The Policy Value of Quantitative Atrocity Forecasting Models

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Abstract: It is time to integrate quantitative atrocity forecasting more directly and systematically into the foreign policy processes of middle and major powers interested in preventing these terrible but all too common events. This article discusses the potential utility of relatively reliable mid-to-long-term forecasts, using a number of examples to illustrate the main points.

Genocide and other mass atrocities are not an inevitable feature of the modern world. Nor, when the killing has started, is the process inexorable: they can be prevented, or, at least, stopped soon after they begin. Genocide is often a strategy deployed by leaders and governments to realise their political interests,[1] and is planned, managed and implemented by a small percentage of the population. Such atrocities are frequently predictable and preventable. Despite this, genocide continues to occur, attracting a range of often inadequate international responses. There are better options to current practices. This article argues that integrating quantitative forecasting models directly into policy processes will make a crucial difference.

Information has a crucial role to play in the development and implementation of policies designed to prevent genocide and other atrocities.[2] Social scientists have made considerable strides in building forecasting models for genocide and mass killings,[3] and for violent political conflict more generally.[4] These improvements in conflict forecasting are due to a combination of experience with forecasting models, more and higher quality specialised data, and improved quantitative forecasting methods. Forecasts, such as those made by the group to which the authors of this article belong, the Atrocity Forecasting Project (AFP), are potentially useful to military and intelligence agencies, governmental decision-makers and non-government organisations in the same way weather forecasting is useful to disaster planning. The AFP model can be used to warn where there are – and, importantly, where there are not – estimated high risks of targeted mass killings. Resources can then be deployed appropriately, with time to act. Unlike forecasts of extreme weather events, the project's forecasts offer the opportunity to influence international policy to prevent catastrophe. Reliable forecasts of genocide can act as a force multiplier by increasing the efficacy of prevention and intervention strategies, and, where this fails, by improving the chances of successful prosecution to deter other leaders from committing these crimes in the future.

No forecasting model can substitute for political will. Nor will such models ever achieve (or approach) perfect accuracy, given that they produce probabilistic predictions based on the best

available, but still imperfect, data and quantitative techniques. Adequate forewarning and monitoring, however, should alleviate some of the uncertainty over the necessity, appropriate structure, and potential effectiveness associated with deployments in foreign lands. The ability to predict events with greater confidence would also reduce the chances for states to obfuscate and avoid real opportunities (which might be considered obligations) to prevent genocide. These forecasting models, in some cases already publicly available, tend to undermine arguments that countries could not anticipate that a genocide was imminent in a society identified as at-risk before the killing began.

In What Ways Are Forecasts Useful?

Long-Term Prevention

As with many of the most deadly challenges facing humanity, proactive prevention is better than reactive treatment. The earlier that risks can be identified, the more effective prevention can be. According to a World Bank study it takes countries on average 40 years – two generations – to restore the rule of law after extreme violence like civil war, mass atrocities or genocide.[5] Prevention, by definition, reduces the human costs, and the economic and material damage is lower in the immediate and longer term.[6]

States have a raft of policies at their disposal that might reduce the chances of genocide over a period of several years. These include: the promotion of civil and political rights; reducing corruption; security sector reform; development projects; arms controls; and programmes to reconcile grievances between hostile groups.[7] Preventive strategies have two major advantages over reactive interventions. First, it is unlikely that they are nearly as expensive as UN or regional peacekeeping forces and the post-conflict reconstruction and peace-building that must accompany any such interventions. The hybrid AU–UN Mission in Darfur (UNAMID), for example, cost roughly $1.8 billion in 2010.[8]

Second, genocide prevention potentially has the added force multiplier effect of reducing other forms of political instability, such as civil or ethnic wars, and coups. A recurring finding is that genocide does not erupt from stable political settings.[9] Some form of serious political instability appears to be a necessary, although not sufficient, condition for genocide. Policies that reduce the chances of genocide, therefore, would typically reduce the chances of political instability as well. Infant mortality, for example, is a powerful predictor of civil wars, ethnic wars, adverse regime changes and genocide.[10]

Modern vulnerabilities to migration and terrorism may also make states view atrocities in distant places with increasing concern. The refugee crisis currently at the heart of social and political upheaval across Europe was born out of people fleeing a home country at risk of mass atrocities.

The International Crisis Group (ICG) has used UNHCR data on refugee flows to show that the majority, if not all, of the major source countries of refugees in 2015 were experiencing civil wars involving mass atrocities.[11] Aside from Eritrea and Colombia, each of the countries mentioned in the ICG report features in the AFP's previous or current forecasts.[12] Many of these areas have also proved fertile breeding grounds for terrorism (Syria, Afghanistan and Somalia) and/or transnational criminal exploitation like drug trafficking or corrupt natural resource extraction (Myanmar, Afghanistan, DRC, CAR, South Sudan), also known as the crime-conflict nexus, impacting international security, and domestic social and economic cohesion.[13] It appears that some of the traditional concepts of what constitutes states' interests are being reframed where mass atrocities are concerned. A 2016 US presidential executive order declared that, 'preventing mass atrocities and genocide is a core national security interest and a core moral responsibility'.[14]

For prevention strategies to be effective, they need time to work. A forecasting tool well integrated into the policy process would therefore be useful. States are usually willing to commit only a small percentage of their national budgets to foreign assistance in areas like conflict prevention, and reliable forewarning would enable these resources to be directed to the most dangerous situations based on rigorous, transparent and tested risk assessment.

There is no one-size-fits-all model for genocide prevention, and this increases the need for forward planning based on specific, anticipated scenarios. Policies should not be expected to work equally well in all cases and some policies may enflame some situations. For example, external pressure can have the consequence of increasing a government's perceived level of threat, potentially inciting the regime to more extreme mass killing.[15] Demobilisation of parts of the regular army, for example, might push a government to rely upon paramilitaries for regime security, and by creating an armed force unfettered by the institutional constraints of the regular military and answerable directly to the executive, might actually increase the chances of genocide.[16] Studies have found that paramilitary forces were an essential component in the infrastructure of genocide in Darfur, Rwanda and Guatemala.[17] Another study, however, found that more diversified militaries decreased the chances of mass atrocities where, for example, a specialist counterinsurgency unit can effectively deal with a threat.[18]

A forecasting tool would increase the effectiveness of prevention strategies by allowing better calibration to the specific situations faced by the most at-risk states. Prevention strategies must be tailored for specific political, social and economic contexts and decision-makers must know in advance which countries they are to be tailored for. There is an increasing awareness that institutions like the UN have been reactive in their approach to conflict management, often reduced to fighting spot fires in hastily organized attempts to prevent unanticipated outbreaks of violence from escalating. Coupled with this realisation is a desire, expressed in a number of internal reviews, into peace operations, peacekeeping and women peace and security for

building preventive capacity.[19] Some recent studies point to the effectiveness of UN interventions in cases where proactive steps have been taken to prevent disputes from escalating to violence,[20] suggesting that further investment in prevention capability including forecasting should lead to additional efficacy.

Short-Term Intervention

Stopping ongoing or imminent genocides will remain a major focus. Military deployments are the most visible form of intervention, but there are a range of policies – from economic and military sanctions to diplomatic intervention and jamming of radio communications – that can be used.[21] Although intervention to avert genocide in the short term is costly, the costs of inaction may be higher and can be counted in the number of mass graves, generations of social trauma and the message to would-be *génocidaires* that the promises of states and the UN to protect victims and punish perpetrators are empty.

The 1994 Rwandan catastrophe casts doubt upon the notion that states can ignore genocide today and expect minimal security consequences tomorrow. The scale of loss of this missed opportunity is laid bare not only in the 500,000 to 1 million deaths, but in the subsequent crises in the Democratic Republic of the Congo (DRC).[22] Failure to stop the killings of 1994 contributed to a chain of events that cost up to 2 million lives in the DRC and drew states from Angola to Sudan into a continent-wide war. It took the largest and most expensive peacekeeping mission ever assembled to deal with the fallout.[23]

There were opportunities to prevent, or mitigate the impact of, the Rwandan genocide. The UN Assistance Mission for Rwanda (UNAMIR) sent numerous reports to UN headquarters of massacres being planned. A whistleblower identified hidden weapons caches around Kigali but headquarters prevented peacekeepers from acting.[24] Commander Roméo Dallaire subsequently argued UNAMIR could have stopped the killing with just 5,000 peacekeepers, a claim backed by a Carnegie Commission report.[25] On 9 April, just days after the killing began, a joint force of European paratroopers secured Kigali airport and surrounding sites, only to rapidly evacuate European expatriates. Meanwhile, across the border in Burundi, 300 US marines awaited orders to evacuate US nationals and embassy staff.[26] This combined force of well-trained, -armed and -supplied soldiers working with UNAMIR troops, could have routed the *génocidaires* as the rebel Rwandan Patriotic Front (RPF) did some months later. At the very least these forces could have protected UN refugee sites that later became killing fields, acting as a bridging force while additional peacekeepers were deployed. A lack of political will is often cited as the reason there was no effective intervention to halt the Rwandan genocide.[27] While not contesting this perspective, this article argues that if more compelling evidence of impending violence on a genocidal scale can be collected, at the earliest point, there will be a greater chance to muster

political will and weigh the hard choices involved in such an intervention. Forecasting models should be formally integrated into policy processes to make this a reality.

An integrated forecasting tool for policy planning would enhance short-term intervention strategies in two important ways. First, at-risk states can be the focus of intensive monitoring for 'triggers', or indicators that occur close to a genocidal event. Research is giving a better understanding of triggers and consequently how their occurrence can be monitored. Initiatives such as the Satellite Sentinel Project (SSP) could be harnessed to monitor these countries by satellite and provide critical information on activities of armed forces and the vulnerability of civilian populations. A developing area of research is following the financial trail, including money laundering, that funds atrocity crimes. The Sentry – a collaboration of the Enough Project, Not On Our Watch and C4ADS – attempts to dismantle the financing of Africa's deadliest wars and produced a report from a two-year investigation tracking the financing of deadly conflict and the fortunes of those who have benefited from South Sudan's civil war.[28] Such information can be used to freeze assets of those benefiting from or financing atrocity crimes, as well as in future prosecutions. Other potential partners include the Early Warning Project (which crowd-pools expert analysis on at-risk states), the ICG, Human Rights Watch, regional and international organisations, and the intelligence communities of concerned states. Many of these monitoring projects, however, would be expensive to fully implement, or currently have limited resources. The Enough Project had to shift resources from supporting SSP to the Sentry in 2015.[29] Given limited resources, integrating a forecasting tool into monitoring choices will give the greatest chance of collecting the most useful information in the most at-risk countries.

Second, states may wait too long to address genocide with military intervention if the requisite attention from political leaders, policymakers and the media is only generated once mass killing is imminent or underway. Consequently, peacekeeping missions (whether unilateral or multilateral) must be assembled quickly, with fragmented intelligence and little space for military planning tailored to local conditions. This in many ways sets up missions for failure. John Heidenrich concludes, in his book *How to Prevent Genocide*, that:

> The lesson [from Kosovo] is this: having three or four months of early warning, while better than no warning at all, is not much time to prevent a genocide. For instance, to arrange a multinational peacekeeping force typically takes the UN at least three months of planning and preparation—and that is after the Security Council has debated the issue and agreed to act. Ideally, therefore, a genocide early warning system should forecast a genocide, or at least genocidal trouble, several months or even years in advance.[30]

An ability to identify states at high risk of genocide over the next one to five years would enable defence departments and the UN to draw up plans for a military deployment to protect vulnerable civilians and gather the necessary intelligence on the strength and strategies of

combatants and important geographic and logistic factors well before any such deployment is required. Examples like Operation *Artemis* in eastern DRC provide lessons for policymakers and researchers. Close monitoring and tailored responses can be crucial. In June 2003, when the existing UN Organization Mission in the DRC (MONUC) feared it could not prevent an escalation of violence in Ituri province, the UN requested an EU mission that deployed a bridging force in the face of serious atrocities, giving the UN time to upgrade the mandate of the newly created MONUC II to Chapter VII peace enforcement and deploy new peacekeepers, stabilising the situation before handing over responsibility in September 2003.[31]

Prosecution

Where states fail to halt atrocities, information gathered through forecast-based monitoring may serve as evidence to prosecute offenders in the International Criminal Court (ICC) or specially convened international tribunals. Recently, there has been a string of convictions for war crimes and crimes against humanity. Former Liberian president and sponsor of the Revolutionary United Front in Sierra Leone, Charles Taylor, was convicted by the Special Court for Sierra Leone. The president of Sudan, Omar Al-Bashir, is currently under indictment by the ICC and there are cases before the court relating to conflicts in Uganda, the Central African Republic (CAR) and the DRC. However, the ICC in 2009 ruled that insufficient evidence existed to charge Bashir with genocide. It took a further year before sufficient evidence could be presented. Similarly, in 2012 the ICC dropped all thirteen counts of war crimes and crimes against humanity against former Rwandan rebel leader Callixte Mbarushimana due to insufficient evidence.

Forecast-based monitoring should therefore lead to better and more evidence, available at earlier stages, for surer and speedier justice. One of the founding visions of the ICC was that the 'guarantee that at least some perpetrators of war crimes or genocide may be brought to justice acts as a deterrent'.[32] Justice may also be crucial to successful post-conflict transformations and is a moral imperative. Recent moves from a number of African states to leave the ICC has the potential to undermine the credibility of the court and its deterrent value, enhancing the likelihood of impunity for perpetrators of mass atrocities. If this trend continues it only increases the importance of early warning and prevention if mass atrocities go unpunished.

Current Atrocity Forecasting Capabilities

Social scientists claim substantial progress in predicting political conflict in recent years. Most of such efforts focus on general political instability or civil conflict at potentially low levels of violence, which are much more common than genocide or other mass killing events.[33] Efforts made to predict genocide and mass killing are fewer, but notable. The focus here is on the work of the authors' group, the AFP, but other important efforts, including those of the Early Warning Project and the Genocide Prevention Advisory Network, are also acknowledged.

Even though it may be clear where general instability and violence are occurring or are likely, genocide forecasting models identify unexpected cases otherwise off the radar, as well as isolating, from the large number of cases with ongoing instability, which handful are also at the highest risk of mass killing. The AFP has attempted to improve the accuracy of its model over several iterations of attempted forecasting to tailor it specifically for genocide forecasting, while avoiding 'over-fitting' to idiosyncrasies of the available data. To avoid such over-fitting, which reduces forecasting accuracy in real applications, the group has used out-of-sample forecasting techniques that reserve more recent data for accuracy testing, while the model is developed on older data, to simulate actual forecasting.

The AFP has also been able to evaluate and learn from actual future forecasts produced for the period 2011–15. The model includes structural predictors such as political institutions and ethnic divisions, but it also includes a number of highly time-variant predictors such as conflict in neighbouring states, election cycles and changes in a country's military force levels.[34] The use of an unconditional model including all states in the international system in each year – rather than a conditional set of cases that are already experiencing serious political instability – is a further advantage. This allows the AFP to forecast cases in which both instability and genocide begin in the same year, and also allows the forecasting horizon to be extended across longer time periods – for example five years into the future – without being constrained by changing patterns of global instability. This is achieved by incorporating an estimate of instability for all states directly into the model.

The authors believe that the forecasts are as accurate as, and in some cases more so than, other similar models – this is supported by the evidence now available.[35] Of the fifteen highest risk cases in the 2011–15 forecasts shown in Table 1,[36] the authors believed that the CAR, Libya, Syria and Myanmar were the most likely actual cases to experience the onset of genocide or politicide over the period.[37] Expectations of genocide or politicide in the CAR and Myanmar, which were relatively stable and taking steps towards democratization, seemed particularly counterintuitive in 2011 and 2012, but later proved to be at considerable risk. Anecdotally, these cases point to the potential value of the list, and in general to lists developed using rigorous, systematic quantitative approaches, rather than qualitative judgement. For example, it was not until after a destabilising coup in 2013 that the ICG began to signal serious concern about the CAR.[38] The AFP approach 'saw' the risk in this case based only on data up to 2010, placing it at the top of the list.

Table 1: Forecast for 2011–15: Top Fifteen Countries at Risk of the Onset of Genocide or Politicide.
1 Central African Republic
2 Democratic Republic of the Congo
3 Chad

4 Somalia

5 Angola

6 Myanmar

7 Sri Lanka

8 Ecuador

9 Burundi

10 Afghanistan

11 Syria

12 Guinea

13 Cameroon

14 Uganda

15 Libya

Putting Social Science to Work

Many of the elements necessary for effective mass atrocity prevention already exist in various international organisations, government and non-government institutions. What is lacking is a systematic, coordinated approach to the highest risk states. This approach would involve six elements: identification; monitoring; diplomacy; prevention; mitigation; and prosecution.[39]

Identification

A forecasting model can identify a shortlist of countries at the highest risk of genocide or atrocities, as well as potential specific risk factors. This article advocates integrating quantitative forecasting methods into the policy processes of states and organisations interested in preventing mass atrocities such as genocide. Specifically, the authors argue that a forecast should cover a period of at least a year, preferably more. Such forecasts are much more likely to give concerned governments and other organizations the requisite time to monitor the most at-risk cases, to undertake diplomacy and to plan preventive action tailored for each case. The AFP produces a forecast for genocide that covers a five-year period. For example, the forecast in Table 1 above was produced using data to 2010, and covered the years 2011-15. The most recent AFP forecast covers the period 2016-20. Others like the Early Warning Project and Genocide Prevention Advisory Network focus on somewhat different timeframes and/or atrocity types.

The key to useful identification of at-risk cases is to create a list that is a short as possible, while maintaining high accuracy in out-of-sample testing and real future forecasting experience. Implementing this process is relatively straightforward for quantitative forecasting models, but very difficult with most qualitative assessments. It must be acknowledged that, of course, not all cases of genocide or atrocities will occur in the shortlist of identified countries: forecasting is not

perfect prediction. In such cases, current policy mechanisms should continue to operate, but there could also be use for forecasting models which identify a category of secondary at-risk countries, that are subject to low-cost monitoring, for example.

Monitoring

A shortlist of identified high-risk states makes intensive, focused monitoring for signs of genocide or atrocity planning or other triggers feasible. Qualitative country- or region-expert analysis can be more powerfully applied in this context. For example, ICG's analysis showed internal divisions in South Sudan's post-independence Sudan People's Liberation Movement were ignored by observers.[40] In this instance opportunities were missed to prevent mass atrocities by ignoring historic ethnic conflicts and potential spoilers who sought power at the expense of peace and stability. A common precursor that is difficult to build into quantitative models is dehumanisation or out-group 'toxification' through hate speech, socio-political polarisation, the removal of moderate voices and the identification or concentration of individuals and groups.[41]

Diplomacy

Diplomacy, especially around potential trigger moments like elections, has a critical role to play. Ensuring that the leadership and elites within a country avoid violence or strategies that could escalate into violence can be remarkably effective. Concentrated and maintained diplomacy can shift the strategic outlook of leaders and establish relationships that can be pivotal during potential trigger periods.

Nigeria experienced a peaceful democratic transition of power in 2015 when President Goodluck Jonathan stood down and allowed his competitor, Muhammadu Buhari, to succeed him. The transition and the peaceful election campaign were likely influenced by the intensive diplomatic efforts of UN Secretary-General Kofi Annan and US Secretary of State John Kerry, who both lobbied the candidates to expressly oppose violence by their supporters. Research shows that some supporters had been preparing for violence in the lead-up to the election.[42]

In November 2004 Juan Méndez, then recently appointed as the first UN special adviser on the prevention of genocide, visited Côte D'Ivoire and was told of hate speech being disseminated in some local media. Méndez issued a statement declaring that promotion of hate speech may be subject to prosecution by the ICC and called on authorities to put an end to it – it then disappeared.[43]

Where evidence of an impending genocide or genocidal intent is established, relevant financial and troop contributors and potential veto players can be lobbied early and a package of sanctions and (potentially) inducements tailored to the case at hand can be implemented. Coordination

can occur in order for leaders and elites in at-risk countries to be engaged directly in high-level diplomatic talks that move them away from violent strategies.

Prevention

When diplomacy fails and mass atrocities appear imminent or have begun, military intervention may be the best option. Integrating a forecasting model into the policy process from the start can vastly improve preparedness, as this article has argued, but the same is true of preventive measures short of force.

As evidence regarding short-term triggers and signals of genocide surfaces, states may use policy interventions short of military force to deter those planning it. A well-targeted combination of sanctions, inducements and military preparations may adequately communicate resolve to punish any instigation of genocide, and obviate the need for military intervention. Although perhaps overly optimistic, it remains the AFP's hope that – in the face of clear, credible and voluminous evidence provided by such monitoring efforts – states will be reluctant to obstruct efforts aimed to either avert an impending genocide or arrest an ongoing one. The ability of state leaders to claim a level of plausible deniability would, at least, be greatly reduced.

When clear warning signs indicate that atrocities are being prepared, prevention must be swift. This can only happen with adequate preparation, greatly enhanced by integrating forecasting into policy processes. Preventive peacekeeping is a resource-intensive but effective tool that should be considered.[44] The UN and OSCE preventive deployment of peacekeepers in Macedonia in 1993 was effective in preventing spillover from the conflicts in neighbouring Bosnia. Macedonia had different demographics and a more moderate leadership, yet the country still faced significant risks that were minimised by the peacekeeping mission.[45]

Mitigation

Where prevention fails, an array of tools may still be useful to mitigate the consequences of attempted genocide. Forecasting can enhance their chances of success by allowing prior preparation and intelligence gathering, especially regarding the motives of perpetrators for genocidal killing and their general political and financial interests. Once the killing has begun, these tools can be easily justified under the UN-mandated Responsibility to Protect. Measures include financial sanctions, travel bans, asset freezes, diplomatic pressures including expelling diplomatic missions, shutting down embassies and trade relationships as well as high-level eleventh-hour pressure and negotiations. For example, actions taken in response to major violence following Kenya's 2007 presidential election show how killings can be de-escalated and larger-scale atrocities prevented.[46] Independent but mutually reinforcing campaigns at domestic

and international levels worked to negotiate a ceasefire, then a comprehensive peace agreement and transitional government was agreed. A group of eminent Kenyans formed the Concerned Citizens for Peace and through a series of initiatives enacted successful grassroots peacemaking actions.[47] Annan led a team of mediators in a series of negotiations that brokered an agreement between the leaders at the heart of the political conflict that was fanning the violence.[48] The crisis still resulted in at least 350,000 people displaced, thousands injured and the deaths of 1,133 civilians.[49] However, without these actions, the scale of the losses would have arguably been far higher.

Military interventions including UN or regional peacekeeping missions like MISCA, the African-led International Support Mission to the CAR, are at the hard power end of mitigation and require intensive political will to be effective. International actors were slow to move in the CAR, and acted only when genocide seemed imminent. While few would take wholly positive lessons from the violence, there is strong evidence to suggest a greater catastrophe may have been averted. The work of the Atrocities Prevention Board – established by the administration of Barack Obama – in relation to the CAR crisis is a record of constant efforts to avert further calamity.[50] The board began receiving intelligence briefings on the CAR in December 2012. In the months following the coup in March 2013 the US response focused on humanitarian aid delivery and diplomatic negotiation as atrocities increased.

It was seemingly the individual leadership of US Ambassador to the UN Samantha Power that moved the US to more active involvement. Journalist and human rights lawyer Rebecca Hamilton chronicles the tipping point in December 2013 when, faced with credible evidence of ongoing atrocities, the US co-sponsored a French Chapter VII resolution at the UN Security Council authorising MISCA, the military mission led by the AU and backed by France. The US provided $60 million in military assistance, and 850 Burundian troops were promptly airlifted to Bangui. Power visited the CAR weeks later – the highest level US official ever to do so – providing a further $7 million for reconciliation efforts.[51] While these efforts did not end the violence completely, the situation over the intervening period has improved significantly with a new government and EU troops supporting MISCA. The CAR is an example illustrating that while mitigation is possible, once prevention fails the road to peace is long, costly and perilous.

Prosecution

As discussed, building forecasting into the policy process allows for evidence collection, particularly in the monitoring phase after a shortlist of countries at risk is identified. When genocide occurs regardless of efforts made to prevent or mitigate its impacts, the pursuit of justice is essential to build and maintain a deterrent to future would-be *génocidaires*. Maintaining the legitimacy of the ICC and, less preferably, ad hoc tribunals, is crucial to the success of this deterrent. Successful prosecutions based on solid and plentiful evidence are crucial to this

legitimacy, and would be considerably enhanced under the forecast-based approach advocated here.

Conclusion

Like any tool, or toolbox, forecasting mass atrocities will only ever be as useful as policy and decision-makers want it to be. Integration of quantitative forecasting into the genocide or atrocity prevention and response policy processes of concerned countries – like the US, UK and Australia – and international organisations – like the UN and AU – will, the authors believe, prove highly effective for the reasons outlined above. In her 2007 analysis of US responses to genocide, Power claimed the only impediment to action is political will: 'American leaders did not act because they did not want to'.[52] This assessment might now be tempered given Ambassador Power's experience seeking to prevent or end mass atrocities in Syria, South Sudan and the CAR. When leaders seek to prevent or stop a genocide and put resources and political will behind that effort, they can succeed, but the task is complex, daunting and uncertain. Forecasts are a tool adding discipline and rigour to help policymakers strategically prepare, focus analysis and resources, watch, and act effectively. They offer a framework which expands the opportunities to act by increasing the precision and amount of knowledge incorporated into the decision-making process. For others they are an objective, evidence-based warning siren that can be used to gather political will; and in the face of inaction, forecasts are a repudiation of the defence that no one could tell what was about to happen. The authors' hope is that forecasts like the AFP's can affect the process so that cases like Rwanda, South Sudan, Kenya and Syria never get to the edge of the cliff, that instead they are defused before the killing begins. The time has come to formally integrate genocide and atrocity forecasting models into the policy processes meant to prevent and mitigate these terrible events.

Author bio

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Notes

[1] Barbara Harff, 'No Lessons Learned from the Holocaust? Assessing Risks of Genocide and Political Mass Murder since 1955', *American Political Science Review* (Vol 97, No 1, February 2003), pp. 57–73; Ernesto Verdeja. 'The Political Science of Genocide: Outlines of an Emerging Research Agenda', *Perspectives on Politics* (Vol. 10, No 2, June 2012) pp. 307–21; Benjamin A Valentino, *Final Solutions: Mass Killing and Genocides in the 20th Century* (Ithaca, NY: Cornell University Press, 2004).

[2] In this article, the authors do not offer definitions for genocide, politicide or mass atrocities. We note that distinct forecasting models are designed to predict one or another of these. However, the article prefers not to delve into questions of the most appropriate definition for purposes of forecasting, and point readers to the specific works cited for discussions of these terms.

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[11] ICG, 'What's Driving the Global Refugee Crisis?', Commentary, 15 September 2016.

[12] The source countries in the ICG report are based on data from the UN Refugee Agency. Listed in order of the number of refugees, they are: Syria; Afghanistan; Somalia; South Sudan; Sudan; the DRC, the CAR, Myanmar; Eritrea; and Colombia. The report can be found here: https://www.crisisgroup.org/global/what-s-driving-global-refugee-crisis.

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