital Markets Act (DMA) which seeks to promote "fairness and contestability" and is explicitly separate from competition law.

What we must look to achieve, therefore, is not uniformity, but coherence. We must recognise and manage our different approaches and work together constructively to meet our shared objectives. And it is cooperation that helps to bring coherence to these different approaches.

Strengthening international cooperation, therefore, is a key priority for the CMA. And as the CMA increasingly takes its place on the international stage, we are driving that forward in multiple ways: yes through formal cooperation, but also through dialogue, transparency and through our thought leadership.

The CMA will very soon be hosting an Enforcers' Summit as part of the UK's G7 Presidency and work on strengthening cooperation between competition authorities on digital markets.

In June our Chief Executive highlighted the importance of working with the European Commission as parallel, independent, investigations were launched into how Facebook gathers and uses data across its services.

And in April, the CMA issued a joint statement with the Australian and German competition authorities setting out the need for robust merger enforcement

post-pandemic.

This final example highlights of course, that although the case for international cooperation is well-illustrated by digital markets, it is by no means the full picture. As we continue to look to addressing the challenges of sustainability, recovering from the pandemic and making sure markets work well for consumers, there will be a continuing need to look to each other and work together internationally.

And the CMA intends to continue to be at the heart of that work.

Delivering on our remit

The second thing the CMA is doing in the face of these global challenges – and this may sound counter-intuitive – is sticking to its remit. Our contribution is best made not by looking beyond the interests of consumers, but by asking how these can best be served in a world of rapid digitalisation, climate change and the aftermath of a global pandemic. I should clarify, however, that sticking to our remit does not equate to timidity but rather provides us a clear focus within which we must think boldly and act with courage and vigor. I'll say a little more about how, by keeping consumers at the heart of our work, the CMA is also doing its bit to address the challenges of climate change, the power of big tech and post-pandemic recovery.

On climate change, we have examined the [electric vehicle charging market](#). We've made recommendations that will help ensure this market develops in a way that gives motorists confidence to switch to electric cars. And we're taking forward a [competition law investigation into exclusivity arrangements for EV chargepoints at motorway services](#). Ensuring competitive pressure in EV chargepoint markets will help to keep prices low, quality high, and encourage consumers to make that switch.

More broadly, the CMA will soon provide advice to the government on how the competition and consumer regimes could better support the UK's net zero and environmental sustainability goals.

We are also working to ensure consumers can rely on the claims made by companies about the environmental impact of their products. For businesses, we've issued a [Green Claims Code](#) to help them comply with the law. For consumers, we've published tips to help identify products and services with genuine environmental credentials.

If these interventions sound prosaic, it is worth remembering that in a market economy, consumers are king; and if they cannot make environmentally-friendly choices – because they cannot trust the claims they are presented with, or because they lack confidence in what they are buying – then our net zero ambitions will remain out of reach.

On the power of big tech, the CMA is acutely aware of the potential for digital markets to continue to improve consumers' lives and living standards. But it's equally aware that to deliver those benefits, they need to stay

competitive. If the largest digital platforms are so powerful that they can take their users for granted, they are less likely to make improvements to their service. They are less likely to respond to their concerns about privacy, data collection, harmful content and fake news. And they will charge more to businesses that use them for advertising and other services, which ultimately pushes up the prices these businesses charge their customers. So again, it is interests of the consumer that drives our work in digital markets; and it is by delivering for them that we also go some way to addressing concerns about the power of the largest tech platforms.

We have live investigations in digital markets across our existing tools, each of them grounded in rigorous, evidence-based assessment. We have Competition Act enforcement cases including an [investigation into whether Facebook is abusing its position in social media or digital advertising markets](#) through its collection and use of data, an [investigation into concerns about the terms and conditions for app developers accessing Apple's App Store](#) and an [investigation into changes to Google's 'Privacy Sandbox'](#). Within our markets tools we have an ongoing [market study on mobile ecosystems](#) and a forthcoming market study into the music streaming market. And using our consumer tools we have an [enforcement case against Amazon and Google in relation to fake reviews and possible breaches of consumer protection law](#).

The CMA's body of work in this space, both past and present, also provides thought leadership to the benefit of international counterparts. I see this additionally in the UK's [Digital Regulation Co-operation Forum \(DRCF\)](#), which I believe is a groundbreaking approach to cooperation between regulators that other jurisdictions may find useful to look at. It has enabled us to pool our expertise across domestic regulators, build shared capability and skills and assess issues holistically, in a joined-up way, that gets to the root cause of problems. In doing so, it is ultimately improving our ability to work effectively in the interests of consumers.

And finally, how does the CMA's work address the third great challenge: post-pandemic recovery? I'm sure this audience will agree with me about the importance of well-functioning, competitive markets in driving productivity and growth. In that respect, all of the CMA's ongoing casework is helping to address this challenge.

But the feature of our work I would particularly highlight in this context is effective merger control. When anti-competitive mergers are allowed to proceed, consumers bear the costs. But so too does the wider economy: firms that face less competitive pressure are less likely to innovate to get ahead of their rivals. That means weaker productivity and slower growth. These costs are not inconsequential and easily reversible. It can be incredibly difficult, and sometimes impossible, to reverse the loss of competition by taking enforcement action after a merger has taken place and it can take much time for markets to recover from that loss of competition. So the CMA's robust, evidence-based, merger control delivers on its remit to promote consumers' interests; and it also fosters the competitive conditions required for a robust and sustainable recovery.

Supporting government with changes to the legal framework

Turning now to the third and final area of CMA activity I wanted to highlight: supporting government with changes to the legal framework.

The CMA's legitimacy depends on delivering on its remit of promoting competition in the interests of consumers. And I hope I have persuaded you that we are straining every sinew to do so. But in some areas, we are struggling. Traditional competition tools are ill-equipped to preserve and promote competition in many digital markets. On the consumer protection side, the UK has an enforcement system that is cumbersome, and fails to deter bad practice. It is with this in mind that the government has proposed changes to the CMA's tools and powers. These don't expand our remit; rather, they ensure that we are equipped to deliver our existing remit, now and in the future.

For one, the UK government is proposing to reform the competition and consumer protection regimes. The reforms they are proposing to the CMA's ex-post tools will enable us to act more swiftly and more flexibly in enforcing against breaches of competition and consumer law, providing greater deterrence and leading to better and faster outcomes for consumers

Alongside strengthening our ex-post tools, the government has also proposed, following the CMA's evidence-based advice, an ex-ante pro-competition regime for the most powerful digital firms. These proposals relate to markets which are particularly fast moving and are dominated by digital giants and where there is clear evidence that even updated ex-post tools will not be sufficient to effectively meet our objective to promote competition in the consumer interest.

The CMA is leading by example in this space, producing high quality research, building capability in our [Digital Markets Unit](#) and investing in resources such as our Data, Technology and Analytics team. In this respect, we will continue to contribute to the international dialogue and efforts for coherence alongside supporting the UK government in the necessary legislative reform.

My final reflection on changes to the legislative framework is that we must retain our focus on why reform is being pursued. This is not about seeking unnecessary powers without evidenced needs, or creating work for competition lawyers or going through a grandstanding intellectual exercise without consequence. This is about making markets work well for consumers. When we find ourselves in the weeds of highly technical discussions on legislation, we must not lose sight of that.

To recap.

Climate change, the power of big tech, post-pandemic recovery. These are all challenges that competition policy, and competition authorities, have a role to play in addressing. The CMA is doing that in 3 ways. By strengthening our international cooperation. By focusing on our core objective. And by

supporting government with changes to the legal framework so that we can deliver on this objective even more effectively.