Center for COMMUNITY PROGRESS
Vacant Spaces into Vibrant Places

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USING PROPERTY INTERVENTIONS TO FOSTER NEIGHBORHOOD REVITALIZATION:

A Guide to Research Strategies and Methods

Center for Community Progress Report in conjunction with the National Community Stabilization Trust and NeighborWorks America

An Educational and Practice Resource

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Vacant Spaces into Vibrant Places

This report was prepared by the Center for Community Progress. For additional information, please contact callinger@communityprogress.net or the authors listed below.

Alan Mallach
Senior Fellow, Center for Community Progress

Center for Community Progress – National Office
1001 Connecticut Avenue N.W. Suite 1235
Washington, D.C. 20036
(877) 542-4842
www.communityprogress.net

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ABOUT CENTER FOR COMMUNITY PROGRESS

Founded in 2010, the Center for Community Progress is the only national 501(c)(3) nonprofit organization solely dedicated to building a future in which entrenched, systemic vacancy and abandonment no longer exist in American communities. The mission of Community Progress is to ensure that communities have the vision, knowledge, and systems to transform vacant, abandoned, and deteriorated properties into assets supporting neighborhood vitality. As a national leader on solutions for blight and vacancy, Community Progress serves as the leading resource for local, state, and federal policies and best practices that address the full cycle of property revitalization.

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I. INTRODUCTION

In many different ways, in thousands of communities around the United States, state and local governments, nonprofit organizations, neighborhood-based organizations, and others are all taking actions with the goal of making their communities better places. These actions, which can range from demolishing a vacant, derelict property to building housing or creating a summer youth employment program, all constitute 'interventions'; that is, actions taken to intervene in the existing conditions of an area with the intention of changing it for the better.[1]

Yet, for all the many different interventions that are being pursued, and the many millions of dollars spent on them, we have only an incomplete and limited understanding of how they actually affect neighborhood conditions. While it is easy enough to understand the direct results – a house demolished or rehabilitated, a group of teenagers employed – we often have only a limited and uncertain idea whether changing that house's status or those teenagers' summer activity had any effect on the house's surroundings or on the teenagers' subsequent behavior; and if so, whether the change in the teenagers' behavior affected the neighborhood they live in, or whether it was a merely transient or a lasting effect. In a nutshell, we still have a lot to learn about what works and what doesn't.

While some research, which we summarize in Section II of the guide, has attempted to answer the question of how interventions affect neighborhood conditions, it is limited in scope. In the fall of 2015, the Center for Community Progress, in partnership with the National Community Stabilization Trust (NCST) and with support from NeighborWorks America, embarked on a project with the goal of encouraging more practice-oriented research around property-specific interventions in distressed neighborhoods and their effect on neighborhood conditions.

This guidebook is designed to be a tool to further that goal, not only by adding to our knowledge of existing research as well as research needs, but by helping the many local

[1] The Cambridge English Dictionary defines 'intervention' as "to become involved intentionally in a difficult situation in order to change it or improve it, or prevent it from getting worse."

governments, land banks, community development corporations, and others actively intervening in their communities to better understand, evaluate, commission, and utilize research. In this section, we outline the scope of the project, what interventions the guide covers, and why this issue matters. The second section provides a background on research generally; what the existing research can tell us, how it can add value for practitioners, and how practitioners can work with researchers in their communities to generate the kind of research that will be most useful to them.

The third and fourth sections are written to offer direct guidance for practitioners as well as researchers. The third section describes what data is needed to support solid research, how to obtain and assemble it, and how to turn it into a "research-ready" database. The fourth section provides an introduction to research for practitioners, including understanding what goes into good research and how to be an effective partner with researchers conducting research relevant to practitioners' decisions about property interventions.

THE SCOPE OF THE PROJECT

While there are innumerable ways to intervene to change the condition and trajectory of distressed neighborhoods, this guidebook focuses on one type of intervention: those having to do with correcting *distressed property conditions,* which negatively affect a community's physical environment, particularly in struggling cities and neighborhoods. We are not suggesting that other interventions may not be as or more important, depending on a neighborhood's conditions, but this focus reflects not only the institutional mission and priorities of NeighborWorks, Community Progress, and NCST, but also high-priority concerns of large numbers of local governments, NGOs, and community-based organizations.

Cities, NGOs, and others carry out property interventions, such as demolition or rehab, not only to improve (or remove) a particular property, but because they believe that by doing so, they will also improve the larger area around that property. Thus, it becomes important to know whether or not these interventions actually produce that wider impact.

Property interventions fall into two categories: actions that represent a *direct* physical change to a property, and actions that are aimed at *promoting* physical changes to a property. In the first category, direct physical changes to properties can be brought about by the following interventions:

- Demolition of vacant properties

- Rehabilitation of vacant or blighted properties
- Infill construction on lots created through demolition of properties
- Reuse of lots created through demolition of properties for non-development or green use, such as community gardens or sale to adjacent owners as side lots.

It is important to realize, as we discuss later, that this list represents *categories* of intervention, with many different sub-categories that need to be separated out if we are going to accurately measure their effects. For example, the effect of a rehab project on its surroundings can vary depending on the nature of the rehab work, whether the houses are sold to owner-occupants or used for rental housing, and the income levels of the buyers or tenants. Similarly, there are many different ways to use a vacant lot; a community garden may have a different impact from a mini-park or playground.

In addition to taking direct action to change a property's condition, cities also regulate properties, carrying out activities such as targeted code enforcement, receivership, or vacant property registration. Such actions can be designed (1) to prompt the current owner to take action to change the property's condition, or (2) to take the property from the current owner and put it in the hands of a new owner in order to change the property's condition. It is hard to measure the effects of regulations, except when one can make a clear connection between the regulatory action and a tangible, physical change to a property. Still, they are an important part of local government efforts to improve neighborhoods.

WHY IS THIS IMPORTANT?

There are many reasons why understanding how property interventions affect neighborhood conditions is important, to cities and towns, their neighborhoods, and their residents.

1. *Properties and real estate markets are both significant drivers and symptoms of neighborhood conditions, and there is strong evidence that problem property conditions affect neighborhood conditions.*

The condition of an area's properties and its real estate markets is a critical piece of what determines an area's conditions and its future trajectory. As a result, property interventions designed to improve housing and market conditions have become an increasingly important part of the toolkit used by local governments and nonprofit entities to stabilize or revive distressed neighborhoods. While real estate markets are not the *only* factor driving change, they

are a central, and perhaps the single most important, factor in that process.[2] While the research on the effects of property interventions on neighborhoods is limited, many scholars have studied the effects of the *problem property conditions* that interventions are designed to correct.

The evidence for the impact of vacant, abandoned properties both on the value of nearby properties as measured by sales prices[3] and on public safety[4] is very strong. A large body of research has also found significant evidence that mortgage foreclosures have powerful neighborhood effects,[5] while more limited work has found that tax delinquency has similar impacts.[6]

Measuring the impact of conditions is not the same, however, as measuring the impact of interventions on neighborhoods. One cannot assume simply that because the presence of vacant houses on a block reduces surrounding property values by X%, removing those vacant houses will restore X% to surrounding property values. It is likely that removing the vacant houses will have *some* effect on property values. That effect, however, may vary depending on differences in underlying neighborhood conditions as well as other factors. More research is needed to understand these variations, and whether the changes are likely to be sustained over time, both of which are important questions for practitioners.

2. *Local governments, NGOs, and others are increasingly pursing property interventions with the goal of affecting neighborhood conditions*

There is nothing new about property interventions. Properties have been demolished or rehabilitated, and new properties built or trees planted on the sites where properties have been demolished, for thousands of years. That said, recent trends with respect to property interventions have increasingly focused on interventions not just for the sake of improving a particular property, but with the goal of improving neighborhood conditions. These trends hold potentially significant implications for both research and public policy. Three trends are particularly worth noting: the increase in demolition, the growing popularity of green reuse alternatives, and the emergence of new, strategic regulatory models.

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[2] For an extended discussion of these issues, see Mallach (2015).

[3] See Econsult 2010, Seo and von Rabenau 2011. while more limited work has found similar effects associated with tax delinquency (Whitaker & Fitzpatrick 2012).

[4] See Spelman 1993, Branas, Rubin & Guo 2012

[5] See Frame 2010, Williams, Galster & Verna 2013.

[6] See Whitaker & Fitzpatrick 2012. It is worth noting that research on the effects of mortgage foreclosure is far more extensive than research on tax delinquency, even though tax delinquency is far more widespread. This is but one example of a research 'hole' needing to be filled.

(1) **Increased demolition**. While demolition in the past was typically either a tool to foster redevelopment or a reaction to specific property conditions, many cities, particularly legacy cities, are increasingly using demolition as a strategic tool to help stabilize neighborhoods and housing markets. Detroit alone has spent or committed over $128 million in federal Hardest Hit Fund and other monies for demolition in less than two years. These funds are expected to lead to demolition of some 8,300 buildings.[7]

(2) **Increased attention to green reuse**. Older cities that have lost population over the years often have large inventories of vacant land left over from decades of demolition, while many are continuing to create additional vacant land as a result of current demolition activities. Detroit today contains over 100,000 vacant land parcels, about one-quarter of all of the city's parcels, while Cleveland has nearly 28,000 vacant parcels, one out of every six parcels in the city. As cities come to realize that using all, or even most, of this land for construction of new buildings is unrealistic in light of weak market demand, continued population loss and scarce public funds, they have increasingly focused on both short- and long-term green reuses, including side lot sales to adjacent homeowners, urban farms, community gardens, mini-parks, and other alternative uses.[8]

(3) **Emergence of strategic regulatory models**. While code enforcement has also been around for a long time, practitioners are developing new ways of using their traditional tools in more strategic fashion. Vacant property registration ordinances, including many with graduated fee structures[9] designed to motivate owners to restore their properties, have been widely adopted, while other cities are matching specific regulatory strategies such as receivership with neighborhood market conditions.

These efforts represent a commitment of hundreds of millions of dollars and thousands of individuals' time and energy, each year, in America's cities and towns. At the same time, NGOs such as community development corporations and others continue to pursue housing rehab and other programs in urban neighborhoods. While the goal of all of these activities is to stabilize

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[7] Todd Spangler and Paul Egan (2015). "Detroit to get $21 million more for blight demolition", *Detroit Free Press*, October 28. http://www.freep.com/story/news/local/michigan/2015/10/28/detroit-set-get-21-million-more-blight-demolition/74730162/

[8] During the past year, a number of excellent guides to alternative non-development uses for vacant land have appeared, most notably the *Green Pattern Book* (US Forest Service 2015) developed in partnership with the city of Baltimore; and the *Field Guide to Working with Lots* (Detroit Future City 2015). Both of these guides follow in the footsteps of the pioneering work done by the Kent State University Cleveland Design Collaborative, beginning with the *Re-Imagining Cleveland Vacant Land Re-Use Pattern Book* (Cleveland Design Collaborative 2009).

[9] Under these ordinances, the annual registration fee increases with every year that the property remains vacant, thus, presumably, serving as an inducement for the owner to remove the property from the vacant property rolls. There does not appear to be any data available as to how effective such ordinances actually are.

and revitalize neighborhoods, they are often pursued with little knowledge whether they will have those effects, and if so, to what degree. Much of the research that has been done does not offer clear answers.

II. WHAT RESEARCH HAS FOUND, AND WHY MORE RESEARCH IS NEEDED

The phrase "more research is needed" is something of a cliché, and brings to mind white-coated researchers huddling over test tubes. In this area, however, more research *is* needed. In this section, we will examine how research can add value to practitioners' work, why the current knowledge base is inadequate, and how practitioners can foster sound research that can add value to their work. We begin with a short overview of the research on property interventions that has been done up to this point.

A. A BRIEF SURVEY OF RESEARCH LITERATURE

As we discussed above, a good deal of research has been done on some of the problems practitioners hope to fix, such as vacant properties or mortgage foreclosures, but the research on interventions that respond to these problems is much more limited.[10] Indeed, if we sum up that research as a whole, it may seem that the only solid conclusion one can reach is that "it depends." For every study showing a positive impact, there may be another one showing a negative impact, or no impact at all.

Housing rehabilitation is a case in point. A 1997 study from St. Paul found that a program to rehab vacant houses in St. Paul, Minnesota yielded fiscal benefits well above the rehab cost, including significant positive impacts on the value of nearby properties.[11] On the other hand, a 1985 study that compared areas in Cleveland that had received significant CDBG rehabilitation investments with similar areas in which no such investment had been made found that the investments had no apparent effect on neighborhood conditions.[12] Similarly, a recent study of NSP investments in Boston, found that rehabilitation investments had a *negative* effect on social conditions, and no impact on physical conditions, in the immediate area.[13] Finally, still another study, from Kansas City, found that housing investments by community development corporations – mostly rehabilitation, but including some new construction – had a significant positive effect on neighborhood property values.[14] This does not mean that the research is flawed; more likely, it means that there are differences, both in the underlying neighborhood conditions and in the specific features of the rehab projects, which led to different outcomes. The significance of these differences was made clear by a 2016 study from Cleveland, which

[10] With the exception of the literature on the construction of low income housing developments, which is more extensive, but which does not fall within the scope of this project.

[11] See Goetz et al 1997.

[12] See Margulis and Sheets 1985

[13] See Graves and Shuey 2013

[14] See Edmiston 2012.

found that while housing rehabilitation overall had a strong positive impact, the impact varied sharply depending on the type of neighborhood, with the least impact in the most distressed areas.

Research on the federal Neighborhood Stabilization Program (NSP) has been similarly inconclusive. One study of NSP[15] compared property value and housing vacancy change from 2008 to 2012 for each area where NSP investments had been clustered with three 'comparable market' block groups. The data, taken as a whole, showed outcomes that were all but identical with what could be expected by chance. A close look at the data, however, suggests that NSP interventions may have had a significant impact *in some cities* (although not in others), arguing for further research in those cities to identify possible conditions or strategies not present in the national picture.[16] A more in-depth national study of the NSP2 program reached equally inconclusive results.[17]

The variation in the research findings summarized above highlight how important it is to make distinctions between neighborhoods and types of intervention: no single model fits all forms of housing rehabilitation, and even less all neighborhoods. It is also often unclear what is being measured, and if there is an impact, what is causing it. Is the benefit created by the newly rehabilitated house, by the removal of a vacant house that was having a negative effect on the area, by a new homebuyer moving onto the block, or perhaps even a short-term "Hawthorne effect"[18] triggered by the presence of visible activity? The type of housing being provided, the characteristics of the people who live in it, the way it is managed, and the features of the neighborhood all shape the impact a project will have on its surroundings.

Surprisingly, although infill development of new housing on vacant lots is strongly encouraged by many municipalities, planning agencies, and others,[19] we have been unable to find a single study that focuses on the neighborhood effects of scattered site infill projects, as distinct from new construction generally.

Research on other strategies targeting vacant properties, although more limited, suggests that both removal of vacant buildings and greening of the resulting vacant lots can have positive effects. Two recent studies have found that demolition of distressed vacant properties had

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[15] For the national summary report and a description of the project methodology, see https://www.hudexchange.info/resources/documents/NICReportsNationwideSummary.pdf

[16] By inference, this means that in some other cities, NSP intervention may have led to negative outcomes, a matter equally worth scrutiny. The methodology used in the TRF study, however, was severely limited in its ability to establish a clear link between the program investments and the measured outcomes.

[17] See Spader et al 2015.

[18] The "Hawthorne effect" comes from a series of studies designed to measure the change in industrial productivity when working conditions were changed at the Hawthorne Western Electric plant in Cicero, IL in the late 1920s and early 1930s. The researchers found, however, that productivity increased not only when lighting was increased, but also when it was diminished, as well as similar findings with respect to other working conditions. Changes in productivity were not a function of the substance of the change, but of the mere fact of change, and the fact that the workers were aware that they were being observed. The changes in productivity, however, were short-term and not sustained.

[19] A guidebook promoting infill development in distressed communities based on a pilot project in

Fresno CA has been published by the US Environmental Protection Administration, and can be downloaded from https://www.epa.gov/sites/production/files/2015-05/documents/fresno_final_report_042215_508_final.pdf. While it makes a number of claims for the benefits of infill development, it cites no research to support those claims.

positive effects on neighboring property values,[20] although the larger of the two studies found, similar to the Cleveland rehab study, that the effects varied greatly depending on the market condition of the neighborhood.

A number of studies, over half of which have been conducted in Philadelphia, have looked at how different vacant lot maintenance or reuse strategies affect neighborhood property values and crime incidence. Table 1 summarizes these studies. For the most part, the research shows consistently positive effects on property values, as well as less consistent, but generally positive, effects on crime rates, from greening activities. There are, however, some exceptions, with two of the most rigorous studies showing far less impact.[21]

Finally, little or no research has been done that systematically measures the effects of code enforcement on neighborhood conditions. The literature on code enforcement is almost entirely limited to either brief analyses of specific programs or legal and policy analysis largely appearing in law journals.

[20] See Griswold et al 2014, Dynamo Metrics 2015.

[21] Garvin et al 2013 and Steif and Parker 2016

TABLE 1: SELECTED RESEARCH STUDIES ON GREENING AND NEIGHBORHOOD CONDITIONS

AUTHORS	YEAR	GEOGRAPHIC AREA	INTERVENTION(S) STUDIED	PRINCIPAL FINDINGS
Wachter, Gillen and Brown	2006	Philadelphia	"Stabilized and greened lots" (see note)	Neglected vacant lots reduced adjacent property values by 20%, while stabilized and greened lots increased adjacent property values by 17%
Voicu and Been	2008	New York	Community gardens	Community gardens led to greater increases in property values than in control areas, and increases were sustained over time. Effect was significant in lower-income and not in higher-income areas.
Branas, Cheney, MacDonald, Tam, Jackson, and Ten Have	2011	Philadelphia	LandCare program	Reductions in gun assaults in areas near LandCare properties were seen in all parts of the city. Reductions in vandalism and level of resident stress were seen in some areas, but not others.
Heckert and Mennis	2012	Philadelphia	LandCare program	Increases in property values in areas near LandCare properties, but increases were significant only in areas classified as 'moderately distressed' in the city's Market Value Analysis.
Garvin, Cannuscio and Branas	2013	Philadelphia	LandCare program	Change in crime incidence was not significant, but residents living near LandCare properties reported significant Increases in perception of safety
Kondo, Hohl, Hon and Branas	2015	Youngstown	Lot stabilization Lot reuse	Significant decrease in wide variety of crimes in vicinity of greening treatments, but decrease was greater for areas which had reuse treatment (generally community gardens) than for areas which had stabilization treatment (similar to LandCare program)
Steif and Parker	2016	Cleveland	Lot greening	Significant but short-term decline in aggravated assaults, but no significant change in property values or tax delinquency.

NOTE: This is defined in this paper as "the removal of discarded trash; grading and amending the soil; planting grass, trees, and shrubbery; and even adding such amenities as benches, sidewalks, and fences (p17)."

B. WHAT IS MISSING?

While many of the research studies of property interventions offer valuable insights, taken as a whole the research gives us only a limited and uneven picture and therefore provides only limited guidance to practitioners trying to improve their communities. A summary of what we (think we) know about property interventions and neighborhood conditions is presented in Table 2 on the following page. As Table 2 shows, we often only have a single study that offers any insight into critical questions, or none at all.

As stated above, the threshold problem practitioners face is that there is too little research.

The small number of studies is not the only issue, though. There are at least four additional research challenges, which we discuss briefly below:

1. Accounting for or controlling variations in the characteristics of the *intervention* or of the *neighborhood*.

While a few studies look at how a similar intervention affects different types of neighborhoods differently, far more work is needed to establish clear relationships between different types of interventions and different neighborhood characteristics. Similarly, as the highly inconsistent literature on rehabilitation suggests, the effect of the intervention may vary on the basis of neighborhood characteristics or on the basis of the features of the intervention. As the Boston study on NSP interventions showed,[22] even the nature of the process by which a housing rehab project takes place and the information that nearby residents obtain about the project can change the intervention's impact.

2. Identifying the *metrics* used to measure neighborhood impact

Most of the existing research studies how interventions affect property values or house sales prices, while the rest look at their impact on crime. These are important metrics of neighborhood conditions, yet neighborhood change in general, and neighborhood revitalization in particular, have many dimensions. We do not know whether the measured changes in property values (which are often quite modest, even when statistically significant) lead to or coincide with other changes in neighborhood conditions, or are even perceived as change by residents of the neighborhood. That is particularly important, because it is how residents feel about their neighborhood which is what ultimately not only affects their behavior, but triggers neighborhood change. Unfortunately, limited research resources rarely permit the sort of in-depth survey research that might be needed to measure behavioral changes. However, the great variety of datasets that are becoming available in urban areas may offer opportunities to identify additional metrics beyond sales prices and crime. Some of these metrics may potentially be

[22] Graves and Shuey 2013

proxies for neighborhood confidence or collective efficacy[23] and could enable practitioners to understand in greater depth how their activities are affecting their neighborhood. This is discussed further in Section III.C of this report.

[23] Collective efficacy, a term coined by sociologist Robert Sampson, who defines it as "social cohesion combined with shared expectations for social control." It measures the ability of the residents of a neighborhood to maintain cohesion and enforce neighborhood norms through informal means, as contrasted with external, formal structures such as policing; Sampson and his colleagues have developed ways of measuring collective efficacy, which has powerful relationships with violent crime incidence.

TABLE 2: WHAT DO WE (THINK WE) KNOW?

INTERVENTION	OVERALL EFFECT	VARIATION BASED ON TYPE OF NEIGHBORHOOD	VARIATION BASED ON TYPE OF INTERVENTION	CHANGE IN EFFECT OVER TIME
Demolition	Limited research suggests that demolition has a positive impact on property values and foreclosure incidence	One study found that the cost-benefit ratio in terms of demolition costs and house value change was positive in higher value areas, but negative in low value areas.	No systematic research	No systematic research
Rehabilitation	Mixed findings, some positive, some neutral, one negative, on impact of rehab projects	One study found that the positive benefits of rehabilitation were significant in predominately owner-occupied areas and areas with special features, but not in distressed, largely rental areas.	No systematic research	No systematic research
Infill new construction	No systematic research	No systematic research	No systematic research	No systematic research
Green reuse	Overall thrust of research points to positive impacts of greening by increasing property values and reducing crime incidence	One study found that community gardens show benefits only in lower-income areas. Another found that LandCare programs were most effective in moderately (but not severely) distressed areas	One study found that active reuse treatments, such as community gardens, had a greater impact than stabilization treatments (similar to LandCare program).	One study found that initial reduction in aggravated assault near green interventions dissipated over time.

Regulatory strategies	No systematic research	No systematic research	No systematic research	No systematic research

1. Measuring variation in the trajectory of impacts over *time*

Finally, there is also the question of how the effect of an intervention changes over time. Are the effects that have been found by some studies merely short-term, transitory effects or are they maintained over time, resulting in sustained change in neighborhood conditions? Since many interventions require considerable money, time, and effort, knowing whether it will have a sustained, long-term impact on the area rather than only a short-term and transient effect could become a critical factor before deciding to pursue a particular intervention.

C. GETTING THE RESEARCH YOU NEED

Valuable lessons can be gathered from research done in other communities about interventions that are generally similar to those being contemplated in a particular community. The most valuable research for practitioners, however, is that which is done in their specific community and about the specific interventions being carried out. To that end, practitioners should consider becoming directly involved, by working with researchers to get them interested in the issues, help them frame their questions so that the answers will be most useful, and help them get the data they need to do sound research. Below are some steps practitioners can take to get the research they need.

1. Encouraging research activity

Any research project requires one or more researchers who are interested enough in the subject to be willing to devote their time and energy to it. Fortunately, there is no shortage of people, mostly but not entirely in the academic world, who are interested – or can become interested – in the question of neighborhood change, and how different activities may influence it. They may range from senior scholars to graduate students looking for paper or dissertation topics.

Many communities have a university nearby. Within a university, research projects may be pursued by individual faculty members or students in fields such as economics, sociology, urban planning, or public policy; or by university-affiliated research or policy centers that are focused on urban and neighborhood issues. Around 50 research centers, schools, and departments in universities around the United States are affiliated with the Urban Affairs Association, a national body dedicated to fostering and sharing research on urban issues.[24]

Depending on many factors, including the scope and complexity of the research project and the in-house resources available to the scholar or the research center, funding may be an issue. Some universities have institutional resources to support research, but in other cases it may be necessary to find funding to make a study possible. The amounts involved are usually not large,

[24] For a directory of UAA institutional members, see http://urbanaffairsassociation.org/uaa-membership/institutional-members/

however, and it may be possible to obtain support from a local community foundation or corporation, or even the local government.

2. *Working with researchers*

Research partnerships between practitioners and researchers can be mutually beneficial. Researchers benefit in three important ways:

- The opportunity to do meaningful research that expands the field's knowledge about important issues;
- Greater access to both quantitative and qualitative information about the community; and
- The opportunity to make a difference, by doing research that will provide a tangible benefit to the community.

Practitioners benefit in important ways as well:

- The opportunity to gain a deeper understanding of the dynamics of the neighborhood or community;
- The opportunity to understand how different programs or strategies are or are not having the desired impacts; and
- Information to help guide future strategies as well as changes to existing ones.

For the partnership to succeed, the practitioner should have a basic understanding of the issues or questions she hopes to have answered. Even though those issues and questions are likely to be reconsidered and revised during the give and take that precedes any research project, starting with a clear idea can ensure that the project is responsive to the practitioner's needs. From the researcher's perspective, the most valuable contribution that a practitioner can make is often providing access to data that can be used in the research. Strange as it may seem from the outside, what research is done often has more to do with what data is available than what subjects scholars may actually want to study.

Practitioners have to understand the researchers' agendas as well. Many individual scholars tend to concentrate (particularly if they do not yet have tenure) on research that can be published in scholarly journals such as the *Urban Affairs Review* or *Journal of Planning Education and Research*. Getting research published in what are known as 'peer-reviewed'[25] journals can be very

[25] A 'peer-reviewed' journal is one in which every article submitted for publication is blind-reviewed; that is, reviewed anonymously, by two to four scholars in the same or related fields, who recommend whether the article should be published, and what changes the author should make before it is published. This system is

important to the scholar's professional career. At the same time, many university centers or non-university organizations that provide services to community-based NGOs may be less concerned about publication or peer review. It is important, however, when working with such centers or organizations to understand that their work needs to meet professional standards. As we discuss later, practitioners need to understand what constitutes sound research, and not support or encourage work that does not meet those standards.

designed to ensure that nothing is published in such a journal that does not offer meaningful substance as well as meet high technical standards. While far from perfect, it is a well-recognized way of maintaining standards within a scholarly discipline.

III. GOOD DATA: THE FOUNDATION OF GOOD RESEARCH

Without good data, there can be no good research. While data can take many different forms, it must meet some basic criteria. One straightforward definition of data is "facts and statistics collected together for reference or analysis."[26] While people can dispute what precisely constitute the "facts" of a situation, it should be clear that *data is not opinions; it is information, designed as best as possible to be factual in nature, that can be collected in a way that makes it possible to be analyzed and interpreted*. To answer the question "what works?" we need information in the form of measurable data both about the "what" and about how we measure how it "works." We need data about each intervention that is taking place in the block, neighborhood or other area about which we are concerned; and we need to be able to define how we will measure change in the area, and what data we'll need to do so. When we discuss data that is being used to measure something, we will often refer to it as a "*metric.*"

In this section, we will look at what metrics enable us to accurately classify interventions; what neighborhood metrics are needed to measure whether a block or other defined geographic area is in fact changing; and finally, how to find and take data from many different sources and turn it into what we call a "research-ready" database; that is, data that is ready to be used by researchers to evaluate the effects of an intervention on its surroundings.

Features of Effective Metrics

For a particular metric to be most useful, it should meet five criteria:

- *Data must be available without inordinate cost or difficulty*

The threshold test is whether the data exists, and if so, whether it can be obtained without undue time and cost. The data may be available, but despite one's best efforts, the owner of the data may refuse to make it available. Data may exist in paper files, for example. If the number of different data points is large, as is usually the case in this sort of research, it may be too costly and time-consuming to assemble the data so that it can be used for a research project. Whether data meets this test will depend both on the form in which the data exists as well as the resources available to do the research.

- *Data needs to be available for small areas on a parcel or other point source basis;*

We know from much prior research that the impact of a problem property, and the impact of an intervention to change the property, drop off sharply with distance from the property. For that reason, studies of the impact of an intervention need to focus on a small area, which may

[26] This was the first entry in a Google search for "data definition" on December 18, 2016.

be a city block or block face, or that area, for example, within 500 feet of the intervention. Thus, general area-level data, such as knowing that there is a community garden on this or that city block, is not location-specific enough to permit accurate measurement. Most communities have some system of parcel identifier that makes it possible to pinpoint the location of property-related interventions.

- *Data must be timely*

The shorter the lag between the data and the present day the better. With neighborhoods constantly in flux, a study of how an intervention affected neighborhood conditions a few years back, while perhaps useful from a research standpoint, will be less useful to a practitioner than a study that comes as close as possible to tracking current conditions.

- *Data needs to be available as a time series*

A "time series" means that the same data is available on a regular basis for an extended period, quarterly or at least annually, so that before/after and other comparisons over time can be made. This is particularly important if one wants to find out whether the changes associated with the intervention are durable over time, or merely short-term blips.

- *Data should measure what it claims to measure, rather than being a function of some extraneous factor.*

This is a more complicated point than the previous ones. The problem arises because many sources of data do not actually measure the underlying condition, but are actually measuring something else. An example common to many cities is housing code violations or similar problems such as trash dumping. In theory, the city's data on violations or trash dumping – both important factors in neighborhood condition – should be a useful measure. In practice, however, most cities enforce these matters on the basis of complaints, so that the data is not actually measuring the number of *violations*, but the number of *verified complaints* received. That, in turn, is often driven by how well a neighborhood is organized, or the extent to which a neighborhood or block association is pushing local government to take action, or other factors that actually have little relationship to the incidence of the problem. Since deeply distressed neighborhoods may have weaker community organizations than stronger neighborhoods, the data may be misleading.

A. IDENTIFYING AND GATHERING *INTERVENTION* METRICS

To measure the effect of a particular type of intervention, one needs information not only about that intervention, but also about other related interventions in the same area. For example, if one compares two blocks, both of which have a community garden, but one of which has also seen five blighted houses demolished and three rehabilitated, while the other has seen nothing but the garden, then one must control for that difference in order to measure the effect of the

community gardens. Otherwise, one cannot tell whether the changes in the block can be attributed to the garden, to the demolitions, or to the rehabs.

For this reason, one important prerequisite for effective research is to create a master database of property interventions in the entire community, as shown in Table 3. It is a good idea to gather as much information as realistically possible about each intervention for the database. For some research, for example, it may not matter how much was spent on each demolition. But if one wants to do a cost-benefit analysis – to determine whether the cost of demolishing properties in a particular area, for example, was more or less than the resulting increase in property values or property tax revenues – one needs to know the amount the city or county spent on each demolition.

Demolition is fairly straightforward, since differences in the way demolition is handled are not likely to make much difference in terms of neighborhood impact.[27] Rehab or infill construction are more complicated, since as we noted earlier, their neighborhood impact may well vary depending on both the nature of the rehab, and how the property is used after rehab; e.g., is it sold to an owner-occupant or rented out, and is occupancy of the unit subject to income restrictions or open to anyone?[28]

Just as there are many variations when it comes to rehab, the same is true of greening. It is important to determine what the use of each parcel is, since – as some research suggests – different green uses may lead to important differences in neighborhood impact. A further complication in measuring the impacts of green uses, unlike rehab, is that they may come and go, often within a short period. A community garden that was created five years earlier may no long be in use, and may have reverted to a weed and trash-strewn vacant lot. Thus, in studying greening, it is critical to include updated information on the current condition of the parcel.

In examining the impact of regulations, the key step is to obtain information on the outcomes of the regulatory interventions; for example, whether the owner restored the property, or whether the city subsequently took the property through receivership and sold it to someone else, who restored the property. While the mere fact that the city is enforcing its codes more aggressively may in itself have some effect on neighborhood perceptions, we believe that that connection may often be tenuous and difficult to separate from the effects of the physical changes triggered by enforcement. Measuring the extent to which certain regulatory strategies such as receivership actually lead to tangible outcomes with respect to both properties and neighborhoods, and under what conditions, however, may be a valuable area of research with strong implications for practitioners.

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[27] That is not to suggest that deconstruction, or local hiring, are not important, just that they are unlikely to affect how demolition impacts property values, crime or other metrics in the immediate vicinity of the property being demolished.

[28] It would be ideal to also have demographic information on occupants, but that usually cannot realistically be obtained from third parties. If time and money permit, a research project might include efforts to interview occupants of the rehab or infill housing being studied.

In addition to the nature of the information that should go into the interventions database, Table 3 also shows the most likely sources for information on each intervention. In some cases, such as demolitions, it may be relatively easy to assemble a complete list, at least for recent years. In the case of greening, it may be more difficult, because many different organizations in a city may be carrying out greening projects and may keep records that are not only in different formats, but may be incomplete or inaccurate. The person responsible for building the database should work with the organizations that are carrying out the interventions to help them maintain accurate and consistent records of their activities.

TABLE 3: ELEMENTS IN AN INTERVENTION METRICS DATABASE

NATURE OF INTERVENTION	INFORMATION NEEDED FOR EACH INTERVENTION	POTENTIAL INFORMATION SOURCES
Demolition of vacant or blighted properties	• Date • Cost • Post-demolition treatment, if any • Current condition, if available	City government County government Land bank entity
Rehabilitation of vacant or blighted properties	• Date (certificate of occupancy) • Type of rehab (minimum code, code+, total rehab) • Cost • Post-rehab tenure (rental or owner-occupancy) • Whether occupancy is means-tested (at what income level) or market	City government CDCs Developers
Infill construction on vacant lots	• Date (certificate of occupancy) • Cost • Tenure (rental or owner-occupancy) • Whether occupancy is means-tested (at what income level) or market	City government CDCs Developers
Green reuse of vacant land	• Date put in service • Cost • Size of parcel • Nature and category of lot treatment; e.g., community garden, side lot, mini-park, etc. • Current condition if available	City government CDCs Neighborhood organizations Greening organizations and coalitions

Regulatory strategies	• Properties addressed through regulatory strategies • Nature of regulatory strategy • Outcomes (property rehabilitated by owner, taken by city, demolished, etc.) • Amount spent on property (rehabilitation, demolition, etc.)	City government

B. IDENTIFYING AND GATHERING *NEIGHBORHOOD CHANGE* METRICS

It's fairly easy to define what data is needed to measure the interventions themselves, but measuring neighborhood change is more complicated. Neighborhood change is a complex process, involving not only physical changes, such as better housing maintenance, or economic changes, such as higher house prices, but also changes to behavior and perceptions. Indeed, it is likely that when house prices change or housing maintenance improves, those changes are the result of changes in the way people perceive the neighborhood, whether it is the people who live there or people who are choosing where to move.

That said, it is extremely difficult to track attitudes and behavior directly in a systematic way. The cost of interviewing people in person is often prohibitive, while even with the best efforts, it has become increasingly difficult to get a truly representative sample of the population to respond to survey requests. As a result, almost all research on neighborhood change relies on *proxies*; that is, available measures that can stand in or substitute for the underlying behavioral factors driving the change.

Metrics

Table 4 on the following page describes the features of different variables that can be used to measure neighborhood change, all of which are widely available.

The variable or metric that is most widely used is change in house sales prices. The price at which houses sell in a particular area is a generally accurate measure of the demand for housing in that area, which in turn reflects the extent to which people perceive the area as being a desirable one in which to invest. Thus, when we look at the research on neighborhood change, we find that most of the studies that have been done use sales price as the principal, or the only, metric. Care is needed, however, when using sales price data, because that data, by itself, does not tell one whether the buyers are owner-occupants or investors, or whether the prices may be artificially pushed up by flipping or speculation, or artificially pushed down by distress sales.[29] While it is a good metric, it is better used in conjunction with other variables wherever possible.

Other studies, although largely if not entirely studies of greening interventions, have looked at the effect on crime. Here, too, care is needed, not only to distinguish between short-term and sustained effects, but also because of the often inconsistent relationship between actual crime incidence and the *perception* of crime incidence, and the possibility that neighborhood change will be more driven by the latter than the former.

[29] Another issue is that of comparability; in a small area with a relatively small number of sales, if, say, in one year a larger than usual number of particularly large houses, or houses in excellent condition, come on the market, that can distort the relationship between that year's median sales price and that of prior or subsequent years.

Table 4 describes nine different variables or datasets that can potentially be used as metrics to measure neighborhood change. All of these variables *potentially* meet the five tests for usable metrics that we laid out on page 21. In some cities, most of these datasets may be available. In most cases, however, when one sets out to gather the data for a research project on the effect of a particular intervention, one may find that data for some of the variables are not available at all, while other data may have problems of accuracy or coverage or be difficult to assemble. Many communities do not have any vacant property data, and others may have only a single parcel survey conducted at a single point in time, which means that it cannot be used to measure change. In the end, data constraints usually require narrowing the number of neighborhood change metrics that can be used.

TABLE 4: MEASURES OF NEIGHBORHOOD CHANGE (1 of 2)

METRIC	WHAT IT MEASURES	WHAT CONSTITUTES POSITIVE CHANGE
House sales prices	The price of houses when they come on the market is the single strongest measure of the health of the neighborhood housing market, which in turn may be seen as the central indicator of neighborhood economic health.	Increase in prices
Distribution of investor vs. owner-occupant buyers	The percentage of people buying as owner-occupants rather than investors is a strong measure of neighborhood housing market strength.	Increase in ratio of owner-occupant to investor buyers
Vacant properties	The number of vacant properties, particularly long-term vacant or abandoned properties, is an indicator of weak neighborhood conditions and poor quality of life.	Decrease in vacant properties
Crime	Crime reduces quality of life for residents and attractiveness of area for prospective buyers.	Decrease in crime
Property tax compliance; e.g., % properties tax delinquent	Property tax delinquency reflects lack of property owner confidence in neighborhood and desire to retain control of property	Increase in property tax compliance or decrease in tax delinquency
Investor purchasers of tax liens or properties at tax auctions	Extent to which investors purchase tax liens or properties at tax sales/tax auctions reflects how neighborhood is perceived by external investor market	Decrease in percentage of liens or properties retained by city or county
Foreclosure filings	Mortgage foreclosure leads to reduced property maintenance and increased vacancy, destabilizing neighborhood	Decrease in mortgage foreclosure filings
Building permits for improvements	Owners' willingness to spend money to improve their properties reflects greater confidence in neighborhood	Increase in number and dollar value of permits for property improvement

TABLE 4: MEASURES OF NEIGHBORHOOD CHANGE (2 of 2)

METRIC	WHERE IT CAN BE FOUND	DATA CHALLENGES
House sales prices	Real estate transaction records maintained by city or county	Data must be cleaned to eliminate non arms-length sales and entry errors.
Distribution of investor vs. owner-occupant buyers	Real estate transaction records maintained by city or county	This data point is not gathered directly, but must be estimated by the data user by comparing buyer address and property address, or other methods
Vacant properties	Municipal records (e.g. Baltimore Vacant Building Notice process) Parcel surveys	Most municipalities do not gather data on vacant properties on a regular basis, and standardized data (Census, USPS) is not available or expensive to obtain as point source data. If not otherwise available, the best method to collect this data is to conduct a parcel survey, which should be repeated every 2-3 years to provide trend data.
Crime	Police departments	Police department data is often coded to different geographic codes that must be matched to parcel data.
Property tax compliance; e.g., % properties tax delinquent	Treasurer or tax collector	Need to define appropriate metric for compliance or delinquency. Agencies may not archive information for previous years.
Investor purchasers of tax liens or properties at tax auctions	Treasurer or tax collector	Need to distinguish between different types of purchase (full amount vs. 'scavenger sale' purchases).
Foreclosure filings	Court, sheriff or other public entity	Manner in which this data is maintained varies widely by jurisdiction. Data must be cleaned to eliminate entry errors.
Building permits for improvements	Building department or other municipal agency	Need to exclude improvements funded with public grant money. In addition, the data may be misleading, because many owners may make improvements without pulling permits.
Homeownership rate	Municipal or county property record file	As with the distribution of buyers, this data point is not gathered directly, but must be estimated by the data user. Many agencies do not archive older property record files, making it difficult if not impossible to measure trends prior to the first use of the data.

While sales prices and crime are most often used in neighborhood change research, two other variables that are generally available but rarely used should be explored more widely. For that reason, we discuss them below in more detail.

- *Change in the ratio of owner-occupant buyers to investor buyers*

The extent to which the people who buy houses in a given area plan to live in them, rather than hold them as an investment, is an important measure of the extent to which the neighborhood is seen as a desirable area. Homebuyers are far more selective about where they buy than investors, who are rarely interested in more than the ability to make a reasonable return on their equity investment.

While this data is rarely available in direct form, it can usually be generated without much difficulty from real estate transaction records, which contain information about the property and the purchaser. Many states have homestead or similar tax exemptions for owner-occupants, which can be used to determine the buyer's status. Where this is not available, we recommend a two-step procedure:

1. Identify the single family (or one- to four-family)[30] transactions from the total pool. Most property records have a classification or coding system that makes that easily done.

2. For those transactions, compare the address that the buyer has provided for mailing of property tax bills with the property address. Those where the two addresses are the same are preliminarily considered owner-occupants;

3. Screen the preliminary owner-occupant list for names that are clearly not names of people (such as names that end in LLC or other corporate suffixes), and eliminate those names from the owner-occupant list.

The final product will not be 100% accurate, but will be close enough so that the data can be used with confidence. The same procedure can be used with a property ownership database to yield an estimate of the homeownership rate.

- *Change in property tax outcomes*

For some owners, failure to pay property taxes may be the product of financial hardship, but for others, particularly absentee owners/investors, it also reflects the degree to which they have confidence in the area and the future value of their property. By failing to pay property taxes,

[30] Although it would be better to have data purely on single family properties, many data sources combine 1-4 unit properties into a single category for data entry purposes. This is not a problem in most parts of the country, but can complicate analysis in a number of northeastern states, where 2 and 3 family properties make up a much larger part of the 1-4 family inventory than elsewhere. .

they are making a statement that they are willing to put their future ownership of their property at risk.

Data on property tax compliance or delinquency is generally available in usable form in all parts of the United States. Because property tax laws and procedures vary widely from state to state, the specific metric used to measure compliance or delinquency will depend on each state's laws and data availability. In Michigan, it might be whether the properties go into tax foreclosure after three years of non-payment of taxes; in Ohio, it might be two years of non-payment, which is a trigger for potential acquisition of the property by county land banks; and in New Jersey it may be whether a lien on the property was sold at tax sale, which takes place after one year of non-payment.

In some states, non-payment leads to a tax foreclosure auction in which the *property* is sold; in other states, non-payment leads to a tax sale in which a *lien on the property* is sold. In all cases, however, it is a process whereby investors are invited to bid on the property or the lien, as the case may be, and if no one bids, the property or the lien reverts to the city or county.[31] By looking at the percentage of properties or liens that are bought by investors at the sale or auction, and the percentage that end up reverting to the city or county, one can get a strong sense of how the *outside investor world* perceives the area, which is as important, but very different from how owners inside the neighborhood perceive it.

Surveys

Given the importance of behaviors and perceptions in neighborhood change, the use of surveys and interviews to gauge peoples' attitudes and behavior, even though difficult, should not be ruled out. A strong community-based organization may be able to get more residents of a neighborhood to respond to an interview request than might outside researchers without ties to the neighborhood.

Conducting surveys is difficult. First, the questions must be framed very carefully to ensure that the research questions get usable answers, while not "pushing" the interviewees to answer the question in a particular way. As pollsters have learned, it is easy to write interview questions so that they subtly bias the respondent toward answering the question in a particular direction, in order to get the results one wants. In polling, these are known as "push" polls. Even when one is not deliberately pushing a particular result, however, the outcome of a survey can be biased if one is not very careful about how the question is worded.

Second, every survey involves interviewing a *sample* of the total population; that is, a smaller number of people who stand in for the population as a whole. The choice of respondents must be made very carefully to ensure that they are indeed representative of the community being

[31] In some states, like Michigan or Ohio, counties are responsible for tax enforcement, while in others, such as New Jersey or Massachusetts, municipalities are responsible.

studied. For example, if one interviews the people who show up for a community meeting, one is almost certain to get a sample that is *not* representative, since certain types of people (based on factors such as age and family status as well as attitudes and level of engagement) are more likely to come to community meetings than others.

While conducting surveys is difficult, many resources are available to help a local government or NGO carry one out. Many colleges and universities have faculty members and/or graduate students trained in survey research who can help community organizations or local governments design and carry out sample surveys, while a number have survey research centers which can conduct surveys on behalf of local governments or NGOs for a fee. Where resources permit, the value of a well-conducted, objective survey, in providing insight about neighborhood conditions and change can be considerable.

C. CREATING A RESEARCH-READY DATABASE

The fact that data is "out there" somewhere doesn't necessarily mean that it can be used for a research project. Before data can be analyzed, it needs first to be obtained, and then put into a format that makes the analysis possible. The more practitioners can do this up-front, and assemble a research-ready database, the easier and less expensive it will be to conduct good research, and the more likely it will be that researchers will be interested in working on the questions that the practitioners want to ask.

This section will briefly describe the key steps involved in putting together a research-ready database. For a detailed guide to data sources and their characteristics, as well as the techniques involved in pulling them together and using them, please read the Center for Community Progress publication, *Neighborhoods by Numbers*, forthcoming in early 2017.[32]

1. Integrating data from multiple sources

Some cities have data centers, such as NEO CANDO in Cleveland, that assemble data from many different sources and make it available in organized form.[33] Other cities, such as Dallas and Philadelphia, have created open data portals where multiple datasets are made available. Although the numbers of such cities are growing, they are still the exceptions, and even in those cities, one may not always find all of the datasets one is looking for.

The challenge of finding and gathering all relevant datasets applies not only to the metrics of neighborhood change, but even more to the data on interventions themselves. While different entities gather data for different neighborhood change metrics, only one entity generally gathers the data for any one metric. In other words, one does not have multiple agencies recording sales

[32] Publication will be available to download in early 2017 from www.communityprogress.net.

[33] Most of these data centers are members of the National Neighborhood Indicators Partnership organized by the Urban Institute. For a list of member organizations, see http://www.neighborhoodindicators.org/partners/profiles

transactions, for example, within a single geographic area, or different agencies tracking crime reports. The opposite is true of interventions. Housing rehabilitation, demolition, or the creation of community gardens may each be pursued by multiple public or nonprofit entities, each of which keeps separate records.[34] While an organization might want to study only its own interventions, the research findings will not be meaningful if similar interventions carried out by others exist in the study area and are not factored into the research design.

As a result, the first step in creating a research-ready database is to assemble data from each of the different places where it currently resides. Three distinct problems are likely to arise in the course of that activity: data format, data quality, and data access.[35]

- Data format

The form in which public agencies as well as non-governmental entities such as CDCs maintain their data varies widely. At one end, one finds agencies that place their information online in readily accessible and downloadable format. At the other, some agencies still maintain information on paper. Many are in a middle ground, where the data exists in some electronic formats, but is not available online, and may not be adaptable for searching and analysis. Each data source must be evaluated, and a determination made whether it is feasible – and if so, at reasonable cost – to use the data from that source.

- Data quality

All databases contain errors and missing data. Any database that comes from any source must be scrubbed or carefully checked to correct erroneous entries and eliminate duplicate or unusable ones. This can be easy and quick, or difficult and time-consuming, depending on the quality of the initial data. Data quality can be a particular problem with data on interventions carried out by non-governmental entities, where the data may be incomplete and erratically gathered or entered into the organization's records. It may even be necessary to work with some organizations to help them set up systems in order to ensure that they consistently document the work they do, or routinely send information to a central data repository, so that it can be used for research and evaluation purposes.

- Data access

While the datasets used to measure neighborhood change are matters of public record, many agencies are reluctant to share information with people outside local government, and

[34] Moreover, while public agencies are usually subject to public records laws and must generally make their data publicly available, the same is not true of private nonprofit organizations.

[35] For more details, see *Neighborhoods by Numbers*, available from www.communityprogress.net in early 2017.

sometimes even with their co-workers in other departments. This is occasionally the case with property record or tax offices, but more often the case with police departments.

While it is possible to use open public records laws to force agencies to provide data, that is often counterproductive in terms of building an ongoing relationship; it is much better to try to get the agency to make the data available voluntarily. Once the basic ground rules for accessing and using the data have been agreed to, it is a good idea to create a data-sharing agreement that outlines those ground rules, to ease any concerns the agency may have about use of and access to the data, and to ensure continuing access to the data in the future.

2. *Ensuring the data meets technical standards*

In order to both conduct and present research on interventions and neighborhood change, a researcher will need to have the data organized in a way that will enable her to compare the different metrics, to analyze them in a variety of ways, and to present the data and the research findings through tables, charts, graphs and maps.

To be research-ready, all datasets need to meet three fundamental criteria:

- The data should be in a consistent format that can be easily manipulated;
- All datasets should use consistent property or spatial identifiers;
- All datasets should be converted to shape files or the equivalent so that they can be used to generate maps.

Any organization putting together a research-ready data base should have a knowledgeable data person working with them, to ensure that the data is properly organized. Fortunately, the skills needed for that task are widely available. Most graduate students and many undergraduates in fields such as planning, geography, or economics have these skills, as do individuals working in the IT and related fields.

3. *Managing the database*

Neighborhood conditions change constantly, and data changes with them. Houses continue to be demolished or rehabilitated, community gardens created or abandoned, and so forth. While a one-shot effort to create a research-ready database of neighborhood conditions and interventions can serve to support a single research project at that moment, the value of the database is far greater if it can be used for multiple research projects as well as other types of analysis and evaluation activities over time. In order for that to be possible, the database needs to be actively managed.

- Updating the database

All neighborhood condition data is time-sensitive. The single most important task in managing a database is making sure data is regularly updated, so that practitioners and researchers can access the most recent data on what is happening in the neighborhood, as well as the most up-to-date inventory of interventions. Much of this is not difficult. Once one has identified the data sources, and worked out whatever arrangements may be needed for access, updating data and integrating it into the database is a straightforward technical task. At the same time, without someone who has the clear responsibility for doing so on a regular basis, it will not happen.

Updating parcel survey data may be more difficult. Data on building conditions and vacant properties can only be reliably updated by conducting a new field survey. Having such a survey done every 3 years or so, either citywide or for key target neighborhoods, is valuable, but may not be within the reach of some communities. At a minimum, however, data that is already being gathered by third parties should be updated regularly.

- Adding to the database

When beginning the process of developing a research-ready database, it may be possible to obtain some datasets and not others, whether because of access or technical problems. An important element in managing a database is the process of regularly checking on the availability of additional datasets, and adding them into the database for future use.

- Creating an online, interactive resource

By making data publicly available on a website, the entity involved in assembling the database can not only make it available to a wider range of researchers, but create a tool that has value to local government, other nonprofit and community-based organizations, and concerned citizens. Ideally, such a web site should include a variety of features, including:

- Ability to access data for individual parcels
- Ability to download parcel data spreadsheets
- Ability to aggregate data on a block and other area basis
- Ability to map data

Strictly speaking, much of this may not be necessary for researchers, who are likely to have their own tools for doing these tasks. The value of creating such a resource, beyond simply posting downloadable database information, is for the community.

IV. UNDERSTANDING RESEARCH METHODS: KEY ISSUES FOR PRACTITIONERS

While practitioners can benefit from research findings in many different ways, they must be able to trust the research findings, and feel confident that the findings indeed answer the questions that have been posed. That is not a simple issue. There is a vast communication gap between researchers and practitioners, particularly those doing quantitative research. Such research is highly technical, uses terminology and methodologies that are difficult for even highly educated individuals not specifically trained in the field to fully understand. As a result, some people may respond by distrusting *all* research, while others may unquestionably accept research findings (especially if they are consistent with one's prior expectations or desires) at face value even though the research behind them may be weak or biased.

Neither stance is desirable. Good research is valuable, but not all research is good research. The purpose of this section is to provide a short introduction to some key research issues and principles, to enable practitioners to understand how serious researchers operate and how to evaluate their work. While some of this information may be considered quite basic, we have included it because it is particularly important, even though it may already be familiar to some readers.

This section, as is true of most of the guide, focuses on *quantitative* research; research that utilizes large bodies of quantitative, that is, numerical information, and analyzes it through a variety of statistically based methods. While quantitative research requires judgment in analyzing and interpreting the findings, the findings themselves are generated by the statistical methods applied to the data.

A. WHAT IS GOOD RESEARCH?

"Good research" is a commonsense concept, not a technical term. We use it to describe research that is well-though-out, well-grounded, and where a reader or practitioner can have a reasonable level of confidence that the findings are supported by solid evidence. For a research study to be considered good research, it should follow a series of clearly defined steps.

1. *Framing the question to be asked*

The purpose of research is to answer a specific question or questions. The question can be as broad as "is the Earth's climate changing?" or as specific as "Does eating peanut butter reduce the risk of stroke?"[36] Within the general question, there can be a series of subordinate questions;

[36] Based on a fair amount of research, quite possibly.

for example, if one is exploring the effect of demolition, one might phrase a series of potential questions and sub-questions. The overall question might be as follows:

- Does the demolition of blighted properties have a significant effect on the neighborhood housing market (or other neighborhood) conditions?

Note that we are not asking "Does demolition *improve* neighborhood conditions?" That presupposes a particular answer. We are asking, instead, whether demolition has an *effect;* it may be positive, it may be negative, or there may be no effect. Clearly, if we are planning a demolition program, we would *like* it to have a positive effect, but the nature of research is that one does not know the answer beforehand. We also want to know if the effect is *significant*; that term has a particular meaning in statistics, which we will discuss below.

Some of the sub-questions we might want to ask could include:

- Does the effect of demolition vary with the *number* of demolitions in a block (or other defined area)?
- How does the effect of demolition vary with *distance* from the intervention (the property that has been demolished)?
- Does the effect of demolition last *over time*, or does it disappear within X months or years after the intervention? And if it lasts, for how long?
- Does the effect of demolition vary depending on *characteristics of the neighborhood*; for example, is it different in areas with varying house prices, incomes or other factors?

Answers to all of these sub-questions are potentially useful to practitioners. Whether they can reasonably be answered by a research study, however, will depend on a variety of factors, including how many interventions have taken place what data on neighborhood change metrics can be obtained, and over what time periods. As a general rule, the larger the database of interventions, the more questions can be asked about it.

2. *Developing a hypothesis*

Once you have the questions in mind, it is important to have a *hypothesis*; specifically, a logical rationale for the relationship that you believe exists. It involves asking a second question; in the above example, the question could be *why should* demolition have an effect on neighborhood conditions? Framing a hypothesis is a way of trying to answer that question. If one cannot frame a credible hypothesis to stand behind the research question, one may be asking the wrong question to begin with. In the demolition case, however, there may be a number of credible hypotheses that might support research around the question, including:

- The presence of vacant properties undermines the confidence in the neighborhood that is critical to the existence of a strong housing market; removing them will increase confidence and housing market strength. Thus, sales prices can be seen as a proxy for consumer confidence.

- The presence of vacant properties increases the risk of crime; removing them will reduce criminal activity.

In both cases, these hypotheses have an underlying basis in previous research on the effect of vacant properties, which adds credibility to the proposition that the removal of vacant buildings will have a positive effect on these measures of neighborhood strength.

3. Assembling solid data

Having the right data to do sound research is critical. While we have discussed data in detail in the preceding section of this guide, it is worth noting that there is something of a circular relationship between the research question, the research data, and the research method. The nature of the question being posed will suggest what data is needed to answer that question; ultimately, however, the data that can be obtained may affect what questions can be answered. A good example is time series data. If one only has data for the year before and the year after the intervention, the questions one can answer are likely to be much more limited than if one has data for five years before and five years after the intervention. The availability of data may also affect the choice of research methodology as well.

4. Designing an appropriate research design

Once a researcher has identified the questions and hypotheses that he or she wants to test, and determined what data is available to use to that end, the researcher must develop a research design to determine the most appropriate research method to answer the questions, and how the data must be organized and analyzed to meet the requirements of that research method. Sophisticated researchers have a wide variety of quantitative methods with which to try to answer research questions and analyze data. The central challenge is to make sure that the research design is an appropriate way of answering the question being posed, and that whatever its findings, they will indeed relate directly to the intervention being studied.

Perhaps the most trying challenge with framing a sound research design in neighborhood research is separating the signal from the noise[37]; that is, singling out the particular intervention that one is trying to evaluate (the signal) from all the other things going on in the neighborhood at the same time (the noise). While it is impossible to control for everything going on, there are

[37] While Nate Silver did not invent the phrase, his book, *The Signal and The Noise: Why So Many Predictions Fail – But Some Don't* (2012) is well worth reading for its insights on the forecasting process, which is closely related to the research issues discussed in this guide.

a number of ways researchers address this issue, which will be discussed in the next part of this section.

5. *Analyzing and interpreting the data*

The final step, short of writing up the report or research paper, is the analysis of the data. A study of the effect of an intervention on a neighborhood will generate a good deal of data, which the researcher must analyze in order to determine which data is significant and what that data means. The terms "significant" or "statistically significant" in quantitative research have a specific meaning; namely, that *the probability that a particular relationship found in the data is the result of chance is at or below a certain level*. Thus, a researcher might write that "the relationship between demolition of a building on a block and the decline in crime on that block is significant at the 90% level." That means that the analysis found that the probability that that relationship was the product of chance was 10% or less, and that the likelihood of a non-chance or meaningful relationship between the two variables was 90% or greater. In practice, a 10% likelihood that a relationship is the product of chance is not considered a particularly strong finding; most researchers look for relationships where the probability of their being a product of chance is much smaller.

Once the researcher has identified the significant findings, she must also interpret them in light of the initial hypotheses that formed the starting point for the study. At this point, interaction between the researcher and practitioner can be valuable, because a knowledgeable practitioner may be able to offer valuable insights with respect to the context of the effects that have been measured as well as possible interpretations of the findings, all of which can add value to the research.

B. LOOKING AT RESEARCH METHODS

Neighborhoods are complicated things and are constantly changing. It is difficult to isolate the effect of a particular intervention, such as demolition or rehabilitation of vacant houses, from the other things taking place in the neighborhood at the same time. This problem has occupied quantitative researchers for many years,[38] and as a result, a body of sophisticated tools has been developed to address these concerns. While this section will not address specific research methodologies, it will provide an overview of some of the basic ways in which relevant quantitative methods are used in this work.

Given the many factors constantly affecting a neighborhood's trajectory, the critical research task is to isolate out the effect of the intervention being studied from the other factors. In other words, one must find a way to control for the other factors. The principal method by which

[38] The basic principles of regression, the statistical concept that underlies most contemporary quantitative tools, go back to the work of Sir Francis Galton in the late 19th century, and even more, that of Karl Pearson early in the 20th century. For an overview, see http://www.amstat.org/publications/jse/v9n3/stanton.html

researchers do so is known as *regression analysis*.[39] There are many different version of regression analysis that are available, and from which researchers can select the most appropriate one for any particular analysis.

While one cannot control for everything, one has to be careful to control for things that clearly could affect the results. For example, let us assume we want to study the effect of community gardens on house prices in a particular area. We believe, based on prior research, that there is a relationship between the two. We also know, however, that demolitions and housing rehabilitation are also likely have an effect on house prices in the area. Thus, if we have an area where three community gardens have been created, six houses have been rehabilitated, and four houses demolished, and we fail to take the rehabilitations and demolitions into account, the relationship we think we find between the community gardens and house prices may be *spurious*. In other words, what we think we see is not actually there, as the impact may actually be caused by something else. These additional factors are sometimes referred to as *confounding factors*.

In looking at neighborhood interventions, one also has to factor in another critical element, which is known as *selection bias*. As a rule, the decision to target a particular neighborhood or block for intervention, whether rehab, demolition, or something else, is not a random one. Somebody, whether a city official, state official, CDC director, or someone else, made a decision that that particular location was an appropriate place for that intervention, meaning that an intervention in that area is more likely to "work." Sometimes, the decision is based on data, and sometimes it may be based on gut judgement, but either way, it is not random.

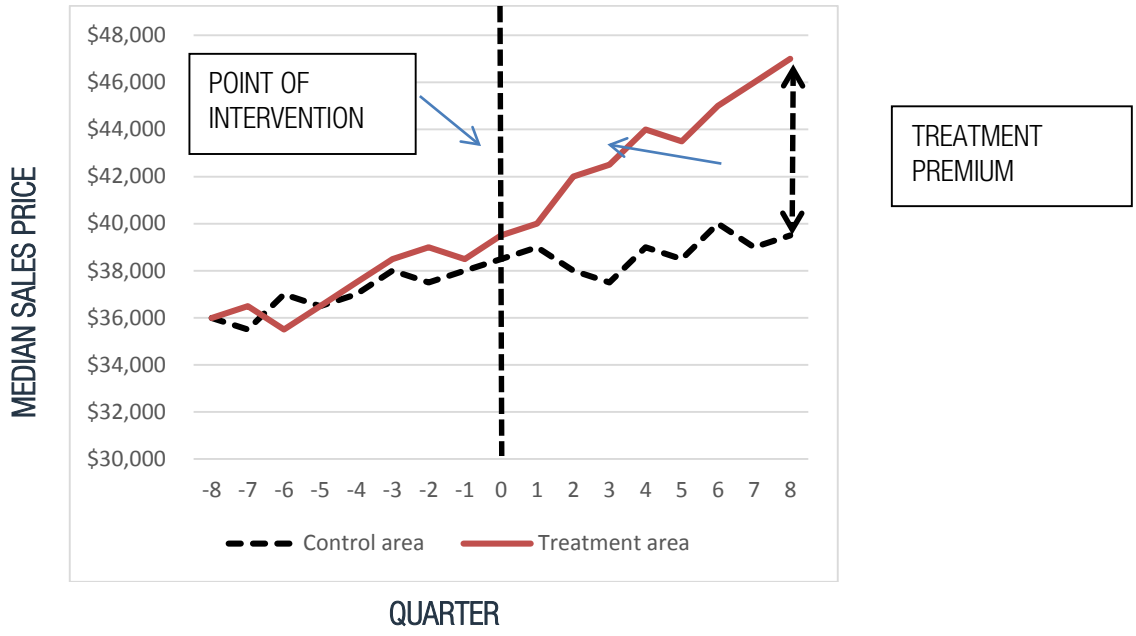
This is important, since the most fundamental way we evaluate the impact of an intervention is by comparing two different areas, the one where the intervention took place (known as the treatment area), and another, which received no such intervention (known as the control area). Thus, it becomes extremely important – and difficult – to select control areas that are truly comparable to use as counterfactuals. This is similar to medical research, where it is critical to make sure that the characteristics of the control group – who get the placebo – are closely matched with those of the group that gets the experimental medication. If one group is significantly healthier, or younger, or thinner than the other to begin with, the results are likely to be skewed. It may be desirable to use different blocks or even block faces in the same neighborhood as the control areas, rather than try to match different neighborhoods with one another. Either way, it is critical to be as careful as possible in matching treatment and control areas.

Neighborhood research must also address the time dimension. Every intervention has a "before" and an "after." Since it is often difficult to pinpoint a specific date, research may look at the

[39] Two good introductory pieces on regression analysis available on line are Amy Gallo "A Refresher on Regression Analysis" in the Harvard Business Review, available at https://hbr.org/2015/11/a-refresher-on-regression-analysis; and, at a somewhat more advanced level, Alan O. Sykes, "Introduction to regression analysis", available on line at http://www.law.uchicago.edu/files/files/20.Sykes_.Regression.pdf. The latter was written for law students, who are well-educated (and presumably reasonably well-versed in numbers) but who generally do not have specific training in statistics or econometrics,

quarter or even the year in which the intervention took place. Here, too, it is important to have data in enough depth that one can be confident one is measuring change associated with that intervention, rather than something else. The more points in time that one can have data for, the more meaningful the trend, and the more likely that variations between a treatment and control area are linked to the intervention. The basic approach is shown graphically in Figure 1. Figure 1 shows the change in median sales price for houses in a hypothetical treatment area and a control area over 2 years before and 2 years after the intervention.

FIGURE 1: HYPOTHETICAL CHANGE IN SALES PRICE OVER TIME ASSOCIATED WITH AN INTERVENTION



The figure shows a significant difference in the trajectories of the two areas after the point of intervention, which – assuming the research design has done a good job of controlling for other factors and matching the two areas – is likely to be attributable to the intervention.

As we suggested earlier, however, we may want to ask questions that go beyond simply whether the intervention had an effect. Three issues in particular are likely to be of value to practitioners:

- How does the effect vary with the *number* of interventions in a defined area?

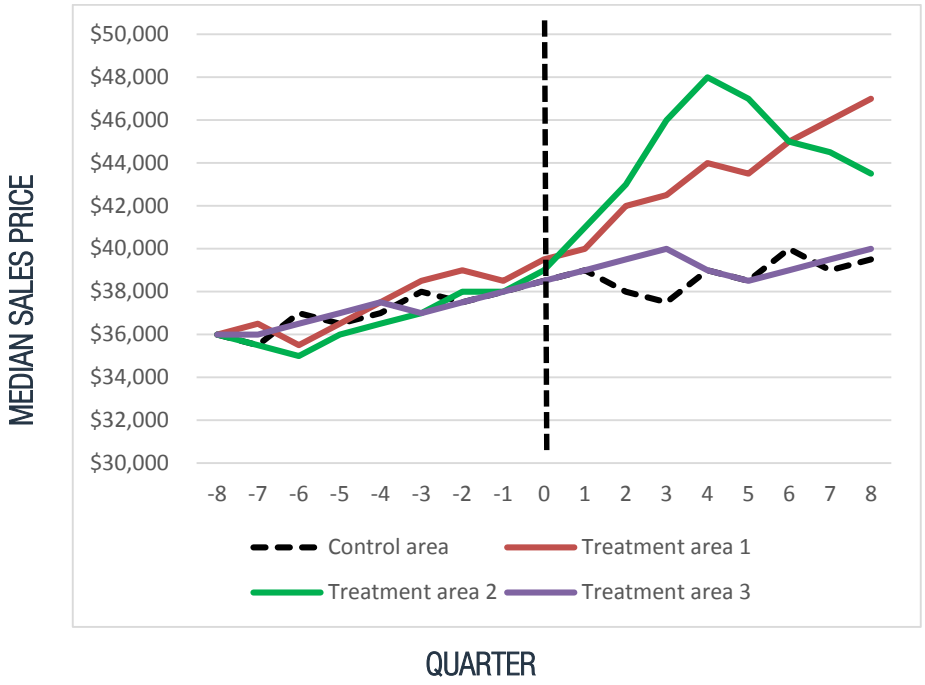
It is important to know whether impacts are *linear* or non-linear, and in what fashion. Linear means 'in a straight line'. A lot of research has established that vacant, abandoned properties on a block reduce the value of the other properties. If the effect were linear, for example, one vacant property on a block might reduce values by $2,000, two by $4,000, three by $6,000, and so forth. A 2001 research study in Philadelphia found, however, that the effect is *non-linear*.

They found that one vacant property on a block reduced the value of the other properties by $6468, but *four* vacant properties reduced the value of the other properties by $8197.[40] In other words, it's the first vacant property that does the most damage. It is possible, but we don't know, that the effect of property interventions is also non-linear. It may be that the first intervention has the most impact; alternatively, it may be the opposite - that interventions have little impact until one gets to a critical mass. We don't know. It is important for practitioners to know this information in order to be able to plan responsibly.

- Does the effect of the intervention last *over time*, or does it disappear within X months or years after the intervention? And if it lasts, for how long?

This is another important question we don't know enough about. As we mentioned earlier, we don't know whether certain interventions create a "Hawthorne effect," where the condition being measured – whether crime, house prices, tax compliance, or something else – quickly reverts to its earlier state, or whether they are creating long-term impact. This is important to know, because the duration of the impact has a direct bearing on the relationship between the cost of the intervention and the benefit to the community and thus whether it makes sense as a community investment.

FIGURE 2: HYPOTHETICAL CHANGE IN SALES PRICE OVER TIME ASSOCIATED WITH AN INTERVENTION IN THREE DIFFERENT TREATMENT AREAS



[40] Blight-Free Philadelphia, a collaboration between the Eastern Pennsylvania Organizing Project and the Temple University Center for Public Policy (2001), available at https://astro.temple.edu/~ashlay/blight.pdf.

Figure 2 illustrates what a study that looked at this question might find. Here we have three treatment areas, showing three different responses to the intervention. Area 1 (red) shows sustained change over time; Area 2 (green) shows a short-term impact, with rapid decline; while Area 3 (purple) shows no impact. This question highlights how important it is to have data that covers a long enough time span so that one can actually tell how the effects of the intervention may change over time.

- Does the effect of demolition vary depending on *characteristics of the neighborhood*; for example, is it different in areas with varying house prices, incomes or other factors?

Finally, the same intervention may well have a different effect in different areas, depending on the features of each area, such as incomes, housing types, house value, tenure (owner vs. renter), etc. We know a little, but far from enough, about this question. For example, one study found that community gardens have a positive impact on house prices in low-income areas, but none in more affluent areas.[41] That study, though, did not distinguish between low- and moderate-income areas; another study of greening found positive effects in moderately, but not severely, distressed areas.[42] If we know how the impact of different interventions is likely to vary on the basis of neighborhood characteristics, practitioners can then begin to pinpoint more precisely where to target different interventions. One might find, as shown in Figure 2, that a neighborhood of a certain type would exhibit one of the treatment patterns shown, and an area of a different type would exhibit a different pattern. It is likely to take a great deal more research before we will be able to identify the relationship between neighborhood characteristics, intervention type, and impact over time, with any real clarity.

In practice, each research project ends up being something of a compromise between the desire to answer a series of questions and the constraints imposed by the limitations of the available research methods and the available data. While researchers are constantly coming up with better ways to squeeze meaning out of data, the fact remains that a solid body of data is needed to answer *any* question, and the more detailed the questions, the more and better data is needed to be able to answer them. This can be a particular problem in a setting where there are only a small number of interventions to measure, since without enough cases, it may not be possible to answer even straightforward questions in ways that will yield statistically significant answers.

A responsible researcher will be able to evaluate the number of cases and the availability and quality of data on the interventions and the neighborhood characteristics, and then work with a practitioner to determine which of her questions can be answered and to what extent.

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[41] Voicu and Been 2008

[42] Heckert and Mennis 2012

V. CLOSING NOTE

No research project will provide a practitioner with a magic bullet to finding the right strategy to revitalizing a neighborhood or eliminating vacant properties, yet good research conducted through collaboration between scholars and practitioners, and combined with the insights of practitioners and community residents, can make a major difference. It can help practitioners decide where to target resources, determine which areas are most appropriate for which interventions, and come up with more productive, cost-effective results. We hope that this guide will help encourage such collaborations, and in the bargain, lead to more effective property interventions by local governments and NGOs, and more successful efforts to stabilize and revitalization our urban and suburban neighborhoods.

VI. DEFINITIONS

Throughout this guidebook, we use a number of terms from the world of research that some readers may not be familiar with, or which in some cases have multiple meanings in different contexts. The definitions below explain how we use these terms in the guidebook, and may be useful to the reader.

Collective efficacy

A term coined by sociologist Robert Sampson to describe a neighborhood condition he characterizes as "social cohesion combined with shared expectations for social control." It measures the ability of the residents of a neighborhood to maintain cohesion and enforce neighborhood norms through informal means, as contrasted with external, formal structures such as policing; Sampson and his colleagues have developed ways of measuring collective efficacy, which has powerful relationships with violent crime incidence.

Confounding factor (or variable)

A factor or variable in a statistical analysis that correlates with the variables one is studying, in a way that it is actually responsible for the apparent – but not actual – correlation between the variables one is studying.

Hawthorne effect

The "Hawthorne effect" comes from a series of studies designed to measure the change in industrial productivity when working conditions were changed at the Hawthorne Western Electric plant in Cicero, Illinois, in the late 1920s and early 1930s. The researchers found, however, that productivity increased not only when lighting was increased, but also when it was diminished, as well as similar findings with respect to other working conditions. Changes in productivity were not a function of the substance of the change, but of the mere fact of change, and the fact that the workers were aware that they were being observed. The changes in productivity, however, were short-term and not sustained.

Hypothesis

A proposition, based on reasoning or limited evidence, explaining a phenomenon or a potential relationship, which is framed in such a way that it can be tested scientifically.

Intervention

An activity carried out with the goal of changing – usually improving – the condition of a group or people or an area, such as a neighborhood. Although interventions can involve people as well as property, this report look exclusively at property interventions

Linear

Literally, straight line. A linear relationship between two variables is one where if one variable changes, the other changes by the same amount or proportion. A graph of a linear relationship will be a straight line.

Metric

A piece of data or a dataset that is being used to measure something.

Neighborhood

While neighborhoods are complex entities, most research uses smaller standardized areas known as census tracts or census block groups to measure the effect of interventions, because of the availability of social and economic data for those areas. For further detail, see *Neighborhoods by Numbers*, available in early 2017 from www.communityprogress.net.

Non-linear

A non-linear relationship is where (in contrast to a linear relationship) as one variable changes, the other also changes, but not to the same amount or proportion. A graph of a non-linear relationship will be a curve.

Proxy

A metric that is being used to indirectly measure something, where a direct measurement is not available or feasible; for example, using data on property tax delinquency as a proxy for property owners' commitment to the neighborhood.

Quantitative research

A formal, objective process that uses the analysis of numerical values to obtain information to answer a particular question.

Qualitative research

A less formal, more subjective research process that is used to obtain information and insight into the underlying reasons, opinions, and motivations associated with a particular question.

Regression

Any of a suite of statistical procedures used to measure the relationship between a dependent variable and more than one independent variables. For example, if one is trying to measure the

effect of demolition on house prices, the house price is the dependent variable. Demolition is one of many potential independent variables that may affect house prices; regression is used to separate out the effects of individual independent variables (in this case demolition) on the dependent variable.

Sample

A smaller number of people, properties, etc., that are used to represent the entire population or universe being studied. In doing surveys, in particular, it is impossible to interview everyone in a city or neighborhood, so a sample of the population is selected to be interviewed. It is critical that the size and composition of the sample are appropriate to represent the population being studied.

Selection bias

Selection of individuals or properties in ways that are not truly random, which can bias the results of any analysis. This is a frequent problem in studying interventions, because the people who make the decisions about interventions may choose the locations on the basis of their judgment about where they are likely to have the greatest impact.

Significance

The likelihood that a particular relationship found in the data is or is not the product of chance. Significance is specified in terms of the probability that the result is the product of chance; for example, a researcher might write that "the relationship between demolition of a building on a block and the decline in crime on that block is significant at the 90% level." That means that the analysis found that the probability that the relationship was the product of chance was 10% or less, and that the likelihood of a non-chance or meaningful relationship between the two variables was 90% or greater.

Trajectory

A direction of movement; in this report, referring to the direction in which the neighborhood is moving with respect to one or more social or economic variables.

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