



## How to think like a scientist about the border wall

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I was born and raised in South Texas, but now I'm a scientist living in Washington D.C. where, because of the recent government shutdown, I missed more than 60 days of pay. During that time, I thought it would be worthwhile to use my Ph.D. skills to analyze the evidence for the president's claims about a national security crisis at the U.S.-Mexico border and whether a wall was an adequate justification for the shutdown.

Evidence in support of the wall would have to back up three key claims: First, there has been a dramatic increase in people crossing our border over time; second, an increase in immigration causes an increase in crime, and immigrants commit more crimes than those within our borders; third, current strategies for border security are ineffective.

So, what do the data show?

There is absolutely no evidence for the first claim. In fact, the opposite is supported: Unauthorized immigration rates actually slowed down between 2010 and 2016, when it fell to its lowest level in decades. Overall, the population of unauthorized immigrants shrank by 13 percent between 2007 and 2016 in the U.S.

As of January 2015, there were an estimated 10.7 to 12.0 million undocumented immigrants living in the United States - 3.34 percent to 3.75 percent of the total U.S. population at that point in time.

Because I'm a scientist and love data, I analyzed the available raw data for total apprehensions of illegal immigrants across multiple years by our border patrol. This number of apprehensions has also declined over time, and I found this decline to be highly statistically significant.

So, to conclude, there is no evidence for the first claim. What about the second?

Studies on the subject have found no link between immigration and crime. None. This revelation comes from a 2018 study published in the journal "Criminology" that attempted to correlate undocumented immigration and violent crime in all 50 states and Washington, D.C., using multiple data sources at the state level from 1990-2014. The robust analyses from this study reveal the opposite relationship: Increases in the undocumented immigrant population are generally associated with significantly lower rates of violence.

Other studies reveal that illegal immigrants have lower conviction and arrest rates relative to native-born Americans in the United States. In Texas alone, a study of 2015 data by the Cato Institute found that the homicide rate for illegal immigrants was 16 percent below that of native-born Americans. For all criminal convictions, illegal and legal immigrants had criminal conviction rates 50 percent and 66 percent below that of native-born Americans, respectively. Together these findings undermine statements that undocumented immigrants are criminals or are bringing crime into the United States.

In looking at statistics from U.S. Border and Customs Protection, two things are clear from my analyses: an increase in funding and an increase in staffing agents over time is significantly correlated with reduced rates of apprehension of illegal immigrants. So, if you are concerned about keeping these numbers low, my observations suggest that continuing to fund this agency and maintaining a steady number of agents on the ground may be an effective way to do so.

An alternative explanation is that there are fewer people crossing our border over time (which is supported by the studies). Regardless, these results do not support the third claim and instead suggest that the border security strategies currently in place are effective.

In sum, there is no evidence that there is a border crisis that requires building a wall. The number of immigrants coming into the U.S. is decreasing, and they are not causing any upticks in crime. A wall is an unnecessary feature and would be a waste of taxpayer money.

In a few short weeks, we may be dealing with yet another shutdown and engaging in heated national discourse about a wall that the president has not justified based on facts, legitimate sources or an itemized budget for its costs. When debating important national issues, the onus should be on the president and our representatives in Congress to support their claims with verifiable evidence. It is also on us as informed citizens to require evidence for claims and question unsubstantiated stories and hearsay. The stakes are high. Our standards should be, too.