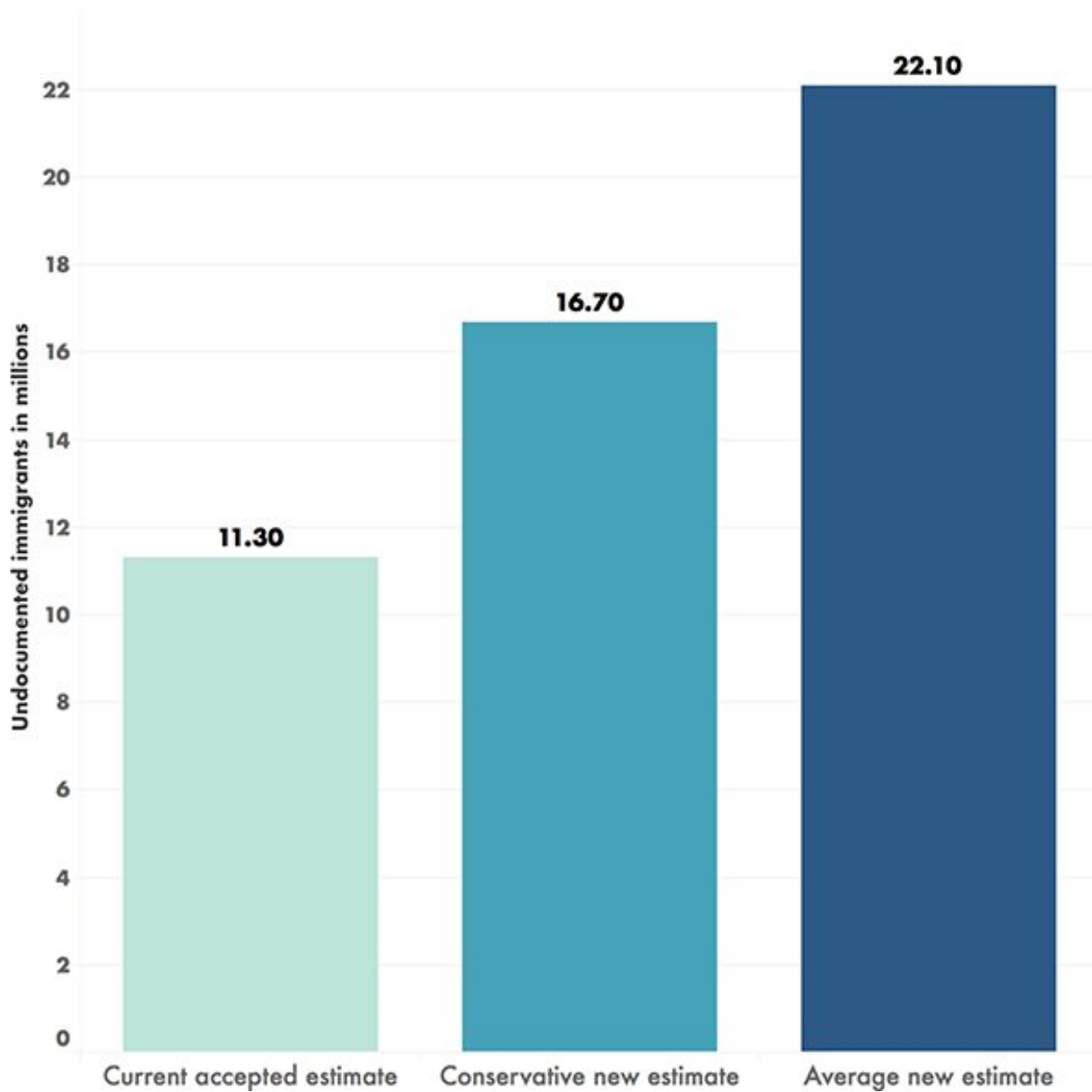


U.S. undocumented immigrant population roughly double current estimate

September 24 2018, by Tom Relihan

Estimated current number of undocumented immigrants in the United States



Credit: MIT Sloan School of Management

The number of undocumented immigrants in the United States is roughly

twice as high as commonly believed, according to new research from MIT Sloan and Yale professors.

The research found that the number of undocumented immigrants living in the country is about 22.1 million, nearly twice the most prominent current estimate of 11.3 million. Even using extremely conservative parameters, the study estimates a [population](#) of 16.7 million undocumented immigrants, nearly 50 percent higher than the widely-accepted population figure. The study, published Sept. 21 in *PLOS ONE*, was conducted by MIT Sloan's Mohammad Fazel-Zarandi, a senior lecturer in the operations research and statistics group, and his colleagues, Edward Kaplan and Jonathan Feinstein, both from Yale School of Management.

"Immigration policy is a hot-button issue in the U.S. and the question of how to address undocumented immigrants provokes passion on both sides," Fazel-Zarandi said. "Debates about the amount of resources to devote to undocumented immigrants and the relative benefits and disadvantages of various policies—including deportation, amnesty, and border control—depend on having a correct estimate of just how many of them are living here. The number sets the scale."

The commonly quoted estimate of 11.3 million is extrapolated from population surveys. "We read that [the previous estimates] were based on surveys, but surveys may not be the most appropriate method for measuring hidden populations," Fazel-Zarandi said. In the case of undocumented immigration, it's particularly challenging, he said, since undocumented immigrants might have an incentive to stay undetected.

"It's likely that undocumented immigrants are more difficult to locate and survey than other foreign-born residents and if contacted, they may be inclined to misreport their country of origin, citizenship, and number of household residents, fearing the legal consequences of revealing their

status," he said.

The problem is similar to those faced when measuring populations like intravenous drug users or tax evaders. "You need to use alternative sources of data for those. We viewed the problem like a big jigsaw puzzle, where we needed to fill the pieces. You're taking the data from various sources and combined it in a logical way, but not all those pieces have all the information you'd like," he said.

Given the inherent challenge of relying on survey-based methodologies to identify this population, the authors took a very different approach. The new approach is based on operational data, such as border apprehensions, the number of people who overstay their visas and deportations, and demographic data, including emigration rates and mortality rates. They combine these data using a mathematical model that estimates and track population inflows and outflows.

"Combining the different sources of data was a complex task," said Fazel-Zarandi. "The key components of the model, inflows and outflows, are themselves comprised of numerous subcomponents. Each subcomponent must be aggregated from different sources, evaluated for its specific level of certainty, then incorporated into the mathematical model in a consistent way."

Some of the data sets used in the analysis only recently become available, so the approach is timely. For example, 2015 was the first time that the Department of Homeland Security systematically collected data on visa overstays.

The study, which spans from 1990 to 2016, also includes estimates on unlawful border crossings based on newly available data. "We don't know the number of people who cross the border successfully—we only know when people get caught trying because the Department of

Homeland Security fingerprints every person who gets apprehended," Fazel-Zarandi said. "From the apprehension data, it's possible to infer how many people must have tried to cross the border."

"There was significant uncertainty in the data, which complicated everything," Fazel-Zarandi said. "We had to incorporate such variability in the modeling, which explains why we get such a wide range of possible outcomes." The researchers ran 1 million simulations of the model. The results consistently came back higher than the accepted population figure.

"What we observed was that the upper bound of the traditional survey approach doesn't overlap with the lower bound of the new modeling method," Fazel-Zarandi said.

The largest growth in the population came between 1990 and the early 2000s, Fazel-Zarandi said, reaching a peak in 2007 and 2008. The number of unauthorized migrants has since leveled off and become stable.

"The results of our analysis are clear: The number of undocumented immigrants for each year is estimated to be substantially larger than has been appreciated at least in widely accepted previous estimates," the authors wrote.

He cautioned that the new figures don't indicate a sudden influx of undocumented immigration. "It's something that has happened in the past and maybe was not measured properly."

Policy implications

Having those better figures, Fazel-Zarandi said, could inform the debate around immigration in several ways. The larger population estimate

means crime rates among undocumented immigrants are lower than previously thought.

"A common argument in favor of a tougher [immigration policy](#) is that people who have entered the country illegally elevate levels of violent criminal activity," Fazel-Zarandi said. "Whatever the extent of criminality that is assessed, it's clear that crime statistics be thought of in relation to a substantially larger population of [undocumented immigrants](#). This lessens the risk in per capita terms."

With respect to social services, the results could help inform the resource allocation of agencies and nonprofits that provide services to the undocumented [immigrant](#) population.

"What's acceptable for a population of 11 million is unlikely to be sufficient for a population of 22 million," Fazel-Zarandi said.

More information: Mohammad M. Fazel-Zarandi et al. The number of undocumented immigrants in the United States: Estimates based on demographic modeling with data from 1990 to 2016, *PLOS ONE* (2018). [DOI: 10.1371/journal.pone.0201193](https://doi.org/10.1371/journal.pone.0201193)

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