

## Researcher develops living wage calculator

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With income inequality emerging as an issue in the 2016 U.S. presidential elections, you may well begin to see references to MIT's [Living Wage Calculator](#) (LWC). This online spreadsheet lets anyone calculate a wage required to make ends meet, adjusted for every community in the U.S. The LWC was recently updated with fresh information on a wider variety of cost of living data, making it more relevant than ever.

Companies such as Ikea have used the calculator to set the floor under wages at their stores around the U.S. Many government officials rely on it to set wages and policies. Minimum wage activists, union organizers, and thousands of individuals have turned to the calculator to help negotiate [wage increases](#).

Despite the LWC's reputation for impartiality and reliability, project leader Amy Glasmeier doesn't pretend to be impartial on the message it sends.

"We built the Living Wage Calculator to argue that the minimum wage was insufficient to raise a family," says Glasmeier, a professor of economic geography and economic development in MIT's School of Architecture and Planning. "Wages are 20 years out of date, and the people who babysit your children or wash your car or mow your grass are not making enough money to make ends meet."

Glasmeier's concerns about income inequality and interest in how resource availability is affected by geography inform much of the work

of her Lab on Regional Innovation and Spatial Analysis (LRISA). With the growing array of tools built around Geographical Information Systems (GIS), economic geographers at LRISA can examine trends from a geographic perspective or model processes and see how they change over time. "We analyze information that describes the world spatially," Glasmeier says.

Much of LRISA's research examines the persistent problems of poverty, with a special focus on the lack of access to resources in rural America. Yet, the group also studies topics including veterans' health care, power plant siting, and public access to healthy food.

In 2013, LRISA worked with the Commonwealth of Massachusetts Office of Veterans' Services to upgrade the state plan for long-term care. Glasmeier compared the spatial distribution of veterans in the state with available veterans homes, and examined factors including changing demographics and the trend toward home care.

The project is also factoring in the rise of traumatic brain injury and post-traumatic stress among veterans returning from Iraq and Afghanistan. For the last five years, Glasmeier has been collaborating with the U.S. Department of Defense on a study of post-traumatic stress, focusing on the spatial location of affected veterans and care facilities.

LRISA also recently launched a project to help identify which Chinese power plants are the best candidates to switch from coal to natural gas. The project is inspired by a larger "Sustainable Real Estate" program that Hong Kong real estate investor Samuel Lee launched at MIT earlier this year with an \$118 million investment. Glasmeier's map tool was originally funded by the MIT Energy Initiative (MITEI). This summer she will examine the spatial distribution of the plants and identify those that will profit from switching to natural gas. Project results aim to identify properties that will likely open up for redevelopment.

## Living Wage Calculator centers wage debate

In the early 1990s, Glasmeier began studying the [spatial distribution](#) of poverty in the U.S. By 1996, she discovered that poverty was returning to many places where it had significantly declined since the 1960s. "A lot of the jobs that had been held by men in these communities had disappeared," she says. "Without these primary wage earners, the families were unable to adjust, and they sank back into poverty."

In the early 2000s, Glasmeier received a grant from the Ford Foundation to take a closer look at the distribution of poverty across the U.S. As part of the project, she developed MIT's first Living Wage Calculator in 2003. At the time, the calculators available from the University of Washington in Seattle and at the Economic Policy Institute (EPI) did not fully meet her research needs. Glasmeier integrated parts of the EPI design, but the LWC was largely developed from scratch, in order to add a spatial perspective and embed the calculator in an economic development tool kit.

The original LWC depended heavily on the U.S. Census long form, which included factors such as housing quality. In 2010, however, the Census Bureau replaced the long form with a sample-based survey, which "reduced the information we could get and changed the configuration of some of our variables," explains Glasmeier. As a result, "we decided to change a lot of the calculator to add different data, and with a finer quality."

Traffic to the LWC site has grown over the years, but the project was boosted into the limelight when Ikea embraced it in 2014. When a journalist from CNBC's Nightly Business Report informed Glasmeier that Ikea had adopted the calculator to set minimum wages in its U.S. facilities, Glasmeier contacted Ikea and provided the company with updated data. "They told me they chose the LWC because it was durable,

and since it came from MIT, they figured it was calculated correctly," she adds.

Since then, more companies have begun using the LWC in order to adjust wages—almost always upward—to better reflect differences in the cost of living across the U.S. "Traditionally, companies have been primarily concerned about rising rates and how to adjust their capital labor ratio accordingly, but more and more are also interested in paying a living wage," says Glasmeier.

According to LRISA statistics released in May, based on a 2014 survey of 50,846,234 households, 37.6 percent of American families earned less than what the group has defined as the living wage, a figure that varies considerably depending on where you live. The calculation ensures enough income for housing, food, clothing, transportation, health care, child care, and taxes. More controversially among those opposed to increasing the minimum wage, the calculation also factors in a limited amount of leisure and recreational activities, as well as workplace training. It does not, however, include foreign travel or other luxury expenditures.

That 37.6 percent figure includes the 20.3 percent of families that fall below the U.S. government's "poverty line." Most of the 17.3 percent of families under the living wage line, but above the poverty line, are ineligible for services such as the Supplemental Nutrition Assistance Program and Free and Reduced Price School Lunches.

According to LRISA, the states with the lowest percentages under the living wage—Maryland, North Dakota and Washington, plus Washington D.C.—have all legislated living wage ordinances except for booming North Dakota. The living wage is the highest in the Northeast, followed by the West, the South, and the Midwest, according to LRISA's research.

## **Rural workers bear brunt of rising costs**

Of all the revelations from the calculator, the one that tends to surprise people the most is the extent that child care and housing can eat into a paycheck. "Most people are still not aware that families typically have two wage earners and need to pay for childcare," says Glasmeier. "Child care can even be a larger expenditure than housing if you have an infant, which can cost \$1,000 a month. You can't afford to work for [minimum wage](#) and pay for licensed childcare."

Another surprise is that rural housing is often comparatively more expensive for low-wage earners. "In most rural locations, there's not much to rent, so the rents tend to be high," says Glasmeier.

Transportation costs also tend to be higher in the country. "In small cities and rural areas you rarely have good public transportation," says Glasmeier. "Unlike most urban workers, rural workers have to buy a car and pay for insurance, gas, and repairs."

Despite the fact that rural workers often work in agriculture, food prices are often higher than in cities. "Some studies have suggested that in bigger cities you can find a greater variety of food, and you can shop around to find the lowest price," Glasmeier says.

Such generalizations only go so far, however, in the highly diversified U.S. economic landscape, which is why a detailed calculator is so important. In addition, the cost of living can change quickly in a given area, while staying the same in a nearby area with a similar profile, says Glasmeier. For example, in some rural areas, such as parts of North Carolina, employers feel they can pay lower wages when in fact, an influx of Northern migrants has created a tighter housing market, leading to higher costs.

This summer, LRISA is making its first major update of the LWC since 2010. The new calculator, which is based on 2014 data, aggregates county-level data to create estimates for metropolitan areas living wage estimates. Among other fixes and changes, data for health, transportation, and other necessities from the Consumer Expenditure Survey was calculated using values rather than shares of expenditures. Transportation expenditures now include a value for "other vehicles" for family sizes of three and five, and supplementary analysis eliminates families headed by 65-and-over adults.

## Challenges of building a global calculator

Glasmeier was recently asked by a luxury retailer how one might build a calculator to estimate a living wage for all its global sites. "It's a challenge because you can't always find the same kind of information in other countries," Glasmeier says. "In the U.S. we integrate data from a wide variety of organizations, but many countries lack such reporting, or lack the organizational diversity to provide the data in the first place."

To come up with at least a rough estimate, she plans to call on the School of Architecture and Planning's global network of MIT colleagues. Glasmeier figures she can call on MIT-related volunteers in all of the world's major cities to help fine-tune existing variables in order to calculate a living wage.

In most countries, the difference in incomes is even starker than in the increasingly unequal U.S. "You have people making a dollar a day and another person in the same community living in a palace," Glasmeier says. "That makes it difficult to norm the values so they are useful."

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