Increasing Access to Infrastructure and Property Values through Urban Investment in Mexico

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Sector(s): Finance, Political Economy and Governance

Location: Mexico

Sample: 370 neighborhoods

Target group: Urban population

Outcome of interest: Energy access Housing stability Water access

Intervention type: Housing and neighborhoods Infrastructure

AEA RCT registration number: AEARCTR-0001640

Data: Download Dataset from Open ICPSR

Research Papers: The Neighborhood Impacts of Local Infrastructure Investment: Evidence from Urba...

Partner organization(s): Inter-American Development Bank (IDB), Government of Mexico Social Development Secretariat (SEDESOL)

The absence of urban infrastructure like roads and sidewalks, street lights, water and sewage networks, and garbage removal can hinder communities' potential to grow and be productive. In this study researchers evaluated the impacts of a $68 million infrastructure investment program in Mexico on urban residents' access to infrastructure, property values, private investment, moving rates, and community cohesion. The study found that access to infrastructure and property values improved in neighborhoods participating in the program. Private investment in these neighborhoods also increased; moving rates decreased, and data suggests that safety improved as a result of the program.

Policy issue

Poor maintenance or lack of urban infrastructure like roads and sidewalks, street lights, water and sewage networks, and garbage removal can hinder communities' potential to develop and become productive and vibrant. Yet these types of local infrastructure and services are a key ingredient for economic growth: Infrastructure projects create jobs in the short term and raise overall economic productivity in the long term by reducing costs for activities like transportation and improving efficiency for

neighborhood residents.[1]

Past research by J-PAL affiliated researchers has identified positive impacts of road paving, and new home construction on community development. However, there are few quantitative estimates of the degree to which infrastructure improvements actually reach local residents, or of the degree to which improvements affect property values, private investment, and community cohesion.

Context of the evaluation

Mexico's economy has expanded rapidly in recent decades, and life expectancy and GDP have increased dramatically. Rates of income inequality, however, are among the highest in the world,and a dramatic increase in violent crime in the last decades has put pressure on the social fabric of Mexican communities.[2], Many rural residents have migrated to cities in search of economic opportunity. Between 1990 and 2015, the percentage of the population living in urban areas increased from 71 to 79 percent.[3], Of this urban population, 11.1 percent of residents lived in a slum in 2014—defined by the World Bank as settlements characterized by self-built structures, poor environmental conditions, and limited access to social services.[4]

The Mexican federal government created the Hábitat program under the Social Development Secretariat (SEDESOL) in 2003 to provide infrastructure investments to marginalized urban areas. Investments included construction of roads, water and sanitation systems, lighting, and sidewalks, as well as community centers, parks, and sports facilities. Hábitat also provided funds for activities outside of infrastructure investments, such as job training and health and nutrition training for young mothers.

For a community to be eligible for Hábitat, the local state and municipal government needed to commit to a cost-sharing agreement with the federal government. In this study, municipalities provided 40 percent of program funds, states provided 8 percent, and beneficiaries provided 2 percent.

While access to electricity and water is near universal, the Hábitat program targeted low-income households with limited access to other kinds of infrastructure. For example, while close to 99 percent of neighborhoods in the study had access to electricity and 93 percent had piped water, around 45 percent of neighborhoods in the study did not have streetlights, and approximately 41 percent of houses did not have sidewalks in front of them.

Home ownership rates in Hábitat neighborhoods are high (around 84 percent of households in the study owned a home prior to the intervention) and mortgage borrowing is infrequent, suggesting that much of the population would stand to benefit from increased property values.



Tijuana, Mexico. Photo: Manuela Durson | Shutterstock.com

Details of the intervention

With support from SEDESOL, researchers randomly selected 176 low-income neighborhoods to participate in a US$68 million Hábitat program, as well as 194 neighborhoods to serve as a comparison group.

Neighborhoods in the program received advice from Hábitat program officials on what infrastructure investments to make, and local government officials and neighborhood leaders would identify the most pressing infrastructure needs. Local governments then used Hábitat resources to invest in such infrastructure necessities – such as street pavement, sewage, community development centers, and sidewalks –subject to spending caps imposed by the federal government.

Researchers then conducted surveys of residents and visual surveys of infrastructure conditions in blocks before and after Hábitat was implemented, between 2009 and 2012. This allowed researchers to compare the program's impacts on access to infrastructure, private investments, moving rates, and community cohesion and safety. Researchers also employed professional property assessors to determine property values.

Results and policy lessons

Access to infrastructure: Overall access to infrastructure improved: Habitat neighborhoods saw a 10.3 percent increase in access to infrastructure compared to a 5.4 percent increase for non-Habitat neighborhoods, as measured by an index developed by the researchers.

Access to sewerage, piped water, and electric lighting were already high in most neighborhoods, and saw no significant changes on average.

For types of infrastructure for which access was initially lower, neighborhoods saw improvements. The fraction of blocks with functioning streetlights increased by 6 percentage points (from 56 percent pre-Habitat to 62 percent), compared to no increase in non-Habitat neighborhoods. Houses reporting medians increased by 8.7 percentage points (from 59 percent pre-Habitat to 67.7 percent), compared to a 3-percentage point increase in non-Habitat neighborhoods.

Households reporting sidewalks outside their house increased by 9 percentage points (from 59 percent pre-Habitat to 68 percent), compared to a 4.3 percentage point increase in non-Habitat neighborhoods. Households reporting paved roads increased by 10 percentage points (from 66 percent pre-habitat to 76 percent) compared to a 6.7 percentage point increase in non-Habitat neighborhoods.

Private housing investment and property values: In neighborhoods where Hábitat upgraded infrastructure, households responded by investing in their homes.

The number of houses with concrete floors increased by around 2.5 percentage points, from a baseline of 96.5 percent to 99 percent, compared to no increase in the comparison group. The number of houses with a flush toilet increased 2 percentage points, from 61 to 63 percent, while the comparison group reported a decrease of around 5 percentage points. Results suggest no significant changes in the presence of brick walls, separate kitchens, separate bathrooms, or piped water.

Regarding property values, the amount of rent paid by households in Habitat neighborhoods that didn't own their homes (16 percent of total households in the study) increased by $17 per month, a nearly 20 percent increase from a pre-Habitat value of $88, compared to no change in the comparison group.

Hábitat also improved assessed property values. Relative to a baseline value of $86.11 per square meter, and natural appreciation of about $3, researchers estimate that property values in Habitat neighborhoods increased by an additional $5.76 per square meter, a 6.5 percent increase over the comparison group.

Cumulatively this amounted to a total property value increase of US $150 million, more than two times the $68 million invested in the Hábitat program. This suggests that the program was cost-effective on this measure: Every dollar of public money invested in infrastructure improvement in a neighborhood yielded two dollars of improvements in total privately-held value of land.

Moving rates: Households in Hábitant neighborhoods were less likely to move out of the neighborhood than households in non-Habitat neighborhoods. In Habitat neighborhoods the rate of residential migration dropped by 7 percentage points, a 27 percent reduction compared to non-Hábitat neighborhoods, between 2009 and 2012.

Despite the fact that Hábitat increased rents, the program reduced the moving rates of homeowners and renters alike. Non-Habitat neighborhoods saw moving rates of 58 percent for renters and 37 percent for non-renters; Hábitat decreased these rates by about 9 percentage points for both types of households. Researchers found that the program's impact on residential stability was stronger among renters in the lowest-priced houses in Hábitat neighborhoods.

Community cohesion and safety: Hábitat did not appear to have an impact on an index of community cohesion comprised of questions related to participation in neighborhood groups, trust in social institutions, levels of conflict between neighbors and community members, and knowledge about community organizations and social problems.

Nevertheless, researchers did find suggestive evidence in favor of Hábitat's impact on safety and positive youth behavior.

Importantly, however, these improvements do not appear to be statistically significantly different than what they would have been in the absence of the program, as Habitat neighborhoods already had better safety and youth behavior indicators than their counterparts when the program began. Thus, researchers consider these findings to be speculative and meriting further research.

The evaluation was contracted directly by Mexico's Secretariat for Social Development. The results of this evaluation were incorporated into the design of the subsequent wave of investment towards the Habitat program.

McIntosh, Craig, Tito Alegria, Gerardo OrdoÃ±ez, and RenÃ© Zenteno. "Infrastructure Upgrading and Budgeting Spillovers: Mexicoâ€™s HÃ¡bitat Program." Working Paper, January 2014.

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