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Spring/Summer 2010

### Research from the UCLA newsroom:

Battlefield camaraderie yields  
long-term dividends for veterans,  
study finds

By Meg Sullivan February 18, 2010

The benefits of wartime camaraderie extend far beyond the battlefield, a new UCLA study of U.S. Civil War veterans suggests.

Veterans who served in military units characterized by a strong *esprit de corps* were much less likely decades later to die of a stroke or heart condition than veterans from less cohesive companies, two UCLA economists have found.

"On the battlefield, you'd expect your buddy to have your back," said Dora Costa, the study's lead author and a UCLA professor of economics. "But the fact that camaraderie provides a protective effect that endures long after the war has ended is a new and surprising finding."

"We're not sure how it works, but somehow, being armed with close social bonds in the extremely stressful situation of battlefield combat has a protective effect that continues long after the fighting has ended," said Matthew Kahn, the study's co-author and a fellow UCLA economics professor. "Men who went into battle with this emotional armor were much less likely in their late 50s and early 60s to fall victim to stress-related illnesses."

The study, which tracked the veterans for up to 68 years, constitutes the first long-term look at the effect of unit cohesion on soldiers' mortality and health at older ages. It is also one of the longest-running studies of the effect of human social bonds on extreme stress. The findings appear in the latest issue of the peer-reviewed scholarly journal *Demography*, which is expected to ship Feb. 19 to subscribers.

Drawing on data amassed by the University of Chicago's Center for Population Economics, Costa and Kahn looked at records for more than 35,000 Union veterans who served between 1861 and 1865 in 303 infantry companies. The economists first determined how many men each company lost, reasoning that the companies with the most losses also experienced the most stress.

They also figured out whether the veterans served with men of shared ethnicity, occupation and other commonalities. Previous research by Costa and Kahn has shown that soldiers who fought in companies with men who shared similar characteristics — a common race, religion, ethnicity, socioeconomic status or hometown — displayed a higher degree of loyalty to one another than their counterparts in more diverse companies.

The researchers then examined meticulously detailed medical records kept by the Pension Bureau — the precursor to today's Department of Veterans Affairs — for the purposes of ascertaining whether the veterans were eligible for age- and disability-related benefits as they aged. In particular, Costa and Kahn looked at whether the

men experienced medical conditions with well-documented links to stress, such as arteriosclerosis, heart attacks and strokes.

Finally, they scoured U.S. Census records from 1850 to 1930 for details of the veterans' lives as they unfolded. The researchers were especially interested in the veterans' economic situation and martial status, two variables that have been shown to have a significant effect on an individual's health.

Even after adjusting for these factors, Costa and Kahn found that veterans from companies lacking in cohesion were six times more likely than peers from cohesive companies to suffer from arteriosclerosis or to have heart attacks or strokes by their late 50s or early 60s.

When translated into total lifespan, the toll was considerable. Of the veterans who died from heart disease or stroke, men who served in an uncohesive company lived one year and four months less than men from a cohesive company.

Costa and Kahn admit they're not sure of the mechanism behind camaraderie's long-term protective influence, but they suspect social bonds somehow moderate stress hormones released either during or after intense battles.

"It may be that you don't have the same release of stress hormones when you go into battle with comrades on whom you feel like you can depend," Costa said.

The study quotes from the journal of a Civil War captain whose personal experiences seem to reinforce this view: "I have always found comforting

in battle the companionship of a friend, one in whom you had confidence, one you felt assured would stand by you until the last," Frank Hollinger wrote.

Having a friendly shoulder to cry on at the end of the day also may help dissipate stress hormones, Costa said.

"If you actually see people being killed, your comrade can say, 'No, no. It's all right. It's not your fault.' "

Also unclear is whether veterans from less cohesive units sustained damage that led to stress-related conditions during the war itself or in the years that followed the conflict.

"One theory is that release of hormones in battle may cause systemic inflammation that later in life leads to heart disease and other potentially fatal diseases," Kahn said.

Alternatively, the absence of camaraderie may have made veterans more likely later on to relive battle trauma in the form of post-traumatic stress syndrome.

"Every time a veteran experiences a PTSD reaction, stress hormones are released again," Costa said. "So PTSD leads to repeated exposure to hormones that may over time lead to damaging inflammation."

The latter theory, the researchers admit, is just conjecture. The Pension Bureau did not track PTSD symptoms because the illness was not accepted into diagnostic literature until more than a century later. Neither did the bureau track symptoms that could be ascribed, with the benefit of hindsight, to

PTSD. Nonetheless, the researchers view the data as a goldmine.

"Many studies have investigated how social networks combat the effects of stress in people," Costa said. "But they've tended to focus on stress generated in a laboratory setting, where researchers naturally would be prevented from inflicting the high levels experienced on a battlefield. The beauty of the Civil War data is it lets us get as close to a randomized, experimental study of extreme stress and social networks as you can ethically get."

The study also takes advantage of record-keeping quirks unique to the era. To ensure delivery of the country's earliest comprehensive benefits for veterans, the Pension Bureau tracked the veterans to their death. Because neither the Pension Bureau's records nor corresponding U.S. Census data is protected by the kinds of privacy safeguards that U.S. citizens now enjoy, the researchers were able to reconstruct a vivid picture of the types of conditions under which the men served and how they fared as they aged.

Moreover, Civil War soldiers who joined one company stayed with that company for their entire tour of duty. Only in very rare cases did companies add new soldiers as old ones were injured or killed. This distinction facilitated tracking the effects of cohesion. By contrast, soldiers repeatedly cycled in and out of companies during World War II and the Korean and Vietnam wars, infinitely complicating such research.

Even though the findings may date from a 145-year-old conflict, the researchers

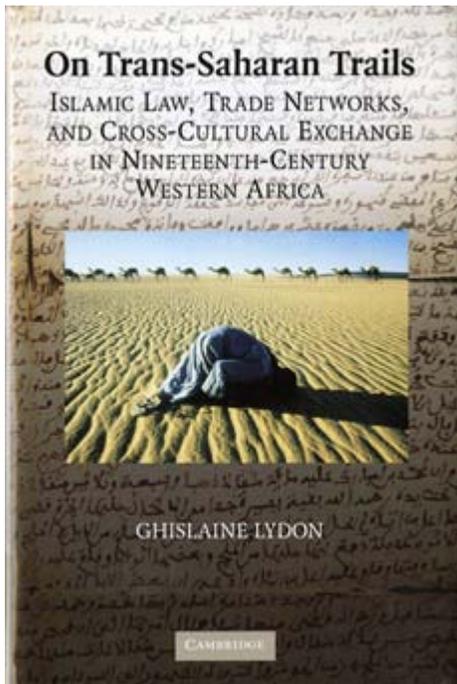
hope they will shed light on contemporary problems.

"Now that we're in the middle of two long-term wars, it's really important to understand what effect combat has on men's long-term health," Costa said. "If we can find strategies for minimizing the long-term toll of the experience on these brave people, we really need to do so."

The project received funding from the National Institutes of Health.

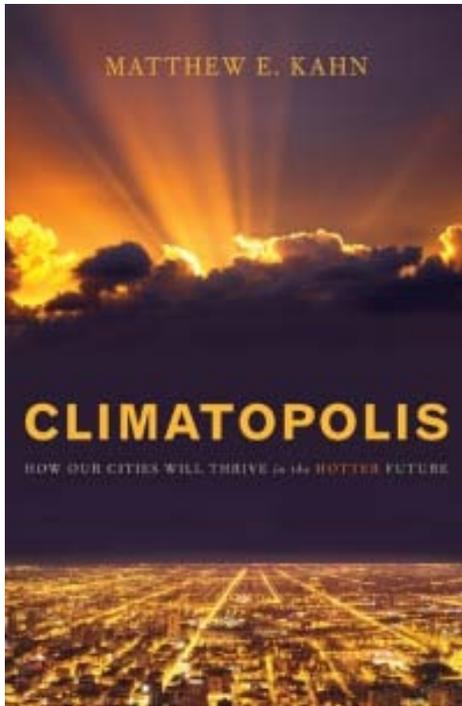
## New Books

Ghislaine Lydon, *On Trans-Saharan Trails: Islamic Law, Trade Networks and Cross-Cultural Exchange in Nineteenth-Century Western Africa* (Cambridge: Cambridge University Press, 2009).



This book explores the history of trans-Saharan trade in western Africa in the nineteenth century. It treats the Sahara as a bridge that connected peoples across the continent. This is the first study of its kind to document the history and organization of trans-Saharan trade in western Africa using original source material. It examines the internal dynamics of a trade network system based on a case-study of the Wad Nun traders who specialized in outfitting camel caravans in the nineteenth century. Through an examination of contracts, correspondence, fatwas, and interviews with retired caravaners, Lydon shows how traders used their literacy skills in Arabic and how they had recourse to experts of Islamic law to regulate their long-distance transactions. The book also considers the methods employed by women participating in caravan trade. By embracing a continental approach, this study bridges the divide between West African and North African studies. The work will be of interest to students of African, Middle Eastern, and world history and to scholars of long-distance trade, Muslim societies, and legal cultures.

Matthew Kahn, *Climatopolis: How Our Cities Will Thrive in the Hotter Future* (New York: Basic Books, 2010)



We have released the genie from the bottle: climate change is coming, and there's no stopping it. The question, according to Matthew Kahn, is not how we're going to avoid a hotter future but how we're going to adapt to it. In *Climatopolis*, Kahn, one of the world's foremost experts on the economics of the environment, argues that cities and regions will adapt to rising temperatures over time, slowly transforming our everyday lives as we change our behaviors and our surroundings. Taking the reader on a tour of the world's cities — from New York to Beijing to Mumbai — Kahn's clear-eyed, engaging, and optimistic message presents a positive yet realistic picture of what our urban future will look like.

“Kahn makes a convincing case that new technology and a free market are essential and that government should not interfere.”  
— **Kirkus**

“Figuring out why I disagree with Matt Kahn’s arguments leaves me seeing the world in a different way. That’s rare. And Kahn writes so well that it’s always a fun ride regardless of where the journey ends. Climatopolis is no exception. Read it for one vision of our hot, humid, hazy future.” —  
**Ray Fisman, co-author of *Economic Gangsters***

## Faculty News

David Jacks is visiting for the fall and winter quarters from Simon Fraser University. He will be holding the Kenneth Sokoloff Visiting Associate Professorship and will teach one undergraduate course. His expertise is in the field of trade.

Leah Boustan received a seed grant from the Center for Economic History to study migrant assimilation and labor market performance in the late nineteenth and early twentieth century. She is examining whether migrants outperformed natives in the labor market upon arrival and whether their earnings rose more rapidly with age than those of the native-born. If yes, then the mass migration of late 19th and early 20th century may have contributed to economic growth in the US by importing human capital to the country. If no, then the US growth record during this period was all the more impressive for having taken place despite the steady influx of low-skilled migrants into the labor force.

## Graduate Student News

Allison Shertzer received a dissertation year fellowship from the Graduate Division and a topping-off stipend from the Center for Economic History.

Allison is examining how new immigrants to the US began to participate in politics and whether laws increasing the age at which children could leave school were effective in reducing child labor among immigrants.

Matthew Hill received a fellowship from the Center for Economic History. Matt is examining the effect of the Great Depression and of the post-World War II housing boom on marriage rates. This summer Matt presented a poster of his work at the National Bureau of Economic Research in Cambridge, MA.

Molly Ball is returning to UCLA after spending all of 2009-2010 in Brazil doing research for her thesis with the help of a seed grant from the Center. She is exploring the impact of education, immigration, gender and technology on wage inequality and employment opportunities in São Paulo, Brazil at the beginning of the twentieth century.

Maura Dykstra will be in China all of 2010-2011. She is studying how commercial disputes were resolved from 1875 to 1949 through local court institutions and merchant associations. Her study will help us understand how central politics, legal reform, institutional development, and social networks shaped market behaviors and provided opportunities for the growth of exchange. Funds from the Center will assist her data collection.

Peter Zeitz has accepted a professorship at the National University of Singapore. Before joining, he is doing a post-doctoral fellowship at Stanford University.

## Undergraduate Student News

Elena Moroz and Svetlana Pimkina have been working with Professor William Summerhill on two projects. The first project is on inequality and development in São Paulo, Brazil. The preliminary findings suggest that the relationship between inequality and underdevelopment can be much weaker than suggested by the cross-country literature. The second project with which they have been engaged is one on the politics of sovereign debt in the nineteenth century.

Yasi Cheroudi has been working with Professor Leah Boustan as an undergraduate research assistant for the summer of 2010. Professor Boustan is working on a book project, *Black Migration and the Transformation of Northern Cities, 1940-1970*.

Kaylin Denison and Joelle Gamble are working with Professor Ghislaine Lydon on the analysis of both primary and secondary sources describing African trade.

## Conferences

October 1, 2010 *Financial Crises and Real Estate Bubbles*

November 5, 2010 *Economic History and Development*

May 13, 2011 *Public Policy Challenges:  
Housing, Retirement, and Immigration*

There will be an additional conference in the spring. Please check our website for more information.

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