## Innovative Statistical Methods Shed Light on Extent of Modern Slavery in United States, Around the World

*New findings show 40.3 million were enslaved on any given day in 2016*

ALEXANDRIA, Va. (November 2, 2017) – Policymakers, law enforcement and advocates can now better identify and target modern slavery thanks to the work of human rights experts and researchers whose application of unique statistical methods yields more precise figures on its existence and extent. The groundbreaking work appears in the October issue of *CHANCE*, which features a series of articles written by authority figures on the subject of modern slavery.

The new methods helped inform the 2016 Joint Global Estimates of Modern Slavery—published by the United Nations (UN) International Labour Organization (ILO) and the Walk Free Foundation—which estimated 24.9 million people in forced labor and 15.4 million in forced marriage. "For decades, though, the prevalence of modern slavery was difficult to quantify with accuracy. Political sensitivities, unwillingness to share data and questionable data collection and analysis techniques led to inaccurate calculations and subsequently poor, if any, tracking and prevention efforts," notes Davina P. Durgana, senior researcher at the Walk Free Foundation and report co-author of the *Global Slavery Index*.

One statistical method gaining worldwide interest is multiple systems estimation (MSE). The method basically involves analyzing three to four concurrent lists of identifiable victims for apparent overlap to estimate a victim population size.

"The ongoing lack of transparency, and the lack of data sharing in the study of slavery, is not just a threat to good science; it prevents comparable analyses that might reduce suffering and the extreme human cost," notes Kevin Bales, professor of contemporary slavery at the University of Nottingham, co-founder of Free the Slaves—a nonprofit anti-slavery advocacy organization in Washington, DC—and lead author of the *Global Slavery Index*. "The exploration of the MSE technique to measuring the prevalence of slavery appears to offer a solution to the problem of estimating the extent of slavery in well-developed countries."

This method and subsequent findings have been widely accepted by the UN's ILO and International Organization for Migration, as well as advocates and organizations spanning the globe. "MSE and the *Global Slavery Index* are 'game changers' in the way slavery is measured, benefitting developed and underdeveloped countries with potential for application to other human rights issues," says Durgana.

Deployed in the United Kingdom and The Netherlands in 2014 and 2016, respectively, MSE has attracted the attention of the United States government, which is evaluating its feasibility in the

context of human trafficking. "Success in the US context would encourage many other developed countries to take similar action and contribute substantially to the information that exists about human trafficking in the US, both domestically and abroad," notes Paul Zador, senior statistician at Westat, Inc. Zador recently helped design a survey and analyzed data of bonded laborers in India, as well as a decades-long period of terror in Guatemala.

Specific articles in this special issue of *CHANCE* include the following:

- "Unlocking the Statistics of Slavery" by Kevin Bales, professor of contemporary slavery, University of Nottingham, and lead author of the *Global Slavery Index*
- "The Challenge of Counting Victims of Human Trafficking" by Maarten Cruyff, Department of Methodology and Statistics, Utrecht University; Jan van Dijk, emeritus professor of victimology, International Victimology Institute of the University of Tilburg; and Peter G.M. van der Heijden, professor of statistics for social and behavioral sciences and head of the Department of Social Sciences, Utrecht University
- "Modern Slavery—from Statistics to Prevention" by Fiona David, lawyer, criminologist and executive director of global research, Walk Free Foundation
- "Fighting Slavery Through Statistics: A Discussion of Five Promising Methods to Estimate Prevalence in the United States" by Davina P. Durgana, senior statistician and report co-author of the *Global Slavery Index*, Walk free Foundation, and Paul L. Zador, senior statistician, Westat, Inc.
- "Using Surveys to Estimate the National Prevalences of Modern Slavery: Experience and Lessons Learned" by Jacqueline Joudo Larsen, criminologist and senior research manager, Walk Free Foundation, and Pablo Diego-Rosell, senior consultant, Gallup
- "Strategies to Estimate Global Prevalence of Trafficking for Sexual Exploitation" by Sheldon X. Zhang, professor and chair of the School of Criminology and Justice Studies, University of Massachusetts Lowell, and Kyle Vincent of Simon Fraser University
- "Measuring Vulnerability and Estimating Prevalence of Modern Slavery" by Jacqueline Joudo Larsen and Davina P. Durgana
- "The Politics of Data Reporting: A Triangulated Solution for Estimating Modern Slavery" by Davina P. Durgana and Graham K. Brown, professor of international development, head of Social Sciences, University of Western Australia
- "The Birth of Statistical Graphics and Their European Childhood" by Howard Wainer, statistician and author of *Truth or Truthiness: Distinguishing Fact from Fiction by Learning to Think Like a Data Scientist*

The term "modern slavery" encompasses slavery, forced and compulsory labor and forced commercial sexual exploitation. It is the act of recruiting, harboring, transporting, providing or obtaining a person for compelled labor or commercial sex acts through the use of force, fraud or coercion.

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***About CHANCE***
CHANCE is a publication of the ASA designed for anyone with an interest in using data to advance science, education, and society, highlighting sound statistical science. CHANCE is a non-technical magazine, representing a cultural record of an evolving field, intended to entertain as well as inform.

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