Does the Political Legacy of Slavery Live On?

White Southerners who live today in former slavery strongholds—a region known as the Cotton Belt—are more likely to express negative attitudes toward blacks than their fellow white Southerners who live in areas that had few slaves.

Residents of the regions where slavery was predominate are also more likely to identify as Republican and to express opposition to race-related policies such as affirmative action.

That's according to a county-by-county analysis of census data and opinion polls of more than 39,000 southern whites.

Conducted by **Avidit Acharya**, **Matthew Blackwell**, and **Maya Sen**, all assistant professors of political science, the research is believed to be the first to demonstrate quantitatively the lasting effects of slavery on contemporary political attitudes in the South. The findings hold even when other dynamics often associated with racial animosity are factored in, such as present-day concentrations of African Americans in an area, or whether an area is urban or rural.

The findings were reported at the Politics of Race, Immigration, and Ethnicity Consortium at the University of California at Riverside in September.

How is it possible that an institution so long ago outlawed continues to influence views in the 21st century? The authors point to economic and cultural explanations. Although slavery was banned, the economic incentives to exploit former slaves persisted well into the 20th century.

"Before mechanization, cotton was not really economically viable without massive amounts of cheap labor," says Sen. After the Civil War, southern landowners resorted to racial violence and Jim Crow laws to coerce black field hands, depress wages, and tie tenant farmers to plantations.

The researchers also found evidence of the relationship between racial violence and economics in the historical record of lynchings. Between 1882 and 1930, lynching rates were highest where cotton was king.

By the time economic incentives to coerce black labor subsided with the introduction of machinery to harvest cotton in the 1930s, anti-black sentiment was culturally entrenched among local whites, the authors write.

Those views have simply been passed down, they argue, citing extensive research showing that children often inherit the political attitudes of parents and peers.

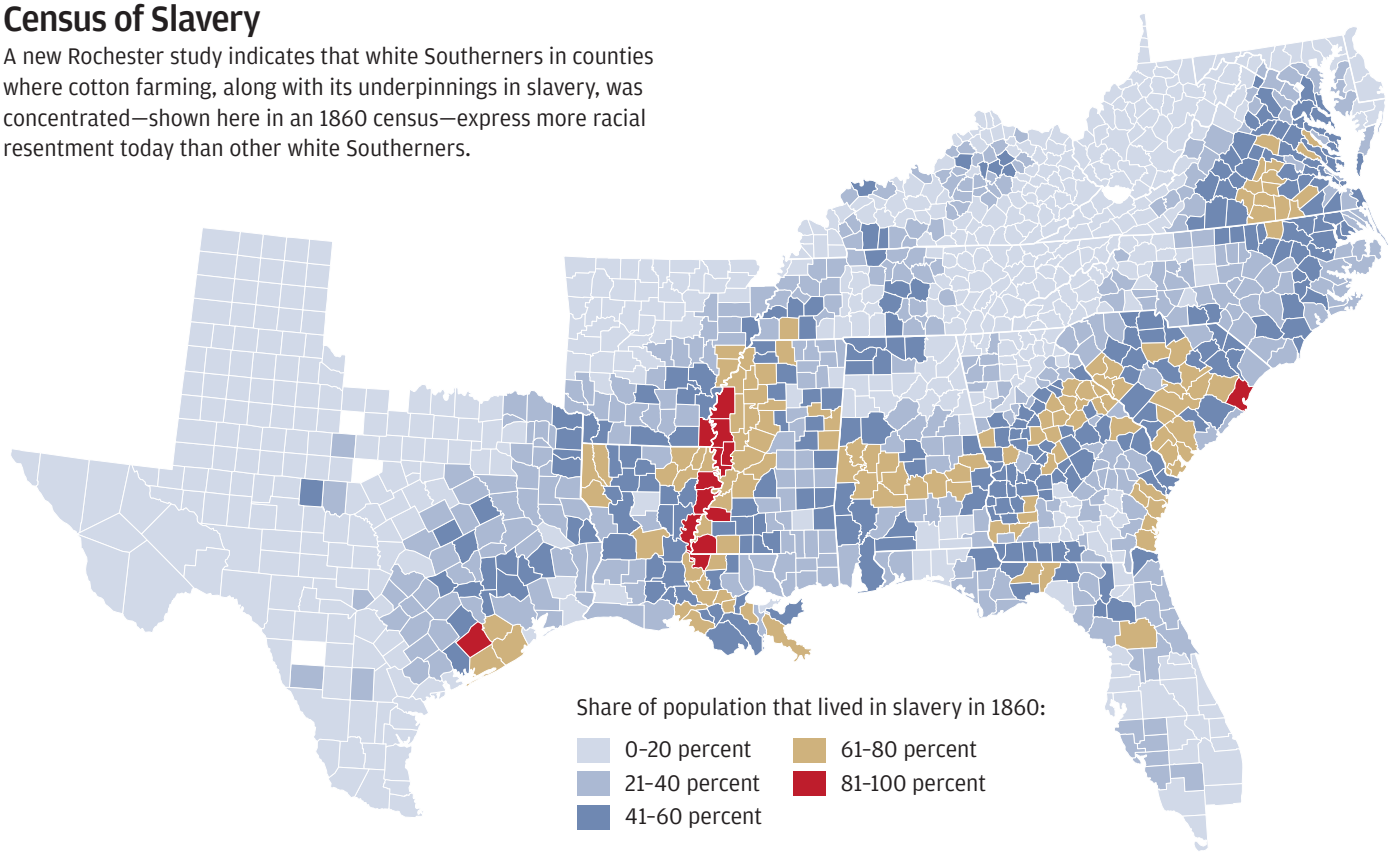
The data, says Sen, point to the importance of institutional and historical legacy when understanding political views. Most quantitative studies of voters rely on contemporary influences, such as education, income, or degree of urbanity.

The findings are also in line with research on the lingering economic effects of slavery. Studies have shown that former slave populations in Africa, South and Central America, and the United States continue to experience disparity in income, school enrollment, and vaccinations.

—Susan Hagen

Census of Slavery

A new Rochester study indicates that white Southerners in counties where cotton farming, along with its underpinnings in slavery, was concentrated—shown here in an 1860 census—express more racial resentment today than other white Southerners.



Copper May Be Culprit in Alzheimer's

Copper appears to be one of the main environmental factors that trigger the onset and enhance the progression of Alzheimer's disease, according to a Medical Center study. The results, published in the journal *Proceedings of the National Academy of Sciences*, indicate that the mineral plays a role in how toxic proteins are processed in the brain.

Found throughout the food chain—in red meats, shellfish, nuts, and many fruits and vegetables, as well as in water carried by copper pipes and nutritional supplements—copper plays an important and beneficial role in nerve conduction, bone growth, the formation of connective tissue, and hormone secretion.

But the new study indicates that copper can also cause the system that controls what enters and exits the brain to break down, resulting in a toxic accumulation of the protein amyloid beta, a by-product of cellular activity.

"It's clear that, over time, copper's cumulative effect is to impair the systems by which amyloid beta is removed from the brain," says lead author **Rashid Deane**, research professor in the Department of Neurosurgery and a member of the Center for Translational Neuromedicine.

Under healthy circumstances, other proteins in the brain work to remove amyloid beta. But researchers found that once copper made its way to the brain, the mineral stimulated activity in neurons that increased the production of amyloid beta. The copper also interacted with amyloid beta in a manner that caused the proteins to bind together in larger complexes, creating logjams that the brain's waste disposal system couldn't clear.

That one-two punch, inhibiting the clearance and stimulating the production of amyloid beta, provides strong evidence that copper is a key player in Alzheimer's disease. In addition, the researchers observed that copper provoked inflammation of brain tissue, which may further promote the breakdown of the blood-brain barrier and the accumulation of toxins.

Researchers say the findings must be interpreted with caution because copper is essential to many functions of the body.

"The key will be striking the right balance between too little and too much copper consumption. Right now we cannot say what the right level will be, but diet may ultimately play an important role in regulating this process," says Deane.

—Mark Michaud

GREENLAND GAS: New research indicates a surprising decline in atmospheric carbon monoxide over the past 60 years.

Carbon Monoxide: Going Down?

A first-ever study of air trapped in the deep snowpack of Greenland shows that atmospheric levels of carbon monoxide over Greenland in the 1950s were slightly higher than those of today. The finding is a surprise because computer models had calculated a 40 percent overall increase in concentrations of the airborne pollutant over the past half century.

Vasilli Petrenko, assistant professor of earth and environmental sciences, reported in the journal *Atmospheric Chemistry and Physics* that carbon monoxide levels rose slightly from 1950 until the 1970s, then declined significantly to present-day levels.

Cleaner automobile combustion—particularly the use of catalytic converters—appears to have driven the improvement. Petrenko says such technological improvements may have had an even stronger impact than is apparent from his data because burning firewood—a major source of carbon monoxide—continues to be used widely in south Asia.

As that region's population has grown, corresponding increases in carbon monoxide may have been offset by decreases in other parts of the world.

"In order for computer models to get things right, it's important to have accurate historical records," says Petrenko. "Until now, we haven't had enough reliable data on carbon monoxide concentrations. This work helps to fill that gap."

—Peter Iglinski

Familiar Devices Bring Autism Help

Your iPod may be a source of favorite music for you, but for families of children with autism, it can serve as an important quality-of-life tool.

A new device developed by Rochester researchers is showing promise in reducing the time and effort required to toilet train children with autism and other developmental disabilities.

Daniel Mruzek, associate professor of pediatrics, and Stephen McAleavey, associate professor of biomedical engineering, used common items to construct their device: sterile pads, a sensor, a Bluetooth-enabled transmitter, and an iPod. **Dan Hansen**, a freshman computer science major, wrote software for the project.

A drop of urine on the pad sends a signal to the iPod, triggering a sound or piece of music. At the same time, an alarm sounds on an iPod worn by a caregiver, who can then assist the child in using the toilet. Success brings a game, song, or photo reward from the iPod.

Research shows that it can take a family 18 months to toilet train a child with autism or another developmental disability. In the first pilot test of the device, that time was reduced to only a few weeks.

The University is collaborating with Vanderbilt University and Nationwide Children's Hospital on a new round of clinical testing with the device.

—Peter Iglinski

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