PolicyMap Democratizes Data Analysis

CHARTING

PROGRESS

By Alex Ulam

HOUSING COSTS ARE SPIRALING UPWARD IN MANY AREAS THROUGHOUT THE UNITED STATES, cutting down on the ability of Americans to save and leading to the gentrification of formerly affordable neighborhoods. However, as with many public policy challenges, it is not always immediately apparent where problems are the most acute. This became clear to Helen Campbell, an analyst in Los Angeles's Housing + Community Investment Department, late on a Friday afternoon in July. An information request from the mayor's office led her to discover that a large part of the San Fernando Valley in L.A. was home to the nation's highest rental cost burden, which the U.S. Department of Housing and Urban Development (HUD) defines as a situation where families are paying more than 30 percent of their income on renting a home.

Los Angeles officials knew they had areas where home owners and renters were struggling to pay for housing, says Campbell, but they had no idea how severe the situation was or even where it was most pronounced. The mayor's office needed authoritative data on this troubling trend for a lobbying effort to preserve the HOME

Investment Partnerships Program (HOME), the largest federal block grant program for affordable housing. Currently, in Washington, DC, lawmakers are considering a Senate bill that would eviscerate the program.

If Campbell had used conventional geographic information software (GIS), it would have taken her an inordinate amount of time to analyze the city's housing cost burden. But she was able to access the necessary information quickly by typing several simple queries into PolicyMap— a unique web-based software program that is changing the way that planning data is gathered and displayed. "If we didn't have PolicyMap, we simply would have said no to the request," Campbell says, "It would have taken too many hours to do the work."

When Campbell ran her PolicyMap search, she discovered that the 29th Congressional District, part of which is situated within the city of Los Angeles, was, out of all of the 435 congressional districts in the country, number one in terms of rental cost burden and number three in terms of home owner cost burden. Those rankings for the 29th Congressional District,

which includes a large part of the San Fernando Valley, translate into 62.9 percent of renters and slightly more than 50 percent of home owners there suffering from a housing cost burden. "We thought that South L.A. or Northeast L.A. would have higher rent burdens, but you have Valley as being the higher rent burden," Campbell says.

Public Data for All

Since its launch in 2007, PolicyMap has grown into the largest geographic database on the web, and become the go-to public information resource for financial institutions, universities, nonprofits, and close to 2,500 government agencies. The online tool currently has more than 37,000 indicators, on categories ranging from crime to grocery store access, making the world of public data significantly easier to parse. Last year, the site had 434,000 unique visitors. Most of the data housed on PolicyMap is free, but proprietary data is available from various providers through paid subscriptions. Overall, PolicyMap's easy-to-use mapping tools have

helped democratize data analysis by making the process relatively affordable for nonprofits and local governments, which usually don't have the resources to hire teams of GIS specialists. The site can help anyone in the public policy world avoid getting stuck on the wrong side of the widening digital divide.

One of the website's most notable attributes is its capacity to simultaneously display various types of indicators, such as Superfund Sites, neighborhood income levels, or developments built with low-income housing tax credits. That capacity can facilitate contemporary planning initiatives, like the Obama administration's Promise Zone or Choice Neighborhood programs, which require interagency collaboration and emphasize coordination of various types of investments in underserved areas.

PolicyMap also allows users to chart the effectiveness of particular programs over a period of time, helping them reap rewards or cut their losses down the road. Although government money is primarily doled out through formulas, there has been a marked increase in competitive grant programs that require progress reports and data that details evidence of needs. When it comes to competitive grants, according to Lincoln

This color-coded map juxtaposes the percentage of people in poverty and the location of Superfund and brownfields sites in the Washington, DC, area. Credit: PolicyMap

Institute President and CEO George W. McCarthy, "cities that have better data, and put together more polished proposals, are obviously going to have an advantage over those that don't."

The Starting Point

PolicyMap is the brainchild of The Reinvestment Fund (TRF), a Philadelphia-based Community Development Financial Institution (CDFI), which has $839 million in capital under management, and which invests in low-wealth people and neighborhoods. The organization finances a wide array of community building blocks, such as affordable housing developments, daycare centers, and grocery stores. PolicyMap was born out of TRF's need to track how these community programs were working on the ground.

In the early 2000s, TRF began exploring ways to map and understand the impact of its own investments. "We were looking at where we were making investments over time," says PolicyMap President Maggie McCullough, who was then a researcher with TRF's Policy Department. "We also wanted to know what kind of impact we were making—how we had changed the markets in which we were working."

In 2005, the state of Pennsylvania hired TRF to collect and map a vast amount of data on housing prices, foreclosures, and incomes. The project's goal was to enable officials to think more strategically about how state money was being spent on housing throughout the state. But even with a contract worth almost $200,000, there were limitations to what TRF could do. The data and maps were trapped in a fixed format on a disk. "After we handed the disk over," McCullough says, "I remember thinking that it was going to be like a paper report that sat on a shelf and was never going to get updated."

That epiphany inspired McCullough and others at TRF to brainstorm on how to build a dynamic web-based mapping platform—one that would allow datasets to be refreshed and enable users to upload their own databases. In developing PolicyMap, McCullough was able to draw on her background as one of the pioneers in designing web portals for public information. In

the 1990s, she was part of the team that built the U.S. Department of Housing and Urban Development's (HUD) initial web presence. "My experience [at] HUD made me realize that if people [other than] researchers needed or wanted to understand data, we had to make it easier to understand," says McCullough. "We had to give data indicators common names and simple descriptions, just like we had to give HUD programs common names."

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McCullough wanted PolicyMap to serve the entire country, unlike other data initiatives that focused on local geographies. Upon PolicyMap's launch in 2007, "there really wasn't any online GIS," McCullough explains. "You could get driving directions and find a local restaurant with Google Maps, but a lot of that GIS software was locked on desktops. We wanted to create something that the public could access simply, over the web."

The first dataset that TRF loaded onto PolicyMap in 2007 was comprised of reports from the Home Mortgage Disclosure Act (HMDA), the government's most important data source for spotting predatory and discriminatory lending. At the time, the housing bubble was bursting, and officials from government and law enforcement were scrambling to get a grip on the burgeoning crisis; the HMDA data was one of the first places where they would look for information. But HMDA data wasn't arranged in GIS user-friendly format, making certain types of searches extremely difficult. For example, if a researcher with a background in GIS wanted to zero in on a section of Detroit where she suspected there might have been a flood of high-cost loans, there was no online tool available to extract the HMDA data for that particular area.

PolicyMap's initial success making data publicly available helped attract prominent paying customers—including the Federal Reserve Board in Washington, DC, which was
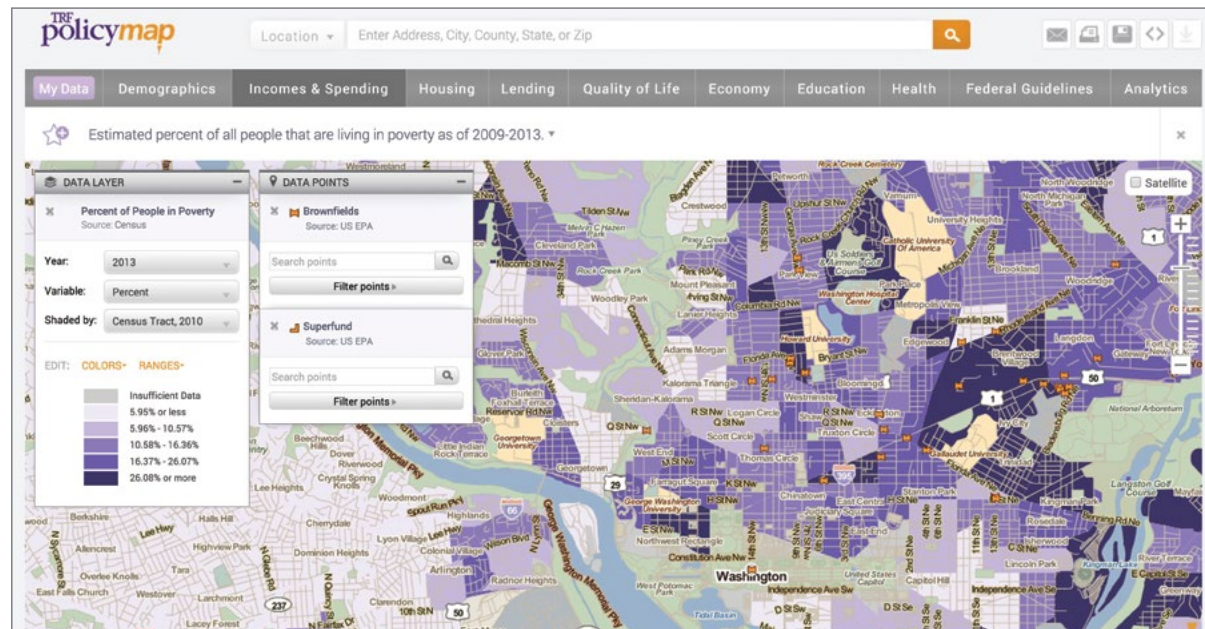
in charge of collecting the HMDA data at the time. In addition to loading all of the HMDA data for mapping purposes and making it available to the general public, McCullough's team custom-built a reporting tool within PolicyMap for the Fed that enabled its staffers to pull out HMDA data for any locale they wanted to study. Says McCullough, "We had made it easier for [The Fed] to access its own data."
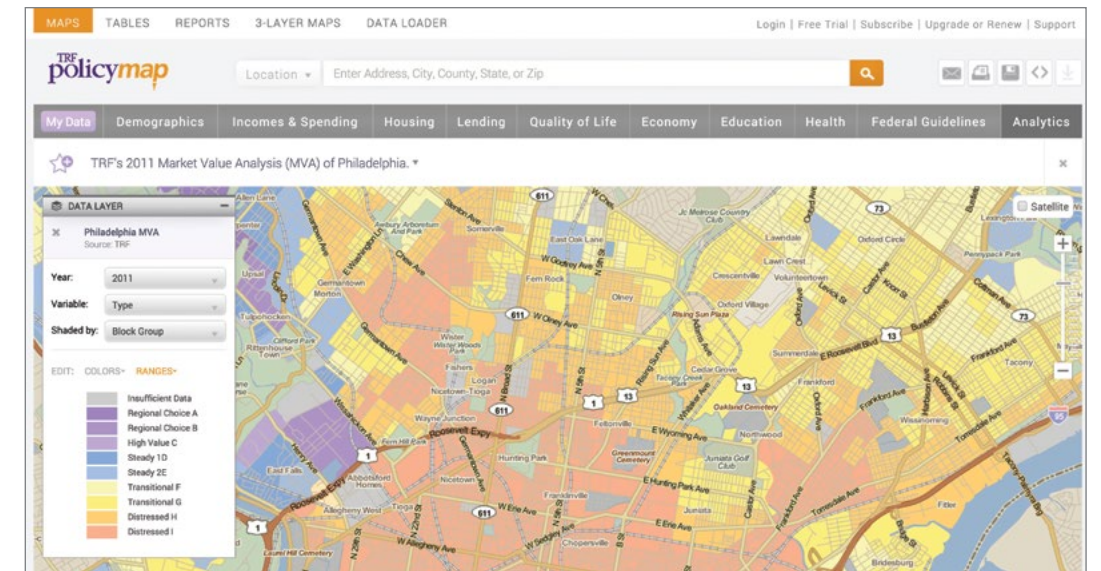
Leveling the Playing Field

Big lenders and real estate investors typically have in their toolkits subscriptions that can cost in the six figures for access to services that provide proprietary information such as property evaluation reports and in-depth market research. But many community-based organizations and local governments can't afford to buy such licensed data. And even if they could afford expensive subscriptions, many community organizations and local governments lack the staffers or GIS capabilities to use it on interactive maps.

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Take NeighborWorks, a national network of 240 community-based organizations that doesn't have a GIS specialist on staff. Harry Segal, a performance and planning specialist at NeighborWorks America, says that PolicyMap has changed the equation for his network by giving them access to data and mapping tools that they couldn't otherwise afford. "Any developer, public or private, trying to move into a new neighborhood has to court the powers that be and demonstrate an understanding of local market conditions," Segal says. "It's much more difficult for nonprofit organizations to compile this sort of data." Without PolicyMap, he says, "the juice almost isn't worth the squeeze."

NeighborWorks' PolicyMap subscription, which costs $5,000 per year, provides access to this kind of proprietary data and allows the organization's members to query different sections of a map for information on a variety of indicators such as the average income of residents within a certain neighborhood and the level of high-cost mortgages that have been made there. This ability to look at different geographic scales empowers local community groups that are trying to access funding or call attention to predatory lending in their neighborhoods. "We have a couple of organizations in upstate New York. If you are looking at statistics on that region, they are going to be heavily skewed by New York City," Segal says. "But with PolicyMap, we can pull up data by census tract or block group."

Some city agencies also lack the capability to design or maintain the types of databases that they can now get through a PolicyMap subscription. "I am the only person here who has GIS capabilities," says Sara Eaves, a planning and policy analyst for the San Antonio Housing Authority. She adds that PolicyMap allows many people in her office to perform tasks that would otherwise require specialized training. Through their PolicyMap subscription, the San Antonio Housing Authority also makes data publicly available about schools, residential vacancy rates, neighborhood income levels, and other information that a city resident might want to consider when deciding where to buy a house or rent an apartment. "We could maintain similar databases in-house, but we don't have the resources. PolicyMap has allowed us to put interactive maps on our website, which is making the information available not just internally, but to the general public as well."

Streamlining the Process for Cities and Community Groups

Many policy analysts use both full-blown GIS software, such as Esri, and the simplified GIS tools available on PolicyMap. Campbell from the Los Angeles Department of Housing + Communi-

The Reinvestment Fund's market value analysis map of Philadelphia evaluates census blocks according to indicators such as home sale activity, vacancy rates, and foreclosures. Credit: PolicyMap

ty Development says that Esri offers the ability to do forecasts and run certain types of complex analyses that are not possible with PolicyMap. But she notes that PolicyMap saves her time and makes it easier to explain her research to laypeople. "I like PolicyMap because it is just based on facts and it is irrefutable," she says, whereas Esri contains predictions about the future. "Sometimes, when you hand someone a community analysis report with Esri data, it may be too much information for them to digest. There will be 2005, 2010, and 2015 information. But for the 2020 information, there is a formula for how they created that forecast, which we may not need, and which may be wrong."

PolicyMap is also flexible enough to respond to users' changing needs. As data requirements have become larger and more complex, long-time PolicyMap customers have requested new tools to help improve efficiency. For instance, Melissa Long, the deputy director of Philadelphia's Office of Housing and Community Development, had been using PolicyMap to display aggregated and cleaned-up census data. But several years ago, she realized that her agency needed more comprehensive analytic tools in order to apply for the increasing number of grants that are being awarded on a competitive basis.

"We needed a lot of neighborhood demographic information, and we needed to know what types of city programs were being deployed," Long says, noting that having city data available on

PolicyMap has improved the coordination among different city agencies and better positioned the city to apply for competitive grants.

Long says the tools that PolicyMap has developed for Philadelphia will enable the city to monitor its progress while implementing a Choice Neighborhoods Implementation Grant, which supports locally driven strategies to address struggling neighborhoods with distressed public or HUD-assisted housing. "The grant covers a five-year period. If we look and see that our neighborhood stabilization proposal is not working," she says, "then we can make midterm grant corrections."

Being able to map different types of data simultaneously also lets researchers chart the co-benefits from a particular investment. For example, two different programs in Philadelphia involve cleaning up and greening vacant lots. PolicyMap lets users see the lots rehabilitated by both programs simultaneously, and study whether they have improved the quality of life in surrounding neighborhoods. Philadelphia's contract with PolicyMap has made it possible to overlay data from multiple studies—such as one from University of Pennsylvania's Wharton School

that showed how real estate values rose 17 percent on average around the cleaned-up lots, and another that showed how gun crime dropped significantly in the areas around them. A third co-benefit is the several hundred summer jobs that are tied to keeping the rehabilitated lots in good shape. "You cannot just look at housing alone," Long says. One has to consider "all the other things going on in a neighborhood."

One of PolicyMap's most popular analytic tools is the Market Value Analysis (MVA), which TRF developed for Philadelphia and has replicated in about 18 other cities. MVAs evaluate the strength of different areas of a city by looking at color-coded sections of a map that denote assigned values, which range from "Distressed" to "Regional Choice," which is the highest rating. The rankings are established using a technique called Cluster Analysis, which evaluates census blocks based on groups of indicators, such as home sale activity, vacancy rates, and foreclosures. When you click on any section of the map, a table pops up to reveal the data that was used to determine the ranking for that specific area. The Regional Choice Neighborhoods, McCullough says, are generally defined by strong sales values, low vacancy rates, and a mixture of home owners and renters.

Those MVAs provide government agencies and nonprofits the information they need to address an area's specific problems, says the Lincoln Institute's McCarthy. "You want to get the best bang for your buck from public money," he says. "In the really terrible neighborhoods, that might mean investing in large-scale demolition to accelerate the reuse of properties. In a transitional neighborhood, you might want to acquire abandoned homes and fix them up."

The Road Ahead

The PolicyMap team often releases new indices and new tools right on the heels of court decisions and agency rulings This past July, for instance, McCullough and her team released the Racially and Ethnically Concentrated Areas of Poverty (RCAP/ECAP) index, which is used to identify U.S. Census tracts that have both a high proportion of nonwhite individuals and people living below the poverty line. McCullough says that her team anticipated the Supreme Court's ruling in June on "disparate impacts" in housing practices and, several months earlier, had started developing the index to help individuals and organizations understand the issues related to the court's decision. "The timing was great," she says. "When [the Supreme Court decision] happened, we were ready to go."

PolicyMap is still missing major data sets that McCullough would like to upload, to help researchers get a better picture on critical issues facing the country. For example, McCullough says that she has long wanted to incorporate national foreclosure data as part of PolicyMap's efforts to track factors influencing home sale prices, but it's difficult to find comprehensive and authoritative foreclosure data sets. Plus, it's still prohibitively expensive to purchase licenses for the foreclosure data from private vendors. PolicyMap clients have also expressed interest in accessing credit scores—some of the most difficult data to obtain. "We couldn't even get permission from the credit-score agencies to license the data," McCullough says. "And if we were going to get it from them, it would be aggregated at a high geography, [like] at a statewide level."

Meanwhile, PolicyMap will get one of its biggest-ever data resources this coming October, with the first segment of a project tentatively titled "State of the Nation's Land," subsidized by the Lincoln Institute. "State of the Nation's Land" will include a collection of 18 huge databases from 150 different government agencies, covering criteria such as heavily polluted sites, public investments in land, flood zones, and zoning information.

The Lincoln Institute project is intended to help government agencies do their jobs better and provide average citizens with tools they can use to hold their elected officials more accountable. It should also shed more light on some our country's most vexing problems, like the persistence of poverty in certain areas or reverse redlining, when minority consumers are targeted for loans on unfavorable terms. Ultimately, however—as with the discovery that the San Fernando Valley is in fact the most unaffordable place to live in the country relative to local residents' income—we cannot even anticipate some of the most interesting facts and trends that will be unearthed in the future, as more researchers get savvy about navigating PolicyMap.

"Every time I get into PolicyMap, I start looking at new things," says McCarthy. "There is a whole process of discovery that I go through, and it's very illuminating."

Alex Ulam is a journalist who focuses on architecture, landscape architecture, urban planning issues, and housing.