News

War, what is it good for (Dec 15th, 2017)

Rahul Oka, Agustin Fuentes, Susan Sheridan, Mark Golitko, Nam Kim, and I recently published a paper in PNAS looking at how demographics affects both the size of a war group and conflict causalities.

Here is the gist:

Many scholars have noted that in hunter-gather populations, the number of people involved in fighting can be as much as 40% of the population, but this percentage drops in big state-level societies. One of the first people to note this was Larry Keeley in his War Before Civilization, first published in 1994. He noted that the percentage of male war deaths was higher in nonstates than in states. Others, such as Steven Pinker, have taken these data to mean that "civilization" has a pacifying element. As Pinker puts it "violence has declined over long stretches of time, and today we may be living in the most peaceable era in our species' existence" (Pinker 2011: xxi). Using data from Keeley and other scholars, he concludes that before the emergence of the state, the violent death rate was around 15%.

Raul Oka wondered if this could be due to population size. In other words, is this drop in the number of people involved in war (what we call the "war group") due to the effects of living in a state or is it a reflection of broader issues that appear when population increases? We collected data on population and war group size from 295 societies and on war group size and conflict-related casualties from 430 historical conflicts going back to 2500 B.C. We show that, as population goes up, the proportion of people involved in conflict decreases. In other words, it is not that states prevent violence, but rather that other factors, such as the need to feed, cloth, and arm a war group makes it harder to involve a large percentage of people in more complex societies.

You can read the paper here

press coverage

- Michael Price covered our paper in Science, where Steven Pinker has some thoughts to share...
- My university was nice enough to cover it as well
- Inverse interview with Rahul Oka
- It also got some international attention in Italian and Russian!

Looking at the data from our paper

This is a working version looking at some of the data from Oka et al. to try to explain it and use some visualization techniques to examine the results interactively

First, going to look at Figure 2a from our paper, which compares population to war group size. The data comes from dataset S1, which has 295 entries. Below is an interactive table showing all the data

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The following figure is similar to the published figure, but you can hover over each point to examine the data more carefully

Fig1a: Scaled distribution of P vs. W and W/P from Dataset S1 (n = 295). W and W/p

Next, we can look at figure 2b, which examines the scaled distribution of W vs. C and C/W from Dataset S2, which has 430 entries.

Examining DCI

Demographic Conflict Investment (DCI) is a relative measure of the number of individuals involved in conflict accounting, for scale in group population. Our data suggests that there is no difference in DCI between small-scale societies observed during times of conflict and contemporary or recent state-level societies preparing for or engaged in active conflict.

Even more interesting, it is seen as a measure of conflict investment. It is strongly correlated with the most commonly used measure of investment in conflict, the global militarization index, but can be applied to any population or social system. It thus can be used to track changes in conflict investment over time for any geographic or temporal context provided that population and war group size can be reliably measured or estimated.

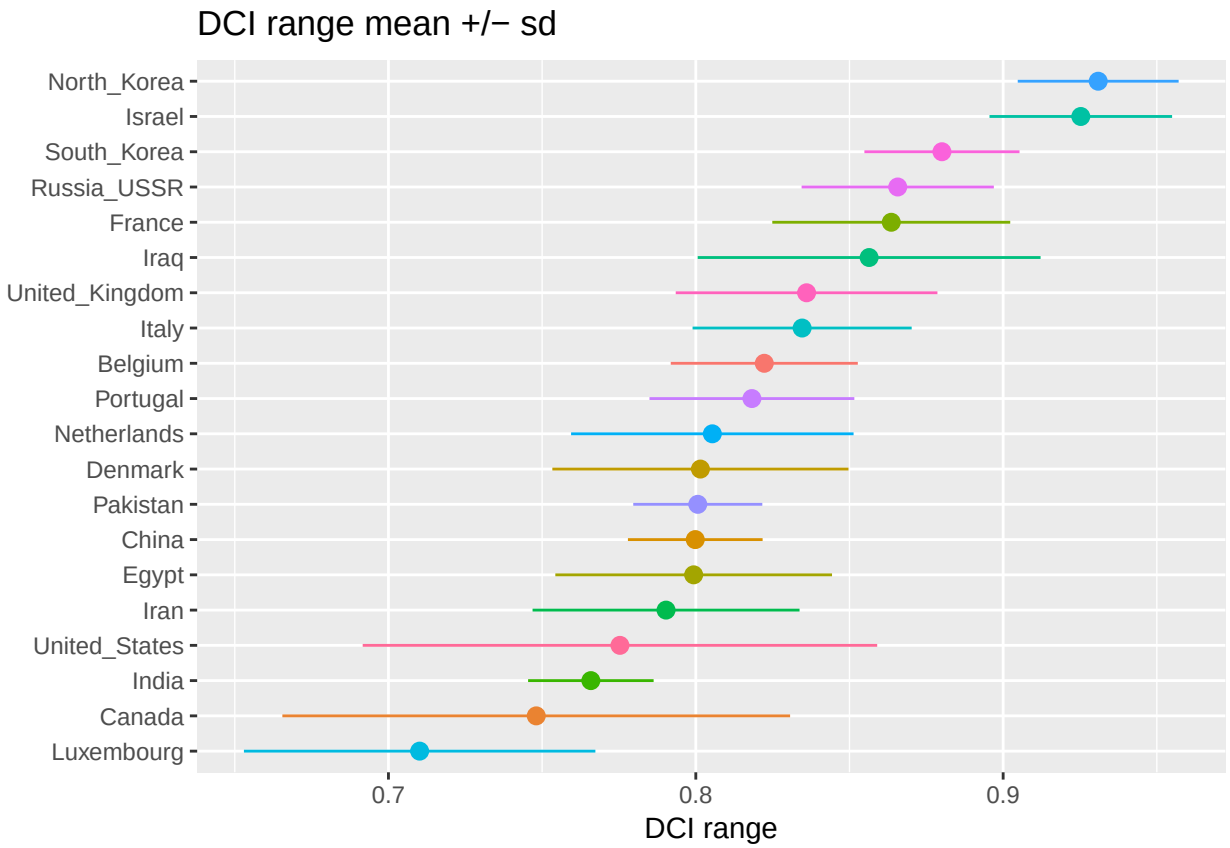
Basic data

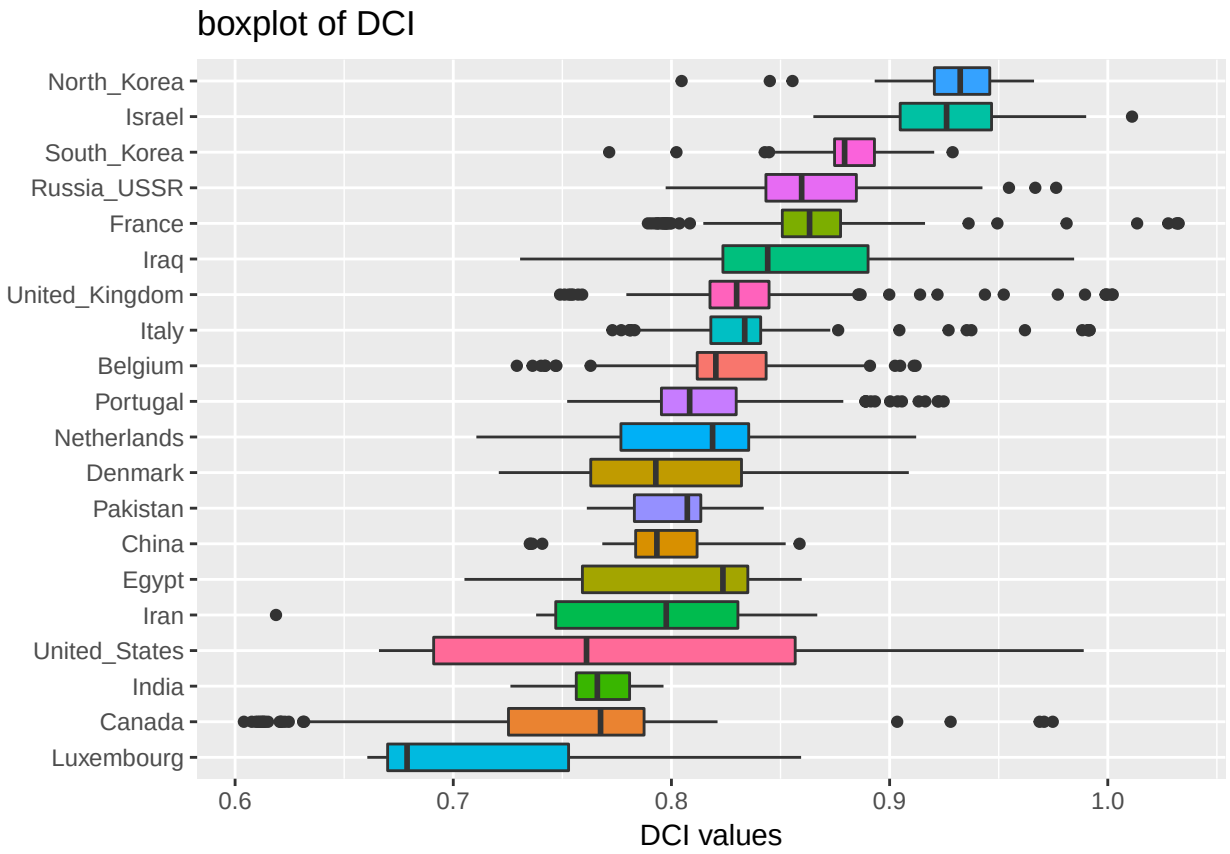
Interactive version of the dataset

First, we can look at the mean DCI values for each country

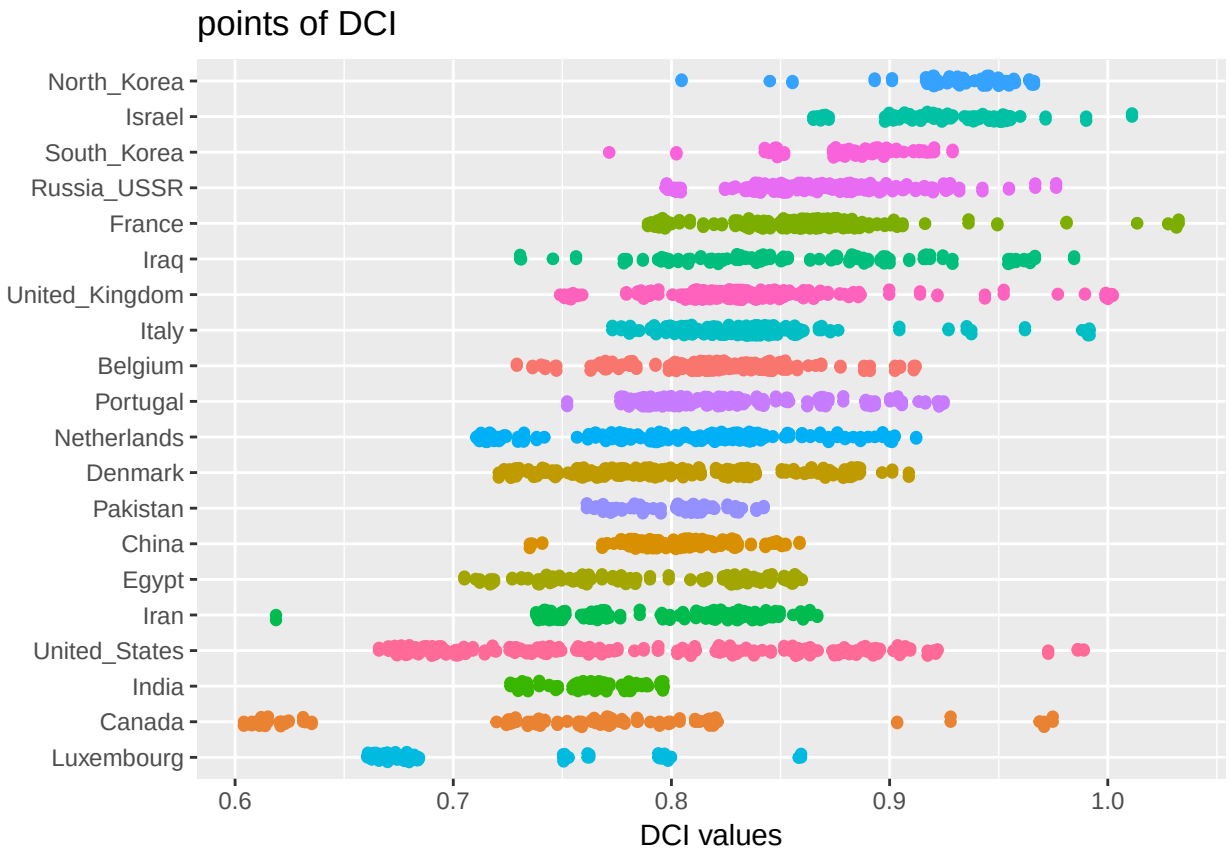
The DCI mean for the whole dataset is 0.8214769

To examine this data visually, the next graph shows the DCI range for each country, giving the mean and the 1 sd range


DCI range mean +/− sd
North_Korea
Israel
South_Korea
Russia_USSR
France
Iraq
United_Kingdom
Italy
Belgium
Portugal
Netherlands
Denmark
Pakistan
China
Egypt
Iran
United_States
India
Canada
Luxembourg
0.7
0.8
0.9
DCI range



To examine the data more closely we can use points



DCI values over time

Below is an interactive version of the DCI plots. double-click on a country to isolate its trace and then click on another country to compare how the DCI changes over time.

motion plot for the DCI

Press play to watch how DCI changes over time. the size of the circle represents the DCI value

All these data are available on the PNAS website.