

Want to predict if your non-violent movement will succeed? Ask Isaac Newton

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When Isaac Newton first attempted to describe momentum in his 1687 work Principia, he hit upon an eloquent formula—an object's momentum is its mass times its velocity. Or P=MV.

Now, scientists from Brunel University London and Harvard University



have demonstrated how the same formula can be used to help predict whether a non-violent political movement will be successful.

It's hoped the findings, published in *Nature Human Behaviour*, can help dissidents involved in non-violent resistance assess their power.

"As we've seen recently in Sudan and Algeria, you only need to mobilise a small number of people to effect sweeping political change," said Dr. Margherita Belgioioso, a lecturer in <u>international relations</u> and international security at Brunel.

"In both those instances, about one million people—only about 2.5% of the population—were mobilised for non-violent protests, and yet both were effective in driving leadership change. When you start looking into how these movements succeeded, you see that the important thing wasn't just how many people were mobilised, but how often. They may have been small in number, but they gathered often—they generated momentum.

"Of course, amassing 2.5% of the population isn't easy—that'd be 1.65 million people in the UK, or just over 8 million people in the U.S.."

Using SCAD—the Social Conflict in Africa Database—the researchers trawled through instances of protests, riots, strikes, and other forms of unrest in 47 African nations between 1990 and 2014 to determine what factors were key in driving 'irregular leadership exit.'

They determined that whilst getting large numbers of people of your side is important, it's a political movement's 'momentum' that determines its success.

"Newton's theory of momentum serves as a really useful metaphor—if we consider the number of people mobilised as the 'mass', and the



frequency at which they gather as the 'velocity', we can start to quantify how much 'momentum' a given movement has," said Dr. Belgioioso, who published the research alongside her colleague Dr. Erica Chenoweth of Harvard University.

"By doing this, we've demonstrated a clear positive correlation between a movement's momentum and its probability of successfully overthrowing a country's leadership."

Having plotted historical non-violent movements on a chart, the researchers say that if you can attract 20% of the national population to 60 events help over the course a week, the probability of 'irregular leadership exit' theoretically reaches 100%.

Meanwhile, if you can mobilise 10% of the population, just 81 events per week will result in leadership change, whilst at 5% of the population, 121 events per week are required.

Interestingly, if you are only able to arrange 20 events per week, an increase in mass—the number of people involved—no longer has any effect on momentum.

"It's a common misconception that non-violent resistance can only succeed if you 'melt the heart' of your opposition," said Dr. Belgioioso. "That implies that dissidents can only succeed where a leader is soft hearted—which clearly isn't the case. I don't think anyone would accuse Sudan's former president Omar al-Bashir of being soft-hearted or overly sympathetic, and yet in the last few weeks his grip on power was finally loosened by non-violent protest.

"We've demonstrated with this paper that what is usually required to succeed is getting people mobilised, and getting them mobilised often. The more often you can get people mobilised, the fewer people you



require to build momentum. That's why a well organised, enthusiastic movement like the one were recently witnessed in Sudan can succeed, despite only a small number of people taking part."

However, as the researchers point out: "Irregular leadership change does not necessarily result in equitable, peaceful or stable outcomes."

More information: Erica Chenoweth et al. The physics of dissent and the effects of movement momentum, *Nature Human Behaviour* (2019). DOI: 10.1038/s41562-019-0665-8

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